Submarine fiber optic cable landings at Makaha & Sandy Beach

DEPARTMENT OF LAND UTILIZATION

CITY AND COUNTY OF HONOLULU

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96/SV-004(DT)
96/SV-005(DT)
96-05751

September 26, 1996

The Honorable Gary Gill, Director
Office of Environmental Quality Control
220 South King Street, 4th Floor
State of Hawaii
Honolulu, Hawaii 96813

Dear Mr. Gill:

CHAPTER 343, HRS
Environmental Assessment/Determination
Finding of No Significant Impact

Recorded Owners:		State of Hawaii (Keawaula) and City and County of Honolulu (Sandy and Makaha Beaches)
Applicant	:	GST Pacwest Telecom Hawaii, Inc.
Agent	:	R.M. Towill Corporation
Location	:	Sandy Beach, Makaha Beach, and Keawaula, Oahu
Tax Map Keys	:	3-9-12: por. 02, 3-9-10: por. 03, 8-4-01: por. 12, and 8-1-01: por. 18
Request	:	Shoreline Setback Variances
Proposal	:	To install fiber optic cable landing sites at the above locations using existing GTE Hawaiian Tel manholes and ductlines
Determination	:	A Finding of No Significant Impact is issued

Attached and incorporated by reference is the Final Environmental Assessment (FEA) prepared by the applicant for the project. Based on the significance criteria outlined in Chapter 200, State Administrative Rules, we have determined that preparation of an Environmental Impact Statement is not required.

The proposal at Sandy Beach is exempt from Chapter 25, Revised Ordinances of Honolulu, as the cable will be utilizing existing GTE Hawaiian Tel manholes and ductlines.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the FEA. If you have any questions, please contact Dana Teramoto of our staff at 523-4648.

Very truly yours,

PATRICK T. ONISHI
Director of Land Utilization

PTO:am
Encl.

g:feapacw.djt

1996-10-08-OA-FEA. Submarine fiber optic Cable Landing at Makaha : Sandy Beach

FILE COPY

PREPARED IN ACCORDANCE WITH REQUIREMENTS OF CHAPTER 343, HAWAII REVISED STATUTES

FINAL ENVIRONMENTAL ASSESSMENT AND FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Submarine Fiber Optic Cable Landings at Makaha Beach and Keawaula, Oahu

HAWAIIAN ISLAND FIBER NETWORK (HI FiberNet)

AUGUST 1996

PREPARED FOR:
GST Pacwest Telecom Hawaii, Inc.
91-238 Kalaeloa Blvd., Suite 100
Kapolei, Hawaii 96707

RMTC
R. M. TOWILL CORPORATION
420 Waiakamilo Road, Suite 411
Honolulu, Hawaii • 96817-4941
Voice: (808) 842-1133
Facsimile: (808) 842-1937

FINAL ENVIRONMENTAL ASSESSMENT AND
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PROJECT SUMMARY

Project:	Hawaiian Island Fiber Network (HI FiberNet)
Applicant:	GST Pacwest Telecom Hawaii, Inc. 91-238 Kalaeloa Blvd., Suite 100 Kapolei, Hawaii 96707 Contact: Mr. Robert Volker, General Manager Telephone: (808) 682-5123
Agent:	R. M. Towill Corporation 420 Waiakamilo Road, Suite 411 Honolulu, Hawaii 96817 Contact: Brian Takeda or Chester Koga Telephone: (808) 842-1133
Accepting Authority:	City & County of Honolulu Department of Land Utilization

PROJECT SITES

MAKAHA BEACH, OAHU

Tax Map Key:	8-4-01:12
Location:	Makaha Beach, Oahu
Owner:	Department of Parks and Recreation City and County of Honolulu 2015 Kapiolani Blvd. Honolulu, Hawaii 96817
Existing Land Uses:	Beach Park
State Land Use District:	Conservation
Development Plan Land Use Designation:	Park
County Zoning Designation:	P-2

PROJECT SUMMARY
Continued

KAWAULA, OAHU

Tax Map Key:	8-1-01: 18
Location:	Keawaula, Oahu
Owner:	State of Hawaii Department of Land and Natural Resources P. O. Box 621 Honolulu, Hawaii 96809
Existing Land Uses:	Beach Park, Telecommunications Facilities
State Land Use District:	Conservation
Development Plan Land Use Designation:	Preservation
County Zoning Designation:	P-1

SECTION 1

INTRODUCTION

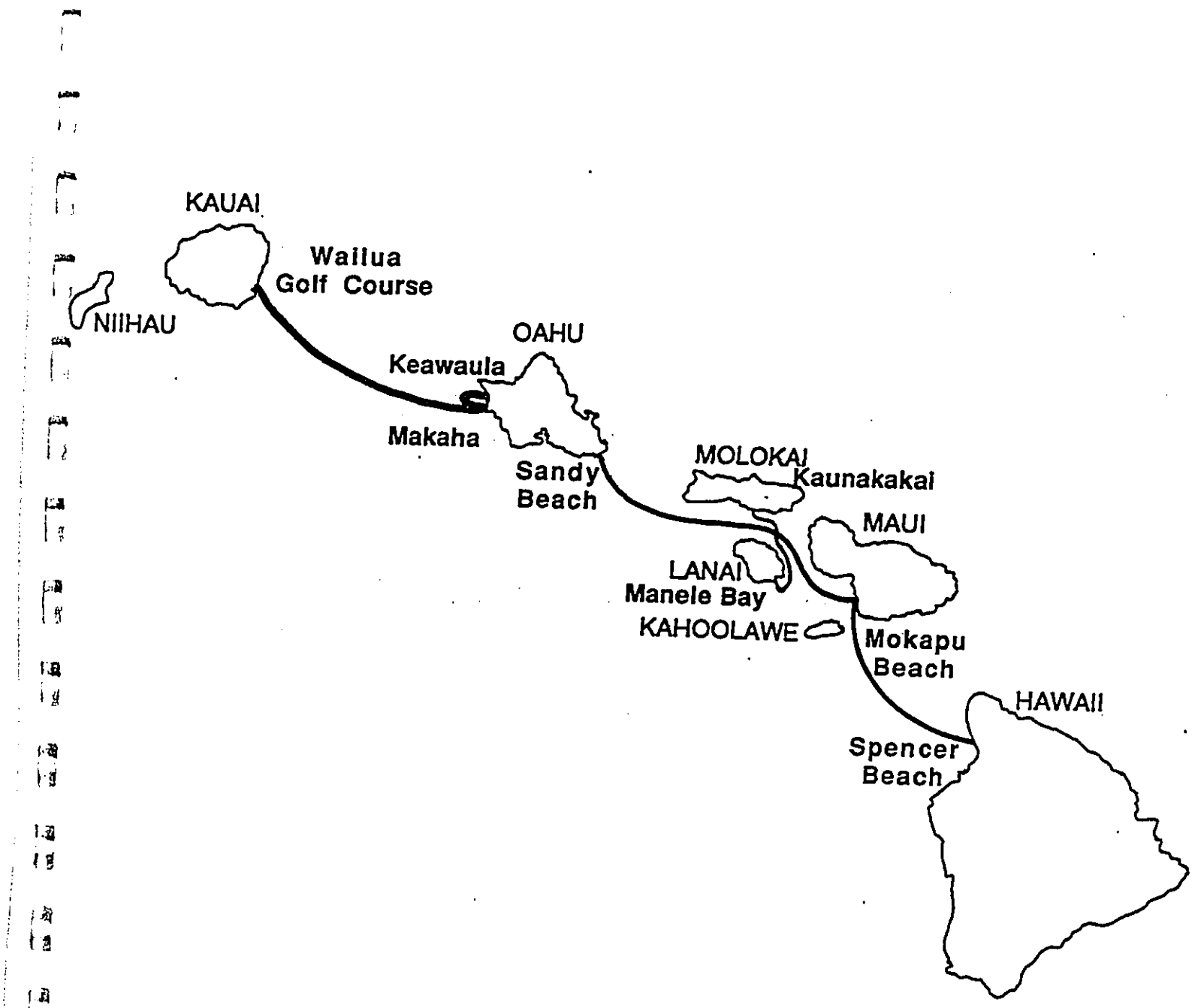
1.1 PURPOSE AND OBJECTIVES

GST Telecom Inc., is a competitive access provider (CAP) that builds and operates metropolitan area networks in the western United States including Hawaii. GST Pacwest Telecom Hawaii, Inc., a subsidiary of GST Telecom Inc., proposes to develop an interisland submarine fiber optic cable system which will link the Islands of Kauai, Oahu, Maui, Lanai, Molokai and Hawaii. The GST network will be largest in the State and the first to connect Molokai and Lanai with the other major islands.

In the early 1990's, GTE Hawaiian Tel installed the first interisland fiber optic cable system to enhance its existing interisland radio system. Information for this environmental assessment is derived from earlier reports written for GTE Hawaiian Tel by R. M. Towill Corporation (*January 1993, Environmental Assessment for the GTE Hawaiian Tel Interisland Fiber optic Cable System; Wailua Golf Course Kauai; Sandy Beach Park, Oahu; Mokapu Beach, Maui; Spencer Beach Park, Hawaii).*

The proposed system will include three interisland submarine cable segments with eight landing sites (**Figure 1-1**). The main system will include a 24 strand fiber optic cable with linkages between Wailua Golf Course, Kauai, and Makaha Beach, Oahu; Makaha Beach to Keawaula, Oahu; Sandy Beach, Oahu, to Mokapu Beach, Maui; and, Mokapu Beach to Spencer Beach, Hawaii. On the Sandy Beach to Mokapu Beach segment, two branching units comprised of up to 8 fiber optic strands will "Branch" off from the main line to connect to landings at Manele Bay, Lanai, and Kaunakakai, Molokai.

GST is currently in the process of requesting joint use of GTE Hawaiian Tel manholes / ductlines to land and connect the terrestrial portion of its interisland portion of the fiber optic cable system for the



Not to Scale

Figure 1-1
HAWAIIAN ISLAND FIBER NETWORK

GST Pacwest Telecom Hawaii, Inc.
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Sandy Beach, Mokapu, and Spencer Beach landing sites. The Makaha Beach and Keawaula landing sites will utilize existing AT&T facilities. The Manele Bay and Kaunakakai landing sites will require installation of new cable langing facilities.

The purposes of the proposed project are as follows:

- To provide the public with a viable, alternative to interisland telecommunication service that is now provided only by a single vendor. It is anticipated that additional competition will result in higher quality and competitive pricing which will benefit the public;

- Fiber optics will allow GST Telecom Inc. to replace and enhance service now provided through microwave towers which have limited bandwidth capacity to serve customers. A fiber optic linkage has higher capacity bandwidth which would allow use of high technology services such as telemedicine and real time videotrafficing; and

- To provide redundancy to the existing interisland fiber optic system in the event of system failure or damage to the system.

1.2 PROJECT LOCATIONS

Makaha Beach, Oahu

The proposed landing site for the Oahu to Kauai segment of the submarine interisland fiber optic cable system is Makaha Beach. Makaha Beach is located along the Waianae coast of the Island of Oahu (**Figure 1-2**). Facilities at the park include a comfort station, lifeguard station and picnic tables located at various points along the beach. The beach slopes to the water's edge at approximately 5 percent. There are no structures on the beach. The average width of the beach (shoreline to roadway) is 240 feet.

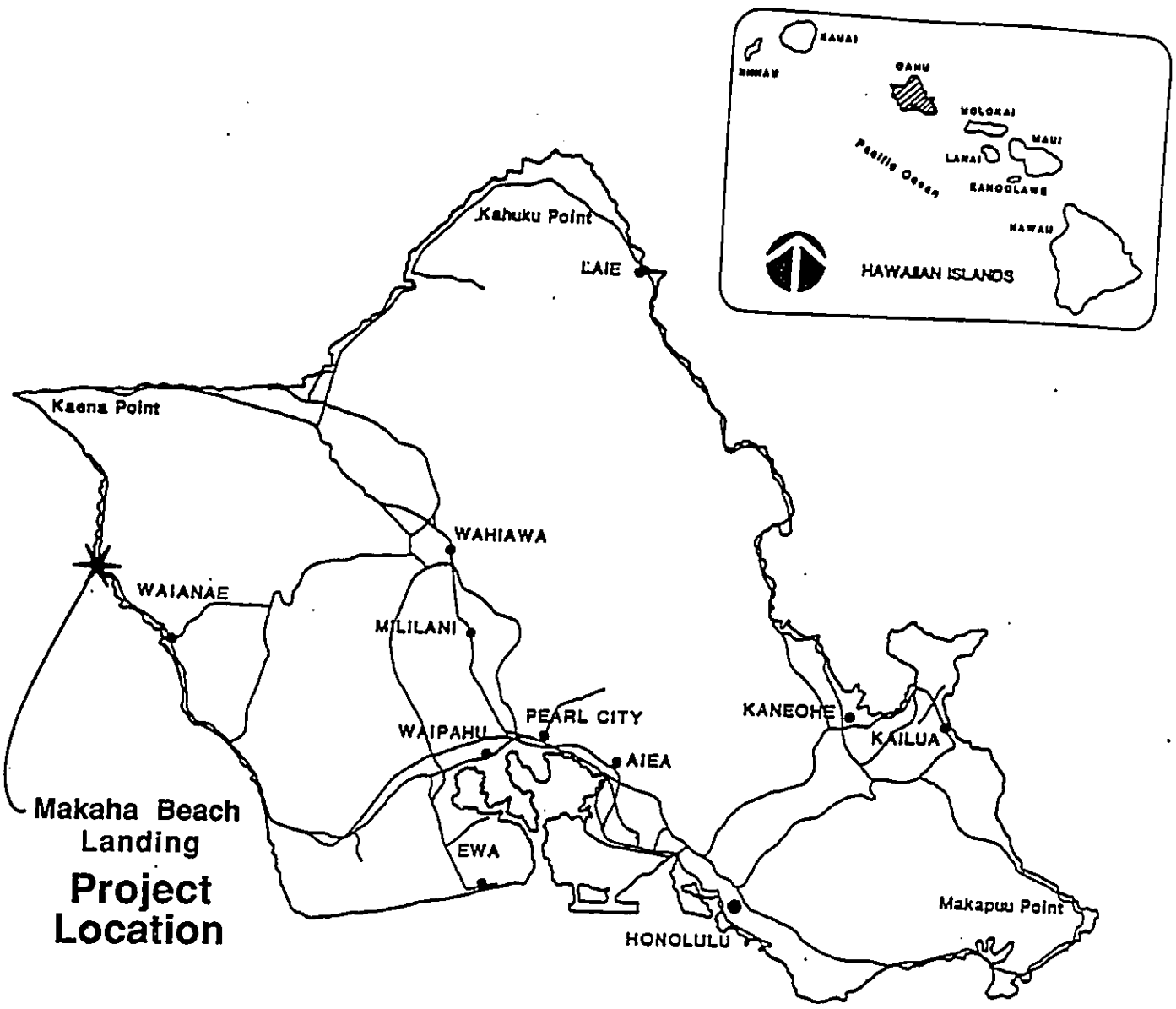

Figure 1-2
LOCATION MAP
Makaha Beach, Oahu

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Makaha Beach already serves as a cable landing site for six transpacific cables and two local service cables. These cables are distributed among four easements (**Figure 1-3**). The first transpacific cable was landed at Makaha Beach in 1964 with additional cables being added in 1972, 1974, and 1975. During the cable installation a trench was created for the purpose of laying the submarine cables. The proposed cable will be laid across lands that are owned by the State of Hawaii (seaward of the shoreline) and the City and County of Honolulu, and will be laid within an existing cable easement. The proposed landing site at Makaha Beach will utilize existing AT&T facilities.

Keawaula, Oahu

Once the fiber optic cable is landed at Makaha Beach, it will be routed back undersea to a landing at Keawaula. Keawaula is located along the Waianae coast of the Island of Oahu (**Figure 1-4**). Keawaula already serves as a cable landing site for four undersea cables landed by AT&T and Teleglobe Canada (**Figure 1-5**). The first two cables were landed at Keawaula in 1963. These cables serve as part of the COMPAC cable system. In 1983, two additional cables were landed and serve as part of the ANZCAN cable system. Both COMPAC and ANZCAN cable systems link Hawaii with Canada, Fiji, Australia and New Zealand. The proposed landing site at Keawaula will utilize existing AT&T facilities.

The proposed project location is within a portion of the Kaena Point State Park. The beach slopes to the water's edge at approximately 5 percent. There are no structures on the beach. The beach zone (between the ocean and road) is devoid of trees. Portions of the area between the edge of the road and the beach is grassed. The width of the beach (shoreline to roadway) varies depending on the season with the average width being approximately 100 feet.

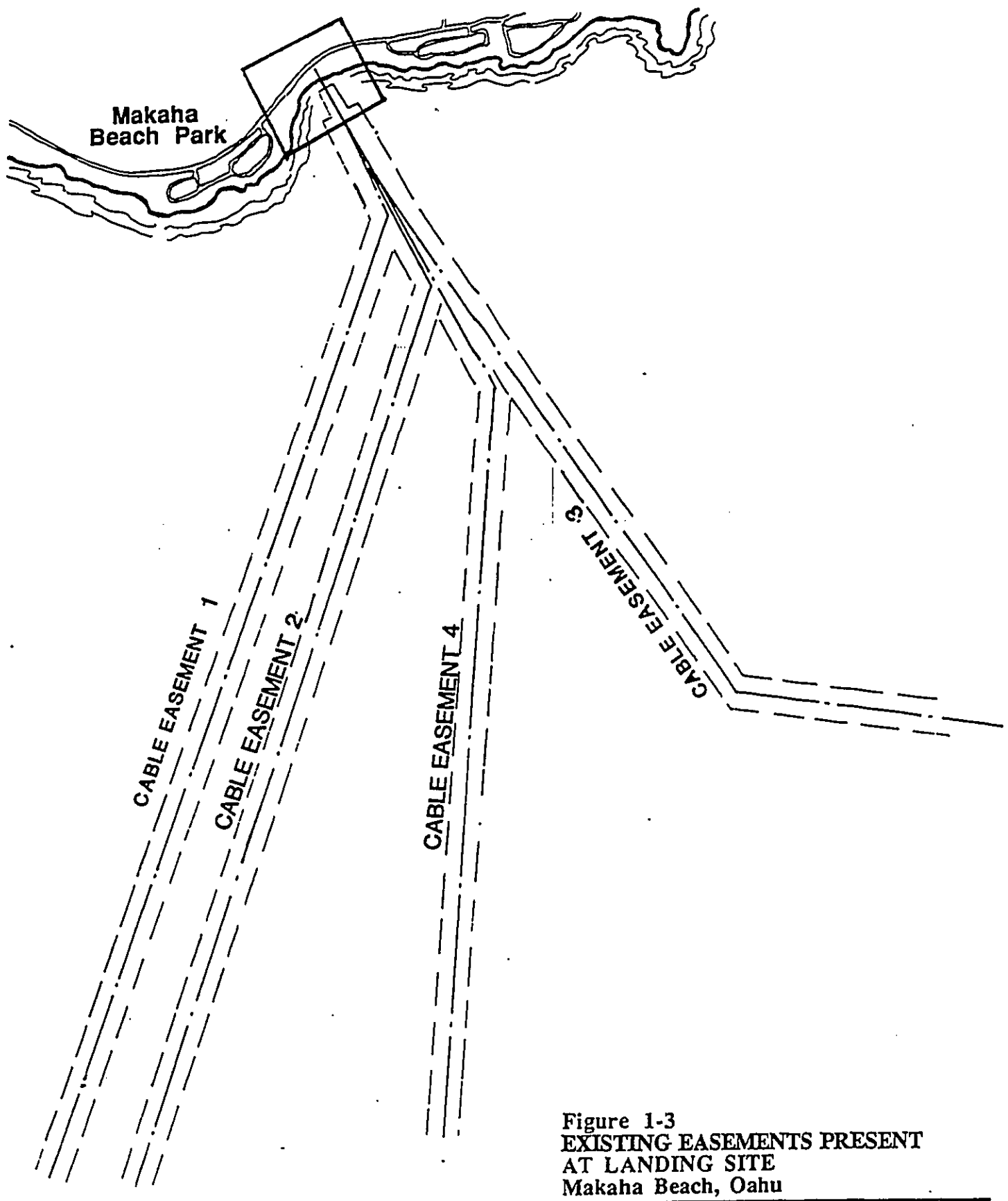

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Figure 1-3
EXISTING EASEMENTS PRESENT
AT LANDING SITE
Makaha Beach, Oahu

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* Note: More than 1 cable may occupy each easement

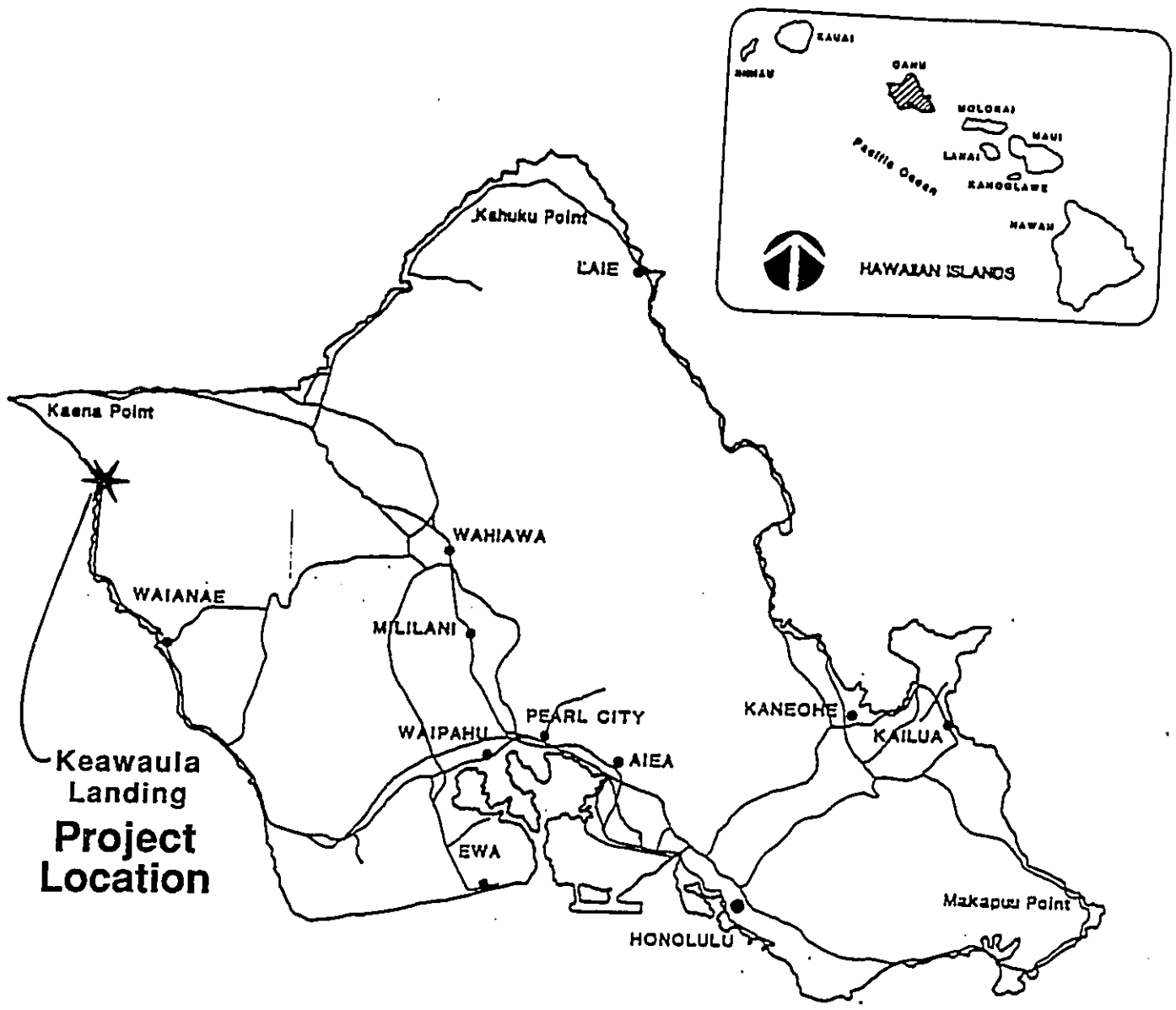

Figure 1-4
LOCATION MAP
Keawaula, Oahu

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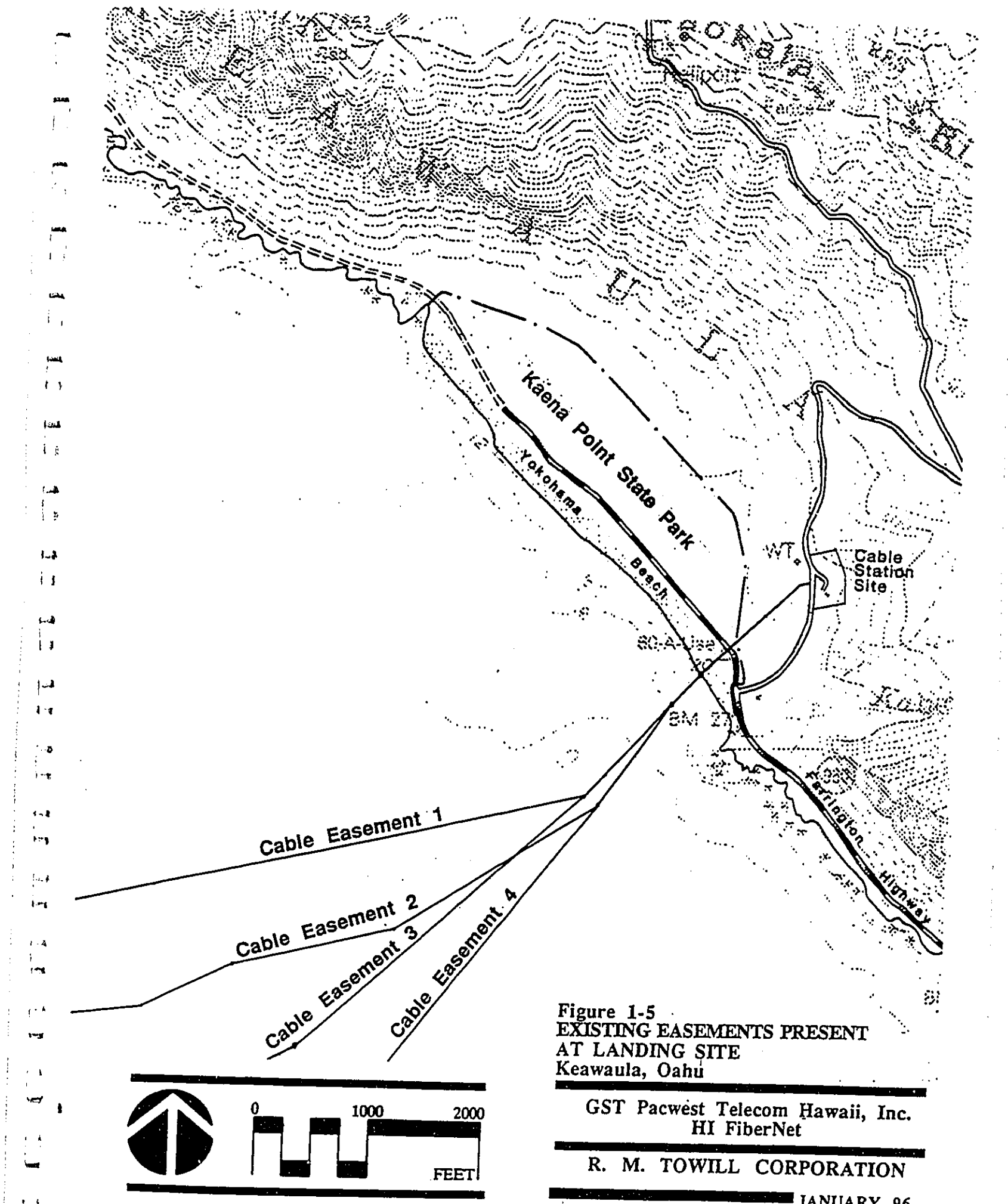

Figure 1-5
EXISTING EASEMENTS PRESENT
AT LANDING SITE
Keawaula, Oahu

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* Note: More than 1 cable may occupy each easement

SECTION 2
PROJECT BACKGROUND

2.1 CABLE TECHNOLOGY

The following is a discussion of existing telecommunication cable technology and how the determination was made to use fiber optics.

2.1.1 Copper and Fiber Optic Cables

The alternative to fiber optic cable is the use of copper wire cable. Copper wire cables function using a large number of plastic-coated copper wires housed within a plastic or synthetic outer casing. If necessary, steel or other protective materials are added to ensure strength and resistance to abrasion and breakage. In order to receive a voice transmission an electrical signal must be sent through a pair of copper wires to a receiver, where the electrical signal is converted back into sound. A typical cable, approximately 4 inches in diameter (without the outer protective casing), would house 600 copper wires with the capacity of approximately 3,600 voice circuits.

Copper wire cables require use of a repeater to boost electrical signals over long distances to ensure adequate signal strength at the receiving station. Repeaters are necessary every ±6,000 feet and require a high voltage power source to operate. Repeater dimensions for a 1,200 voice circuit will be approximately 1 to 2 feet in diameter by 3 feet long.

In contrast, fiber optic technology relies on the use of optical fibers and the transmission of light pulses which are converted into voice or data signals by the telephone company receiving station. The proposed fiber optic cable would contain approximately 24 fiber optic strands and would be housed in a plastic and steel casing no more than approximately 17 to 51mm in diameter (**Figure 2-1**). Like the copper cable, steel or other protective materials would be added as needed for strength. Each pair of fiber optic strands would be capable of handling approximately 8,000 voice circuits, for a combined total on the order of 88,000 voice circuits (2 strands = 1 pair, 24 strands = 11 pairs working plus 1 pair spare, and 11 pairs x 8,000 voice circuits = 88,000 voice circuits). In addition, in order for a copper cable to achieve the capacity of a fiber optic cable, it would have to approach a diameter of approximately 10 to 20 feet, would require repeaters, and a high-voltage power line in addition to the copper cable.

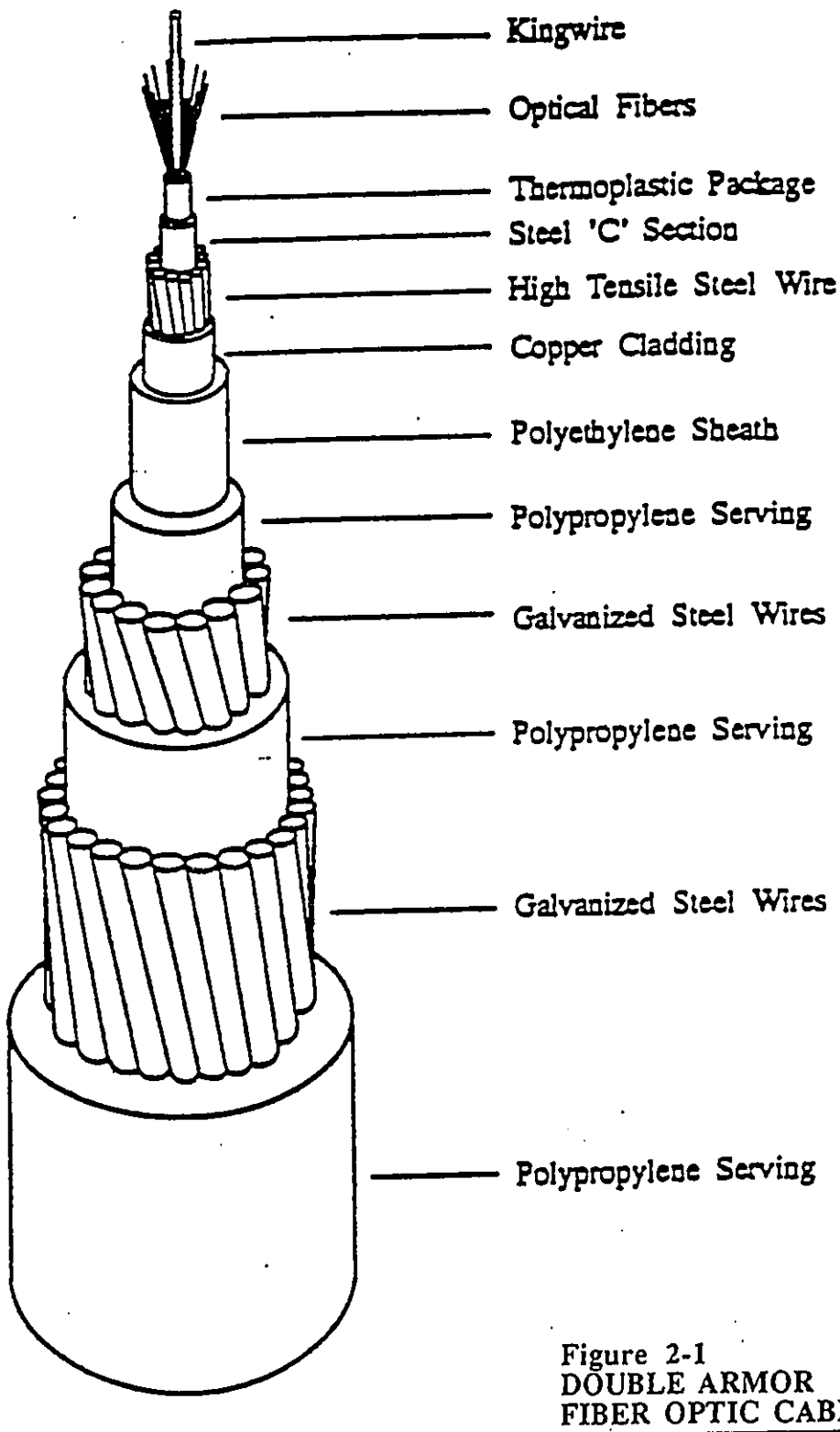

Figure 2-1
DOUBLE ARMOR
FIBER OPTIC CABLE

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A summary of reasons for selection of fiber optic technology includes:

- Fiber optic cables provide superior capacity and do not require high-voltage repeaters;

- The smaller diameter fiber cable ensures there will be minimal disturbance necessary to site the cable. There is less land needing to be graded, cleared and stockpiled in order to site a 17 to 51mm diameter cable.

- Sensitive areas that might otherwise be disturbed because of larger equipment, increased mobilization, and noise problems would be greatly reduced; and

- Length of time on site would be greatly minimized. Sensitive public or open space areas would not require a lengthy stay by the construction contractor and therefore would minimize potential hardships on beach users including swimmers, fishermen, surfers and other users.

2.2 SUBMARINE CABLE ROUTE

Most of the proposed alignment follows the previous route used by GTE Hawaiian Tel. The submarine cable route selection process involved identification of areas warranting study, based on a set of minimum evaluation criteria. The criteria included consideration of rapid erosion, giant landslides, drowned coral reefs, seismic activity, dumping areas, ship and airplane wrecks, other cables, and the length of routes.

In August 1991 a study was conducted by Seafloor Surveys International (SSI) to preliminarily identify an ocean route for the GTE Hawaiian Tel Submarine Fiber Optic Cable System. The route selected was one that minimized potential hazards to the installation, and eased maintenance and operation of the cable over a projected 25 year lifetime.

The following provides a detailed description of each of these criteria:

2.2.1. Rapid Erosion

The greatest danger to the cable system is in the submarine portion of the route as it is related to the geologically young age of the "Hawaiian Islands and the resulting extremely high erosion

rates. Rapid erosion places large volumes of unconsolidated sediment into the shallow waters surrounding the islands. These sediment deposits move rapidly down the steep island slopes when they become unstable. This down-slope sediment movement can be initiated by earthquakes, storm runoff, and storm waves. Installation of cables on steep, sediment-covered submarine slopes should be avoided if possible. Where these slopes cannot be avoided, the cable should traverse as directly up the slope as possible (SSI, August 1991)."

2.2.2 Giant Landslides

Over the past several years, mapping of the Hawaiian Exclusive Economic Zone by the U.S. Geological Survey through the use of the long range Gloria sonar system, a relatively low-resolution, reconnaissance sonar, has discovered a series of large landslides surrounding the Hawaiian Islands (Moore, et.al., 1989). "The primary danger presently posed to the cable by these inactive landslides is their extremely rough surface. The seafloor in the slide areas is known to be littered with huge volcanic boulders. These boulders have been observed from submersibles to often be the size of a house. These slide surfaces pose a serious threat by producing unacceptable cable spans where the cable is draped over individual blocks, as well as the possibility of having the cable getting tangled if it had to be retrieved for repair (SSI, August 1991)."

2.2.3 Drowned Coral Reefs

A series of drowned coral reefs surrounding the islands are considered dangerous to the fiber optic cable system. "Locally steep slopes associated with these reefs could cause unacceptable cable spans in areas where strong bottom currents can be expected (SSI, August 1991)."

2.2.4 Seismic Activity

"The greatest danger to the cable from earthquakes is not the actual fault displacement itself, but the possibility they will initiate movement of unstable sediment deposits on the slopes of the islands. Epicentral locations of earthquakes with magnitude 3 or larger in the Hawaiian region should be avoided by the fiber optic cable (SSI, August 1991)."

"Seismic activity in the Hawaiian Islands is concentrated in the vicinity of the active volcanoes on the Island of Hawaii, where it is primarily related to the on-going volcanic activity. There are also earthquakes related to the tectonic subsidence of the islands due to the load that the growing volcanoes is putting on the earth's crust. These tectonic earthquakes are also concentrated in the

area surrounding the island of Hawaii, where the greatest subsidence is taking place (SSI, August 1991)."

2.2.5 Dumping Areas

"A large, presently inactive, explosive dump is located west of Oahu. This dump will have to be avoided by the fiber optic cable. Navy authorities maintain this area has not been used for ordinance disposal since shortly after World War II. However, they advise against laying cables through the area (SSI, August 1991)."

"Dredge Spoils disposal sites authorized by the U.S. Army Corp of Engineers are also located close to all major island harbors and should be avoided by the cable route (SSI, August 1991)."

2.2.6 Ship and Airplane Wrecks

A complete, high resolution side-scan survey of the proposed cable route should be carried out to determine that the route is free of man-made hazards such as ship wrecks and lost airplanes. There have been numerous ships and airplanes lost at sea in the Hawaiian area which have never been located.

2.2.7 Other Cables

There are several other cables in the planning stage including the Hawaii deep water electric transmission cable (from Hawaii to Oahu via Maui), and the Tri-Island power cables (linking Maui, Molokai and Lanai). Aside from these commercial cables, the University of Hawaii plans to install a fiber optic cable for neutrino research offshore from Keahole Point north of Kailua, Kona. In addition, other recently laid cables are now providing service to Hawaii and include GTE Hawaiian Tel Interisland Fiber Optic Cable System; Pac Rim East (Hawaii to New Zealand); and HAW-5 (California to Hawaii).

Along parts of this route the cable will have to be laid in close proximity to other existing communications cables. In these areas, the recommendations of the International Cable Protection Committee (ICPC) should be used as a guideline. At their 1985 Plenary Meeting in Sydney, Australia, ICPC recommended that no previously existing cable be crossed at less than a 45 degree angle, the closer the crossing can be to a right angle the better, and where possible a spacing of five miles should be maintained.

The proposed HI FiberNet cable in some nearshore segments will be laid roughly parallel to the existing GTE Hawaiian Tel cable. Wherever possible the ICPC guidelines for separation will be followed for all other crossings in deep ocean water.

Prior to making final decisions on cable placement, ICPC also recommends that American Telephone and Telegraph (AT&T) be contacted to determine if there are conflicts with other private, military, or other government cables.

2.2.8 Length of Routes Less Than 200 Kilometers

All routes are designed to be less than 200 kilometers in length in order to be serviced by repeaterless cables. There will be no submerged repeaters, however, signals will be phonetically amplified at each landside station. The fiber optic cable will operate on a single light transmission source generated from a Central Office and transmitted to a receiving Central Office. Since repeaters will not be required, no electrical power will need to be routed through the cable.

2.3 LANDING SITES SELECTION

In August of 1991 a study was conducted to select landing sites for the GTE Hawaiian Tel Fiber Optic Cable System connecting the islands of Kauai, Oahu, Maui, and Hawaii. A set of criteria was used to reduce the field of potential landing sites. The advantages and disadvantages of each site were evaluated to provide a basis for comparison.

The following is a brief discussion of criteria for determining landing sites:

2.3.1 Shoreline/Nearshore Conditions

The shoreline and nearshore conditions are a consideration because the depth of the water from the landing site towards the ocean must be deep enough to protect the cable. Approximately 50 to 60 feet of water will be required before wave forces diminish to levels where wave action does not affect the cable. Areas with extensive shallow water far from shore (i.e. 4,000'+) were considered difficult or suboptimal in providing protection during storms and other high wave conditions.

The composition of bottom conditions limits acceptable landing sites. Sandy bottoms are preferred in order to minimize any possible environmental impacts of anchoring, armoring, or trenching through rock or coral in order to securely fasten the fiber optic cable. Also if the ocean

bottom has extensive sand deposits, especially adjacent to the shoreline, the cable can eventually be covered by sand, providing maximum protection against wave forces.

2.3.2 Public Use Considerations

It is anticipated that impacts to public recreational areas will be minimal given the short-term and relatively minor requirements for installing a fiber optic cable. However, because of potential for difficulties with area users, landing sites in areas of major public use are considered a constraint to selection.

Areas of potential historical and archaeological significance in close proximity to cable landing sites are also considered a constraint to selection, due to the possibility of destroying a historic site.

2.3.3 Environmental/Natural Resource Considerations

The landing sites should not be within proximity to rare or endangered species or their habitats. Impacts to shoreline and ocean water quality should also be kept to a minimum. Sites which would require extensive ocean anchoring and cable protection work (i.e., shielding/dredging) and/or on-shore excavation in ground conditions which promote soil erosion should be avoided.

2.3.4 Alternative Landing Sites

Makaha Beach, Oahu

There are four possible alternatives for the Oahu to Kauai segment of the fiber optic cable where underwater geology would be most suitable: Makaha Beach, Pokai Bay, Keawaula, and Nanakuli Beach Park. Makaha was selected as the preferred landing site because the site exhibits positive characteristics including nominal land side conditions and workable nearshore waters. Other positive features of Makaha include: 1) the low likelihood for discovery of archaeological/historic sites (Discussion with DLNR, Historic Sites Office); and, 2) existing use as fiber optic cable landing site.

Should Makaha be removed from consideration, Pokai Bay would be the alternate landing site. The proximity of Pokai Bay to a small boat harbor could create potential problems due to future harbor expansion and/or marine dredging. Pokai Bay also has potential for discovery of

archaeological remains in the backshore area according to the Department of Land and Natural Resources Historic Sites Office.

Keawaula, like Makaha Beach, exhibits positive site characteristics and also serves as a landing site for other fiber optic cables. Makaha Beach, however, is the preferred landing site for the Kauai to Oahu segment based on GST technical requirements.

Nanakuli Beach is not considered a viable alternative landing site based on the presence of the United States Navy FORACS, underwater submarine testing facility which utilizes the entire Nanakuli beachfront.

Keawaula, Oahu

There are two alternatives for the Makaha, Oahu segment of the fiber optic cable where underwater geology would be most suitable: Keawaula and Kaena Point. Access to the edge of the island near Kaena Point is neither practical nor feasible for construction. Access may have been attempted in the past but due to erosion and high wave activity this is not a suitable alternative. Keawaula was selected as the preferred landing site because of positive characteristics including good surface conditions, workable nearshore waters, and existing use for a fiber optic cable landing facility.

SECTION 3
CONSTRUCTION ACTIVITIES

3.1 GENERAL

Construction of the project will include all work necessary to prepare the landing sites, landing the cable, and installing the cable to existing manholes.

Proposed construction will take place in two phases. The first phase will be in conjunction with the cable landing and will entail trenching the beach and nearshore area and placement of temporary landing targets. The second phase will involve actually landing the submarine fiber optic cable, installing the cable into existing ductlines, and beach restoration. The following provides a detailed description of each of these phases.

3.2 LAND-SIDE ACTIVITY

Makaha Beach, Oahu

Construction activity on land will include the excavation of a trench to expose the existing ductlines on the beach and the placement of range targets on the east and west sides of Farrington highway to guide the cable laying process. There are currently eight cables within an existing 10-foot wide easement on the beach **(Figure 3-1)**.

The work on the beach requires the excavation of sand to expose the trench that contains the existing ductlines. The ductlines are directly buried in the sand within a 50-foot section which extends from the beach manhole to the shoreline.

During the construction period, as required, sheet piling may be placed in the sand to keep the exposed trench from collapsing. The upper layer of sand will be removed by machinery (either clamshell or backhoe). Layers of the sand that are closer to the existing ductlines will be removed manually. The excavated sand will be stored on the beach adjacent to the work site for later placement back into the excavated trench. Approximately 496 (6' x 248' x 9') cubic yards of sand will be excavated and will be placed adjacent to the cable easement on the beach.

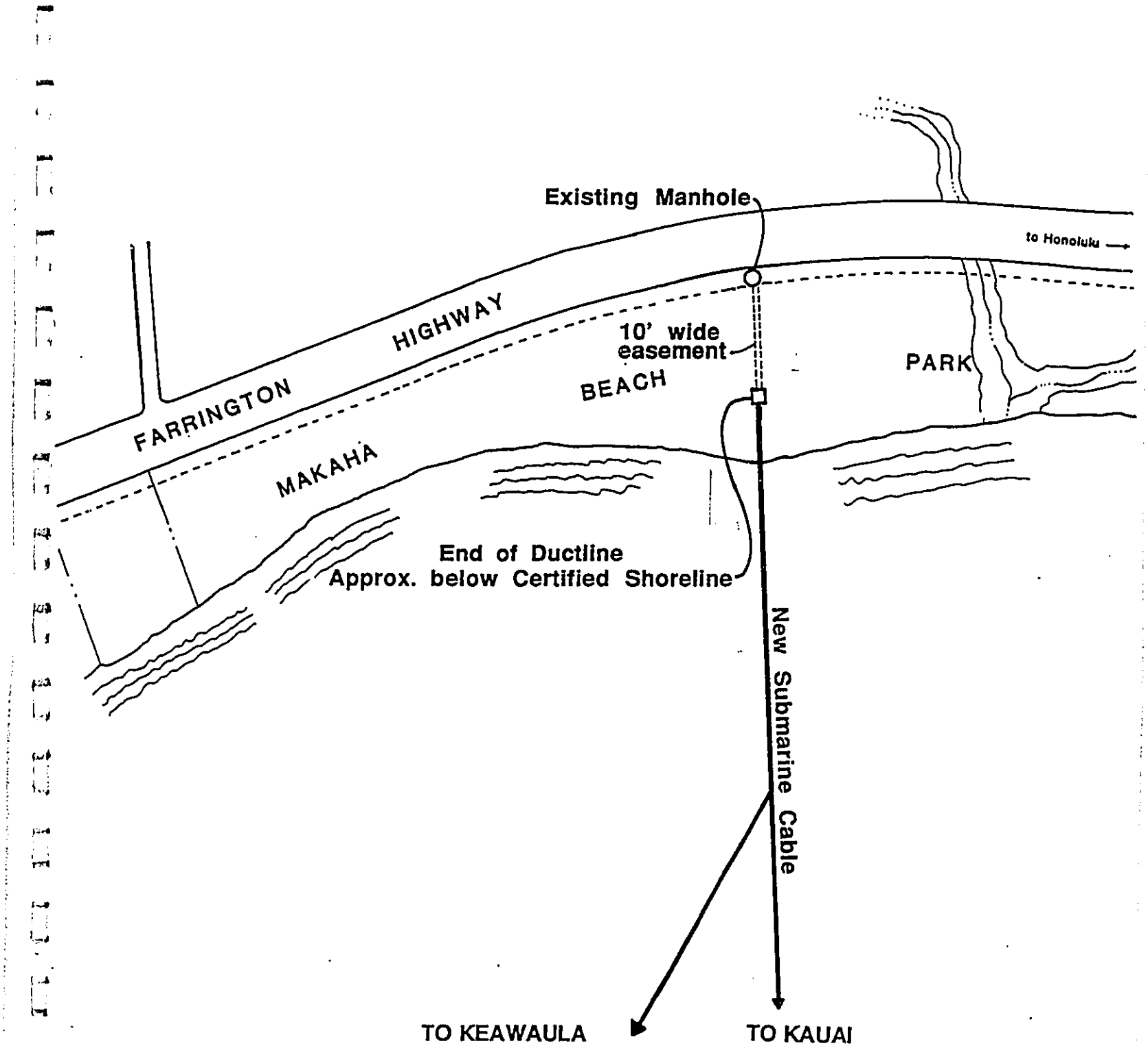

Figure 3-1
Cable Alignment Plan
Makaha Beach, Oahu

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HI FiberNet

R. M. TOWILL CORPORATION

JANUARY 96

During the period of actual construction (excavation of the trench), that portion of the beach will be closed to beach users (approximately 5 days).

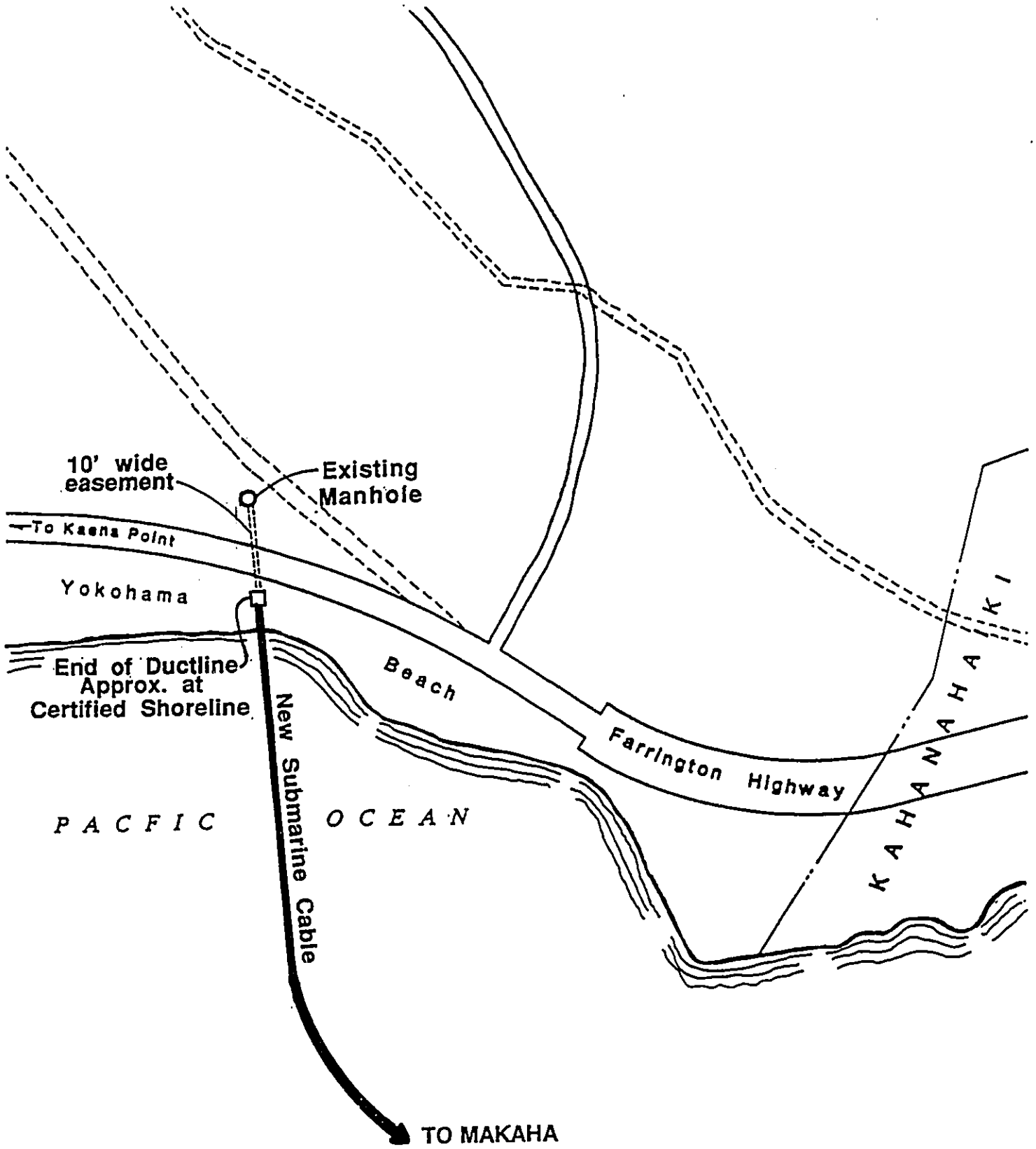
Two range targets (alignment markers) will be placed on land just prior to the landing of the cable to aid in the cable laying process. The first range target will be placed on the eastern edge of the Farrington Highway right-of-way. The other movable target will be placed approximately 150 feet behind the front range target east of the highway right-of-way. The range targets will be placed on temporary structures and will be removed following the cable landing. The range targets will not disrupt traffic movements along Farrington Highway.

Keawaula, Oahu

The shore-end construction activities will involve excavation of sand to expose the trench which contains existing ductlines (**Figure 3-2**). This work will be done just prior to the landing of the cable. The existing ductlines are buried in the sand at a depth of 3 to 7 feet. The upper layer of sand will be removed by machinery (either clamshell or backhoe). Layers of the sand that are closer to the existing ductlines will be removed manually. The excavated sand will be stored on the beach adjacent to the work site for later placement back into the excavated trench. Approximately 185 (10' x 100' x 5') cubic yards of sand will be excavated and will be placed adjacent to the cable easement on the beach.

During the period of actual construction (excavation of the trench), that portion of the beach will be closed to beach users (approximately 5 days).

Two range targets (alignment markers) will be placed on land just prior to the landing of the cable to aid in the cable laying. The first range target will be placed on the western (makai) edge of the Farrington Highway right-of-way over the existing cable easement with the second movable target located about 164 feet east of the front range target. The range targets will be placed on temporary structures and will be removed following the cable landing. The range targets will not disrupt traffic movements along Farrington Highway.



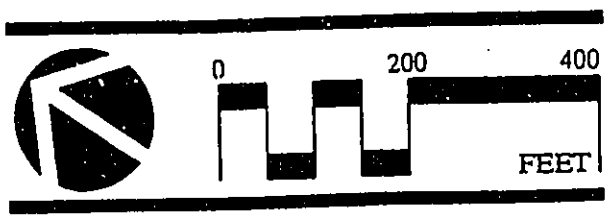


Figure 3-2
CABLE ALIGNMENT PLAN
Keawaula, Oahu

GST Pacwest Telecom Hawaii, Inc.
HI FiberNet

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3.3 NEARSHORE ACTIVITY

The greatest danger to a cable system is the submarine (underwater) portion of the route, and this necessitates more construction effort than the land side activity. Protection of the cable and public safety are the major factors for ensuring the fiber optic cable is covered or anchored in nearshore waters. Approximately 50 to 60 feet of water will be required before wave forces diminish to levels where wave action does not affect the cable. Until the cable reaches this depth it must be protected. Trenching is preferred, because it provides maximum protection against wave forces and is best for public safety. Public safety is at risk if the cable is left exposed along the nearshore, because someone could trip over it or hit their foot against it. Therefore, it is suggested that trenching or cable armoring be used to protect the cable and for public safety.

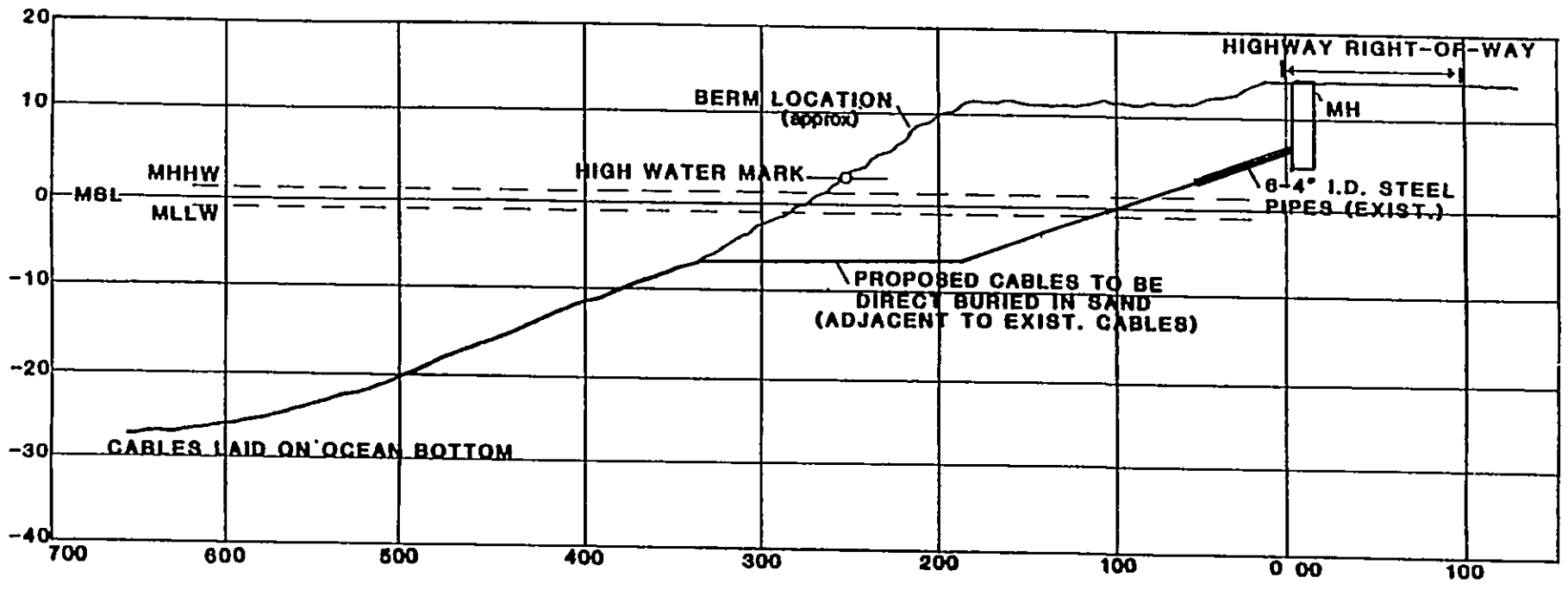
Makaha Beach, Oahu

The second phase of work involves landing the submarine fiber optic cable and establishing a connection at the manhole at Makaha Beach.

From the mean high water mark, the cable will be placed in trench for a distance of approximately 30 feet seaward. **Figure 3-3** shows a section through the area on the beach and in the water. The work in this nearshore area requires the removal of sand which covers the existing ductlines. For this process, machinery will be used to remove the upper layers of sand. A hydro-jet will be used to remove the remaining sand. If necessary, sheet piling may be placed in the water to prevent the sand from reentering the open trench. If necessary, sandbags will supplement the use of sheet piling. In the water, screens will be placed to reduce potential for increased turbidity. The sand that is removed will be stored onshore for later backfilling.

A cable laying ship provided by the cable vendor will serve as the primary means of laying the fiber optic cable. The following procedures describe the activities involved during the cable landing operations:

The cable ship will approach the landing site using the two range targets to align the ship as it approaches the shore. The range targets will be placed by a cable receiving party according to previously surveyed coordinates. Once the ship approaches the shore landing to the minimum depth allowable, it will fix its position relative to the landing site using tugboats, side-thrusters, or other means. As the ship fixes its position, it will begin laying out cable.



SCALE IN FEET

Figure 3-3
GENERAL BOTTOM PROFILE
Makaha Beach, Oahu

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HI FiberNet

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The ship will lay cable while its personnel attach suspension floats at regular intervals to the cable. As the cable is lowered to the water, it will float, allowing it to be pulled toward shore using a winch, small motor boat, or other mechanical means.

The shore landing will be specially prepared to accept the cable. As the cable nears the shore, it will be fed into the steel conduit previously buried in the sand and pulled to the manhole. When the cable is secured in the manhole, it will be temporarily anchored while the divers readjust the suspension floats in the water to obtain a proper nearshore to shoreline alignment.

The nearshore zone within 100 feet of the shoreline has a bottom depth of -15 feet and within 200 feet it is -20 feet. The bottom within 200 feet of the shoreline is predominantly sand.

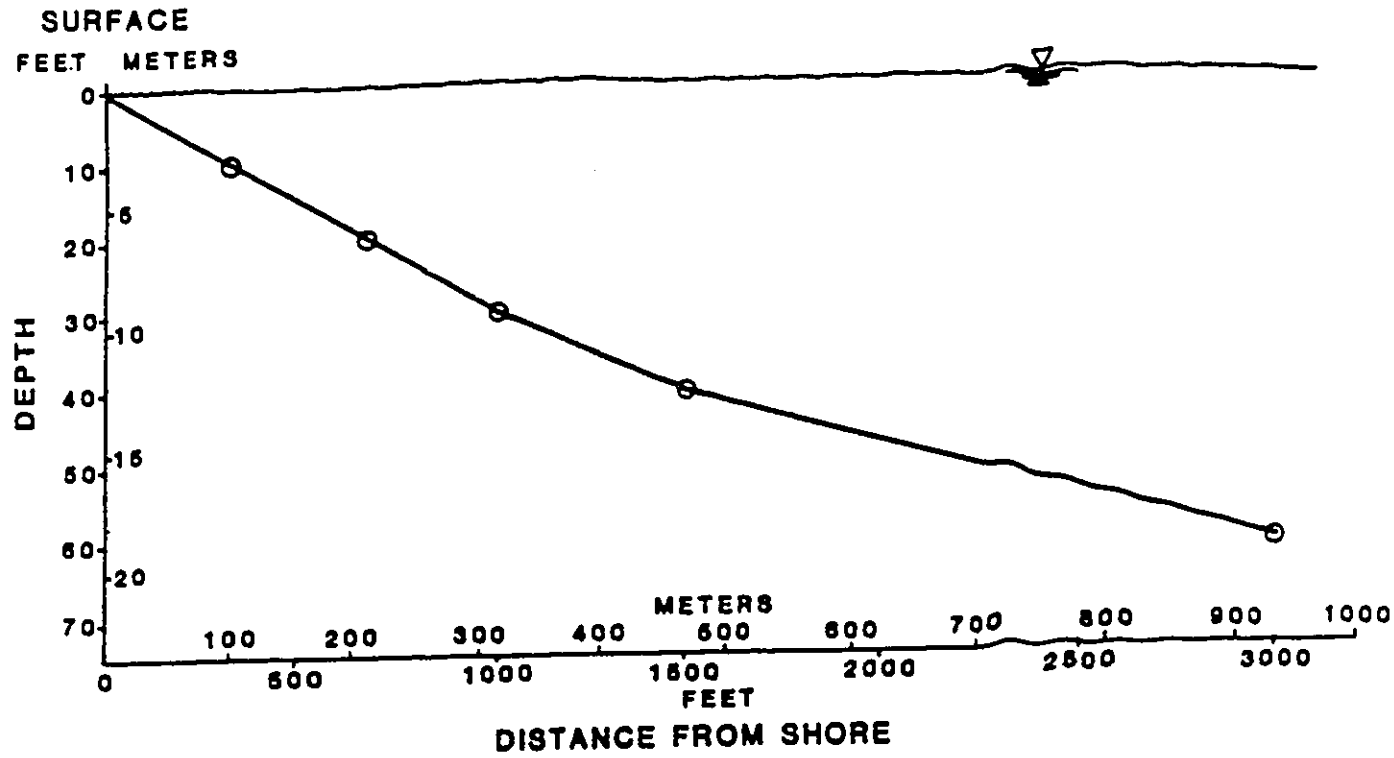
Once the cable is aligned, the divers will cut the remaining floats away, allowing the rest of the cable to sink to the ocean bottom. Approximately 1,000 feet of the cable will be encased in an armor protection from the end of the steel pipe seaward. This encasement will provide the cable protection in the nearshore area. The cable will be permanently installed in the manhole at this time.

Following this action, the cable ship will commence cable laying operations to the next landing site. The ship will follow a prescribed survey route until it reaches the other landing site where the end of the cable can be similarly connected.

Keawaula, Oahu

The second phase of work involves landing the submarine fiber optic cable and establishing a connection at the manhole at Keawaula.

From the mean high water mark, the cable will be placed in a trench for a distance of approximately 30 feet seaward. **Figure 3-4** indicates the presence of sand through the area on the beach and beneath the water. The work in this nearshore area requires the removal of the sand which covers the existing ductlines. For this process, machinery will be used to remove the upper layers of sand. A hydro-jet will be used to remove the remaining sand. If necessary, sandbags will be placed in the water to prevent the sand from reentering the open trench. In the water, screens will be placed to reduce potential for increased turbidity. The sand that is removed will be stored onshore for later backfilling.



GENERAL BENTHIC AND BIOLOGICAL DESCRIPTION

DEPTH (ft)	Benthic and Biological Characteristics
10	No live coral coverage, however, scattered consolidated coral protrudes up to 3 feet above the sand substratum. Cable is buried in sand until depth of 10 to 12 feet where a small cut through solid limestone allows the cable to continue seaward with only a short segment visible above the surrounding sand.
20	Sand substratum with cables buried, estimated depth of up to 18 inches.
30	From 15-foot depth to 60-foot depth, cables are alternately buried in sand and exposed where it passes over areas of consolidated coral that protrude above the sand. Live coral coverage less than 1 percent.
40-45	Depth range where highest live coral coverage of 10 percent (maximum visually estimated) was observed.
60	Hard, consolidated coral substratum characterized by very low relief (1 to 2 feet) and live coral coverage (1 to 2 percent).

SOURCE: Environmental Impact Assessment for the Teleglobe, Canada ANZCAN Cable Landing at Keawaula, Oahu, December 1980.

Figure 3-4
GENERAL BOTTOM PROFILE
Keawaula, Oahu

GST Pacwest Telecom Hawaii, Inc.
HI FiberNet

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A cable laying ship provided by the cable vendor will serve as the primary means of laying the fiber optic cable. Procedures will be similar to those for the Makaha landing site.

The nearshore zone within 100 feet of the shoreline has a bottom depth of -5 feet and within 500 feet it is -15 feet. The bottom within 200 feet of the shoreline is predominantly sand.

Once the cable is aligned, the divers will cut the remaining floats away, allowing the rest of the cable to sink to the ocean bottom. Approximately 1,000 feet of the cable will be encased in an armor protection from the end of the steel pipe seaward. This encasement will provide the cable added protection in the nearshore area. The cable will be permanently installed in the manhole at this time.

3.4 CABLE LANDING PROCESS

The cable landing process includes the use of the land side range targets (alignment markers) to assist in the alignment of the cable as it is being installed. The cable laying ship may be assisted by two tugboats to maintain proper alignment of the cable ship. This assistance is essential to ensure that the cable is placed within the cable easement. Once the cable laying ship is properly aligned, the cable will be towed from the ship by one of the tugs to a transfer location nearshore. At this location, the leading end of the cable will be attached to a rope connected to land based pulling equipment (i.e., winch) and pulled ashore. Once the cable is placed within the existing steel conduit, the leading end of the cable will be secured within the manhole and spliced together with cable emanating from a central office.

Once the cable has been secured, the open trench will be backfilled and efforts taken to restore the beach as much as practicable to its original preconstruction condition.

3.5 SAFETY CONSIDERATIONS

During the construction phase on the beach (approximately 7 to 10 calendar days per site), the portion of the beach which contains the open trench will be barricaded from public entry. During the construction period, a security guard may be required at night and weekends to ensure public safety and integrity of the job site.

During the cable laying process (approximately 10-12 hours depending on the weather conditions), the nearshore waters will be closed to ocean activities (surfing, diving, boating,

swimming) to ensure the safety of ocean users. The area that will be closed will be approximately 100 to 150 feet wide and 2,000 to 5,000 feet long. The actual area may be more or less depending on the tides. The period when the waters will be closed is not expected to be more than two days, weather permitting. This short-term "closure" of nearshore water areas will be achieved by publishing a notice to advise mariners to avoid the area. Further, during the cable laying process, project personnel will advise beach users to avoid the project site both on land and in the water via small powered water crafts.

3.6 SCHEDULE AND ESTIMATED COST

Makaha Beach, Oahu

The installation of interisland cable and cable landing operations is scheduled tentatively during the 4th quarter of 1996. Construction costs for this phase are estimated at ±$100,000.

Keawaula, Oahu

The installation of interisland cable and cable landing operations is scheduled tentatively during the 4th quarter of 1996. Construction costs for this phase are estimated at ±$100,000.

SECTION 4
DESCRIPTION OF THE AFFECTED ENVIRONMENT

4.1 PHYSICAL ENVIRONMENT

4.1.1 Climate

Makaha Beach, Oahu

Makaha Beach is located along the Waianae coast of the Island of Oahu. The average annual temperature is 75 degrees Fahrenheit, with northeasterly tradewinds from the ocean at speeds of 18 to 23 miles per hour. The average annual rainfall is 20 inches.

Keawaula, Oahu

The project site is located on the western most tip of Oahu, adjacent to coastal areas within the Farrington Highway right-of-way and the Waianae Mountain Range. The average annual temperature is 75 degrees Fahrenheit, with northeasterly tradewinds from the ocean at speeds of 18 to 23 miles per hour. The average annual rainfall is approximately 20 inches.

4.1.2 Topography, Geology, Soils

Makaha Beach, Oahu

The project location is within a portion of the Makaha Beach Park that lies at the base of the Waianae Mountains. The beach slopes to the water's edge at a slope of approximately 5 percent. The predominant soil type classified by U. S. Department of Agriculture, Soil Conservation Service is (BS) Beaches. Beaches have no value for agriculture but where accessible they are highly suitable for recreational uses.

Impacts

With respect to the segment of the cable to be installed subsurface, no long term surface impacts are anticipated since the project involves temporary excavation and filling with the same material. The excavated portions will be returned, as much as practicable, to its original preconstruction condition.

Keawaula, Oahu

The project location is within a portion of the Kaena Point State Park that lies at the base of the Waianae Mountains. The beach slopes to the water's edge at a slope of approximately 5 percent. The predominant soil type classified by U. S. Department of Agriculture, Soil Conservation Service is (BS) Beaches. This soil type can be described as sandy, gravelly areas found on all islands which are washed and rewashed by ocean waves. The beaches consist mainly of light colored sands derived form coral and shells. Beaches have no value for agriculture but where accessible they are highly suitable for recreational uses.

There are no structures on the beach. The beach zone (between the ocean and road) is devoid of trees. Portions of the area between the edge of the road and the beach is grassed. The average width of the beach (shoreline to roadway) varies depending on the season with the average width being 100 feet.

Impacts

With respect to the segment of the cable to be installed subsurface, no long term surface impacts are anticipated since the project involves temporary excavation and filling with the same material. The excavated portions will be returned, as much as practicable, to its original preconstruction condition.

4.1.3 Hydrology

Makaha Beach, Oahu

There are no perennial streams in the subject area. Groundwater for the area is basal in sediments and is not a source for domestic use (Atlas of Hawaii, 1983).

Impacts

No adverse impacts are anticipated on surface water or groundwater since the project will not alter existing drainage patterns or have any water requirements.

Keawaula, Oahu

There are no perennial streams in the subject area. Groundwater for the area is basal in sediments and is not a source for domestic use (Atlas of Hawaii, 1983).

Impacts

No adverse impacts are anticipated on surface water or groundwater since the project will not alter existing drainage patterns or have any water requirements.

4.1.4 Terrestrial Flora/Fauna

Makaha Beach, Oahu

The area's flora is limited to a 20-foot strip extending from the edge of Farrington Highway. Plant materials include; Bermuda grass, coconut trees, and hau trees. No rare or endangered species of plants are known to inhabit the site. Existing flora and fauna of the project site consists mainly of introduced species.

With respect to animal wildlife for the area, no rare or endangered animals are known to inhabit the site. The area has a dry climate and sparse vegetation and does not provide good habitats for rare animals.

Impacts

Because the project area is not known to contain any rare plants or animals, adverse impacts are not anticipated. As part of the proposed development the exposed areas within the cable easement will be replanted to ensure stability of the site.

Keawaula, Oahu

The area's flora is classified as lowland dry shrub and typically contains plant species such as assorted grasses and koa haole trees. No rare or endangered species of plants are known to inhabit the site. Existing flora and fauna of the project site consists mainly of introduced species.

With respect to animal wildlife for the area, no rare or endangered animals are known to inhabit the site. The area has a dry climate and sparse vegetation and does not provide good habitats for rare animals.

Impacts

Because the project area is not known to contain any rare plants or animals, adverse impacts are not anticipated. As part of the proposed development the exposed areas within the cable easement will be replanted to ensure stability of the site.

4.1.5 Marine Flora and Fauna

Makaha Beach and Keawaula, Oahu

The proposed Oahu cable landings along the nearshore zone are characterized by substrates of sand with various forms of bottom sediments ranging from a combination of rocky cobble and coral interspersed by further offshore sand deposits at Keawaula and Makaha Beach. Species normally found along the nearshore zone include various small fishes, sea urchins, crabs, algae, and other marine invertebrate. The intertidal zones of each of the proposed landing sites are occasionally subjected to high wave energy which in part helps to explain the relatively low diversity of species.

Rare and threatened species which may be found along these areas include the protected green sea turtle and, during the winter months, humpback whales. There is no current evidence that nesting of green sea turtles has occurred at either Keawaula or Makaha Beach. Oahu is the most heavily urbanized of the Hawaiian Islands and beaches at the proposed cable landings are often frequented by humans which would serve as a deterrent to selection of a suitable undisturbed nesting site.

Humpback whales, another protected species, are also rarely observed offshore of the cable landing sites. As noted in a previous survey of Sandy Beach, Oahu, "[Herman, 1979], humpback whales tend to be found in regions remote from human activities, thus relatively fewer numbers of whales are seen around Oahu as compared to other islands."

Impacts

It is anticipated that as the fiber optic cable is laid that most, if not all of the marine organisms present would simply move out of the way for the temporary duration of work. Upon completion it is expected that the cable would eventually bury itself in areas with loose sand and sediments.

Sea Engineering conducted a previous study (Sea Engineering, 1992) on the potential for impacts to marine organisms from the laying of the GTE Hawaiian Tel Interisland Fiber Optic Cable System (1993). While the Sea Engineering study was primarily undertaken for the Sandy Beach and Kahe Beach Park locations, the basic findings are also applicable to the Makaha and Keawaula Beaches. According to Sea Engineering,

"In the shallower areas along the route, there are areas where the cable will cross hard substratum and there is a greater possibility of impact to benthic and fish communities. Impacts associated with these construction activities primarily include removal of benthic communities in the cable path, and the generation of turbidity which may impact surrounding communities. The small scale of the proposed activities that would be necessary to protect the cable in shallow water would produce little sediment, and over a relatively short period of time (Sea Engineering, January 1992)."

"Another concern may be with disturbance to threatened or endangered species. Assuming that deployment of the cable occurs during the period of time that humpback whales are in island waters, it is anticipated that the impacts to whales would be minimal. The deployment of the cable from shallow water to shore should not take longer than one day. In general, this deployment is done by bringing the cable laying ship into about the 60 foot isobath; from this point to shore the cable is buoyed up using floats and small craft are used to maneuver the cable into the appropriate alignment and into shore."

"The probable source of local impact to whales would be the production of noise by the cable laying ship and smaller vessels used to bring it ashore. There are variable and conflicting reports as to the impact of vessel traffic on whales. Evidence from the northwest Atlantic and northeast Pacific suggest behavioral changes by whales in response to vessels, but they may show considerable fidelity to specific areas despite vessel traffic (major shipping, trawler activity, etc.; Brodie 1981, Matkin and Matkin 1981, Hall 1982, Mayo 1982). In contrast Jurasz and Jurasz (1980) found a sharp decline in humpback whale numbers in Glacier Bay, Alaska with increases in vessel activity. In a short term study, Bauer (1986) found no correlation between vessel and whale numbers as well as no net movement offshore at Olowalu, Maui in 1983-84. However, a six year study suggested a major offshore movement of mother-calf pods off Maui with increased vessel traffic (Glockner-Ferrari and Ferrari 1985, 1987). This study alone cannot be used to determine whether the observed reductions in sighting around Maui is correlated with vessel traffic; there is no consistent baseline information or comparative studies on humpback whale habitat utilization around Maui which may corroborate the trends reported by Glockner-Ferrari and Ferrari (Tinney 1988)."

"With respect to the response of individual humpback whales, there is sufficient information to demonstrate that boating and other human activities do have an impact on behavior (Bauer and Herman 1986). Thus it is probably valid to assume that impact to whales could occur if individuals are within several kilometers of the cable deployment. However as noted above the impacts (here noise) are not expected to last for more than one day, and all activities will be concentrated in a very small area."

"Sea turtles are permanent residents in inshore Hawaiian habitats thus the potential exists for problems during the construction phase if it entails dredging. The generation of fine particulate material from dredging appears not to hinder the green turtle in Hawaiian waters; at West Beach, green turtles moved from an offshore diurnal resting site about one kilometer offshore to a point about 200m from the construction site within days of the commencement of dredging and the generation of turbid water. The turtles appeared to establish new resting areas in the turbid water directly offshore of the construction site (Brock 1990a). The reason(s) for this shift in resting areas is unknown but may be related to the turtles seeking water of poor clarity to possibly lower predation by sharks (a major predator on green sea turtles)."

"Any construction activity that generates fine particulate material will lower light levels and in the extreme, bury benthic communities. Sedimentation has been implicated as a major environmental problem for coral reefs. Increases in turbidity may decrease light level resulting in a lowering of primary productivity. When light levels are sufficiently decreased, hermatypic corals (i.e., the majority of the corals found on coral reefs) will eject their symbiotic unicellular algae (zooxanthallae) on which they depend as source of nutrition. However, in nature corals will eject their zooxanthallae and survive (by later acquiring more zooxanthallae) if the stress is not a chronic (long-term) perturbation."

4.1.6 Scenic and Visual Resources

Makaha Beach, Oahu

The area is generally void of man-made structures. except for the road, and beach park amenities such as showers and toilet facilities.

Impacts

For seven to ten days there will be a temporary impact on coastal views due to construction activities. During construction, the beach portion of the project will have construction equipment and a mound of sand from the excavated trench.

The beach will be returned to its existing condition at the conclusion of the cable installation. Excess material not utilized for fill will be removed and disposed of in accordance with applicable County and State regulations.

Based on the relatively small scale and nature of proposed construction, no long-term or significant impacts are anticipated.

Keawaula, Oahu

Views of Yokohama Beach and the Waianae Coast are available from the area of Farrington Highway which is adjacent to the project area.

Impacts

For seven to ten days there will be a temporary impact on coastal views due to construction activities. During construction, the beach portion of the project will have construction equipment and a mound of sand from the excavated trench.

The beach will be returned to its existing condition at the conclusion of the cable installation. Excess material not utilized for fill will be removed and disposed of in accordance with applicable County and State regulations.

Based on the relatively small scale and nature of proposed construction, no long-term or significant impacts are anticipated.

4.1.7 Historic/Archaeological Resources

Makaha Beach, Oahu

The project site does not contain any known sites of historic or cultural significance. The trench that will be used is an existing facility that was previously excavated to lay other transoceanic cables. The proposed work will be within the existing cable easement.

Impacts

No short or long term impacts are expected from the development of the proposed project. However, should any unidentified cultural remains be uncovered during cable installation, work in the immediate area will cease and the appropriate government agencies will be contacted for further instructions.

Keawaula, Oahu

There are no known archaeological sites existing within the cable easements. Although there are some features in the vicinity of the project site, they will not be affected by the proposed action as work will be confined to the same shoreline segments which were encountered during previous cable landings.

Impacts

No short or long term impacts are expected from the development of the proposed project. However, should any unidentified cultural remains be uncovered during cable installation, work in the immediate area will cease and the appropriate government agencies will be contacted for further instructions.

4.1.8 Beach Erosion and Sand Transport

Makaha Beach, Oahu

Within 100 feet of the shoreline the bottom depth is -15 feet, and within 200 feet it is -20 feet. The bottom within this 200 feet is predominantly sand. The existing submarine cables are laid directly on the ocean bottom except for that portion of cable near the shoreline. This portion is covered with sand.

Impacts

The proposed project is not expected to impact beach processes. Upon completion of construction activities, the construction crew will make every reasonable effort to return the ground to existing preconstruction contours through use of existing graded materials for backfill.

Keawaula, Oahu

Within 100 feet of the shoreline, the bottom depth is -5 feet, and within 500 feet it is -15 feet. The nearshore bottom is predominantly sand. The existing submarine cables are laid directly on the ocean bottom except for that portion of cable near the shoreline. This portion is covered with sand.

Impacts

The proposed project is not expected to impact beach processes. Upon completion of construction activities, the construction crew will make every reasonable effort to return the ground to existing preconstruction contours through use of existing graded materials for backfill.

4.1.9 Noise From Construction Activity

Makaha Beach and Keawaula, Oahu

For the proposed Keawaula and Makaha Beach landing sites, noise will be generated during the construction phase of the project. Cable laying and excavation equipment and machinery will be used, which will be sources of noise.

Impacts

Noise generated from machinery can be mitigated to some degree by requiring contractors to adhere to State and County noise regulations. This includes ensuring that machinery are properly muffled. Some work at night may be required. Night activities include cable splicing, cable pulling, operation of machinery, etc.

Boats (tugs and a small craft) that are used during the construction period will also be a source of noise. The impact of noise from these vessels cannot be mitigated. The noise impact will be temporary in nature and will not continue beyond the construction and cable laying period.

4.1.10 Air Quality

Makaha Beach and Keawaula, Oahu

Air quality in the proposed project areas of Makaha Beach and Keawaula is good due to low emission levels and the almost continual presence of tradewinds or on-shore breezes. The major factor affecting air quality in these areas is vehicular traffic.

Impacts

During the excavation process, loose sand and dirt may be cast into the air by wind. The release of sand into the air can be prevented by requiring the contractor to periodically wet down the work area. The areas that are used for the placement of the range targets will also be exposed during the construction period. The target sites should be similarly wetted to control fugitive dust. The work sites will be returned to their original state after the cable laying process is completed.

Operation of construction vehicles is expected to temporarily contribute carbon monoxide pollutants in the vicinity of the projects.

4.1.11 Water Quality

Makaha Beach and Keawaula, Oahu

Open coastal waters at Makaha Beach are rated Class "A", and open coastal waters at Keawaula Beach are rated Class "AA" by the State Department of Health. The shallow waters of these beaches experience considerable turbidity even when surf is minimal. Offshore waters are very clear with excellent underwater visibility over reef slopes. Water temperature and salinity are normal for ocean water in these areas, with evidence of fresh water inflow along the shores.

Impacts

It is anticipated that potential for increased turbidity may occur in nearshore waters of the project sites during the trench excavation and backfilling operations. Silt screens may be erected by the construction crew to lessen and minimize effects of turbidity.

4.2 SOCIOECONOMIC ENVIRONMENT

4.2.1 Population

Makaha Beach and Keawaula, Oahu

According to the 1990 Census, the resident populations within the Makaha area numbered 7,990 and in the Waianae area numbered 8,880. The population of Honolulu County as of 1994 was 836,000 and is projected to increase to 999,500 by 2010 (The State of Hawaii Data Book, 1994).

Impacts

No adverse impacts on existing resident and worker populations in the project site areas is expected. The project will be beneficial to these communities by providing high bandwidth capacity to a number of communications carriers on an equal basis. This gives them the capability to provide additional communication services to their customers, which helps provide competitive pricing to Hawaiian businesses and residents.

4.2.2 Surrounding Land Use

Makaha Beach, Oahu

The predominant use that will be affected is the use of the beach park. On both ends of the beach park are residential uses. On the southern end (towards Waianae) of the beach park are single family residential homes. On the northern end (towards Kaena) of the beach is a multifamily condominium structure. The land on the eastern side of the park across Farrington Highway is undeveloped land. This land is overgrown with trees and shrubs common to the area.

Impacts

No long term impacts are expected from the development of the proposed project. However, development will temporarily impact land and shore side recreational uses. During construction the portions of the shore side area will have to be closed for safety reasons. Lateral access will be provided in designated areas. When completed the cable route will result in very little to no visible impact to the surrounding area.

Keawaula, Oahu

The predominant use that will be affected by the proposed project is the Kaena Point State Park. Also located nearby on the ridge on the east side of Farrington highway is an Air Force Satellite Tracking Station.

Impacts

No long term impacts are expected from the development of the proposed project. However, development will temporarily impact land and shore side recreational uses. During construction the portions of the shore side area will have to be closed for safety reasons. Lateral access will be provided in designated areas. When completed the cable route will result in very little to no visible impact to the surrounding area.

4.3 PUBLIC FACILITIES AND SERVICES

4.3.1 Transportation Facilities

Makaha Beach, Oahu

The project site is served by Farrington Highway (State Route No. 930). The right-of-way width fronting the project site is 50 feet. Bus service is provided on Route 51. Average departure times along this section of roadway are approximately once every 30 minutes. No disruption of bus service is anticipated.

Impacts

Construction activities will last seven to ten days and are not expected to impact the existing traffic or bus services. Construction work will be limited to nearshore work to install the fiber optic cable.

Keawaula, Oahu

The project site is served by Farrington Highway (State Route No. 930). The right-of-way width fronting the project site is 50 feet. Bus service is provided on Route 51. Average departure times along this section of roadway are approximately once every 30 minutes. As with the Makaha site, no disruption of bus service is anticipated.

Impacts

The proposed project is expected to have no impact on the existing traffic or bus services. Construction will take seven to ten days and will be limited to nearshore work to install the fiber optic cable.

4.3.2 Recreational Facilities

Makaha Beach, Oahu

Makaha Beach Park is located in the vicinity of the proposed project site. The entire park is used for swimming, sunbathing, skindiving, fishing and picnicking. Surfing occurs primarily along the western end of the park. Throughout the year the park is the site for a number of international and local surfing competitions.

The proposed action will only marginally disrupt recreational activity on a small portion of the beach while the excavation activity takes place. During the cable landing phase of the project, activity in the water will need to be temporarily suspended for approximately one day for the safety of the beach and ocean users.

Impacts

No long term impacts are expected from the development of the proposed project. However, development will temporarily impact recreation uses on a small portion of the beach. During construction a limited portion of the park will have to be closed for safety reasons. Construction will take seven to ten days. Every effort will be made to coordinate construction activities with the City and County of Honolulu, Parks and Recreation Department in order to avoid a conflict with surf competitions. Impacts will be short term, lasting only until construction is completed.

Keawaula, Oahu

The principle recreational activity in the vicinity of the proposed project site is the Kaena Point State Park. The beach park (Yokohama Beach) is used for swimming, sunbathing, surfing, skindiving and picnicking. The proposed action will only marginally disrupt recreational activity in the months of November and December 1996 during the cable laying process on a small portion of the park while installation takes place. During the cable landing phase of the project,

activity in the water near the landing area will need to be temporarily suspended for approximately one day for the safety of the safety beach and ocean users.

Impacts

No long term impacts are expected from the development of the proposed project. However, development will temporarily impact recreation uses on the beach. During construction, part of the park will have to be closed for safety reasons. Construction will take seven to ten days. This impact will be short term, lasting only until construction is completed.

SECTION 5
RELATIONSHIP TO STATE AND COUNTY LAND USE PLANS AND POLICIES

5.1 THE HAWAII STATE PLAN

The Hawaii State Plan (Chapter 226, Hawaii Revised Statutes) provides a guide for the future of Hawaii by setting forth a broad range of goals, objectives, and policies to serve as guidelines for growth and development of the State. The proposed project is generally consistent with the Hawaii State Plan. The following objectives of the State Plan are relevant to the proposed project:

Section 226-10.5: Economy - Information Industry

The proposed project serves to assist in the State's objective of positioning Hawaii as the leader in information services in the Pacific Rim. The proposed project will continue development and expansion of Hawaii's telecommunications infrastructure and will help to accommodate future growth in the information industry.

Section 226-14 Facility Systems - In General

The proposed project supports the State's goals for achieving telecommunications systems necessary for Statewide social, economic, and physical objectives.

Section 226-18: Facility System - Energy/Telecommunications

The proposed project will help to ensure adequate and dependable telecommunication services for Hawaii by promoting efficient management and use of existing and proposed facilities and by promoting installation of new telecommunications cables.

5.2 STATE FUNCTIONAL PLANS

The Hawaii State Functional Plan (Chapter 226) provides a management program that allows judicious use of the State's natural resources to improve current conditions and attend to various societal issues and trends. The proposed project is generally consistent with the State Functional Plans. The following objectives of the State Functional Plans are relevant to the proposed project:

Education Implementing Action A(4)(c):
The proposed project will help to ensure adequate telecommunication services necessary for Hawaii's schools objectives.

Education Implementing Action B(3)(d):
The proposed project serves to promote and expand the appropriate use of telecommunications to deliver distance education as well as enhance the learning process and communication competencies of students.

Education Implementing Action(3)(e):
The proposed project enables school library media centers to effectively manage and provide access to information and knowledge through telecommunications.

5.3 STATE LAND USE LAW

Makaha Beach, Oahu

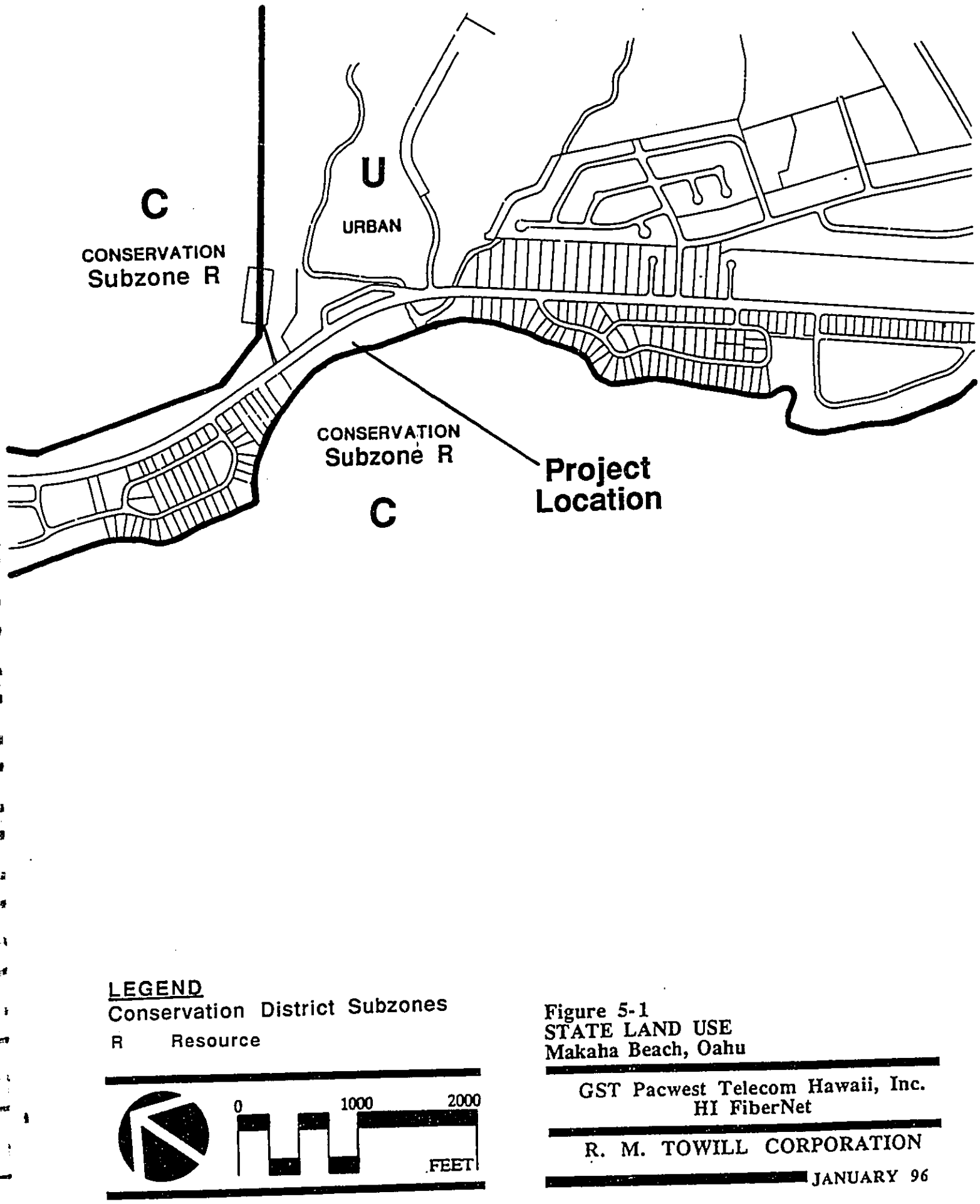
The State land use classification of the project site is classified as "Conservation" (**Figure 5-1**). No land use change is required for the cable landing. Construction activity in the water will require a CDUP. Further coordination with the State Department of Transportation, Harbors Division, and the Coast Guard is required to advise mariners of the proposed cable landing.

Keawaula, Oahu

The State land use classification for the Keawaula landing is Conservation (**Figure 5-2**). Because the proposed activity involves installation of a utility line no land use district change will be required. However, because all Oahu landings will require work in the water, a Conservation District Use Permit (CDUP) will be necessary. In addition, further coordination with the State Department of Transportation (DOT), Harbors Division, and the U.S. Coast Guard will be required to advise mariners of the proposed action.

5.4 COUNTY ZONING

Zoning for Makaha Beach (TMK: 8-4-01:12) is general preservation (P-2) (**Figure 5-3**) and for Keawaula (TMK: 8-1-01:18) is restricted preservation (P-1) (**Figure 5-4**). According to the City and County Land Use Ordinance (LUO) the P-2 zoning designation would require a Conditional



LEGEND
Conservation District Subzones
R Resource

0 1000 2000
FEET

Figure 5-1
STATE LAND USE
Makaha Beach, Oahu

GST Pacwest Telecom Hawaii, Inc.
HI FiberNet

R. M. TOWILL CORPORATION

JANUARY 96

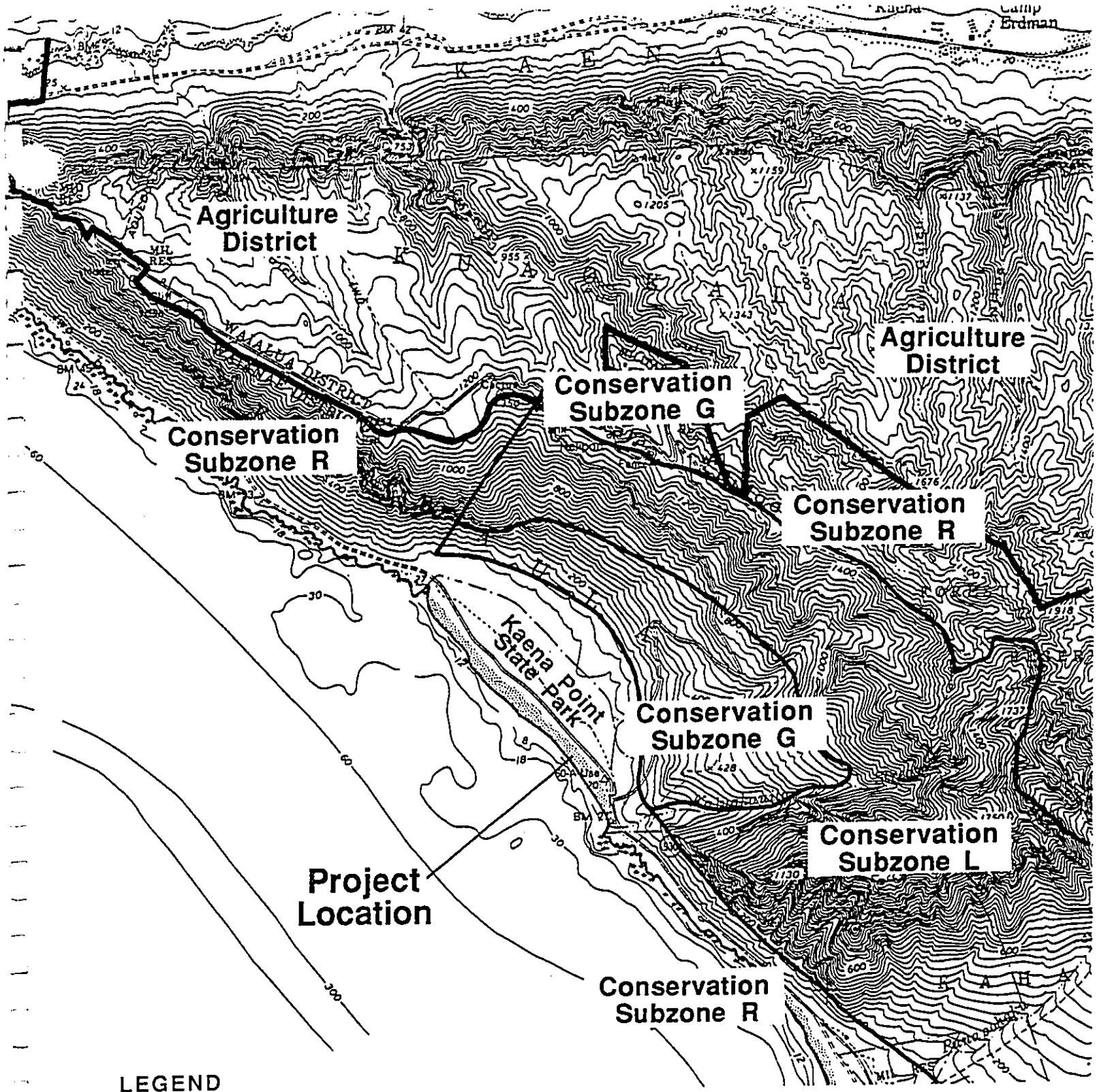
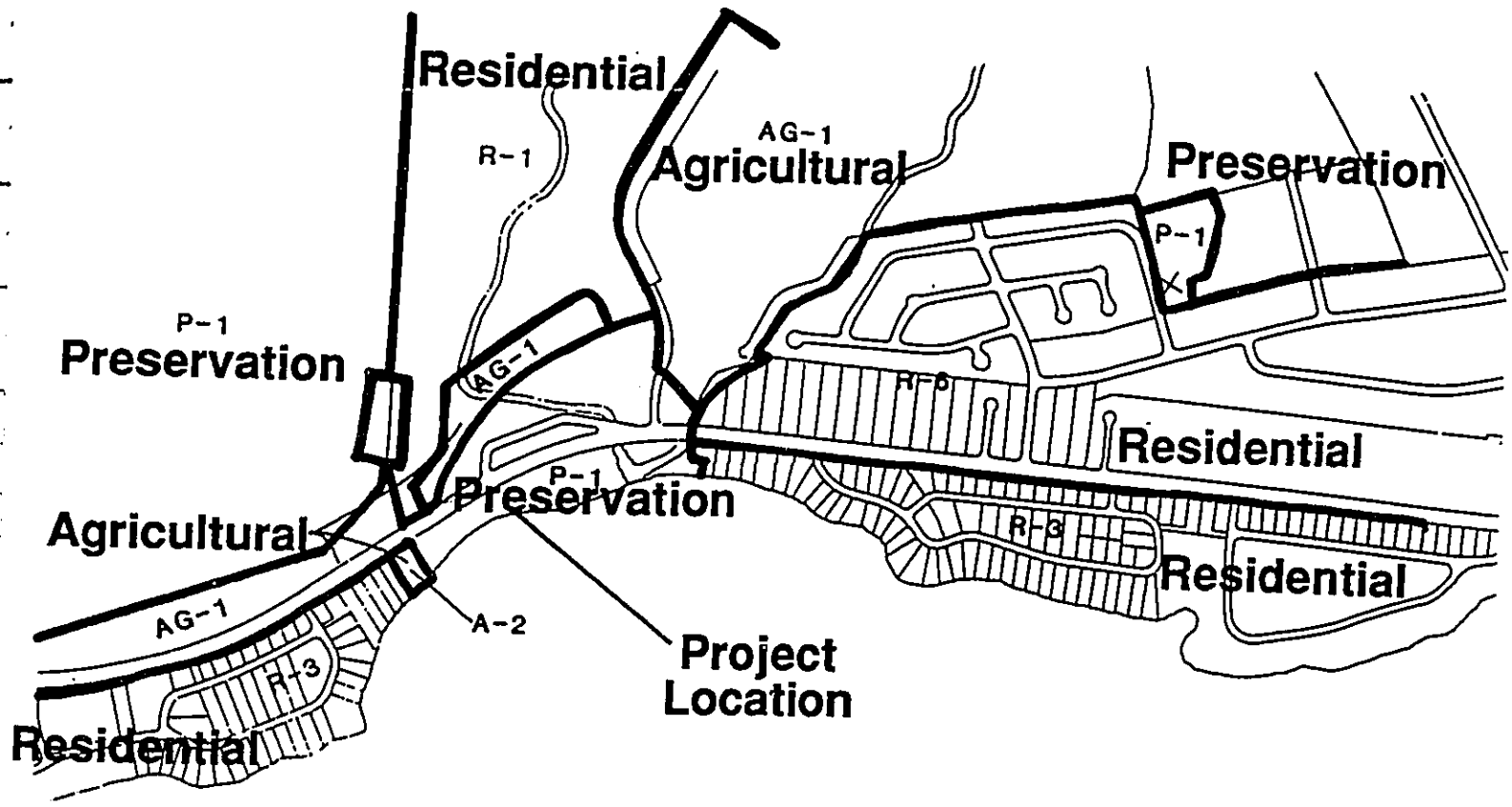


Figure 5-2
STATE LAND USE
Keawaula, Oahu

GST Pacwest Telecom Hawaii, Inc.
HI FiberNet

R. M. TOWILL CORPORATION

JANUARY 96



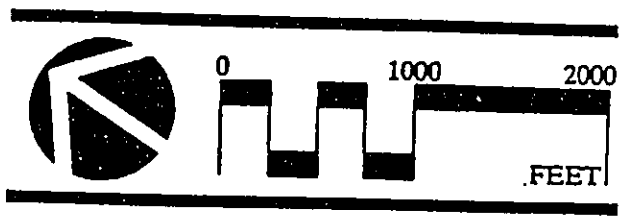
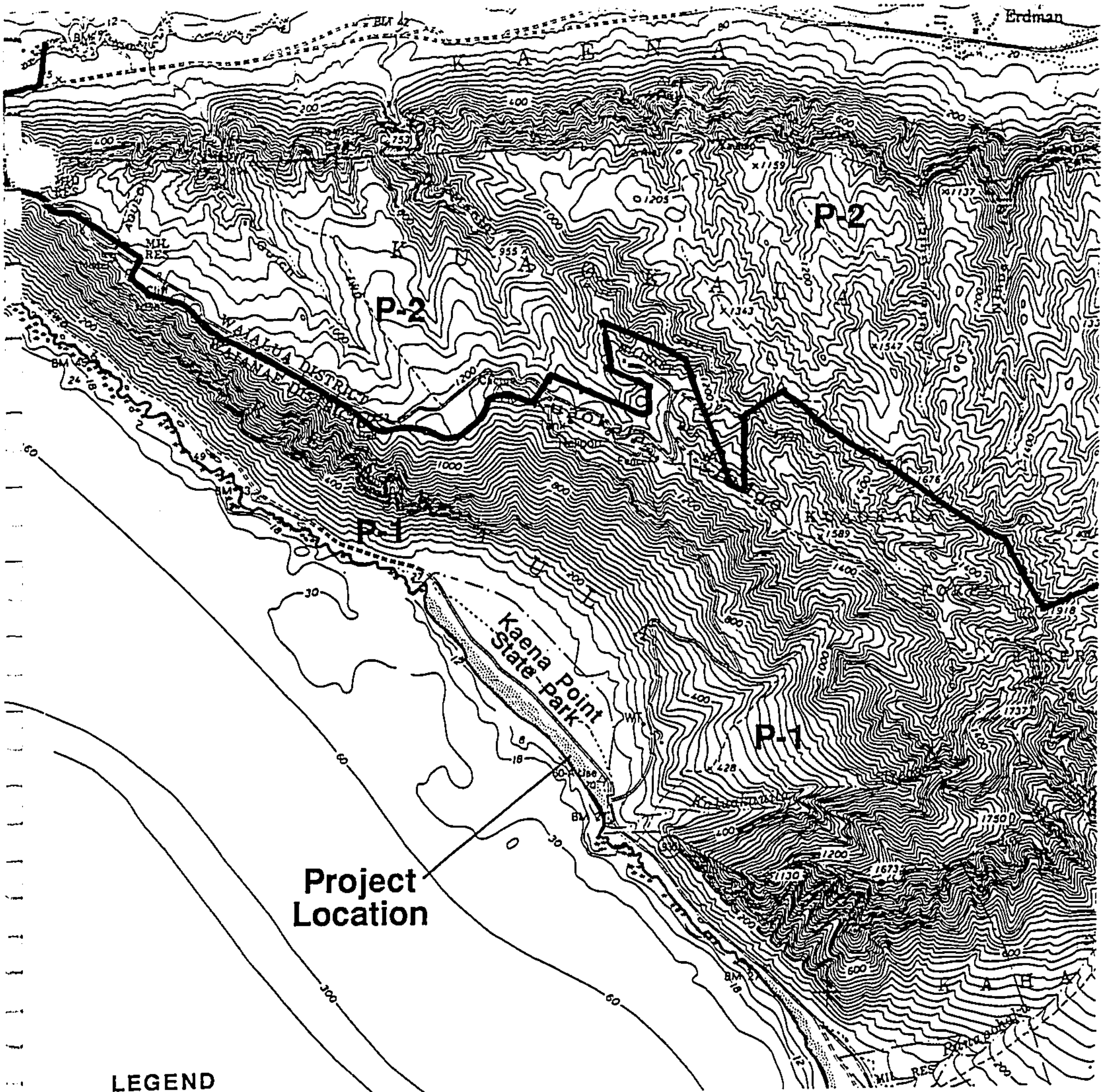


Figure 5-3
COUNTY ZONING
Makaha Beach, Oahu

GST Pacwest Telecom Hawaii, Inc.
HI FiberNet

R. M. TOWILL CORPORATION

JANUARY 96



LEGEND
Preservation Zones
P-1 Restricted
P-2 General

0 2000 4000
FEET

Figure 5-4
COUNTY ZONING
Keawaula, Oahu

GST Pacwest Telecom Hawaii, Inc.
HI FiberNet

R. M. TOWILL CORPORATION

JANUARY 96

Use Permit for Utility installations, Type B. No zoning change will be required. For the P-1 zoning, the LUO cites the following:

> "5.10 Preservation districts: Purpose and intent.
>
> (a) It is intended that all lands within a state-designated conservation district be zoned P-1 restricted preservation."
>
> and,
>
> "5.10-1 Preservation uses and development standards.
>
> (a) Within the P-1 restricted preservation district, all uses, structures and development standards shall be governed by the appropriate state agencies."

According to the LUO because the proposed activities are in the State Conservation District, development standards would be governed by the Department of Land and Natural Resources (DLNR), through the CDUP process. Therefore, no zoning change will be required for the Keawaula landing site.

5.5 CITY AND COUNTY OF HONOLULU GENERAL PLAN

The General Plan of the City and County of Honolulu provides a statement of long range social, economic, environmental, and design objectives for the Island of Oahu and a statement of policies necessary to meet these objectives. A specific objective of the General Plan relating to the proposed project is the maintenance and expansion of existing utilities systems. The proposed project is generally in conformance with the goals and objectives of the City and County General Plan.

5.6 SPECIAL MANAGEMENT AREA

The City and County of Honolulu has designated the shoreline and certain inland areas of Oahu as being within the Special Management Area (SMA). SMA areas are felt to have a sensitive environment and should be protected in accordance with the State's coastal zone management policies. The proposed landing site areas are within the SMA Boundary as defined by the City and County of Honolulu (**Figures 5-5 and 5-6**).

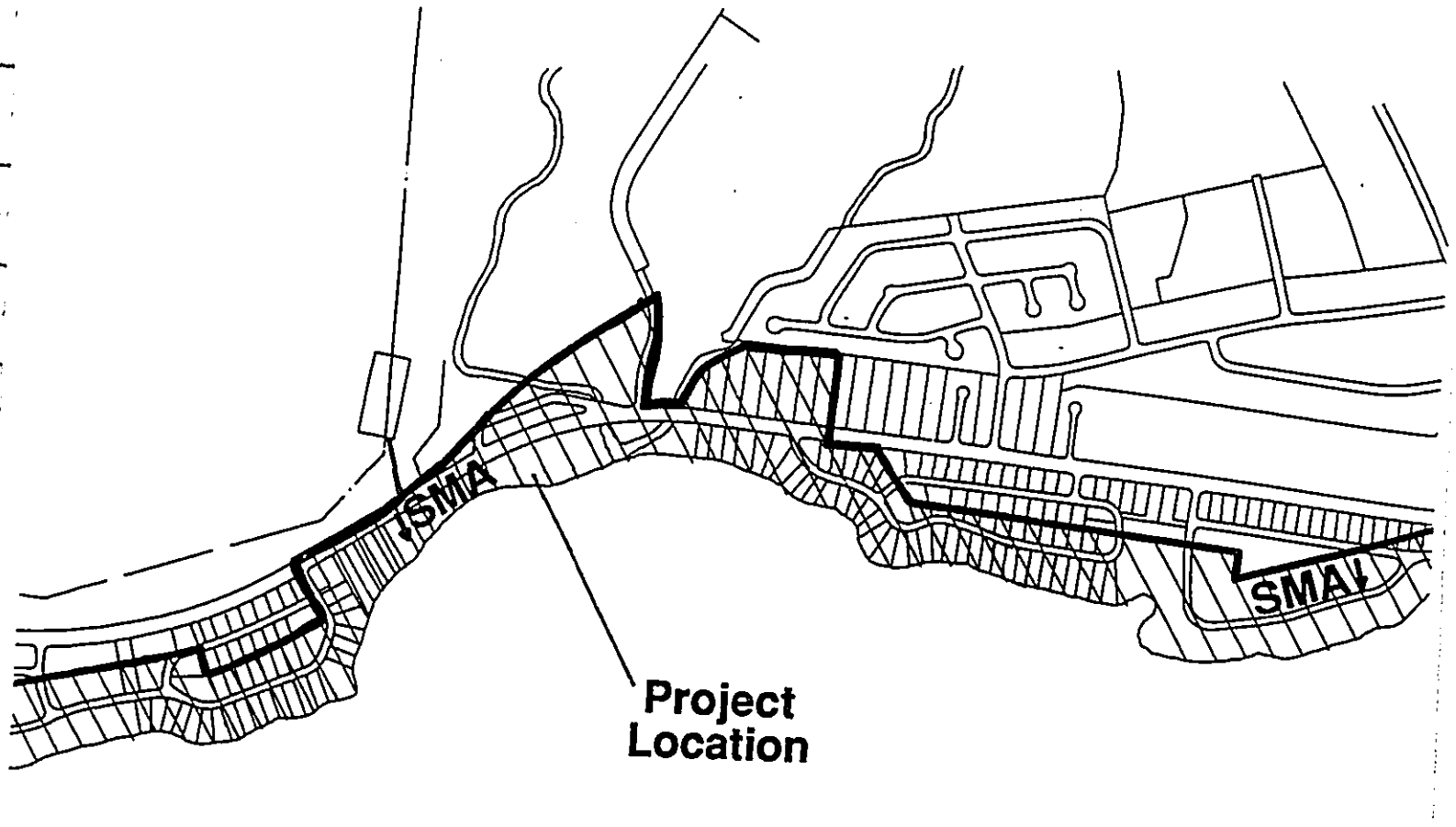


Figure 5-5
SPECIAL MANAGEMENT AREA
(SMA) BOUNDARY
Makaha Beach, Oahu

GST Pacwest Telecom Hawaii, Inc.
HI FiberNet

R. M. TOWILL CORPORATION

JANUARY 96

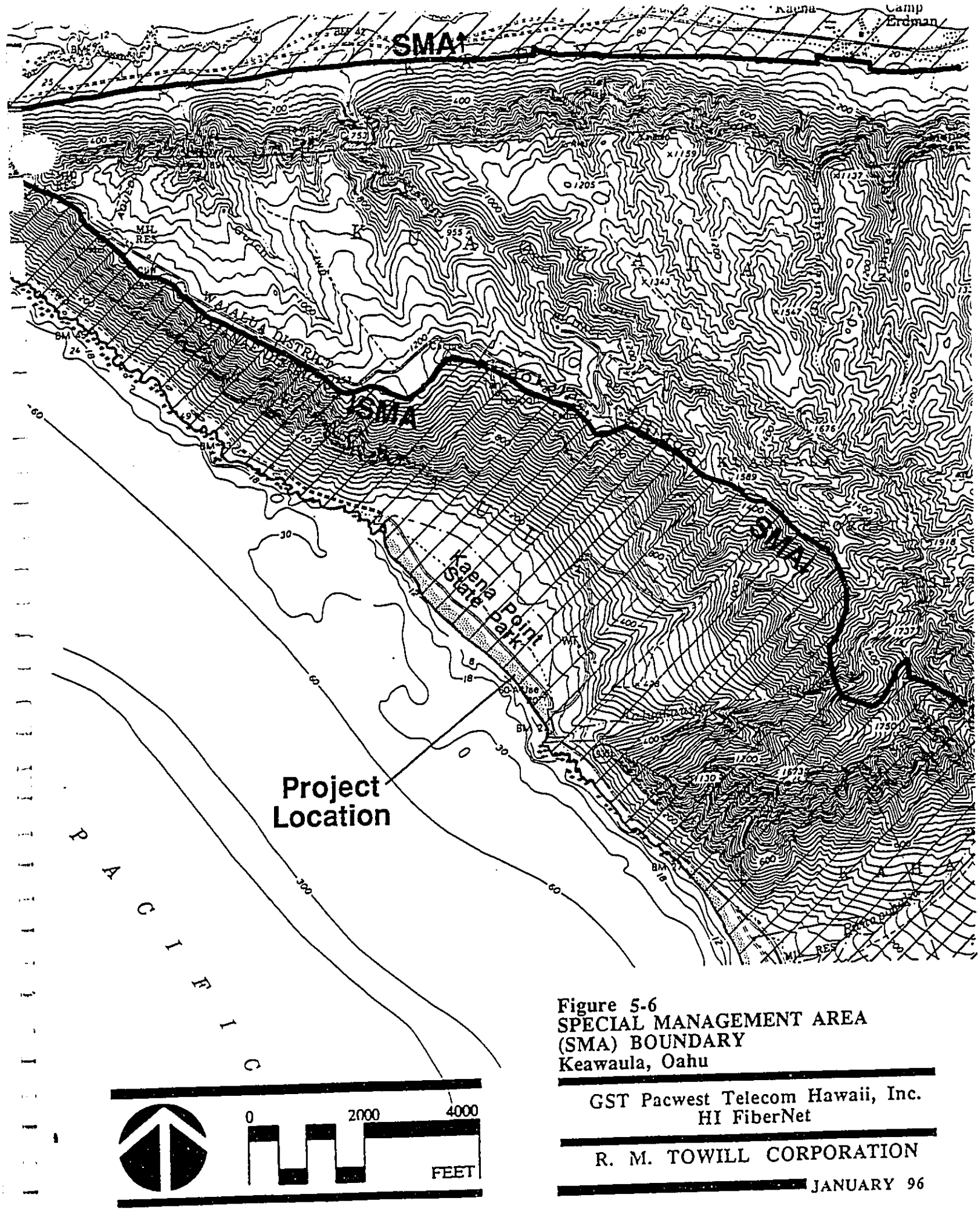


Figure 5-6
SPECIAL MANAGEMENT AREA
(SMA) BOUNDARY
Keawaula, Oahu

GST Pacwest Telecom Hawaii, Inc.
HI FiberNet

R. M. TOWILL CORPORATION

JANUARY 96

According to preliminary discussion with DLU (December 13, 1995), SMA permits will not be required for development of the proposed Makaha Beach and Keawaula based on the following:

- SMA permits were previously filed and approved for each of the proposed landing sites. Potential for impacts related to earthwork and construction were addressed during these prior permits. There were very few to no impacts associated with the previous cable landings.

- Each of the sites has already been prepared to accept a new fiber optic cable. The only work required will involve excavation to expose the end of the ductlines and placement of the fiber optic cables into the ductlines. Therefore, no major new land-side construction work will be necessary.

- Only a very small portion of the SMA would be subject to the proposed activity. The ends of the ductlines which will accept the cables have been designed to terminate at the certified shoreline.

5.7 SHORELINE SETBACK VARIANCE

A Shoreline Setback Variance (SSV) will be required for the proposed landing sites because the project will require siting cables from the certified shorelines, to the open end of the ductlines that would accept the fiber optic cables. The proposed project, therefore, will be subject to the provisions of the Shoreline Setback Rules and Regulations of the City and County of Honolulu.

SECTION 6
ALTERNATIVES TO THE PROPOSED ACTION

6.1 NO ACTION

The no action alternative would result in the lost opportunity to provide an alternative to existing interisland telecommunications service which is now provided solely by a single vendor. A major feature would be the loss of a new competitor to the marketplace that could benefit both government and the private sector through competitive pricing.

In addition to the lost opportunity imposed by no action, the following would also result:

- Lost employment opportunities which would have been realized in conjunction with the cable laying, and subsequent maintenance and operation activities;

- Lost tax revenues for State government from the cable vendor, and increased public and private telecommunications usage; and

- Lost attainment of the City and County of Honolulu General Plan's objective of expansion of existing utilities systems.

6.2 ALTERNATIVE SITES

Makaha Beach, Oahu

The leeward area considered for the Oahu to Kauai segment of the fiber optic cable landing extended from the Barbers Point Naval Air Station to Pokai Bay, a distance of approximately 14 miles. Existing facilities which limit the selection of cable route areas include cooling water intakes and discharges for the Kahe Generating Station, a U.S. Navy underwater test range, an ocean outfall for domestic sewage, and a small boat harbor.

The coastline south of Kahe Point was excluded from further consideration during the study due to extensive resort, commercial shipping, industrial and military use. Activities include a major resort development, a deep draft harbor, and offshore oil moorings and associated underwater

pipelines. This existing usage precludes a cable landing anywhere along the coastline between Kahe Point and Ewa Beach.

Keawaula was not considered as an alternative landing due to: 1) GST technical requirements which favor the Makaha site; and 2) consideration for use of Keawaula for a submarine route between the area of Makaha Beach and Kaena Point.

The following is a discussion of the above areas which were initially considered but not selected:

Camp Malakole

Camp Malakole has an "uneven, irregular bottom out to the 70 foot depth, requiring cable protection, trenching or anchoring for a 4,000 foot distance" (Sea Engineering, January 1990). Other constraining factors are the potential for discovery of archaeological remains and damage from increasing shipping activities around Barbers Point Harbor.

Nanakuli Beach Park

Nanakuli Beach Park has optimal nearshore conditions which include a sand channel extending all the way to shore and deep water near shore. However the area is unavailable due to an existing U.S. Navy submarine test range (FORACS Range) which has several cables running offshore. "Discussions with the range manager indicated that the Navy would not permit placement of a cable across their existing cables, due to their requirements for cable maintenance and possible expansion of the range. An incoming fiber optic cable would cross most, if not all, of the hydrophone cables. This site was therefore eliminated from further consideration" (Sea Engineering, January 1992).

Pokai Bay

One disadvantage of Pokai Bay is its proximity to the Waianae Small Boat Harbor which could create potential problems due to future harbor expansion and/or marine dredging. Other constraining factors are the potential for discovery of archaeological remains in the backshore area and public use impacts.

Pokai Bay is a heavily used recreational area. The north half of the beach is restricted to military personnel, and there are three surf sites off the military beach. The waters in the south half of the bay are calm due to the protection offered by the breakwater. According to AECOS (1978),

Pokai Bay Beach Park has the best protected and most stable sand beach along the entire Waianae coast. Activities include swimming, wading and canoe paddling. The heavy recreational use of the bay has resulted in past conflicts between swimmers and boaters. State boating regulations now separate the two activities.

Ulehawa Beach

"A sand channel off the beach park corresponds to the mouth of Ulehawa Stream. Inshore the sand channel is winding and irregular, with a typical width of 150 to 200 feet. The sand channel terminates approximately 300 feet offshore. The bottom between the inshore limit of the sand channel and the beach is scoured limestone shelf, with pronounced surge channels and ridges. The irregularity of the bottom in this zone increases with distance toward shore. Because of the bottom conditions and the shape of the sand channel, cable protection would probably be required out to the 40 foot water depth, 2000 feet offshore. At this point, the channel opens into a large sand deposit. The area just off the beach would present a particular problem due to the vertical relief, and extensive trenching would probably be required to prevent bridging of the cable across the surge channels" (Sea Engineering, January 1990).

Keawaula, Oahu

The two alternatives for the Makaha, Oahu segment of the fiber optic cable where underwater geology would be most suitable are Keawaula and Kaena Point. However, access to the edge of the island near Kaena Point is neither practical nor feasible for construction. Access may have been attempted in the past but due to erosion and high wave activity this is not a suitable alternative. Keawaula was selected as the preferred landing site because the site exhibits positive characteristics including nominal land side conditions and workable nearshore waters.

6.3 ALTERNATIVE ROUTE

For the connection between Makaha and Sandy Beach two alternatives were considered: (1) an ocean link from Makaha Beach to Keawaula, and (2) an overland terrestrial system from Makaha Beach to Keawaula. The ocean route was eventually selected due to constraints imposed by construction impacts, time, and cost. The following summarizes the constraints associated with the overland terrestrial alternative:

- Disruption to the highway system due to traffic rerouting and, in some cases, temporary lane closures. This would reduce access and increase travel times for motorists.

- Heavy construction equipment would be required for trenching and excavation. This would increase ambient noise levels during construction and contribute to increased air pollution.

- Construction dewatering could also be required since portions of the terrestrial cable would follow areas with low lying groundwater. If the contractor cannot undertake installation of the cable "in the wet", dewatering will be required. Major permitting and regulatory requirements will include filing of a NPDES Dewatering Permit, development of mitigation and filter treatment of the dewatering effluent before it may be discharged, and undertaking laboratory analysis of the dewatering effluent to ensure that it contains no pollutants that could adversely impact downstream waters of the State of Hawaii.

- Finally, construction of the terrestrial alternative would involve potential for discovery of archaeological or human remains.

The land route would introduce a number of impacts including increased traffic, possible environmental impacts due to dewatering and use of construction equipment, and potential for discovery of archaeological remains. Each of these impacts would together increase the time and cost needed for filing of additional permits, securing of easements, and fulfillment of permit conditions to protect the environment. In contrast, constraints from the ocean route are anticipated to be minimal. Existing conduits are already in place at Keawaula and will only require minor trenching and excavation in order to achieve a linkage with Makaha Beach.

6.4 ALTERNATIVE TECHNOLOGY

The following describes the alternatives to fiber optic cable technology:

6.4.1 Microwave Radio Systems

The use of additional or modification of existing interisland microwave radio systems is not a feasible alternative due to the linear arrangement of the main Hawaiian Islands. The linear

arrangement of the main Hawaiian Islands limits the possible transmission paths between the islands and leads to transmission congestion. Problems associated with transmission congestion include:

- Introduction of distortion to voice band data and voice transmission; and
- Loss of signal strength and signal reliability.

In comparison with microwave radio systems, fiber optic technology is the only means of providing the bandwidth necessary for interisland digital circuits without distortion in data transmission, and problems with signal strength and reliability.

6.4.2 Satellites

Satellites are not a feasible alternative based extreme disadvantages associated with the use of satellites which include:

- Transmission delays due to technical and atmospheric limitations involving the distance the radio waves must travel;
- Visual and aesthetic intrusion caused by the need for ground stations and radio antennas which must be constructed to accept the satellite transmissions; and
- Difficulties associated with "double hops" which occur when data must be retransmitted in order to establish a secure voice circuit.

In comparison with satellites, fiber optic technology is the only means of providing the capacity necessary for interisland digital circuits without transmission delays and major visual and aesthetic problems.

6.5 RECOMMENDED ACTION

The recommended action is to proceed with the establishment of the proposed submarine fiber optic cable system with landings at Makaha Beach and Keawaula.

SECTION 7

RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

No short-term exploitation of resources resulting from development of the project site will have long-term adverse consequences. The appearance of the land portion of the existing site will not be altered. The cable may be visible on the ocean bottom portion of the project site and will alter its appearance.

Once construction activities are completed there will be no affect on recreational activities, marine life, or wildlife.

Long-term gains resulting from development of the proposed project include provision of more effective State telecommunications systems (by means of fiber optic cables). The proposed project will maintain and enhance economic productivity by increasing competitive telecommunications service between islands.

SECTION 8
IRREVERSIBLE/IRRETRIEVABLE COMMITMENT OF RESOURCES BY THE PROPOSED ACTION

Development of the proposed project will involve the irretrievable loss of certain environmental and fiscal resources. However, the costs associated with the use of these resources should be evaluated in light of recurring benefits to the residents of the region, the State of Hawaii and the City and County of Honolulu.

It is anticipated that the construction of the proposed project will commit the necessary construction materials and human resources (in the form of planning, designing, engineering, construction labor, landscaping, and personnel for management and maintenance functions). Reuse for much of these materials and resources is not practicable. Although labor is compensated during the various stages of development, labor expended for project development is non-retrievable.

SECTION 9
NECESSARY PERMITS AND APPROVALS

9.1 STATE

Department of Land and Natural Resources

- Conservation District Use Permit
- Right-of-Entry
- Establishment of Offshore Easement

Office of State Planning

- Coastal Zone Management Consistency Review

Department of Health

- Section 401 Water Quality Certification

Department of Transportation

- Permit to Work in Ocean Waters

9.2 CITY AND COUNTY OF HONOLULU

Department of Land Utilization

- Shoreline Setback Variance

9.3 FEDERAL

U.S. Army Corps of Engineers

- Department of the Army Permit, Section 404/Section 10

SECTION 10

CONSULTED AGENCIES AND PARTICIPANTS IN THE PREPARATION OF THE ENVIRONMENTAL ASSESSMENT

10.1 FEDERAL AGENCIES

U.S. Army Corps of Engineers
U.S. Fish and Wildlife Service
National Marine Fisheries Service

10.2 STATE AGENCIES

Department of Land and Natural Resources
    Land Division
Department of Health
Department of Transportation
    Harbors Division
    Highways Division
Department of Business, Economic Development & Tourism

10.3 CITY AND COUNTY OF HONOLULU

Department of Land Utilization
Department of Public Works
Department of Parks and Recreation

10.4 INDIVIDUALS AND GROUPS

Waianae Neighborhood Board, Mr. Glen Kila, Chairperson
Sierra Club, Hawaii Chapter, Oahu Group, Philip Bogetto

SECTION 11

COMMENTS AND RESPONSES TO THE DRAFT ENVIRONMENTAL ASSESSMENT

This section contains the comments and responses to comments which were prepared during the Draft Environmental Assessment phase of review.

DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET 11TH FLOOR • HONOLULU HAWAII 96813
PHONE (808) 523-4341 • FAX (808) 527-5857

JEREMY HARRIS
MAYOR

KENNETH E. SPRAGUE
DIRECTOR AND CHIEF ENGINEER

DARWIN J. HAMAMOTO
DEPUTY DIRECTOR

ENV 96-138

June 14, 1996

MEMORANDUM:

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

FROM: KENNETH E. SPRAGUE
DIRECTOR AND CHIEF ENGINEER

SUBJECT: ENVIRONMENTAL ASSESSMENT (EA)
SUBMARINE FIBER OPTIC CABLE LANDING
GST PACWEST TELECOM HAWAII, INC.
TMK: VARIOUS

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

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

R. M. TOWILL CORPORATION

420 Waiakamilo Rd #411 Honolulu HI 96817-4941 (808) 842-1133 Fax (808) 842-1937

August 17, 1996

Mr. Kenneth E. Sprague
Director and Chief Engineer
Department of Public Works
City and County of Honolulu
650 South King Street, 11th Floor
Honolulu, Hawaii 96813

Dear Mr. Sprague:

SUBJECT: Draft Environmental Assessment for Submarine Fiber Optic Cable Landing Sites at Sandy Beach Park, Makaha Beach, and Keawaula, Oahu, GST Telecom Hawaii, Inc.

Thank you for your letter dated June 14, 1996. We appreciate your review of this important project.

Should you or your staff have any further comments please contact us at (808) 842-1133.

Sincerely,

Brian Takeda
Senior Planner

BT/bt
cc Mr. Jack Lewis, GST Telecom Hawaii, Inc.
CK RMTC

R. M. TOWILL CORPORATION

420 Waiakamilo Rd #411 Honolulu HI 96817-4941 (808) 842-1133 Fax (808) 842-1937

August 22, 1996

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

ATTN: Ms. Nancy Heinrich

Dear Mr. Gill:

SUBJECT: Draft Environmental Assessment for Submarine Fiber Optic Cable Landing Sites at Sandy Beach Park, Makaha Beach, and Keawaula, Oahu, GST Telecom Hawaii, Inc.

We have received your comments dated July 8, 1996, and have prepared the following response.

1. *Community Contacts*

The following groups and individuals have been contacted for the Oahu landing sites:

Sierra Club, Hawaii Chapter, Oahu Group (538-6616),
Mr. David Frankel
Mr. Phillip Bogetto

Hawaii Kai Neighborhood Board No. 1
Mr. Charlie Rogers, Chairperson (395-1386)

Wai'anae Coast Neighborhood Board No. 24 (523-4380)
Mr. Glen Kila, Chairperson

2. *Special Management Area (SMA) Use Permit*

The filing date of the SMA permit for Sandy Beach was May 22, 1996. The subject application describes both the use of existing GTE Hawaiian facilities as well as potential need for a new manhole. At this time we are anticipating use of the existing GTE Hawaiian Tel manhole and ductlines.

3. *Two cable landing sites on the Waianae coast*

According to GST Telecom Hawaii, Inc., there is need for two landing sites based on connection requirements with AT&T cable systems. The Makaha landing will provide a direct linkage to Lihue, Kauai. The connection between Keawaula and Makaha is designed to provide system safety and redundancy in the event of unforseen circumstances including natural and man-induced disasters within the Farrington Highway corridor.

This is an especially important consideration given that the proposed linkage will help to protect and preserve telecommunications traffic with Kauai as well as national and international locations.

4. *Memorandum of Understanding for shared facilities at Makaha Beach and Keawaula*

We have attached a letter dated May 13, 1996, identifying good faith negotiations by AT&T to provide GST Telecom Hawaii, Inc., access to cable landing facilities at Makaha Beach and Keawaula, Oahu. At this time we are working with AT&T on engineering details to connect the GST cable to its facilities.

Thank you for this opportunity to comment. Should you have any further questions please contact us at 842-1133.

Sincerely,

Brian Takeda
Senior Planner

Attachments
BT/bt
cc Jack Lewis, GST Telecom Hawaii, Inc.
CK RMTC

DEPARTMENT OF THE ARMY
PACIFIC OCEAN DIVISION, CORPS OF ENGINEERS
FORT SHAFTER, HAWAII 96858-5440

REPLY TO ATTENTION OF

June 18, 1996

Planning and Operations Division

Mr. Patrick T. Onishi, Director
State of Hawaii
Department of Land Utilization
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. Onishi:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the Submarine Fiber Optic Cable Landing at Sandy Beach Park, Oahu, Hawaii (TMK 3-9-12: por. 2; 8-4-1: por. 12; and, 8-4-1: por. 18). 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. Our Regulatory Branch is currently reviewing a permit application for the entire cable project. Please contact Ms. Terrell Kelley at 438-9258 (extension 13) for further information and refer to file number 960000247.

b. The flood hazard information provided on page 4-1 of the DEA is correct.

Sincerely,

Dr. Linda Hihara-Endo, P.E.
Acting Chief, Planning
and Operations Division

R. M. TOWILL CORPORATION

420 Waiakamilo Rd #411 Honolulu HI 96817-4941 (808) 842-1133 Fax (808) 842-1937

August 17, 1996

Dr. Linda Hihara-Endo, P.E.
Acting Chief, Planning and Operations Division
Department of the Army
Pacific Ocean Division
Corps of Engineers
Fort Shafter, Hawaii 96858-5440

Dear Dr. Hihara-Endo:

SUBJECT: Draft Environmental Assessment for Submarine Fiber Optic Cable Landing Sites at Sandy Beach Park, Makaha Beach, and Keawaula, Oahu, GST Telecom Hawaii, Inc.

Thank you for your letter dated June 18, 1996. We appreciate your review of this important project.

We are currently working with Ms. Terrell Kelley and Ms. Lolly Silva to complete any further requirements of the Department of the Army permit, File No. 960000247. Should you or your staff have any further comments please contact us at (808) 842-1133.

Sincerely,

Brian Takeda
Senior Planner

BT/bt
cc Mr. Jack Lewis, GST Telecom Hawaii, Inc.
CK RMTC

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

96-04526

MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY
ELOISE COLOMA-AGARAN

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

July 12, 1996

Patrick T. Onishi, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

LOG NO: 17650
DOC NO: 9607TD16

Dear Mr. Onishi:

SUBJECT: Special Management Area Use Permit (SMP) and Shoreline Setback Variance, GST Pacwest Telecom Hawaii, Inc. Submarine Fiber Optic Cable Landing at Sandy Beach Park, Makaha Beach and Keawaula Mauanalua, Kona, Makaha and Keawa`ula, Wai`anae, O`ahu
TMK: 3-9-12:por. 2; 8-4-1:por. 12; 8-1-1:por. 18

Thank you for the opportunity to review this project. A review of our records shows that there are no known historic sites at the project locations. The cable landings at Makaha and Keawa`ula will be at established easements that have already been developed. Archaeological investigations in the vicinity of Sandy Beach indicate that historic sites along this stretch of coast were destroyed by a tidal wave earlier this century. Thus, it is extremely unlikely that previously undiscovered historic sites will be encountered during excavation for this project. Based on these circumstances, we believe these projects will have "no effect" on historic sites.

Aloha,

for DON HIBBARD, Administrator
Historic Preservation Division

TD:jk

R. M. TOWILL CORPORATION

420 Waiakamilo Rd #411 Honolulu HI 96817-4941 (808) 842-1133 Fax (808) 842-1937

August 17, 1996

Mr. Don Hibbard, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
33 South King Street, 6th Floor
Honolulu, Hawaii 96813

Dear Mr. Hibbard:

SUBJECT: Draft Environmental Assessment for Submarine Fiber Optic Cable Landing Sites at Sandy Beach Park, Makaha Beach, and Keawaula, Oahu, GST Telecom Hawaii, Inc.

Thank you for your letter dated July 12, 1996. We appreciate your review of this important project and your finding of "no effect" on historic sites.

Should you or your staff have any further comments please contact us at (808) 842-1133.

Sincerely,

Brian Takeda
Senior Planner

BT/bt
cc Mr. Jack Lewis, GST Telecom Hawaii, Inc.
CK RMTC

BENJAMIN J. CAYETANO
GOVERNOR

GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

July 8, 1996

DK		KTS	
WED		NW	
HTT		PF	

RECD JUL 9 1996 RMTC

Patrick K. Onishi, Director
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Attention: Dana Teramoto

Dear Mr. Onishi:

RE: Draft Environmental Assessments (EAs) for GST Pacwest Submarine Fiber Optic Cable Landings on Oahu at:
- Keawaula and Makaha Beach Park, Waianae
- Sandy Beach Park, Koolaupoko

In the final EAs please include the following:

1. Community contacts: For all three sites, consult with community groups or interested organizations and document your contacts.

2. Special Management Area Permit: What is the anticipated filing date of this permit for the Sandy Beach site if GTE Hawaiian Tel will not allow shared use of facilities?

3. Why are there two cable landing sites on the Waianae coast instead of one?

4. Include a copy of a letter or Memorandum of Understanding from AT&T and/or Teleglobe Canada regarding shared use of facilities at Keawaula and Makaha Beach Park.

If you have any questions, call Nancy Heinrich at 586-4185.

Sincerely,

GARY GILL

c: Brian Takeda, RM Towill
Robert Volker, GST Pacwest Telecom

Meeting to Martin - Cable Station access etc
5/13/96

AT&T SUBMARINE SYSTEMS, INC.

Robert T Miller
Director
Network Support

Room S110
340 Mt. Kemble Avenue
Morristown, NJ 07960
Tel: 1 201 326 3032
Fax: 1 201 326 2470

May 13, 1996

Fax: 808-682-7630

Mr. William H. Martin
Senior Vice President
GST Telecommunications, Inc.
91-238 Kalaeloa Blvd.
Suite 230
Kapolei, HI 96707

Bill,

This letter will confirm that AT&T-SSI and GST Telecommunications, Inc. are in active negotiations in good faith to install a fiber optic submarine cable system linking the islands of Molokai, Lanai, Oahu, Hawaii, Maui and Kauai. On the island of Oahu, the cable system is expected to land at the AT&T Keawaula and Makaha cable stations.

Negotiations are also being conducted to provide GST with access to the Keawaula and Makaha cable stations under a separate agreement subordinate to the submarine cable station supply contract. These negotiations are intended to provide enough space at both cable stations to support GST's requirements for submarine terminals; equipment to convert from the SONET protocol of HIFN to the SDH protocol of international cables; and any necessary connecting equipment.

Regards,

Robert T. Miller

08/26/1996 13:16 8086827630 GST INTERNATIONAL PAGE 02
AUG-26-1996 08:40 AT&T INTERCONNECTION SVCS P.01

AT&T

ROBERT T. MILLER
Director
Interconnection
Services and
Network Support District

Room S111
340 Mount Kemble Avenue
Morristown, NJ 07960
Phone 201 326-3032
Fax 201 326-2470

FAX MESSAGE
Page 1 of 1

COPY

August 23, 1996

TO: Mr William H. Martin
Senior Vice President
GST International Inc.
91-238 Kalaeola Boulevard
Suite 200
Kapolei, HI 95707

FAX #1-808-682-7630

Dear Mr Martin,

In response to your request dated August 21, AT&T is pleased to confirm via this letter that the contract signed between AT&T Corp and GST Telecom Hawaii, Inc allows for the use of defined space in the Keawaula and Makaha international cable stations as well as related AT&T conduit, manholes, and easements from each of the cable stations to the beach. Such cable station space, conduit, manholes, and easements are limited to GST use for the installation, construction and operation of the Hawaii Inter-island Fiber Network (HIFN).

Warmest regards,

A wholly owned subsidiary of AT&T

TOTAL P.31

96-045BD

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

JEREMY HARRIS
MAYOR

DONA L. HANAIKE
DIRECTOR

ALVIN K.C. AU
DEPUTY DIRECTOR

July 2, 1996

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

FROM: DONA L. HANAIKE, DIRECTOR

SUBJECT: SANDY AND MAKAHA BEACH PARKS
SPECIAL MANAGEMENT AREA USE PERMIT (SMP) AND
SHORELINE SETBACK VARIANCE (SV)
TAX MAP KEYS 3-9-12:002 (POR.)
8-4-001:012 (POR.)
8-1-001:018 (POR.)
PROJ. REF. NOS. 96/SMA-037, 96/SV-004, AND 96/SV-005

It is our understanding from discussions with Mr. Brian Takeda of R.M. Towill Corporation that, with the exception of the shoreline sandy beach area, no excavation will be necessary and that the new cables will be installed through the existing GTE manholes and conduits. Therefore, we have no objection to the application for a Special Management Area Use Permit and Shoreline Setback Variance provided that:

1. A Park Right-of-Entry Permit be obtained from our department before starting any work. The permit application is available from the Permits Section of our department located in the lobby of the Honolulu Municipal Building.

2. All work in the park be coordinated with our maintenance staff. You may call Mr. Roy Sato, Maintenance Supervisor for Sandy Beach, at 973-7250 and Mr. Vicente Enjada, Maintenance Supervisor for Makaha Beach Park, at 671-0561.

3. All other requirements and permits be obtained before starting any work on the proposed project.

4. All work be done entirely within the existing GTE fiber optic cable easements at both sites.

5. Detailed construction plans be submitted to our department for review and approval before starting any work.

6. Impacts to beach area be minimized and the area restored to a condition acceptable to our department.

Should you have any questions, please contact Lester Lai of our Advance Planning Branch at extension 4696.

For DONA L. HANAIKE
Director

DLH:ei

R. M. TOWILL CORPORATION

420 Waiakamilo Rd #411 Honolulu HI 96817-4941 (808) 842-1133 Fax (808) 842-1937

August 22, 1996

Ms. Donna L. Hanaike, Director
Department of Parks and Recreation
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Ms. Hanaike:

SUBJECT: Draft Environmental Assessment for Submarine Fiber Optic Cable Landing Sites at Sandy Beach Park and Makaha Beach, Oahu, GST Telecom Hawaii, Inc.

We have received your comments dated July 2, 1996, and have prepared the following response.

Our client, GST Telecom Hawaii, Inc., has advised us they intend to comply with the terms outlined by your Department via letter referenced above. We will initiate discussion with your staff, Mr. Lester Lai, Advance Planning Branch, during preparation of the engineering drawings for the Sandy Beach Park and Makaha Beach segments of the project.

Thank you for your assistance with this important project. Should you have any further comments or questions please contact us at (808) 842-1133.

Sincerely,

Brian Takeda

Brian Takeda
Senior Planner

BT/bt
cc Mr. Jack Lewis, GST Telecom Hawaii, Inc.
CK RMTC

96-04577

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

JUL 16 1995

MICHAEL D. WILSON
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY
GILBERT S. COLOMA-AGARAN

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

Ref: DLM-GYT96-10040

Honorable Patrick T. Onishi, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, HI 96813

Dear Mr. Onishi:

Subject: **Request for Comments-Special Management Area Use Permit and Shoreline Setback Variance**
Project Name: GST Pacwest Telecom Hawaii, Inc. Submarine Fiber Optic Cable Landings at Sandy Beach, Makaha Beach and Keawaula, Oahu
Tax Map Keys: 1st/3-9-12:02 (portion), 1st/8-4-01:12 (portion) and 1st/8-1-01:18 (portion).

Reference is made to your request for our review and comments on the environmental assessments prepared for the above-mentioned projects.

Copies of the assessments were transmitted to our different divisions and branches for their review, comments, etc. The responses from our Oahu District Land Office (Attachment A) and the Division of Aquatic Resources (Attachment B) are enclosed.

The Divisions of Water Resource Management and State Parks and the Planning and Technical Services Branch of the Land Division reviewed the assessments and had no comments.

Thank you for the opportunity to comment on this matter. Should

you or your staff have any questions, please feel free to call on Dean Y. Uchida, Administrator, Land Division at 587-0446 or Glenn Y. Taguchi at 587-0414.

HAWAII: Earth's best!

Aloha,

for MICHAEL D. WILSON

c: Michael H. Nekoba
Colbert M. Matsumoto, Esq.
Oahu District Land Office

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Honolulu, Hawaii
June 17, 1996

File No.: GYT96-10020
Suspense Date: 7/1/96

MEMORANDUM

TO:
FROM:

Aquatic Resources
Boating and Ocean Recreation
Conservation & Resources Enforcement
Historic Preservation
State Parks
Water Resource Management
Land Division: Planning & Technical Services
Engineering Branch
Oahu District Land Office

TO.
FROM: Dean Y. Uchida, Administrator

SUBJECT: Request for Comments - Draft Environmental Assessment for Submarine Fiber Optic Cable Landing at Sandy Beach Park, Makaha Beach and Keawaula, Oahu, Hawaii
Tax Map Keys: 1st/3-9-12:02 (portion), 1st/8-4-01:12 (portion) and 1st/8-1-01:18 (portion)

Please review the attached:

1. Draft Environmental Assessment for Submarine Fiber Optic Cable Landing at Sandy Beach Park, Oahu, Hawaii; and
2. Draft Environmental Assessment for Submarine Fiber Optic Cable Landings at Makaha Beach and Keawaula, Oahu, Hawaii.

and submit your comments within the time requested above. If more time is required, please call Glenn Y. Taguchi at 587-0439.

If no response is received by the suspense date, we will assume there are not comments.

Attachments

( ) We have no comments.
(X) Comments attached.
( ) We have no objections.

Signed: CBC
Date: 6/24/96

Attachment A

Comments

The Oahu District Office of the Land Division has concerns about the impact of various fiber optic cable landings on the shorelines of Oahu. The Keawaula, Oahu location is currently sparsely utilized by beachgoers, but may be much more intensely utilized in the near and mid term future development plans for the island of Oahu. Sandy Beach Park and Makaha Beach are heavily used by the public at the present time and there are already cable landing sites at all three locations.

We concur with the usage of lands adjacent to the current cable landing sites for future cable landing sites. However, we feel that an Environmental Impact Statement would be justified as shorelines heavily utilized by cable landings, which will not be removed after they are deemed antiquated, may well have a significant impact on the public in the future.

CBC

RECEIVED
DIVISION OF
LAND MANAGEMENT
'96 JUN 5 2 02 PM

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Honolulu, Hawaii
June 17, 1996

DIVISION OF AQUATIC RESOURCES

[illegible]	✓	Suspense Date
[illegible]		Date Reply
[illegible]		Party Direct
[illegible]		Comments
[illegible]		Information
[illegible]		Comp. Act & File
[illegible]		Response
[illegible]		Copies to
[illegible]		Remarks
		96-675
RG	X	

File No.: GYT96-10020
Suspense Date: 7/1/96

MEMORANDUM

TO: Aquatic Resources
Boating and Ocean Recreation
Conservation & Resources Enforcement
Historic Preservation
State Parks
Water Resource Management
Land Division: Planning & Technical Services
Engineering Branch
Oahu District Land Office

RECEIVED
JUN 18 1996
Div. of Aquatic Resources

FROM: Dean Y. Uchida, Administrator

SUBJECT: Request for Comments - Draft Environmental Assessment for Submarine Fiber Optic Cable Landing at Sandy Beach Park, Makaha Beach and Keawaula, Oahu, Hawaii
Tax Map Keys: 1st/3-9-12:02 (portion), 1st/8-4-01:12 (portion) and 1st/8-1-01:18 (portion)

Please review the attached:

1. Draft Environmental Assessment for Submarine Fiber Optic Cable Landing at Sandy Beach Park, Oahu, Hawaii; and
2. Draft Environmental Assessment for Submarine Fiber Optic Cable Landings at Makaha Beach and Keawaula, Oahu, Hawaii.

and submit your comments within the time requested above. If more time is required, please call Glenn Y. Taguchi at 587-0439.

If no response is received by the suspense date, we will assume there are not comments.

Attachments

( ) We have no comments.
(✓) Comments attached.
( ) We have no objections.

Signed
Date: 7-3-96

Attachment B

1-18-96

Suspense Date: 7-1-96

State of Hawaii
Department of Land and Natural Resources
DIVISION OF AQUATIC RESOURCES

Date 7-3-96

TO: William S. Devick, Acting Administrator
FROM: Francis G. Oishi, Aquatic Biologist
SUBJECT: Comments on Environmental Assessments (EA)

Comment Requested by: D. Uchida, Land	Date of:	Request 6-17	Receipt 6-18	Referral 6-20

Summary of Proposed Project

Title: Submarine Fiberoptic Cable Landings
Project by: GST Pacwest Telecom Hawaii, Inc.
Location: Sandy Beach, Makaha Beach, Keawaula (Yokohama) Beach, Oahu

Brief Description: Our Division of Land is circulating a request for review and comment from the City and County of Honolulu Department of Land Utilization. Requested for review are EAs produced by GST for their application for Special Management Area permit and Shoreline Setback Variance. Permit and Variance are needed to lay a system of submarine fiberoptic cable that would come ashore for land links at the above-mentioned locations.

For two locations (Makaha and Keawaula), GST proposes and has secured agreements with existing cable easement holder, AT&T. For the Sandy Beach location, the easement is held by GTE and negotiations to share cable easement are pending.

Should agreements to share cable easements be attained for all three locations, cable laying would involve retrenching of the existing easements in the shoreline area and within nearshore waters to varying lengths. If agreement with GTE is not attained, GST would have to excavate a new alignment to come ashore but will still accomplish the land link near the existing GTE site.

Expected impacts associated with this proposal are turbidity from sediments suspended in the nearshore waters during construction, destruction of marine environment along the cable alignments, and closure and lost use of the shoreline and surrounding nearshore waters during construction. Impacts are assessed as not significantly impacting the marine environment or nearshore water quality.

Comments: The cable diameter is described as ranging from 17 - 51 mm, roughly 2 inches in diameter at maximum. In the section that describes construction, trenching may range from one to two feet widths. Any trenching allowed for the burying of cable should be restricted to a minimal width sufficient to accomodate cable of this size. This would avoid unnecessary dredging of the marine substrate and associated biota.

Further, the EA discusses two cable protection options: burying or covering by split pipe. Under the split pipe option, the cable would be protected by being covered with split pipe secured to hard substrate with nails or pins. This option is preferred as it probably would result in less impact environmentally.

The subject documents describe in the Introduction, a plan to have "branches" of the main cable making landfall at Manele Bay, Lanai and Kaunakakai, Molokai. Although not a concern of this petition process (since this only deals with the City and County of Honolulu), opposition must be expressed for cable laying in Manele Bay. The entire Manele Bay is part of the larger Manele-Hulopoe Marine Life Conservation District (MLCD). This MLCD was established to protect pristine coral reefs and marine life of this area. Intrusion resulting from construction work and the cable itself is an inappropriate use for such a ecologically sensitive area.

R. M. TOWILL CORPORATION

420 Waiakamilo Rd #411 Honolulu HI 96817-4941 (808) 842-1133 Fax (808) 842-1937

August 27, 1996

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

Dear Mr. Wilson:

SUBJECT: Draft Environmental Assessment for Submarine Fiber Optic Cable Landing Sites at Sandy Beach Park, Makaha Beach, and Keawaula, Oahu, GST Telecom Hawaii, Inc.

We have reviewed your comments dated July 16, 1996, and have prepared the following response.

LAND DIVISION CONCERNS

The proposed fiber optic cable is not expected to adversely affect public recreational uses. The cables will be buried in the immediate nearshore from shoreline to below tidal level where it would not be exposed to beach activities.

According to the Draft Environmental Assessment, the bottom zone at Makaha Beach and Keawaula within 200 feet of the shoreline is predominantly sand. The cables are expected to become buried in this sand, as it has for previous fiber optic cables landed there. The bottom zone at Sandy Beach Park within 600 feet of shore is comprised of relatively flat limestone with numerous small to medium boulders, 1 to 2 feet in diameter. Within the bottom zone the cable will be armored for protection. At the nearshore a layer of sand which covers an existing telecommunications cable will also cover the proposed cable.

The life expectancy of the cables are ±50 years. The concern over future obsolescence and abandonment of the cables at the end of this period should be considered in relation to the following:

- At the end of the ±50 year period portions of the exposed cable surface will have been used by marine organisms as a medium for growth. Anemones, corals, barnacles, sponges, and other marine life will have established large or extensive colonies by this time and it could be difficult to visually distinguish these organisms from the surface of the cable (although the cable itself can be electronically located). It is expected that if the cable were to be removed under these conditions, greater environmental damage could result than if the cable were allowed to remain in place; and,
- Although the cables may one day no longer be used for commercial purposes, there may be other uses which could continue to serve the public interest. These uses would include educational, scientific, or humanitarian purposes.

DIVISION OF AQUATIC RESOURCES CONCERNS

Your staff concern regarding construction practices during installation of the cable have been noted. The following are proposed to mitigate potential for impacts: 1) trenching at the nearshore segment will be restricted to the minimal width necessary to install the fiber optic cable; and 2) where it is necessary to anchor the cable to the ocean bottom, split pipe will be used in preference to trenching.

Concern has also been expressed regarding the proposed project within the Manele Bay, Lanai, Marine Life Conservation District (MLCD). We share your concern over use of this site and will work with your staff to ensure that any proposed work practices will fulfill the requirements of Hawaii Administrative Rules, Chapter 13-30, establishing the MLCD. The appropriate time for this effort will be during the Departmental review of the Conservation District Use Permit (CDUP) application.

Your review of this project has been very much appreciated. Should you have any further comments or questions please contact us at (808) 842-1133.

Sincerely,

Brian Takeda

Brian Takeda
Senior Planner

BT/bt
cc Mr. Jack Lewis, GST Telecom Hawaii, Inc.
CK RMTC

96-04527

OAHU GROUP
SIERRA CLUB, HAWAII CHAPTER
The Arcade Building, Room 201
212 Merchant Street, Honolulu, Hawaii
P.O. Box 2577, Honolulu, Hawaii 96803
Phone: (808) 538-6616

July 15, 1996

Dana Teramoto
Department of Land Utilization
City and County of Honolulu
650 S. King St. 7th Floor
Honolulu, HI 96813

Dear Ms. Teramoto

The O'ahu Group of the Sierra Club would like to go on record as opposing the granting of any SHA permit or Shoreline Setback Variance for the Submarine Fiber Optic Cable Landings at Sandy Beach if the applicant does not obtain approval from GTE to use existing manholes and ductlines. It is inappropriate to add new handholes and ductlines in the shoreline area -- particularly when existing ones already exist.

We would also request that any work at Sandy Beach, Makaha and Keawaula be closely documented and monitored. Recently, a telecommunication line was placed through Ka'ena Point. Unfortunately, the activity greatly disturbed the area. The contractor enhanced vehicular access to an area that is supposed to be off limits to vehicles. The telecommunications firm also failed to re-vegetate the area. We are quite concerned about the long-term impact of this work on the fragile eco-system.

Native vegetation should be planted in all areas that are disturbed through this activity. The applicant should be *required to irrigate these plantings for a minimum of six months* to ensure their long-term viability. This requirement will not only restore the natural beauty of an area, but it will also *reduce erosion, thereby protecting water quality.*

Sand dunes should be restored to their original formation. If heavy equipment compacts the sand, the sand should be turned over to eliminate artificial compaction.

We would like to take this opportunity to remind you of the Department's statutory mandates. HRS 205A-4(a) requires that DLU give full consideration to ecological and esthetic values. HRS 205A-4(b) mandates that the objectives and policies of chapter 205A are binding on DLU. HRS 205A-2(b)(3) calls for the county to "protect valuable coastal eco-systems . . . from disruption and minimize adverse impacts on all coastal ecosystems." These beach areas and their associate plant life are valuable coastal ecosystems. HRS 205A-2(c)(3)(B) calls for the minimization of the alteration of natural landforms. Such landforms include sand dunes.

Therefore, if DLU grants any permit or variances, it should include the following conditions:

1) The applicant shall provide color photographs of the area to be impacted (including the area to be excavated and all nearby areas that may be impacted by heavy equipment).

2) The applicant shall submit color photographs of the area after construction and once again six months after construction.

3) The applicant shall restore all beach areas to their pre-existing condition (including height and compaction).

4) The applicant shall plant native vegetation (such as naupaka and 'ilima) and provide water to these plants for a minimum of six months.

Thank you for your consideration.

Sincerely,

Philip Bogetto

R. M. TOWILL CORPORATION

420 Waiakamilo Rd #411 Honolulu HI 96817-4941 (808) 842-1133 Fax (808) 842-1937

August 27, 1996

Mr. Philip Bogetto
Sierra Club, Hawaii Chapter, Oahu Group
The Arcade Building, Room 201
212 Merchant Street
Honolulu, Hawaii 96803

Dear Mr. Bogetto:

SUBJECT: Draft Environmental Assessment for Submarine Fiber Optic Cable Landing Sites at Sandy Beach Park, Makaha Beach, and Keawaula, Oahu, GST Telecom Hawaii, Inc.

We have reviewed your comments dated July 15, 1996, and have prepared the following in response.

The proposed project will use existing landing facilities owned by GTE Hawaiian Tel (Sandy Beach Park) and AT&T (Makaha Beach and Keawaula). AT&T has already authorized use of the Makaha and Keawaula landings. Good faith discussions between GST and GTE Hawaiian Tel are ongoing for Sandy Beach Park. We are hoping for a signed agreement shortly.

The environmental permitting process requires that Best Management Practices (BMPs) be developed to ensure sufficient protection of the nearshore and ocean portions where the fiber optic cable will be landed. Many of the conditions you have recommended will be included as part of the project BMPs. These conditions will involve restoration of the landing site contours and any land portions utilized for the landing; where applicable disturbed landing sites will be revegetated with native flora; and, documentation of the site for preconstruction and postconstruction conditions shall be by photographs.

Thank you for your review of this important project. Should you have any further comments or questions please contact us at (808) 842-1133.

Sincerely,

Brian Takeda
Senior Planner

BT/bl
cc Mr. Jack Lewis, GST Telecom Hawaii, Inc.
CK RMTC

96-04906

BENJAMIN J CAYETANO
GOVERNOR OF HAWAII

LAWRENCE MIIKE
DIRECTOR OF HEALTH

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

In reply, please refer to

July 23, 1996

91-398A/epo

Mr. Patrick Onishi, Director
Department of Land Utilization
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Onishi:

Subject: Environmental Assessment
Project within the Special Management Area and
Shoreline Setback Variance
Project Name: GST Pacwest Telecom Hawaii, Inc.
Submarine Fiber Optic Cable Landing
Location: Sandy Beach, Makaha Beach, and Keawaula
TMK: 8-1-01: por. 18, 3-9-12: por. 02, and
8-4-01: por. 12

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

1. Activities associated with the construction phase of the project must comply with the provisions of Title 11, Hawaii Administrative Rules, Chapter 43, "Community Noise Control for Oahu."

   a. The contractor must obtain a noise permit if the noise levels from construction activities are expected to exceed the allowable levels of the rules.

   b. Construction equipment and on-site vehicles requiring an exhaust of gas or air must be equipped with mufflers.

   c. The contractor must comply with the conditional use of the permits as specified in the regulations and conditions issued with the permit.

   d. If night work is required, the contractor must obtain a community noise variance if the noise levels from the activities are expected to exceed the allowable levels of the regulations.

2. Heavy vehicles traveling to and from the project site must comply with the provisions of Title 11, Hawaii Administrative Rules, Chapter 42, "Vehicular Noise Control for Oahu."

Should you have any questions, please contact Mr. Jerry Haruno, Environmental Health Program Manager of the Noise, Radiation and Indoor Air Quality Branch at 586-4701.

Sincerely,

BRUCE S. ANDERSON, Ph.D.
Deputy Director for Environmental Health

c: NR&IAQB

R. M. TOWILL CORPORATION

420 Waiakamilo Rd #411 Honolulu HI 96817-4941 (808) 842-1133 Fax (808) 842-1937

August 27, 1996

Dr. Bruce S. Anderson, Ph.D.
Deputy Director for Environmental Health
State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Dr. Anderson:

SUBJECT: Draft Environmental Assessment for Submarine Fiber Optic Cable Landing Sites at Sandy Beach Park, Makaha Beach, and Keawaula, Oahu, GST Telecom Hawaii, Inc.

We have reviewed your comments dated July 23, 1996, and have prepared the following response.

GST Telecom Hawaii, Inc., intends to fully comply with provisions of Hawaii Administrative Rules (HAR), Chapter 11-43, Community Noise Control for Oahu. The items we will address will involve the following:

- The contractor will obtain a noise permit if construction related noise exceeds allowable levels during daytime operations. Similarly, if night work is required the contractor must also obtain a community noise variance if noise is expected to exceed allowable levels;
- Construction equipment and on-site vehicles powered by internal combustion engines are to be equipped with mufflers;
- The contractor must comply with the terms and conditions of any noise permit granted; and,
- Heavy vehicles travelling to and from the construction site will be required to comply with HAR, Chapter 11-42, Vehicular Noise Control for Oahu.

Thank you for your review of this important project. Should you have any further comments or questions please contact us at (808) 842-1133.

Sincerely,

Brian Takeda

Brian Takeda
Senior Planner

BT/bt
cc Mr. Jack Lewis, GST Telecom Hawaii, Inc.
CK RMTC

96-0396

WAIANAE COAST NEIGHBORHOOD BOARD NO. 24

c/o Neighborhood Commission
530 S. King St., 4th Floor, Honolulu, HI 96813

August 6, 1996

GST Pacwest Telecom Hawaii, Inc.
91-238 Kalaeloa Boulevard, Suite 100
Kapolei, HI 96707
Attn: Robert Volker

Dear Mr. Volker

Subject: Sandy Beach, Mākaha Beach and Keawaula Submarine Fiber Optic Cable Landings

The Wai'anae Coast Neighborhood Board No. 24 (WCNB#24) reviewed a proposal published in the Office of Environmental Quality Control Bulletin regarding the above subject.

The WCNB#24 supported a motion to support your request with the condition that you and your consultant contact the WCNB#24 to review the exact location of your construction efforts considering the proximity to a historical site at one of these locations.

The motion passed by the following vote: 13 Ayes, 3 Noes, and 0 Abstentions.

We look forward to hearing from you to help with our knowledge of the area and the exact location of the historical site (heiau) in question.

If you have any questions or wish to discuss our concerns further, please feel free to contact me via Ben Kama at 523-4380, of the Neighborhood Commission

Sincerely,

Glen Kila
Chairperson
Wai'anae Coast Neighborhood Board #24

cc: Neighborhood Commission
The Honorable John DeSoto, City Council Chairperson, C&C of Honolulu
Representative Merwyn S. Jones
Representative Mike Kahikina
Senator James Aki
State Office of Environmental Quality Control
City and County of Honolulu, DLU
R.M. Towill Corporation

Oahu's Neighborhood Board System-Established 1973

R. M. TOWILL CORPORATION

420 Waiakamilo Rd #411 Honolulu HI 96817-4941 (808) 842-1133 Fax (808) 842-1937

August 27, 1996

Mr. Glen Kila, Chairperson
Waianae Neighborhood Board #24
c/o Neighborhood Commission
530 South King Street, 4th Floor
Honolulu, Hawaii 96813

Dear Mr. Kila:

SUBJECT: Draft Environmental Assessment for Submarine Fiber Optic Cable Landing Sites at Sandy Beach Park, Makaha Beach, and Keawaula, Oahu, GST Telecom Hawaii, Inc.

Thank you for your transmittal dated August 6, 1996, in support of the proposed project. Per your request we will provide you with the exact locations of the proposed work at Makaha Beach and Keawaula. The preliminary engineering drawings which will identify the alignments are now being prepared. This information will be provided to you shortly.

Your review of this important project is very much appreciated. Should you have any further comments or questions please contact us at (808) 842-1133.

Sincerely,

Brian Takeda
Senior Planner

BT/bt
cc Mr. Jack Lewis, GST Telecom Hawaii, Inc.
CK RMTC

Engineers • Planners • Photogrammetrists • Surveyors
Construction Managers • Environmental Services

REFERENCES

Atlas of Hawaii, Second Edition, Department of Geography, University of Hawaii, 1983.

Bauer, G.B. and L.M. Herman. 1986. *Effects of Vessel Traffic on the Behavior of Humpback Whales in Hawaii.* Prepared for NMFS, Honolulu Laboratory, Hawaii. 140+pp.

Brock, R.E. 1954. *A Preliminary Report on a Method of Estimating Reef Fish Populations,* Wildlife Management, Vol. 18, pp.297-308,

Brock, R.E. 1982. *Summary of Observaitons on the Green Sea Turtle Population in the Area Fronting the West Beach Project SIte, Report.* Prepared for West Beach Estates, Honolulu, EAC Rept. No. 90-06. 18p.

Department of Planning and Economic Development, State of Hawaii, 1990-93 Editions. *The State of Hawaii Data Book 1990; A Statistical Abstract.*

Environmental Assessment for the GTE Hawaiian Tel Interisland Fiber Optic Cable System; Wailua Golf Course, Kauai; Sandy Beach Park; Mokapu Beach, Maui; Spencer Beach Park, Hawaii, R.M. Towill Corporation, Honolulu, Hawaii.

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