Stephen K. Yamashiro
Mayor

Virginia Goldstein
Director

Norman Olesen
Deputy Director

County of Hawaii

PLANNING DEPARTMENT
25 Aupuni Street, Room 109 • Hilo, Hawaii 96720-4252
(808) 961-8288 • Fax (808) 961-9615

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OFC. OF ENVIRONMENTAL QUALITY CONTROL

September 10, 1996

Mr. Gary Gill, Director
Office of Environmental Quality Control
220 S. King Street
Honolulu, HI 96813

Dear Mr. Gill:

Subject: Final Environmental Assessment/Finding of No Significant Impact
Applicant: GST Pacwest Telecom Hawaii, Inc.
Request: Installation of an Interisland Submarine Fiber Optic Cable System and Related Improvements Spencer Beach Park, South Kohala, Hawaii
Tax Map Key: 6-2-02:Portions of 8 and 16

Please find enclosed a completed OEQC Bulletin Publication Form and four (4) copies of the Final Environmental Assessment/FONSI for the above-referenced project. We have determined that a FONSI can be issued on the project as impacts can be mitigated through conditions of the applicable Shoreline Setback Variance Permit review process, should the request be approved.

Please publish notice of this determination in the September 23, 1996 Bulletin.

The proposed uses are to be located within the shoreline setback area, thus triggering Chapter 343, HRS, relating to Environmental Impact Statements. As the issuance of a Shoreline Setback Variance Permit by the County Planning Commission is prerequisite to the use of the property for the proposed uses, the Planning Department shall be the accepting agency.

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Should you have any questions, please contact Alice Kawaha or Susan Gagorik of the Planning Department at 961-8288.

Sincerely,

Virginia Goldstein

VIRGINIA GOLDSTEIN
Planning Director

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Enclosures

xc: Mr. Robert Volker, GST Pacwest Telecom Hawaii, Inc.
Mr. Brian Takeda, R.M. Towill Corporation

1996-09-23-HI-FEA - Submarine Fiber Optic Cable Landing at Spencer Beach Park

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 Landing at Spencer Beach Park, Island of Hawaii

HAWAIIAN ISLAND FIBER NETWORK (HI FiberNet)

AUGUST 1996

PREPARED FOR:
GST Pacwest Telecom Hawaii, Inc.
91–238 Kalaeloa Blvd., Building One
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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Honolulu, Hawaii 96817-4941

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LIST OF FIGURES

PROJECT SUMMARY

Project System:	GST Pacwest Telecom Hawaii, Inc., Hawaii 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 Phone: (808) 682-5123
Accepting Authority:	County of Hawaii, Department of Planning
Tax Map Key:	6-2-02:8
Location:	Spencer Beach Park
Lot Area:	13.36 acres
Owner (6-2-02:8):	Department of Parks and Recreation County of Hawaii 25 Aupuni Street Hilo, Hawaii 96820 Phone: (808) 961-8311
Agent:	R. M. Towill Corporation 420 Waiakamilo Road, Suite 411 Honolulu, Hawaii 96817 Contact: Brian Takeda or Chester Koga Phone: (808) 842-1133
Existing Land Uses:	Recreational area, Beach Park
State Land Use District:	Conservation
General Plan Land Use Designation:	Open
County Zoning Designation:	Open, allows utility installations

SECTION 1
INTRODUCTION

1.1 PURPOSE AND OBJECTIVES

GST Pacwest Telecom Hawaii, 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 Pacwest Telecom Hawaii, Inc. network will be the 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 main cable with linkage from Waialua Golf Course, Kauai, to 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.

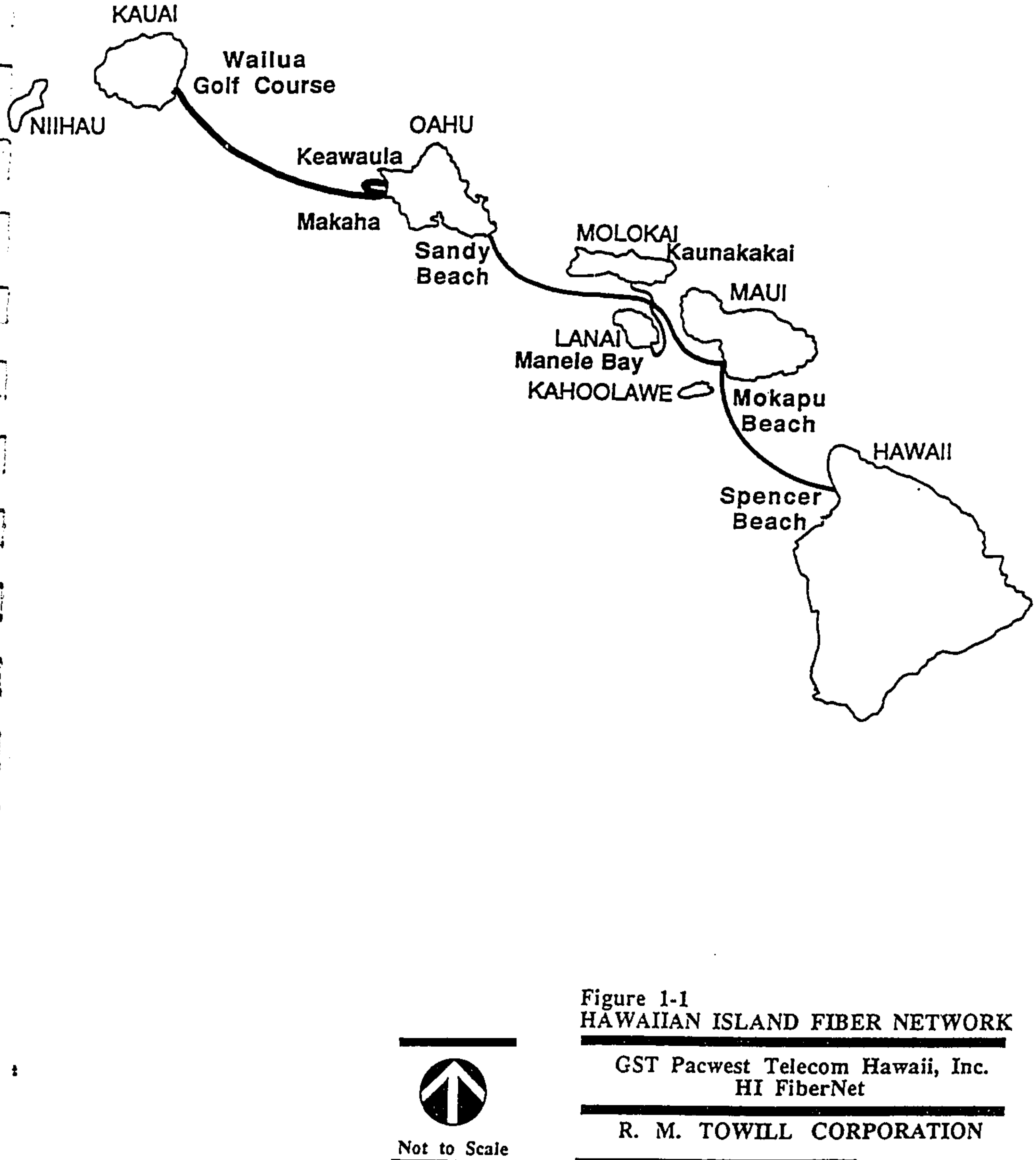


Figure 1-1
HAWAIIAN ISLAND FIBER NETWORK

GST Pacwest Telecom Hawaii, Inc.
HI FiberNet

R. M. TOWILL CORPORATION

JANUARY 96

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 Pacwest Telecom Hawaii, Inc. to enhance service now provided through microwave systems 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 an alternative to the existing interisland fiber optic system in the event of system failure or damage to the system.

1.2 PROJECT LOCATION

Spencer Beach Park is the proposed landing site for the Maui to Hawaii segment of the submarine interisland fiber optic cable system. Spencer Beach Park, which is owned by the County of Hawaii (Figure 1-2), is located 1,000 feet directly south of the Kawaihae Harbor Breakwater, South Kohala District. Spencer Beach Park encloses one of the typical small pocket beaches along this coast. The beach within the park is approximately 400 feet long.

Surrounding land uses include the Puukohola Heiau National Historic Site owned by the United States of America and abuts Spencer Beach Park to the north, and vacant lands owned by the Queen Emma Foundation to the east and south. Kawaihae Harbor is located to the north and is a deep water port serving industrial and commercial uses and deep sea fishing activities. Shoreside of the harbor is the town of Kawaihae and harbor support uses.

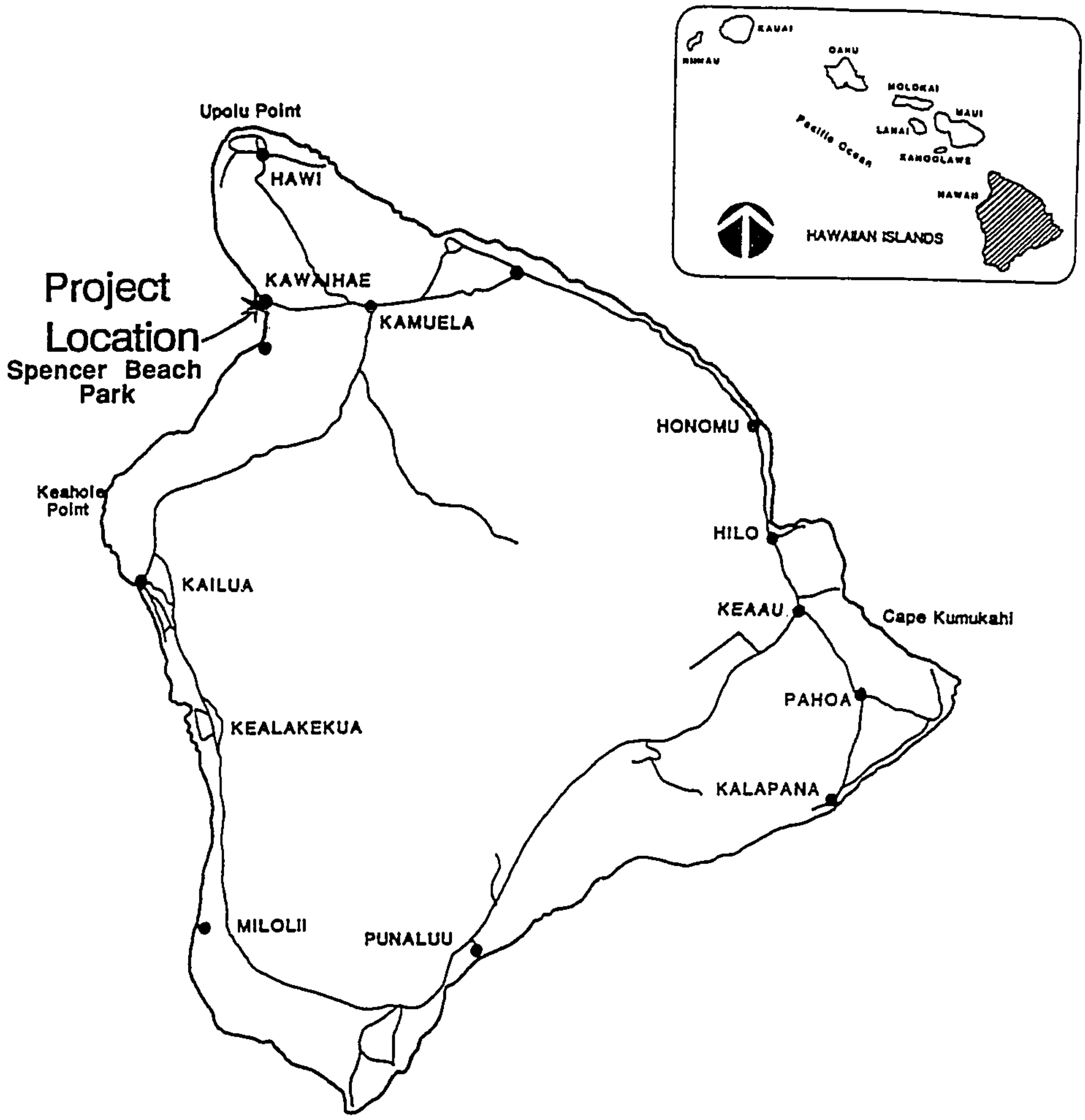
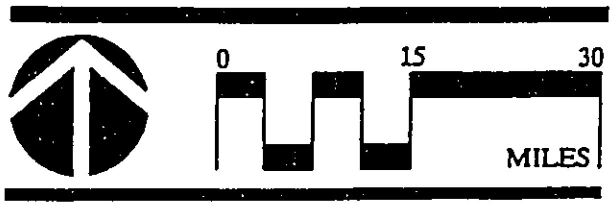


Figure 1-2
LOCATION MAP
Spencer Beach Park, Hawaii



GST Pacwest Telecom Hawaii, Inc.
HI FiberNet

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JANUARY 96

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 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

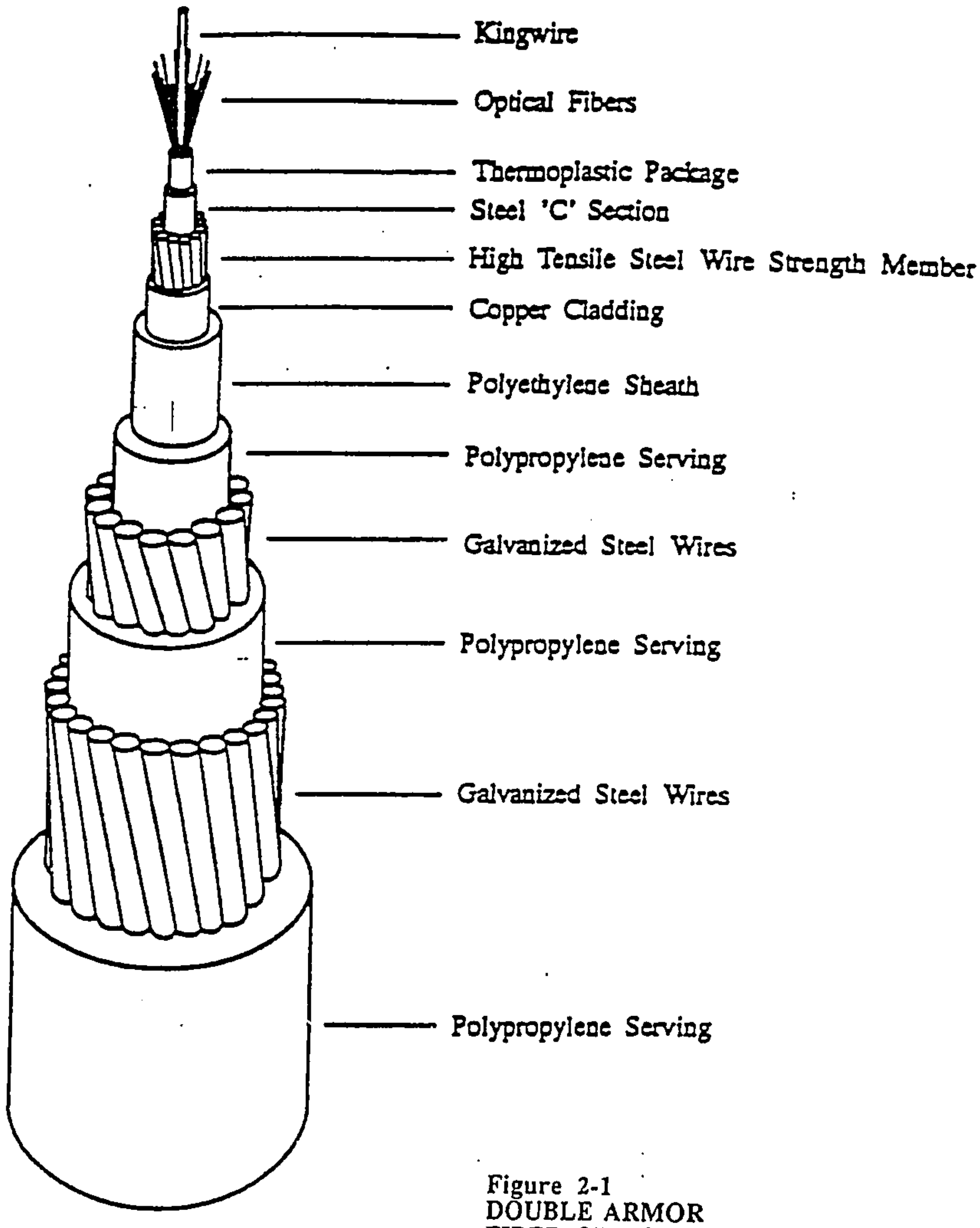


Figure 2-1
DOUBLE ARMOR
FIBER OPTIC CABLE

GST Pacwest Telecom Hawaii, Inc.
HI FiberNet

R. M. TOWILL CORPORATION

JANUARY 96

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.

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 a magnitude of 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

The recently installed GTE Hawaiian Tel Interisland Fiber Optic System is providing service to Hawaii. There are also 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.

Along parts of the proposed 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 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

Three possible Hawaii landing sites for the Big Island to Maui segment where underwater geology would be most suitable are Spencer Beach, Hapuna Beach, and Mauna Kea Beach. Spencer Beach is proposed as the preferred landing site because it was previously disturbed by an existing cable and would result in minimal new disturbance to the area. The existing nearshore alignment also avoids most of the reef and coral heads which lie alongside and within a sand channel leading away from the shoreline to the ocean.

Should Spencer Beach be removed from consideration, Hapuna Beach is recommended as an alternative site. Hapuna Beach possesses positive site features including a sandy bottom with available access to shore. Coral heads and finger coral are usually found in deeper water, and may potentially be crossed with minimal disturbance to the area. In addition, historic and archaeological sites are not expected to be discovered (Discussion with DLNR,

Historic Sites Office). However, the single most important constraint with Hapuna Beach, is its heavy use by the public for scenic and recreational uses. This concern, combined with the existing, readily available landing at Spencer Beach, discounts this site from selection.

Mauna Kea Beach is not considered a viable alternative because the route would cross several areas of prolific coral growth. A cable route could be selected which would provide a sand bottom out to the 45 foot depth. However, from that point to the 80 foot depth, the route would cross several large beds of coral. In this area, approximately half of the route would be located on the coral beds.

SECTION 3
CONSTRUCTION ACTIVITIES

3.1 GENERAL

GST Pacwest Telecom Hawaii, Inc., is requesting shared use of existing GTE Hawaiian Tel manholes and ductlines to land and connect the terrestrial portion of its interisland fiber optic cable system. Construction of fiber optic cable landing facilities at the shore-end, therefore, will involve one of two alternatives, neither of which would result in adverse potential for impacts.

Alternative A will involve excavation from the shoreline at Spencer Beach Park to a new manhole and ductlines which will be constructed to accept the cable. This would occur if insufficient capacity is available or due to technical circumstances involving shared use of the GTE Hawaiian Tel manhole and ductlines.

Alternative B would involve use of the existing GTE Hawaiian Tel manhole and ductlines. Construction to establish a connection from the GST fiber optic cable to the GTE facility will entail excavation from the shoreline to the existing manhole. From the manhole the fiber optic cable would be routed largely underground along an existing utility right-of-way.

Project Phasing

Proposed construction will take place in two phases. The first phase involves landside construction activities including trenching of the beach and nearshore area, and placement of temporary landing targets. This phase will be described in 3.2 LAND-SIDE ACTIVITY.

The second phase will involve actual landing of the cable, installation of the cable into an existing or new manhole, and beach restoration. Phase two will be described in 3.3 NEARSHORE ACTIVITIES.

3.4 CABLE LANDING PROCESS provides a detailed description of the cable landing, and 3.5 SAFETY CONSIDERATIONS identifies precautions that will be exercised to ensure safety of the public.

Both alternatives will be discussed separately in each phase.

3.2 LAND-SIDE ACTIVITY

Alternative A - Construction of new manhole and ductlines:

The first phase involves land-side construction which includes installation of a new manhole and approximately 1,100 lineal feet of underground ducts and cable to Akoni Pule Highway. At Akoni Pule Highway the underground cable will be diverted upwards onto a utility pole and carried overhead on existing utility polelines along Queen Kaahumanu Highway. The cable will terminate at a new terminal building located on the mauka side of Queen Kaahumanu Highway, on land owned by South Kahala Resort Corp (Figure 3-1).

The new manhole (5' x 10' x 6' deep) will be constructed in the vicinity of the GTE manhole at Spencer Beach Park (Figure 3-2). The manhole will be the terminus of the land-side activities and shall be constructed to receive the submarine cable. Approximately 1,100 lineal feet of ductline will be installed in a trench from the manhole to Spencer Road and along Spencer Road to Akoni Pule Highway. The ductline will be comprised of four, 4 inch diameter conduits encased in concrete. Only one ductline will be used. The remaining vacant ductlines will be capped and retained should their future use be necessary. Traffic on Queen Kaahumanu Highway, Akoni Pule Highway, and Spencer Road will be maintained at all times through use of appropriate traffic control measures.

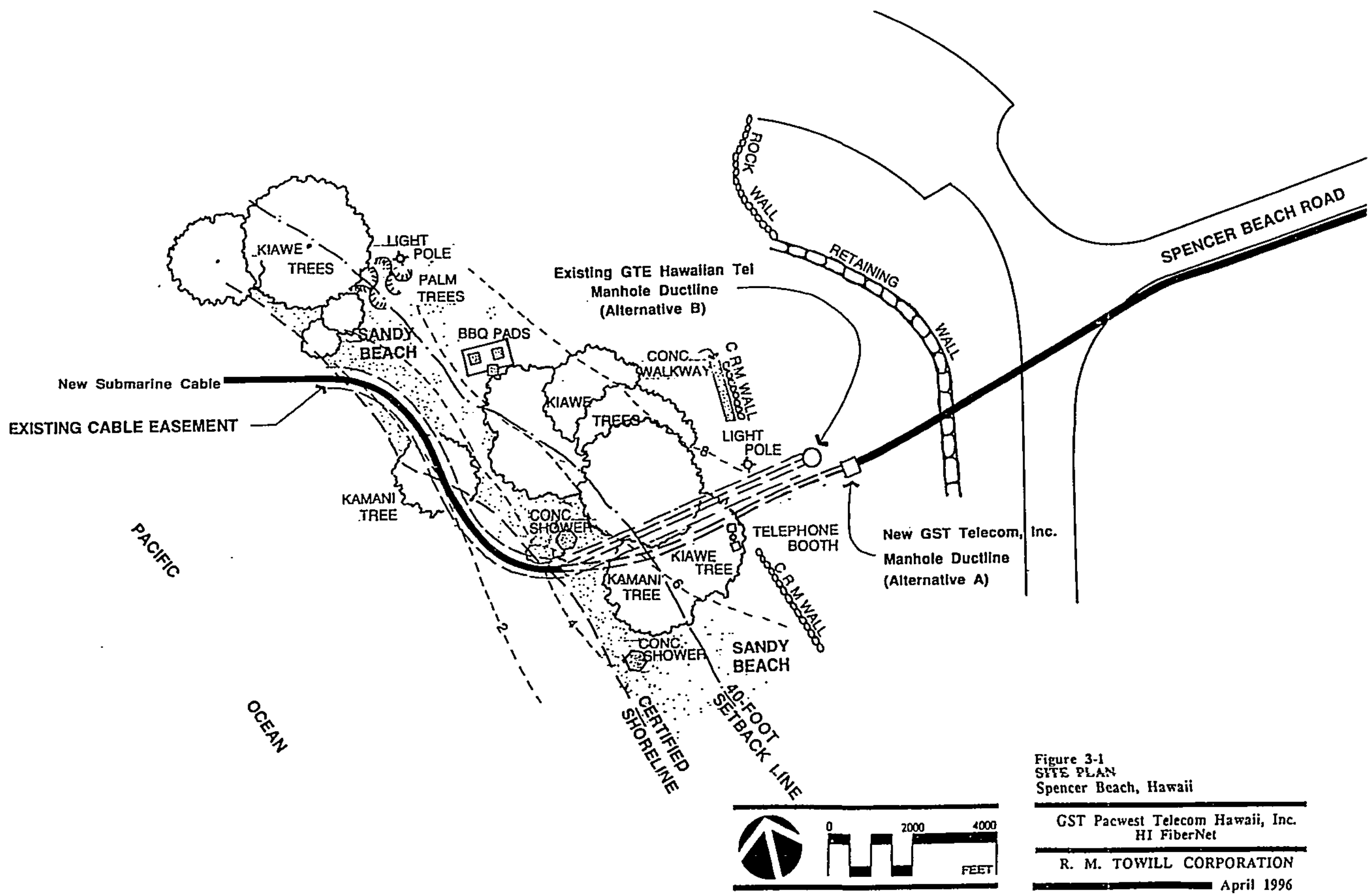
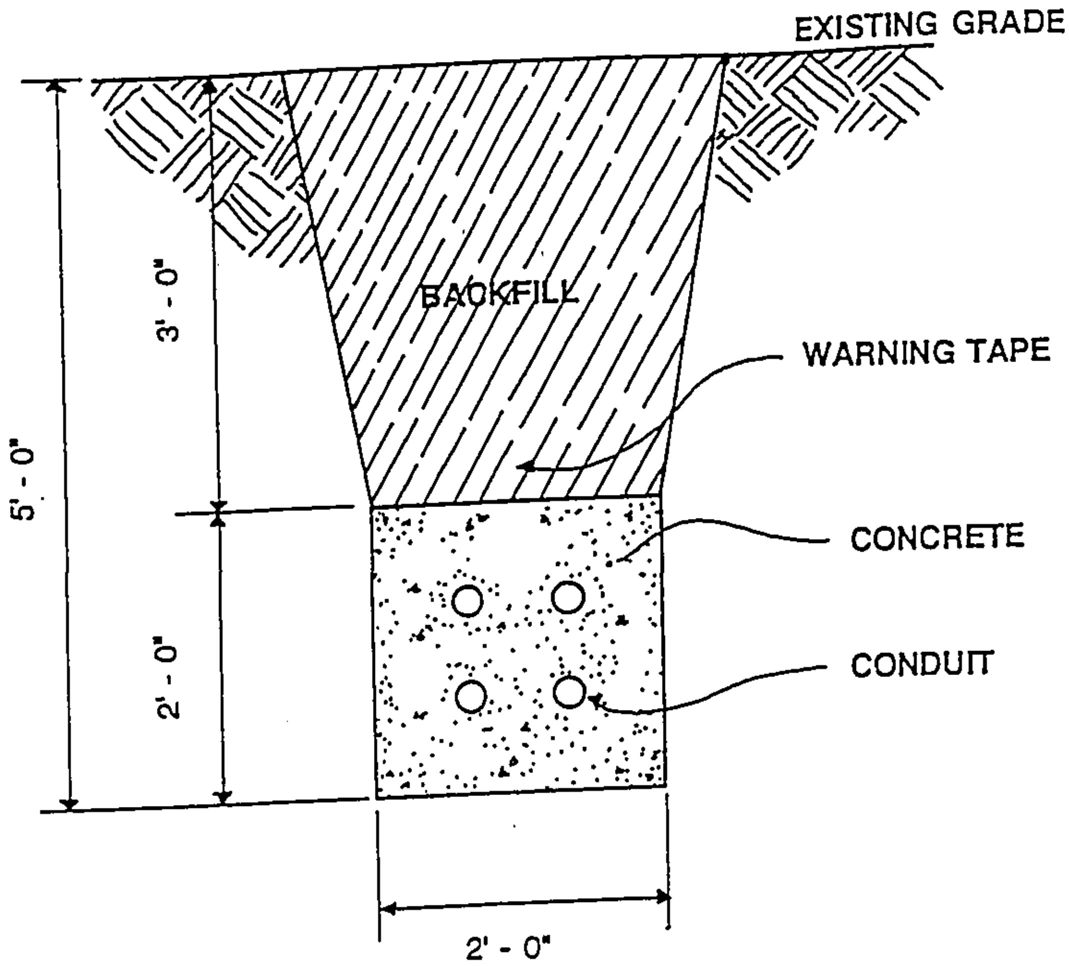


Figure 3-1
SITE PLAN
Spencer Beach, Hawaii

GST Pacwest Telecom Hawaii, Inc.
HI FiberNet

R. M. TOWILL CORPORATION
April 1996



NEW MANHOLE AT SPENCER BEACH

Figure 3-2
TRENCH SECTION
Spencer Beach, Hawaii

GST Pacwest Telecom Hawaii, Inc.
HI FiberNet

R. M. TOWILL CORPORATION
April 1996

Alternative B - GST will utilize existing GTE Hawaiian Tel Facilities:
Land-end construction activities will involve excavation of sand to expose the trench which contains the existing ductlines (Figure 3-1). 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 which are closer to the existing cable 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 178 (6' x 248' x 9') cubic yards of sand and rubble excavated from the trench will be stored on the beach adjacent to the cable easement for later use as backfill.

During the period of actual construction (excavation of the trench), that portion of the beach will be closed to beach users (approximately 5 to 7 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 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 Spencer Road.

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 hit their foot against and/or trip over it. Therefore, trenching or cable armoring should be used to protect the cable and for public safety.

Alternative A - Construction of new manhole and ductlines:

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

A 200-foot long trapezoidal shaped trench will be excavated between the end of the ductline and the mean low water mark. The trench will have a 2-foot base and be approximately 4 feet deep, with a 1:1 side slopes. Approximately 178 cubic yards of sand and rubble excavated from the trench will be stored on the beach adjacent to the cable easement for later use as backfill. The trench will be backfilled after completion of work.

During construction, which is projected for 7 to 10 days, the open trench will be barricaded from the public and a security guard may be required at night and weekends to ensure public safety and integrity of the trench site.

Sand and rubble covering the proposed cable segment may require removal below the level of the prevailing tides. For this process, a backhoe, shovels, or other mechanical means will be used to remove the upper layers. Remaining sand or rubble will be removed using a hydro-jet. If necessary, sandbags will be used to prevent sand from reentering the open trench. Rock outcrops and other hard substrate which cannot be avoided will also be removed using a backhoe or other similar mechanical means.

To reduce potential for turbidity due to construction related work, silt screens will be utilized. Upon completion of construction activities, the construction crew will make every reasonable effort to return the ground to the existing preconstruction contours through use of existing excavated materials for backfill.

Two range targets (alignment guide) will be placed on land just prior to the landing of the cables to aid in the cable laying process. 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 Spencer Road.

The second phase of work involves landing the submarine fiber optic cable and establishing a connection to a new ductline emanating from a manhole at Spencer Beach.

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.

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 proposed cable alignment at the landing site will be directed through a sand channel, which connects the beach to a large offshore sand deposit. The water depth in the sand channel is typically 10 to 15 feet and there are many large coral formations within the channel which rise vertically up from the channel bottom to within a few feet of the surface.

The sand both in the inner channel and the offshore deposit, is relatively fine and has a high silt content. Besides the coral outcrops in the sand channel, there is also a 50-foot wide basalt shelf at the toe of the beach.

A straight line route was selected to avoid much of the coral formations in the channel. Most of the coral outcrops can be avoided by carefully maneuvering the cable between the formations. During the cable landing, the floats will be successively cut from the cable and allowed to sink. Several small boats may be used during the landing process to weave the cable into place between the coral formations prior to cutting the floats. All bends will be relatively gentle and well within the radius of the cable.

Depending on subsurface conditions coral, rock and other hard surfaces that cannot be avoided will have to be removed using various means such as:

1. Coral and limestone beds may need to be trenched to a width and depth of approximately 1 to 2 feet, or more, to accept the fiber optic cable. If necessary, tremie concrete can be poured into the trench where it can harden under water. The impacts can be minimized depending on the depth of trenching necessary to accommodate the relatively narrow diameter of the cable. If tremie concrete is used, it will provide a new surface for growth of coral and other marine organisms; or,

2. Shielded cable may be laid with split pipe fastened around the cable and then bolted to the hard rock or coral bed using pneumatic or mechanically driven bolts. This practice will result in minimal environmental impact since little or no coral will have to be displaced to site the cable.

The shore landing will be specially prepared to accept the cable. As the cable nears the shore, it will be fed into the 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.

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 conduit 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.

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.

Alternative B - GST will utilize existing GTE Hawaiian Tel facilities:
The second phase of work involves landing the submarine fiber optic cable and establishing a connection at the manhole previously installed at Spencer Beach Park. Operations will be short-term, will be based on the need for public safety and protection of the cable, and will not constitute a long-term impact.

There will be no permanent storage of any construction equipment on the beach. Equipment will only be on the beach during the beach construction phase, approximately 1-2 days.

A 200-foot long trapezoidal shaped trench will be excavated between the end of the ductline and the mean low water mark. The trench will have a 2-foot base and be approximately 6 feet deep, with a 1:1 side slopes. Approximately 385 cubic yards of sand and rubble excavated from the trench will be stored on the beach adjacent to the cable easement for later use as backfill. The trench will be backfilled after completion of work.

Sand and rubble covering the proposed cable segment may require removal below the level of the prevailing tides. For this process, a backhoe, shovels, or other mechanical means will be used to remove the upper layers. Remaining sand or rubble will be removed using a hydro-jet. If necessary, sandbags will be used to prevent sand from reentering the open trench. Rock outcrops and other hard substrate which cannot be avoided will also be removed using a backhoe or other similar 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 conduit previously buried in the sand and pulled to the existing 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.*

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 conduit 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.

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.

3.4 CABLE LANDING PROCESS

Alternative A -Construction of manhole and ductlines:

The cable landing process includes the use of the landslide 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 new steel conduit, the leading end of the cable will be secured within the new 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.

Alternative B - GST will utilize existing GTE Hawaiian Tel facilities:
The cable landing process includes the use of the landslide 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 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 5 to 7 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 1,000 to 2,000 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

Alternative A - *Construction of new manhole and ductlines:*

The first phase (land-side activities) of the project is scheduled tentatively for Fall 1996. The second phase (installation of the interisland cable and cable landing operation) is also scheduled tentatively for Fall 1996. Construction cost for the first phase is estimated at + $250,000.

Alternative B - Authorization for joint use of GTE Hawaiian Tel facilities:

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

The project site and surrounding area is located on the leward side of the island and is generally warm and dry. The mean annual temperature is between 74 and 77 degrees Fahrenheit and the annual rainfall is between five and twenty inches, most of it occurring during winter months.

4.1.2 Topography, Geology and Soils

The project area lies at the base of two geologic formations, the Kohala Mountains and Mauna Kea Volcano. Soils at the landing site consist of beach land type made of sand and gravel. Beaches and gravel 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.

4.1.3 Hydrology

There are no perennial streams in the area. The major drainage features for the area are Makeahua Gulch to the north and an unnamed gulch approximately 2,000 feet to the south both of which are dry except for the rainy season. Groundwater for the area is brackish and is not a source for domestic use.

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

The area's flora is classified as lowland dry shrubland and typically contain plant species such as kiawe, piligrass, ilima, and fingergrass. Cattle pasture is the most common use for this type of plant environment. No rare or endangered species of plants are known to inhabit the site.

With respect to animal wildlife for the area, no rare or endangered animals are known to inhabit the site. Although a single siting of the hoary bat has been recorded at Spencer Beach Park, the area is a dry climate and sparse in vegetation and does not provide good habitats for rare animals known to exist in the area.

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

Sea Engineering conducted a qualitative marine biological reconnaissance of Spencer Beach Park on 17 July 1991 and a quantitative sampling on 16 January 1992 (see Marine Environmental Analysis of Selected Landing Sites, Sea Engineering, Inc., and Environmental Assessment Co. Jan. 1992). The qualitative survey extended from shore to about the 90 foot isobath approximately 3,900 feet from shore. In this area three major zones or biotopes were defined. In general, the biotopes parallel the shore but in the proposed cable alignment, the most seaward biotope (the biotope of sand) extends into shallow water towards the beach. The presence of sand was an important factor in the selection of the proposed route. The biotopes recognized in the vicinity of the proposed cable alignment at Spencer Beach Park are: 1) the biotope of sand; 2) the biotope of emergent hard substratum and corals, and 3) the biotope of scattered corals. The biotope of emergent hard substratum and corals lies to the north and south of the proposed cable alignment. The biotope of sand is situated primarily seaward of the project area but encroaches as a 160 to 325 foot wide channel well into the study site to within 1400 feet of shore. Shoreward of the biotope of sand is the elongate biotope of scattered corals which is restricted to a sand channel that is oriented perpendicular to shore and cuts through the biotope of emergent hard substratum and corals. Inshore of the biotope of scattered corals on the proposed cable alignment is an area of sand that extends to the shoreline with a small area of scoured emergent hard substratum just seaward of the beach.

The Biotope of Sand

The biotope of sand lies principally seaward of the project site. It occurs as a "pie-shaped wedge" towards the shoreline in the area proposed for the cable alignment. As the name implies, the substratum in the biotope of sand is dominated by sand. Because of its shifting nature, the benthic species found in sand habitats are generally adapted for life on an unstable and frequently abrading environment. Many species that are found in this habitat will bury into the sand to avoid predators and the abrasion that occurs with storm waves. Thus many species in the sand biotope are cryptic and difficult to see; among those are many of the molluscs and crustaceans such as the kona crab (Ranina serrata). Hence, without considerable time spent searching in the sand many species in the sand habitat will not be seen. The biotope of sand is best developed at greater depths; where it enters the shallow water, many of the characteristic species become less abundant. Therefore, the inshore boundary of this biotope is arbitrarily shown well offshore (Figure 4-1) despite the presence of considerable sand shoreward of this point.

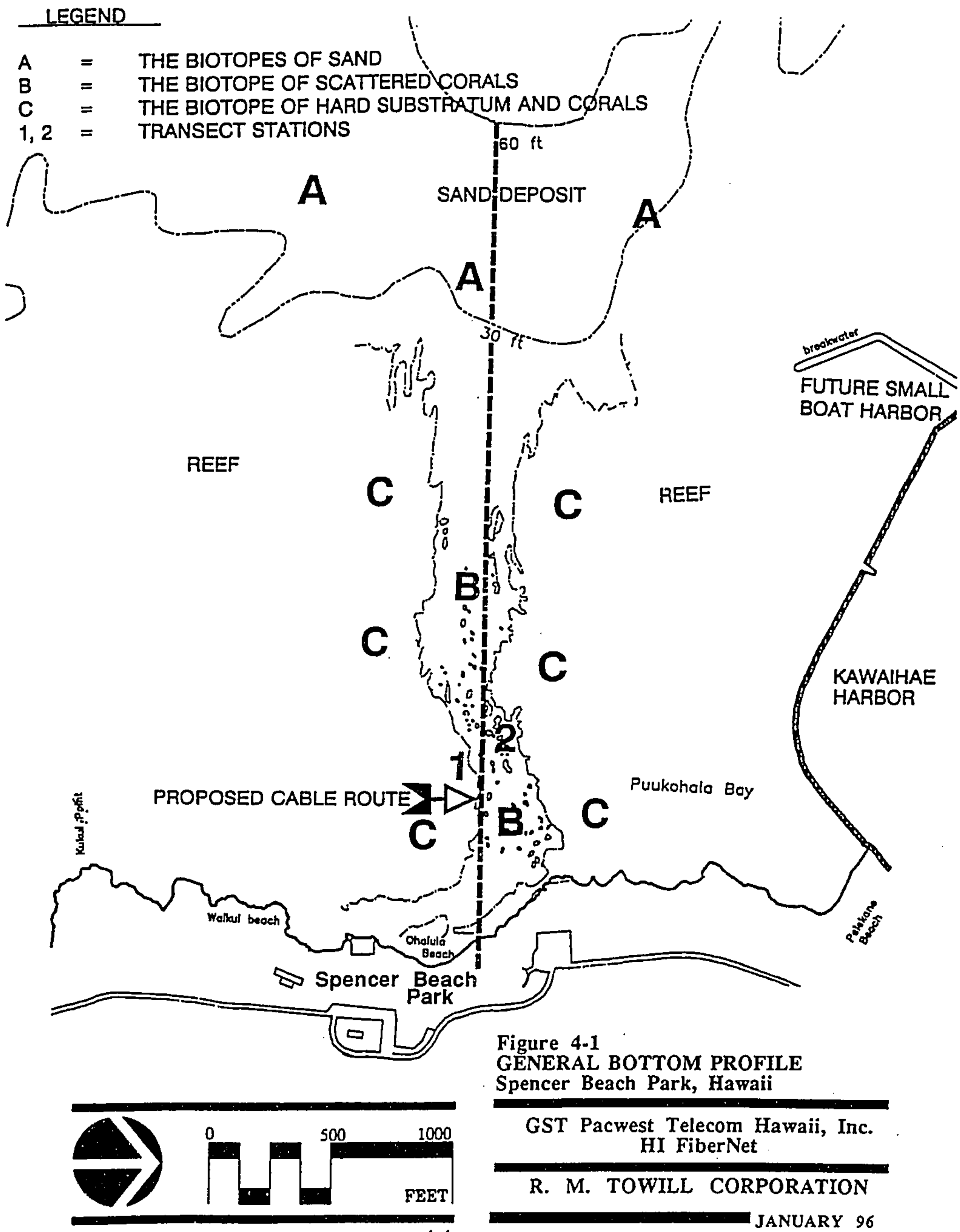


Figure 4-1
GENERAL BOTTOM PROFILE
Spencer Beach Park, Hawaii

GST Pacwest Telecom Hawaii, Inc.
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JANUARY 96

Because of constraints with bottom time at the depth of which the biotope of sand is found as well as very poor water clarity on 16 January 1992, this biotope was not quantitatively sampled but rather the data gathered in a qualitative reconnaissance of the habitat on 17 July 1991 in waters from 80 to 90 feet in depth was utilized. Species frequently seen in the biotope of sand include a number of molluscs: the helmet shell (Cassis cornuta), augers (Terebra crenulata, T. maculata and T. inconstans), the leopard cone (Conus leopardus) and flea cone (Conus pulicarius) as well as the sea hare (Brissus sp.), starfish (Mithrodia bradleyi), brown sea cucumber (Bohadschia vitiensis), opelu or mackeral scad (Decapterus macarellus), nabeta (Hemipteronotus umbrilatus), the goby-like fish (Parapercis schauslandi), uku or snapper (Aprion virescens), hihimanu or sting ray (Dasyatis hawaiiensis) and the weke or white goatfish (Mulloides flavolineatus). Undoubtedly, with greater searching, many more fish species would be encountered in this biotope.

The Biotope of Emergent Hard Substratum and Corals

Both to the north and south of the channel alignment is the biotope of emergent hard substratum and corals. This biotope is characterized as a hard substratum reef flat that is quite shallow, ranging from about 3 to 8 feet in depth. The biotope extends for a considerable distance both north and south of the study area. Although the proposed cable alignment does not cross this biotope, it was sampled because of its proximity to the proposed alignment.

The substratum in the biotope of emergent hard substratum and corals is comprised of both basalt rock (pahoehoe) and limestone as well as corals. There are scattered depressions and small channels on this substratum; the depressions are from 3x3 feet to about 12x30 feet in dimensions and are up to 2 feet in depth. These depressions are spaced from 8 to 30 feet apart and between them are small channels no more than 4 feet in width, up to 15 feet in length and to about 1 foot in depth. The small channels have a general orientation approximately perpendicular to shore. The channels, depressions and corals provide ample cover for fishes and invertebrates yet, few organisms were seen in the quantitative survey.

The Biotope of Scattered Corals

The proposed cable alignment passes through the biotope of scattered corals. This biotope may be described as occurring in a sand channel that has an orientation perpendicular to shore. The dominant substratum in this biotope is sand; spaced from 2 to 75 feet apart are areas of corals. These coral "mounds" range in size from about 3x3 feet to 20x50 feet and are up to 8 feet in height. Common coral species seen in this biotope include Porites lobata, Porites compressa and Montipora verrucosa. Few macroinvertebrates are seen on the sand substratum but there are a number of burrows or holes created by a number of species including the commensal *goby-shrimp*, unidentified crustaceans, echinoderms, etc.

A survey station was established approximately 40 feet north of the proposed alignment in water about 15 feet in depth. The transect at this station sampled both the hard substratum with corals as well as the open sand substratum. The sand at this station had a surface layer of very fine sedimentary material over it; below this 0.25 inch layer was the usual coarser beach sand. Water visibility at the time of censuring was about 6 feet.

Common species included coral species (Porites lobata, Porites compressa and Montipora verrucosa), one macroinvertebrate species, the Hawaiian rock oyster (Spondylus tenebrosus), commensal gobies and shrimps, and other small unidentified burrows. The fish census noted four species, the most common of which were the alo'ilo'i or whitespot damselfish (Dascyllus albisella) and the small eleotrid (Asterropteryx semipunctatus).

In the vicinity of the survey station were seen the algae or limu (Desmia hornemannii and Cladymenia pacifica), corals (Porites evermanni, Leptastrea purpurea and Pocillopora meandrina), the christmas-tree worm (Spirobranchus gigantea), oak cone (Conus quin), the butterfly fish or kikakapu (Chaetodon auriga), lizard fish or 'ulae

(Synodus binotatus), the brown surgeonfish or ma'i'i'i (Acanthurus nigrofuscus) and goldring surgeonfish or kole (Ctenochaetus strigosus).

Inshore of the biotope of scattered corals (commencing 325 feet offshore) is an area of sand that extends from that point to within 80 feet of the shoreline. Inspection of this area on the 16 January 1992 survey noted no macrofauna present. Undoubtedly, with enough search time one would note fishes crossing this sand area such as juvenile jacks or papio (family Carangidae) as well as other species. Between the sand area and the shore in the vicinity of the proposed cable alignment is a small "finger" of emergent basalt (pahoehoe). This hard bottom commences about 15 feet offshore of the sand beach (about 3 feet deep) and continues seaward to a maximum extent of about 80 feet offshore in 8 feet of water. Most of this hard substratum was partially covered with a veneer of sand at the time of sampling and appeared to be quite scoured with no obvious macrobiota present in the area of the proposed alignment. However about 50 feet to the north the hard substratum rises further from the sand (i.e., is shallower) and has a veneer of microalgal species. In a short inspection of this area, the alga (Microdictyon setchellianum) was seen as well as the green sea urchin (Echinometra mathaei), the boring urchin (Echinostrephus aciculatum), the long spined urchin or wana (Echinothrix diadema), green wrasse or 'omaka (Stethojulis balteata) and the saddleback wrasse or hinalea lauwili (Thalassoma duperrey). Also noted were broken live loose fragments of the corals Porites lobata and Pocillopora meandrina.

The intertidal region at this proposed cable landing site is a sand beach. No fauna or flora were encountered on this beach.

Only one small green sea turtle (Chelonia mydas) was seen in the biotope of scattered corals about 900 feet from shore in about 15 feet of water during the 16 January 1992 survey. This turtle was estimated to be about 55cm in straight line carapace length. It could not be determined if this turtle bore any unusual features (i.e., tumors, tags or deformities). Offshore of Spencer Beach Park appears to have appropriate shelter for green turtles (i.e., undercuts, ledges and caves) at a size and scale appropriate for green turtle resting areas. However little macroalgae were present in the area that could be utilized as forage. No other turtles were sited in the vicinity of the proposed cable landing site but one individual (Mr. Patrick Cunningham) familiar with the area noted that about one-quarter mile to the south small green turtles are frequently seen in the nearshore waters. We have found no information to suggest that nesting of sea turtles at Spencer Beach Park has occurred in historical times (Brock, 1990).

The biological survey of the proposed cable alignment at Spencer Beach Park did not find any rare or unusual species or communities other than the single threatened green sea turtle noted above. Another protected species, the humpback whale (Megaptera novaeangliae), was not seen offshore of the study area during the period of the field effort. As noted by Herman (1979), humpback whales tend to be found in regions remote from human activities and the proposed Spencer Beach Park cable alignment is in relatively close proximity to Kawaihae Harbor which has been the major commercial port serving West Hawaii for many years.

Impacts

The potential for impact to the shallow marine communities will probably be greatest with the construction phase of this proposed project. From the sea, the proposed cable alignment enters the shallows through the biotope of sand. As a substrate to support marine communities, sand is inappropriate for many coral reef forms because many species require a stable bottom (e.g., corals and many of the associated invertebrates). Thus the species usually encountered in sand areas are usually those that are adapted to exist in an ever-changing, moving substratum. Similarly, much of the benthic production on coral reefs occurs on hard substratum, (i.e., macroalgae require a solid substratum for attachment). Because sand substrates are subject to movement, they may abrade and scour organisms on this substratum. Thus the characteristics of most species encountered in Hawaiian sand communities are (1) that they typically burrow into the substrate to avoid scouring, (2) that they frequently occur in low abundance which may be related to food resources, and (3) that they are mobile because of the shifting nature of the substratum and potential for burial. Since these forms are motile, deployment of the cable across such a substratum presents little chance of negative impact to resident species because they would probably "just move out of the way as the cable was deployed". Additionally since the substratum shifts, it is probable that the deployed cable will "sink into" the substrate. Personal observations made on other deployed cables shows them to often be partially buried by the natural movement of the sand.

As the cable enters the shallows offshore of *Spencer Beach Park*, there are areas where the scattered coral mounds will lie in the direct path of the cable. Cutting or trenching through these mounds, which are up to 8 feet above the surrounding bottom, would be difficult and would result in loss of the benthic community in the alignment path. Other impacts would be those associated with the generation of turbidity during the trenching process.

Spencer Beach Park was selected as the cable landing site based upon the assumption that the fiber optic cable would be routed as necessary to avoid the scattered coral mounds. The anticipated placement method was discussed in an earlier section of this chapter. At most, it is anticipated that trenching will only have to be undertaken in shallow water across approximately 50 feet of scoured pahoehoe adjacent to the beach. Since this scoured substratum supports few, if any, benthic organisms in the proposed path, there should be little or no impact to marine organisms. Previous experience with the laying of the GTE Hawaiian Tel fiber optic cable suggests the current project would similarly result in little to no adverse impact to coral and associated benthic communities.

Other construction methods to protect the cable in shallow water range from just laying the cable directly on the basalt shelf without any specific attachment, to placing it inside of a protective pipe that is bolted to the shelf. This strategy has been used at the Natural Energy Laboratory of Hawaii facility at Keahole Point, Hawaii to secure pipes coming ashore through a subtidal region that is frequently subjected to extreme high energy conditions. Bolting a pipe to the substratum significantly reduces the impact to surrounding benthic communities over the alternative of trenching and backfilling. This alternative may provide low impact to marine communities but it will have an obvious visual impact to any underwater observer. If the trenching and backfilling strategy is used, the tremie concrete cap will probably be colonized by corals, algae and other benthic forms. Studies on substrate selection in Hawaiian coral larvae have shown concrete to be second only to limestone/coral as an appropriate substratum for settlement (Fitzhardinge and Bailey-Brock 1989). Laying the cable directly on the basalt without attachment may result in cable abrasion, and is not an acceptable alternative.

Our 16 January 1992 survey noted considerable turbidity in the region of the proposed cable alignment. Offshore in the biotope of sand, visibility was less than 1 foot at the 80 foot depth. Inshore in the biotope of scattered corals, visibility was about 6 feet. For two days preceding the survey, considerable rainfall had occurred on the West Hawaii coast (Mr. Patrick Cunningham, personal communication). Inspection of the mouth of Waimea Stream (which is intermittent in its lower reaches) revealed a large amount of water had reached the sea bringing a considerable amount of terrigeneous material with it. Waimea Stream is south of the project site but it is surmised that the stream was the source of much of the turbid water encountered in the study area because of the brown (possibly terrigeneous) color. The second source of turbidity was from surf on the reef. During the month of January 1992 there was a near-continuous westerly swell impacting this coastline. The high surf resuspends fine sediments making the water turbid. These occasional natural inputs of turbidity serve to reduce light levels and potentially impact benthic communities. The communities present in the vicinity of the proposed alignment have evolved under this occasional impact. Construction activities related to the cable landing probably would not begin to match the level of turbidity both in terms of scale or intensity that were encountered on the 16 January 1992 field effort.

No direct impacts to the threatened green sea turtle or to endangered humpback whales (Megaptera novaeangliae) are anticipated.

The most probable source of local impact to whales would be noise generation by the cable laying ship, the support tugs and the small boats. There are variable and conflicting reports as to the impact of vessel traffic on whales (Brodie, 1981; Matkin and Matkin, 1981; Hall, 1982; and Mayo, 1982). 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, 1985). Thus it is probably valid to assume that impact to whales could occur if individuals are within several kilometers of the deployment site. However, as noted above, these impacts are of short duration, and all activity will be concentrated in a small area. The potential impacts also need to be evaluated in light of the proximity of the site to Kawaihae Deep Draft Harbor, the second largest harbor on the island.

Sea turtles are permanent residents in inshore Hawaiian habitats. Although 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, Oahu, green turtles moved from an offshore diurnal resting site about 3,300 feet offshore to a point about 600 feet 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).

Fishery Considerations. Access to the shoreline at Spencer Beach Park is excellent and has probably been since prehistoric times; the Kawaihae area was an important center in the Hawaiian culture. The beach at Spencer is heavily used by people interested in beach going and probably fishing. Fishermen catch fish both from shore as well as offshore from small boats. In all probability, some commercial fishing occurs offshore of the proposed cable alignment. We are unaware of any individuals that specifically and exclusively use Spencer Beach Park area for subsistence fisheries. Probably most of the fishing activity in and around Spencer Beach Park is by recreational fishermen. With most Hawaiian recreational fisheries, species targeted include papio and ulua (family Carangidae), o'io or bonefish (Abula vulpes), moi (Polydactylus sexfilis), goatfishes (family Mullidae), snappers (family Lutjanidae), surgeonfishes (family Acanthuridae), parrotfishes (family Scaridae), and a host of smaller species such as the aholehole (Kuhlia sandvicensis), aweoweo (Priacanthus cruentatus) and menpachi (Myripristes amaenus). Fishing methods used include nets, spears, traps as well as hook and line.

The Sea Engineering survey noted a paucity of fishes or invertebrates. One reason for this may be related to the high turbidity present at the time of sampling. Turbidity may temporarily cause motile species to leave; when conditions improve, they may return. Some comparative information for the Spencer Beach area is available from a study carried out by Brock (1991) where three stations were established seaward of Kawaihae Small Boat Harbor in May 1991. The closest station to the proposed cable alignment is approximately 1,000 feet to the north in water 8 to 12 feet deep. A fish census at this station resulted in 26 species and 231 individuals encountered. The census methods were identical to those used here.

(Brock 1954, Goldman and Talbot 1975, Brock et al. 1979). Eliminating the direct impact of man due to fishing pressure and/or pollution, the variation in standing crop appears to be related to the variation in local topographical complexity of the substratum. Thus habitats with high structural complexity affording considerable shelter space usually harbor a greater estimated standing crop of coral reef fish; conversely, transects conducted in structurally simple habitats (e.g., sand flats) usually result in a lower estimated standing crop of fish (2 to 20g/m^2). Goldman and Talbot (1975) note that the upper limit to fish biomass on coral reefs is about 200g/m^2. The present study found extremely low estimated standing crops at both stations especially when viewed with respect to the availability of shelter space. It is probable that both fishing pressure as well as high turbidity have played a role in the low estimated biomass at these stations.

Water Quality Considerations. With any disturbance to the seafloor, sediment will be generated which will manifest itself as turbidity. This may occur through natural events such as storm surf resuspending fine material that had previously come into the area through natural events and settled, or by human activities including the directing of storm water runoff into the ocean or by underwater construction activities. Underwater construction may generate fine particulate material that could impact corals. The generation of fine sedimentary material could have a negative impact to corals and other benthic forms if it occurs in sufficient quantity over sufficient time. Studies (e.g., Dollar and Grigg 1981 noted above) have found that the impact must be at a high level and chronic to affect adult corals.

The small scale of the trenching activities that would be necessary to protect the cable in shallow water (if used) would probably produce little sediment. This statement is supported by the fact that only 50 lineal feet of hard substratum would be disturbed. The small scale and anticipated short duration of the project suggest a minimal impact. High water motion will keep fine particulate and sedimentary material suspended in the water column, reducing the settlement on benthic organisms in shallow water habitats thus assisting in the advection of this material out of these areas (less than 100m in depth) where corals are found.

The turbidity generated by the construction activity will be short in duration and relatively small in quantity. Numerous studies have provided observations showing the relationship between increased suspended or deposited sediment with reduced coral growth rates, cover and species diversity (Roy and Smith 1971, Maragos 1972, Loya 1976, Bak 1978, Randall and Birkeland 1978, Cortes and Risk 1985, Grigg 1985, Hubbard and Scaturo 1985, Kuhlman 1985, Muzik 1985, Hubbard 1987). In contrast, Glynn and Stewart (1973) found no correlation between these parameters on reefs off the Pacific side of Panama.

Turbidity is a an optical property that is related to the scattering of light by the suspended particles in the water column. The finer the particles, the longer they may remain in suspension (Ekern 1976) and if fine materials are associated with much water motion (waves, currents) the actual deposition rates in these turbid waters may be quite low. However, if the suspended particles (i.e., turbidity) is great enough to reduce light levels, impacts to corals may be low.

The deposition of sediment on coral reefs has been measured and correlated with the "condition" of the reef corals. Loya (1976) defined a "high" sedimentation rate as 15mg/cm^2/day and a "low" rate as 3mg/cm^2/day for Puerto Rican reefs. Low cover and species diversity were associated with reefs exposed to "high" sediment deposition rates. In contrast, "high" sediment deposition rates on Guamian reefs was defined in the range of 160- 200mg/cm^2/day and this rate of deposition limited coral cover and diversity (here less than 10 species and 2% cover; Randall and Birkeland 1978). A "low" rate was defined as 32mg/cm^2/day and was associated with rich coral communities (more than 100 species and 12%+ coral cover).

These comparisons demonstrate the relative nature of sedimentation rates; the rate considered to be low in Guam is more than twice the high rate from Puerto Rico. Reasons for this disparity relate to differences in how rates are measured (i.e., lack of a standardized methodology) as well as difficulty in relating environmental factors such as water motion and sediment deposition in sediment traps. Water motion may mitigate or enhance the deleterious effects of sedimentation on the diversity and cover of corals in a given area. Hopley and Woesik (1988) note a chronic sedimentation rate of $129 mg/cm^2/day$ (7 month mean) did not negatively impact an Australian coral reef with high cover and species diversity.

These data suggest that if there is need to protect the proposed fiber optic cable in shallow water by small-scale trenching, the short term disturbance (probably less than two weeks) will be a minor impact.

4.1.6 Scenic and Visual Resources

The project area is generally void of man-made structures except for telephone poles along main roads and beach park amenities such as toilet facilities. The Kawaihae Harbor and related shoreside facilities are visible towards the north and the two heiaus along the park access road. Views at the shoreline are towards mauka and along the shoreline north and south.

Impacts

For 5 to 7 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

There are no known archaeological sites existing within the cable easement. 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 nearshore and shoreline segments which were encountered during a previous cable landing. The proposed cable will traverse through heavily graded portions of Spencer Beach Park.

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

Spencer Beach Park is located immediately south of the Kawaihae Deep Draft Harbor and encloses one of the typical small pocket beaches along this coast. The beach within the park is Ohaiula Beach, and is approximately 400 feet long. Ohaiula Beach has been stable over the past 30 years and the vegetation line has experienced little erosion or accretion. Oceanward of the beach, a shallow, fringing reef extends offshore, and shelters the shoreline from waves. A narrow sand channel extends through the reef at the northern end of the beach and will serve as the nearshore route for the proposed fiber optic cable.

The nearshore fringing reef extends 2500 feet from the shore. The fringing reef is cut by a sand channel, which connects the beach to a large offshore sand deposit. The water depth at the seaward limit of the reef is approximately 20 feet. The water depth in the sand channel is typically 10 to 15 feet, and much of the reef is within a few feet of the surface. There are many large coral formations within the channel. The coral formations rise vertically up from the channel bottom to within a few feet of the surface.

Seaward of the fringing reef the bottom is entirely sand, out to at least the 100 foot depth, the limit of the visual survey. A prior R. M. Towill Corporation bathymetric survey shows a large reef formation south of the cable route, in water depths of 35 to 110 feet. The route was selected to avoid this formation, and the closest point of approach is 100 feet. The sand, both in the inner channel and the offshore deposit, is relatively fine and has a high silt content.

Impacts

The proposed project is not expected to negatively impact beach processes. The proposed cable route will seek to utilize the sand channel which passes through the shallow fringing reef, and therefore will not impair the ability of the reef from continuing to protect Ohaiula Beach. Seaward of the fringing reef it is expected that after laying the fiber optic cable that it will soon settle into the sand. Because of the small surface area of the cable and this settling action, no adverse impacts are anticipated. At the landing site, once all construction activities are completed, the work crew will make every reasonable effort to return the ground to existing preconstruction contours through use of excavated materials for backfill.

4.1.9 Noise From Construction Activity

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

Construction vehicles are expected to emit pollutants in the area during construction. However, due to good offshore trades and wind circulation, the area is virtually free of urban air pollutants other than occasional automobile traffic from park users. Therefore, any amount of emissions generated from construction activities is anticipated not to exceed the governing air quality standards of the State Department of Health or the Environmental Protection Agency.

Impacts

Dust is anticipated to be generated during construction. However, the amounts will be minimal since the excavation will occur in sand and porous soil. 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.

4.1.11 Water Quality

Nearshore waters are rated Class "A" by the State Department of Health. Shallow waters 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 with evidence of fresh water inflow along the shore.

Impacts

It is anticipated that nearshore waters of the project sites may be clouded 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 SOCIO-ECONOMIC ENVIRONMENT

4.2.1 Population

Although the population within the Kawaihae area numbers 150, the population of Hawaii County as of 1994 was 120,317 and is projected to increase to 206,100 by 2010.

Impacts

No adverse impact on existing resident and worker populations of Kawaihae are 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 will give them the capability to provide additional communication services to their customers.

4.2.2 Surrounding Land Use

Spencer Beach Park and the surrounding coastal land, which is owned by the Queen Emma Foundation, is primarily in recreational use. Lands mauka of the coastal beach areas are generally vacant. The Mauna Kea Resort is located about one mile to the south. The Puukohola National Historic Site is adjacent to the north of Spencer Beach Park. Kawaihae Harbor is less than 2,000 feet beyond the historic site.

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

The project site is accessible by the new Spencer County Road, which is owned by the United States of America. The new Spencer road connects to Akoni Pule Highway, a major thoroughfare which connects to Queen Kaahumanu Highway.

Impacts

The proposed project is expected to have no impact on the existing traffic. Construction will take 5 to 7 days and will be limited to nearshore work to install the fiber optic cable.

4.3.2 Recreational Facilities

The proposed landing site is within a developed beach park. Existing features of Spencer Beach Park include restrooms, picnic tables, showers, tennis courts,a pavilion, a camping area, and parking lot. The beach park is used for tennis, camping, swimming, sunbathing, snorkeling, and picnicking.

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 suspended for approximately two days for 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 the beach. During construction, part of the park will have to be closed for safety reasons. Construction will take approximately 5 to 7 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 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 assists in the State's objective of positioning Hawaii as the leader in providing information services in the Pacific. 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 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.

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

The project site is designated within the State Land Use Conservation District (Figure 5-1). Because the proposed activity involves installation of a utility line no land use district change will be required. However, because the proposed project 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.

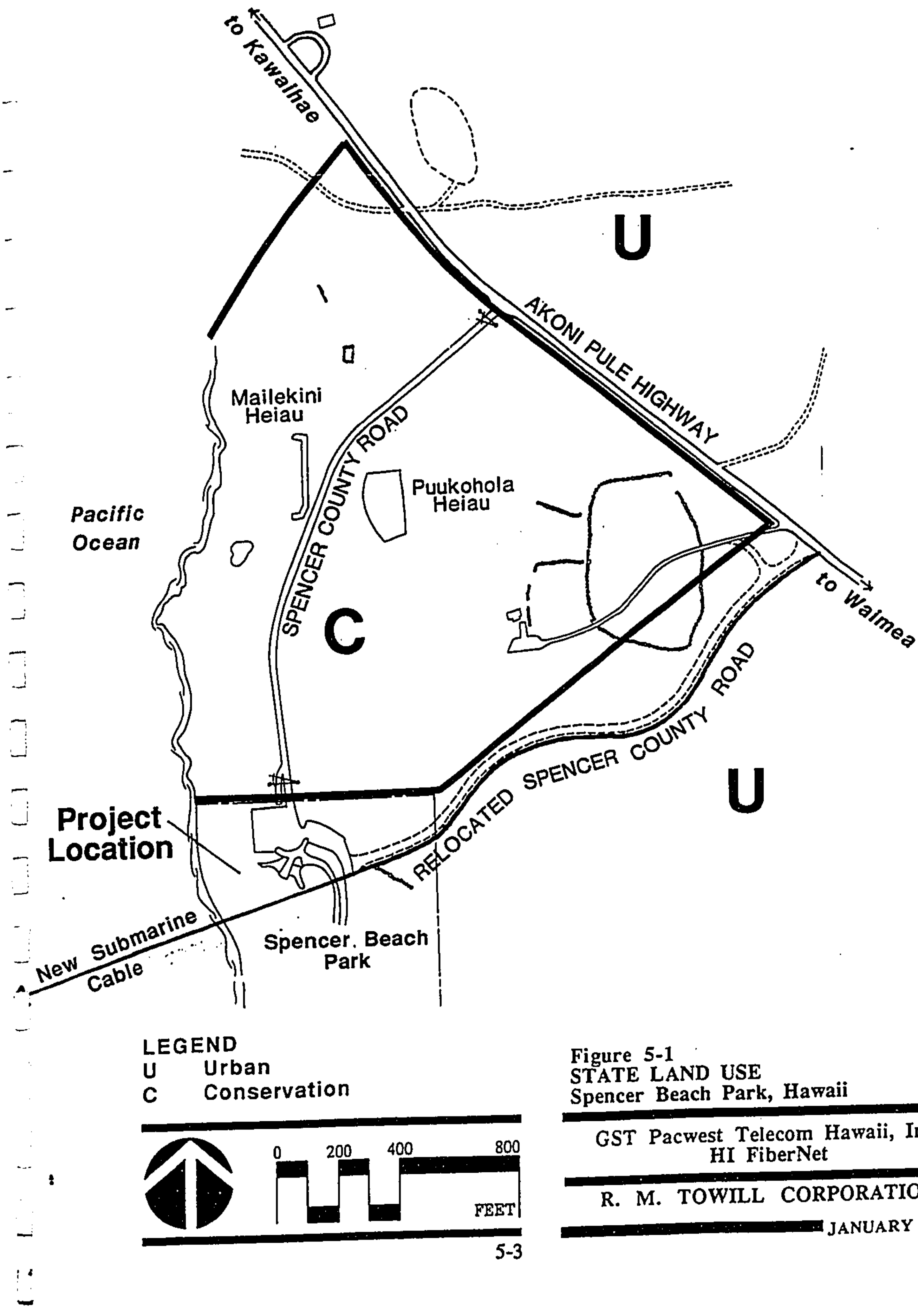

Figure 5-1
STATE LAND USE
Spencer Beach Park, Hawaii

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JANUARY 96

5.4 COUNTY ZONING

The County of Hawaii zoning for the project site is Open which permits utility installations (Figure 5-2). The site is also within the Special Management Area (Figure 5-3) and will require a Special Management Area Permit and a Shoreline Setback Variance. All required county permits will be obtained before construction begins.

5.5 HAWAII COUNTY GENERAL PLAN

The Hawaii County General Plan provides a statement of long range social, economic, environmental, and design objectives for the Island of Hawaii and a statement of policies necessary to meet these objectives. A specific objective of the General Plan relating to the proposed project is to maximize efficiency and economy in the provision of public utility services. The proposed project is generally in conformance with the goals and objectives of the Hawaii County General Plan.

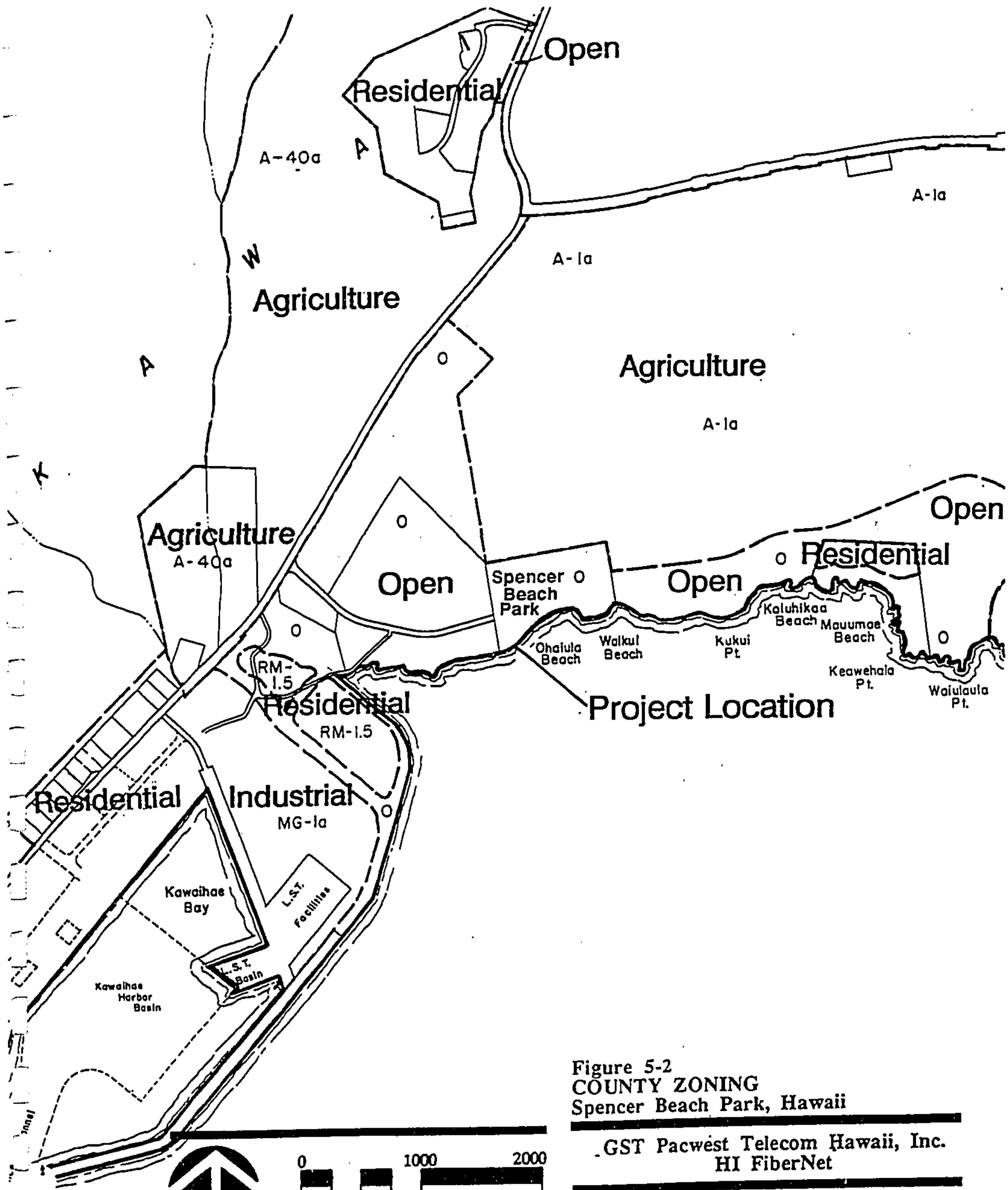

Figure 5-2
COUNTY ZONING
Spencer Beach Park, Hawaii

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JANUARY 96

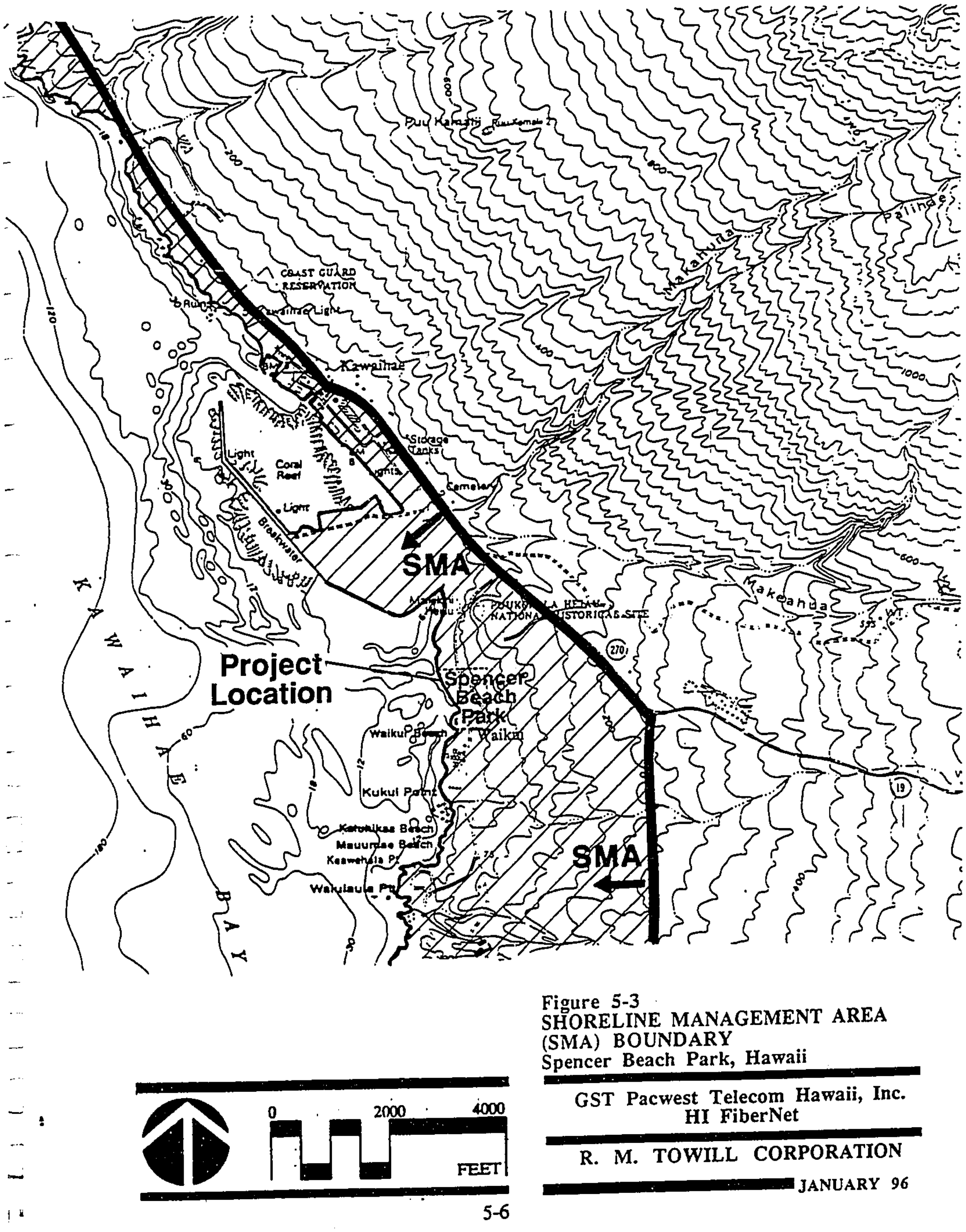

Figure 5-3
SHORELINE MANAGEMENT AREA
(SMA) BOUNDARY
Spencer Beach Park, Hawaii

GST Pacwest Telecom Hawaii, Inc.
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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 connection with the cable laying procedure, maintenance and operation activities;

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

- Lost attainment of the Hawaii County General Plan's objective of expansion of utilities systems.

6.2 ALTERNATIVE SITES

Three possible Hawaii landing sites for the Big Island to Maui segment where underwater geology would be most suitable are Spencer Beach, Hapuna Beach, and Mauna Kea Beach. Spencer Beach is proposed as the preferred landing site because it was previously disturbed by the existing cable and there would be minimal disturbance to the area. The existing nearshore alignment avoids most of the reef and coral heads which lie alongside and within a sand channel leading away from the shoreline to the ocean.

Should Spencer Beach be removed from consideration, Hapuna Beach is recommended as an alternative site. Hapuna Beach possesses positive site features including a sandy bottom with available access to shore. Coral heads and finger coral are usually found in deeper water, and may potentially be crossed with minimal disturbance to the area. In addition, historic and archaeological sites are not expected to be discovered (Discussion with DLNR, Historic Sites Office). However, the single most important constraint with Hapuna Beach, is its heavy use by the public for scenic and recreational uses.

6.3 ALTERNATIVE TECHNOLOGY

The following describes the alternatives to fiber optic cable technology:

6.3.1 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 data 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.

6.3.2 Satellites

Satellites are not a feasible alternative based on the 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 that 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 bandwidth necessary for interisland digital circuits without transmission delays and major visual and aesthetic problems.

6.4 RECOMMENDED ACTION

The recommended action is to proceed with the establishment of a submarine fiber optic cable system with a landing at Spencer Beach Park.

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 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 County of Hawaii.

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 COUNTY OF HAWAII

Department of Planning

- Shoreline Management Area Permit
- 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 STATE AGENCIES

Department of Land and Natural Resources,
Land Division

Department of Health

Department of Transportation

Department of Business, Economic Development & Tourism

10.2 COUNTY OF HAWAII

Department of Planning

Parks and Recreation Department

10.3 FEDERAL AGENCIES

U.S. Army Corps of Engineers

National Marine Fisheries Service

U.S. Fish and Wildlife Service

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.

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

Virginia Goldstein
Hawaii County Planning Department
25 Aupuni Street, #109
Hilo, HI 96720

Attention: Susan Gagorik or Alice Kawaha

Dear Ms. Goldstein:

Subject: Draft Environmental Assessment (EA) for Submarine Fiber Optic Cable Landing at Spencer Beach Park, South Kohala; TMK 6-2-2: por. 8 & 16

In the final EA please include the following:

1. Archeological remains: Include full documentation of your consultation with the State Historic Preservation Division of the Department of Land & Natural Resources in the final EA.

2. Community contacts: Consult with community groups or interested organizations and document your contacts.

3. Permits and applications: List application filing dates and/or status.

4. Project start date: Given the lengthy processing time for some agency applications and the public review period required before project commencement, do you think that the fall of 1996, listed in the draft EA as the anticipated project start-up, is realistic, especially since this is part of a statewide project?

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

Sincerely,

GARY GILL

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

R. M. TOWILL CORPORATION

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

August 29, 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 Fiber Optic Cable Landing at Spencer Beach Park, South Kohala, TMK: 6-2-02: por. 8 & 16

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

1. *Archaeological Remains*

The proposed alignment of the GST Telecom Hawaii, Inc., fiber optic cable will follow the same approximate alignment as the previous GTE Hawaiian Tel cable which was installed in 1993/1994. Archaeological survey work to assess the potential for impacts resulted at that time in a finding of "no effect" (attached letter from DLNR, State Historic Preservation Division [SHPD], October 28, 1996).

Because the proposed work will involve almost the same alignment as the prior GTE Hawaiian Tel effort, we are now coordinating this activity with Mr. Pat McCoy, SHPD (August 1996). It is our intention to work with Mr. McCoy to carry out any new requirements that will be necessary in order to ensure a similar finding of "no effect" to historic sites.

2. *Community Contacts*

The following groups and individuals have been contacted for the Spencer Beach Park segment of this project:

Public Access Shoreline Hawaii (PASH), Mr. Gerald Rothstein

Sierra Club, Hawaii Chapter

3. *Permits and applications*

The application filing dates for environmental permits are as follows. All permits are currently under agency review.

County of Hawaii
Special Management Area Permit,
May 13, 1996

State of Hawaii,
Conservation District Use Permit,
May 31, 1996

Department of the Army Permit,
Section 404/Section 10
May 16, 1996

Department of Health
Section 401 WQC
May 30, 1996

Office of Planning
CZM Federal Consistency Determination
May 16, 1996

4. *Project start date*

The proposed start date for this project is fall 1996. At this time GST Telecom Hawaii, Inc., is actively working with agencies to address all requirements necessary for this project.

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

Sincerely,

Brian Takeda

Brian Takeda
Senior Planner

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

JOHN WAIHEE
GOVERNOR OF HAWAII

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCE

DEPUTIES

JOHN P. KEPPELER, II
DONA L. HANAIKE

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

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HAWAII HISTORIC PLACES REVIEW BOARD
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

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REC'D NOV 5 1992 RMTC

RDE
GSY
DKM

October 28, 1992

LOG NO: 6653
DOC NO: 0343x

Mr. Norman Hayashi, Director
Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Hayashi:

SUBJECT: **SMA Use Permit Application (SMA 92-9) and Shoreline Setback Variance Application (SSV 92-3) -- GTE Hawaiian Tel Co., Inter-Island Fiber Optic Cable Kawaihae, South Kohala, Island of Hawaii**
TMK: 6-2-02: 008 and 006 (por.)

In addition to our letter of October 15, 1992, to your office concerning the subject applications, our office has received a revised report from Cultural Surveys Hawaii ("Archaeological Assessment of the Proposed Fiber Optic Landing for Spencer Beach Park, Island of Hawaii, TMK: 6-2-01: 8, por. of 6" by Borthwick and Hammatt, Revised October 1992) which included the additional information we requested in order to bring the report to an adequate level for an archaeological inventory survey. We can now determine that the subject applications will have "no effect" on historic sites.

If your office should have any further questions, please contact Kanalei Shun at 587-0007.

Sincerely,

DON HIBBARD, Administrator
State Historic Preservation Division

KS:sty

c: Dr. Hal Hammatt, Cultural Surveys Hawaii
Mr. Brain Takeda, R.M. Towill Corporation

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