GUAM COASTAL MANAGEMENT PROGRAM

FEDERAL CONSISTENCY FORM APPLICATION:

CONDUIT INSTALLATION AND CABLE LANDING FOR SEA-US CABLES

PITI, GUAM

Prepared for

624 N. Marine Corps Drive
Tamuning, Guam 96913

and

\Orchestrating a brighter world
NEC CORPORATION OF AMERICA, INC.
6536 N. State Hwy 161
Irving, TX 75039

Prepared by

Duenas Camacho & Associates
238 E. Marine Corps Drive, Suite 201
Hagatna, Guam 96910

JUNE 2016

624 North Marine Corps Drive
Tamuning, Guam 96913

April 11, 2016

Mr. William M. Castro
Director
Bureau of Statistics & Plans
P.O. Box 2950
Hagatna, Guam 96932

Subject: **Guam Coastal Management Program Consistency Certification for Installation of Conduits and Landing of SEA-US Cables in Piti, Guam**

Dear Mr. Castro:

GTA is proposing to install six conduits to receive submarine fiber-optic cables, and shortly after, NEC proposes to land two new submarine cables in two of the conduits for the Southeast Asia-U.S. (SEA-US) telecommunication system linking Asia with Guam, Hawaii and California. GTA is seeking a Department of the Army permit for work in waters of the United States, and is providing its Guam Coastal Management Program Consistency Certification application, in accordance with the Coastal Zone Management Act. The project is needed to complete the Guam link of the SEA-US system with Asia and the rest of the U.S. The four spare conduits are needed to accommodate future cable landings anticipated by GTA.

The project will dredge a trench (3 ft deep by 6 ft wide by 560 ft long) on the reef flat, from shore to the shoreward edge of the Tepungan Channel. Six 4.8-inch diameter ductile iron conduits will be installed in the trench. The trench will be backfilled and a concrete bulkhead (6 ft wide by 10 ft long) will be installed to keep the conduits in place. Shortly after, two fiber-optic marine cables will be landed through two of the conduits and pulled to shore where they will be spliced to land cables at a new beach manhole located above the high tide line.

The dredge site is a reef flat that receives heavy siltation deposited from two streams. The nearest stream is an intermittent rock and rubble bottom stream that drains stormwater from upland areas via a culvert. The reef flat is a shallow low-relief pavement exposed at low tides with a high rate of sedimentation and very low coral cover. There are no seagrass or other vegetated shallows, riffle or pool complexes, mudflats or wetlands at the dredge site. Benthic habitat along the cable route comprises turf pavement, uncolonized sand, and aggregate reef dominated by corals, coralline algae, and macroalgae, and supports an array of fish and other pelagic organisms. Corals in the path of the cables will be avoided or relocated in accordance with a transplanting plan. The cable alignment crosses into the Piti Bomb Holes Marine Preserve and Essential Fish Habitat designated around Guam, but does not cross any designated critical habitat under National Marine Fisheries Service jurisdiction.

The proposed action to install conduits and land two SEA-US cables on Guam is consistent with the policies of the Guam Coastal Management Program (GCMP), in accordance with the Guam Coastal Management Act of 1972 (P.L. 92-583). A consistency assessment package is enclosed that discusses each of the 16 enforceable policies with findings that the proposed action and its effects are consistent with these policies. Please contact Claudine Camacho from Duenas, Camacho & Associates at 477-7991 if you need additional information.

Respectfully,

Andrew M. Gayle
Chief Operating Officer
Executive Department

Enclosure: GCMP Application Package

Bureau of Statistics and Plans
Guam Coastal Management Program
Federal Consistency Certification Guidance

A federal consistency certification is simply a statement certifying that the federally permitted or federally funded project has been designed to meet all State and local laws and that all necessary State permits have been obtained. This is usually just a paragraph in an application form that you are required to sign.

Pursuant to 15 C.F.R. §930.57, all applicants for required federal licenses or permits subject to State agency review shall provide in the application to the Federal licensing or permitting agency a certification that the proposed activity complies with and will be conducted in a manner consistent with the management program. The applicant shall furnish to the State agency a copy of the certification and necessary data and information.

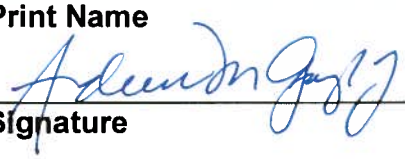
Pursuant to 15 C.F.R. §930.57(b), applicant's consistency certification shall be in the following form:

CERTIFICATION

"I certify that the proposed activity complies with the enforceable policies of Guam's approved management program and will be conducted in a manner consistent with such program."

Andrew M. Gayle

Print Name



Signature

Chief Operating Officer, GTA

Title

16 AUGUST 2016

Date

The above certification statement must be submitted with the federal consistency certification application packet along with the necessary data and information (i.e., GCMP Assessment Format).

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EXHIBITS

Exhibit A. Figures

1. Site location map of GTA cable raceway and SEA-US cable landing site, Piti, Guam.
2. Aerial view of GTA cable raceway and SEA-US cable landing site, Piti, Guam.
3. Flood hazard map at the project site, Santos Park, Piti (Taken and adapted from FEMA, 2007).
4. Benthic habitat map of project site, Tepungan, Piti, Guam (Adapted from Burdick, 2005).

Exhibit B. Design Plans

GUAM COASTAL MANAGEMENT PROGRAM
ASSESSMENT FORMAT

DATE OF APPLICATION: June 2016

NAME OF APPLICANT: Teleguam Holdings LLC (GTA)
NEC Corporation of America

CONTACT PERSON: Crena M. Dougherty / John S. Williams

ADDRESS: 624 N. Marine Corps Dr. Tamuning, Guam 96913
6536 N. State Hwy 161, Irving, TX 75039

TELEPHONE NUMBER: (671) 644-4482 (GTA)
(214) 262-3653 (NEC) **CELL NO:**

E-MAIL ADDRESS: crena@gta.net / john.williams@necam.com

FAX NUMBER:

TITLE OF PROPOSED PROJECT: Conduit Installation and Cable Landing for SEA-US Cables, Piti, Guam

COMPLETE THE FOLLOWING PAGES

FOR BUREAU OF STATISTICS & PLANS ONLY

DATE APPLICATION RECEIVED:

ORCM NOTIFIED: **LIC. AGENCY NOTIFIED:**

APPLICANT NOTIFIED: **PUBLIC NOTICE GIVEN:**

PROJECT LOCATION:

OTHER AGENCY REVIEW REQUESTED:

DETERMINATION:

( ) CONSISTENT ( ) NON-CONSISTENT ( ) FURTHER INFORMATION REQUESTED

ORCM NOTIFIED: **LIC. AGENCY NOTIFIED:**

APPLICANT NOTIFIED:

ACTION LOG:

1.

2.

3.

4.

5.

6.

DATE REVIEW COMPLETED:

FEDERAL CONSISTENCY
SUPPLEMENTAL INFORMATION FORM

DATE: June 2016

PROJECT TITLE/DESCRIPTION: Conduit Installation and Cable Landing for SEA-US Cables, Guam

LOCATION: Lot 262, Santos Memorial Park, and Tepungan Channel and reef flat.

OTHER APPLICABLE AREA(S) AFFECTED, IF APPROPRIATE:

EST. START DATE: 2016 **EST. DURATION:** 60 days

TELEPHONE NUMBER: (671) 664-4482 **CONTACT:** Crena M. Dougherty

APPLICANT

NAME & TITLE Andrew M. Gayle, Jr., Chief Operating Officer, Teleguam Holdings LLC
John S. Williams, Manager, NEC Corporation of America

AGENCY/ORGANIZATION TeleGuam Holdings LLC (GTA)
NEC Corporation of America

ADDRESS 624 N. Marine Corps Dr. Tamuning, Guam 96913 (GTA)
6536 N. State Hwy 161, Irving Texas 75039 (NEC)

ZIP

TELEPHONE DURING BUSINESS HOURS

A/C ( ) (671) 664-4482 / (214) 262-3653

A/C ( )

AGENT

NAME & TITLE Claudine Camacho, Environmental Services Division

AGENCY/ORGANIZATION Duenas, Camacho & Associates, Inc.

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E-MAIL ADDRESS cmcamacho@dcaguam.com

CATEGORY OF APPLICATION (check one only):

( ) I. Federal Activity

(√) II. Permit or License

( ) III. Grants & Assistance

TYPE OF STATEMENT (check one only):

(√) Consistency

( ) General Consistency (Category I only)

( ) Negative Determination (Category I only)

( ) Non-consistency (Category I only)

APPROVING FEDERAL AGENCY (Categories II and III only):

AGENCY U.S. Army Corps of Engineers

CONTACT PERSON Ms. Katy Damico

TELEPHONE DURING BUSINESS HOURS

A/C ( ) 671-339-2108

A/C ( )

FEDERAL AUTHORITY FOR ACTIVITY

TITLE OF LAW Clean Water Act , Rivers and Harbors Act of 1889

SECTION Section 404 of CWA

OTHER TERRITORIAL APPROVALS REQUIRED

Agency	Type Of Approval	Date Of Application	Status
Guam Department of Agriculture	Piti Marine Preserve Permit	July 2016	Pending
U.S. Army Corps of Engineers	Nationwide Permit 6	July 2016	Pending
Guam EPA	401 Water Quality Cert.	July 2016	Pending
Guam Seashore Reserve Permit	Seashore Protection Comm.	July 2016	Pending

PROJECT DESCRIPTION

The purpose of the project is to install a six conduits to form a cable raceway in Pedro Santos Memorial Park and the adjacent Tepungan reef flat that would ultimately receive two cables from the Southeast Asia-U.S. (SEA-US) Cable System telecommunication system, linking Asia with Guam, Hawaii, and California (Figures 1 and 2, Exhibit A). The cables would be connected to GTA's Cable Landing Station (CLS) on the south (opposite) side of Marine Corps Drive. The four spare conduits are needed to accommodate future cable landings anticipated by GTA.

The project will dredge 233 cu. yds. from a trench (3 ft deep by 6 ft wide by 403.61 ft long) on the reef flat (approximately 2,422 sq. ft. or 0.05 acre), from the mean high water mark to the shoreward edge of the Tepungan Channel (Exhibit B). Six 4.8-inch (outer) diameter ductile iron conduits will be installed in the trench. The trench will be backfilled and a concrete bulkhead (6 ft wide by 10 ft long) will be installed to keep the conduits in place. Shortly after, two fiber-optic marine cables will be landed through two of the conduits and pulled to shore where they will be spliced to land cables at a new beach manhole located above the high tide line. The work flow would proceed as follows:

Installation of Cable Raceway

1) The materials and equipment will be staged within the Santos Park grounds within the identified limit of construction (Exhibit A Design Plans). Prior to construction, fixed silt fences will be installed on the shallow exposed reef flat to the north, south and western boundaries of the work zone. A floating turbidity curtain will be deployed in the deeper sectors, such as prior to the final excavation into the channel. Marine organisms (e.g., sea cucumbers, starfish and certain corals) within this zone will be manually relocated outside of the work zone. The silt curtains will be checked daily prior to commencing work.

2) Dredge material will be excavated and placed in a mobile container on the reef flat, then hauled onshore to in Santos Park at a location well above the mean high water mark and outside the Guam Seashore Reserve. The excavator will operate in the tidal zone and work only as conditions allow. No stockpiling would be performed in waters of the U.S.

3) Washed coarse aggregate will be placed in the trench as bedding material. A single layer of six ductile iron conduits will be placed over the bedding material, covered by a layer of bedding material, and then backfilled with the same materials excavated from the trench to restore the trench to the same grade as the surrounding area. Each length of conduit will consist of 22 18-foot long sections connected to form a conduit approximately 404 feet long from MHW mark to the start of the channel.

4) The conduits will be connected to an additional 155 length of conduit (i.e., approximately 9 18-foot long sections) from the MHW mark shoreward, where the conduits will terminate at a beach manhole. Ocean ground electrodes will be installed to ground the cables. The beach manhole and ocean ground bed will be located inland and outside of the Guam Seashore Reserve, i.e., more than 10 m (32.8 feet) inland of the MHW mark.

5) Near the seaward terminus of the trench, pre-cut forms will be installed along the walls of the trench and tremie concrete will be pumped into the forms to construct a concrete bulkhead over the conduits in the trench. The bulkhead will be allowed to cure and the site will be demobilized.

6) A rubber-tired rock truck and a tracked excavator will be used to perform the construction. Two temporary elevated platforms (4 ft tall) will be placed on the reef flat as a work platform for a tracked excavator fitted with a hydraulic rock breaker. The platforms will be lifted and leapfrogged by the excavator so that the excavator can move forward without much impact to the reef. The platforms will have a fully sealed containment should there be a hydraulic leak by the equipment. The platform support structures will have single point contacts on the reef to minimize their footprint.

The work would proceed in sections starting at the near shore area and terminating at the channel margin. The section of trench would be excavated, the pipes inserted, and the trench would be backfilled before proceeding to the next section provide site control and minimize sedimentation. Trenching and backfilling activities would be conducted at low tides.

Dredge Material. The material dredged from the trench will consist of pieces of consolidated coral limestone rubble, rocks, sand and silt, which will be discharged into the water column within the work zone. The total estimated amount of dredged material is 223 cubic yards and 2,422 sq. ft. (0.05 acre) below the MHW mark. The excavated material will be placed into a mobile container and hauled off the reef flat to a designated upland area of the Park located above the MHW mark. The material will be dewatered in a contained area with berms or sandbags to prevent movement of runoff to surface waters, and allow for on-site percolation. A portion of the dredged material will be used for burying the conduits in the trench in order to restore the site to the original contour elevations. The remainder of the material will be taken to an approved hardfill or the municipal landfill for use as daily cover.

Fill Material. Marine cable conduits would be constructed on the fill area in the trench. The fill would be used as bedding material and to rebury the conduit trench to the original elevation. A concrete bulkhead would be constructed at the terminus of the trench to keep the conduits in place. A summary of the types and quantities of fill material that will be discharged below the MHW mark is presented below:

SUMMARY OF FILL IN WATERS OF THE U.S.

Material	Area (sq. ft.)	Area (sq. yds.)	Volume (cu. yds.)
Coral Rubble and Rocks from excavation (6” maximum size)	2,349.66	261.07	130.54
Washed coarse aggregate	2,336.13	259.57	82.17
Concrete	60	6.66	3.01
TOTAL EXTENT AND VOLUME	2,349.66	261.07	215.72

Landing of SEA-US Cables

The landing of two SEA-US cables would commence shortly after the installation of the cable raceway, and would proceed as follows:

1) The stern of the cable ship would position itself at the mouth of the channel powered by its own thrusters to avoid anchoring on live corals. Two 1.6-inch (41 mm) diameter fiber-optic cables would be bundled on-board the cable ship prior to landing through the channel at Tepungan. The bundling will consolidate the cables into a smaller footprint on the seabed within the channel.

2) Floats will be attached to the bundled cable and it will be floated into the channel, where divers will position it over the seabed. Divers will cut the floats and gently lay the cable in place after confirming the placement avoids corals. If the cable needs to be repositioned, a stopper will be used to create slack on the cable and allow divers to manipulate the cable into place.

3) The cables will be unbundled as they approach the reef flat conduits, and pulled through two of the previously installed 4-inch diameter ductile iron conduits and into the beach manhole, where they will be spliced to the terrestrial cable raceway.

4) Articulated (split) pipe would be placed on the cable from the end of the ductile iron pipe to a distance of 200 m (656 ft). The cable will be selectively pinned with clamps at locations where no live corals are present at the channel mouth to prevent lateral movement of the cable.

The dredge site is a reef flat that receives heavy siltation deposited from two streams. The nearest stream is an intermittent rock and rubble bottom stream that drains stormwater from upland areas via a culvert. The reef flat is a shallow low-relief pavement exposed at low tides with a high rate of sedimentation and very low coral cover. There are no seagrass or other vegetated shallows, riffle or pool complexes, mudflats or wetlands at the dredge site. Benthic habitat along the cable route comprises turf pavement, uncolonized sand, and aggregate reef dominated by corals, coralline algae, and macroalgae, and supports an array of fish and other pelagic organisms.

The cable alignment crosses into the Piti Bomb Holes Marine Preserve and Essential Fish Habitat designated around Guam, but does not cross any designated critical habitat under National Marine Fisheries Service jurisdiction. No federally-listed corals occur within the construction corridor for the conduit installation; however, non-listed corals are present and will be relocated prior to construction. The coral species are widely distributed within Tepungan Bay and will be transplanted to a site in the vicinity with similar characteristics. No work would occur during the coral spawning period in July and August. Upon completion of the conduit installation, there would be no further need for disturbance of the reef flat as future cables will be pulled through the conduits and spliced to a beach manhole above the mean high water line.

GUAM COASTAL MANAGEMENT PROGRAM
ASSESSMENT FORMAT

DEVELOPMENT POLICIES

1. Shore Area Development

Intent: To ensure environmental and aesthetic compatibility of shore area land uses.

Policy: Only those uses shall be located within the Seashore Reserve which:

- --- enhance, are compatible with or do not generally detract from the surrounding coastal area's aesthetic and environmental quality and beach accessibility; or
- --- can demonstrate dependence on such a location and the lack of feasible alternative sites.

Discussion: Consistent. The activities involve landing submarine cables, and therefore, need to be within the Seashore Reserve but would not detract from the surrounding area's aesthetic and environmental quality and beach accessibility. After the conduits are installed, the site elevation will be restored by returning the same materials excavated from the trench to maintain the site's aesthetics.

GTA investigated other sites to determine their feasibility. The existing AT&T cable landing sites at Gun Beach and Tanguisson are not available to GTA. Likewise, the existing TyCom/Tata Communications cable landing sites at Tepungan and Agat are not available to GTA. Therefore, GTA considered landing near the existing Tata landing at Tepungan where there is a GTA telecommunications substation in the vicinity.

At Tepungan, GTA considered landing alternatives at the Piti Canal or through the west leading branch of Tepungan Channel. Marine biological surveys revealed that Piti Canal has a high presence of federally listed corals, and heavy wave action at the canal mouth presents high risk during cable landings. The route through the west branch of Tepungan Channel is longer, and requires more bends to land the cables, which have a limited bending ratio because of their armoring. Therefore, the Piti Canal and west branch landing options were not pursued.

GTA considered an alternative using articulated pipes on the reef flat instead of conduits. This approach would require recurring disturbance of the reef flat and shore to land each future cable and splice it to the beach manhole. Instead, the project approach would dredge a trench to embed six conduits that will accept future landings of submarine cables. This approach would meet the project criteria to protect the cables and minimize the risk of potential cable faults and subsequent interruptions in connectivity. There will be no need to dredge or excavate below the high tide line for future cable landings because the conduits will already be in place. Therefore, the cables will only need to be pulled through the buried conduits and spliced at the beach manhole above the high tide line and outside the Guam Seashore Reserve.

2. Urban Development

Intent: To cluster high impact uses such that coherent community design, function, infrastructure support and environmental compatibility are assured.

Policy: Commercial, multi-family, industrial and resort-hotel zone uses and uses requiring high levels of support facilities shall be concentrated within urban districts as outlined on the Land Use Districting Map.

Discussion: Not applicable.

3. Rural Development

Intent: To provide a development pattern compatible with environmental and infrastructure support suitability and which can permit traditional lifestyle patterns to continue to the extent practicable.

Policy: Rural districts shall be designated in which only low-density residential and agricultural uses will be acceptable. Minimum lot size for these uses should be one-half acre until adequate infrastructure including functional sewer lines are provided.

Discussion: Not applicable.

4. Major Facility Siting

Intent: To include the national interest in analyzing the siting proposals for major utilities, fuel and transport facilities.

Policy: In evaluating the consistency of proposed major facilities with the goals, policies, and standards of the Comprehensive Development and Coastal Management Plans, the Territory shall recognize the national interest in the siting of such facilities including those associated with electric power production and transmission, petroleum refining and transmission, port and air installations, solid waste disposal, sewage treatment, and major reservoir sites.

Discussion: Not applicable.

5. Hazardous Areas

Intent: Development in hazardous areas will be governed by the degree of hazard and the land use regulations.

Policy: Identified hazardous lands, including floodplains, erosion-prone areas, air installations, crash and sound zones and major fault lines shall be developed only to the extent that such development does not pose unreasonable risks to the health, safety or welfare of the people of Guam, and complies with the land use regulations.

Discussion: The project site is not considered as hazardous lands in terms of air installations, crash and sound zones, and major fault lines.

Floodplains

Executive Order 11988 (Floodplain Management) requires all federal agencies to evaluate the likely effects of their actions located in floodplains. Federal agencies shall reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare, and restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities, including providing federally undertaken, financed, or assisted construction and improvements.

The Federal Emergency Management Agency (FEMA) Flood Rate Insurance Maps designates the nearshore areas of the Piti site as Special Flood Hazard Area with base flood elevations of 10 and 11 feet, and as Flood Zone VE. Zone VE encompasses areas of the coastal flood zone with a velocity hazard (wave action) (FEMA, 2007). The project involves landing of submarine cables, and therefore, is a site specific land use. After installation, the buried conduits would not affect other flood areas or cause backwater effects, nor be affected by this designation.

6. Housing

Intent: To promote efficient community design placed where the resources can support it.

Policy: The government shall encourage efficient design of residential areas, restrict such development in areas highly susceptible to natural and man-made hazards, and recognize the limitations of the island's resources to support historical patterns of residential development.

Discussion: Not applicable.

7. Transportation

Intent: To provide transportation systems while protecting potentially impacted resources.

Policy: The Territory shall develop an efficient and safe transportation system while limiting adverse environmental impacts on primary aquifers, beaches, estuaries and other coastal resources.

Discussion: Not applicable.

8. Erosion and Siltation

Intent: To control development where erosion and siltation damage is likely to occur.

Policy: Development shall be limited in areas of 15% or greater slope by requiring strict compliance with erosion, sedimentation, and land use districting guidelines, as well as

other related land use standards for such areas.

Discussion: The site is not a mapped erosion-prone area (slopes of 15% or greater); however, the shoreline along the Santos Park is prone to erosion from wave activity. The project would minimize disturbance of the shore and reef flat by the installation of conduits that avoid the need for any future earthmoving along the shoreline or below the high tide line for the landing of the cables.

RESOURCE POLICIES

1. Air Quality

Intent: To control activities to insure good air quality.

Policy: All activities and uses shall comply with all local air pollution regulations and all appropriate Federal air quality standards in order to ensure the maintenance of Guam's relatively high air quality.

Discussion: Consistent. The construction activities will implement dust control measures and other best management practices (BMPs) in accordance with an Environmental Protection Plan (EPP), and with the implementation of these measures, the project is expected to be in compliance with Guam's air quality standards.

2. Water Quality

Intent: To control activities that may degrade Guam's drinking, recreational, and ecologically sensitive waters.

Policy: Safe drinking water shall be assured and aquatic recreation sites shall be protected through the regulation of uses and discharges that pose a pollution threat to Guam's waters, particularly in estuarine, reef and aquifer areas.

Discussion: Consistent. The Tepungan site was selected for the degraded condition of the reef flat, which is negatively affected by terrigenous deposits from the Masso River and an unnamed intermittent stream. Freshwater inundation affecting salinity on the shallow reef flat also contributes as a condition affecting coral growth.

The excavation and fill activities to construct the marine raceway will generate silt and increase turbidity in the shallow marine waters of the reef flat. The additional excavation of 155 feet from MHW mark to the beach manhole will generate dust and sediments from disturbance of the sand and soils. These temporary impacts would be contained by implementing erosion control devices during construction, including turbidity curtains and sandbags where appropriate, to main water quality within Guam's water quality standards. The nearby unnamed intermittent creek will be avoided as the project footprint is outside the channel, and streamflow will not be impeded by the project activities. The project would not generate additional significant stormwater runoff during operation, since the cable raceway would be buried and the site topography restored to the original grade.

There is a potential for fuel and hydraulic fluid to leak from vehicles during construction. To minimize these risks, there would be daily inspections of the vehicles and hoses prior to starting the job each day, adherence to emergency response plans, and the use of materials to contain and clean up accidental spills. In addition, the tracked excavator that would perform excavation activities would be placed on a raised work platform with a full containment built-into the platform. Should any leaks occur, they would be contained on the platform and addressed with the appropriate spill clean-up kit. As a further safeguard, only non-toxic hydraulic fluid would be used in the equipment so as to minimize impacts on resources in the event of a leak.

The installation of a concrete bulkhead at the terminus of the raceway has the potential for cement to leak into the surrounding area. Wooden forms would be used to form the bulkhead and would also serve to contain the material during construction. Turbidity curtains would be installed around the work zone to prevent mixing of the water in the work zone with the surrounding area until the bulkhead has finished curing.

No excavated material would be stockpiled in marine waters; all material would be taken to a designated upland area for dewatering. The dewatered area would be contained by berms or sand bags to prevent direct migration of runoff to surface fresh or marine waters, and allow for on-site percolation into the sandy substrate.

A water quality monitoring plan would be implemented during construction to monitor the waters surrounding the construction zone for turbidity, pH and total suspended solids, and ensure these parameters remain within the Guam Water Quality Standards. The results of these periodic monitoring events would be reported to Guam EPA in accordance with the approved plan.

3. Fragile Areas

Intent: To protect significant cultural areas, and natural marine and terrestrial wildlife and plant habitats.

Policy: Development in the following types of fragile areas shall be regulated to protect their unique character.

- --- historical and archaeological sites
- --- wildlife habitats
- --- pristine marine and terrestrial communities
- --- limestone forests
- --- mangrove stands and other wetlands

Discussion: Consistent. **Historic and archaeological sites.** There would be no adverse effect on historic or archaeological sites. No documented resources listed or eligible for listing on the National or Guam Registers of Historic Sites occur within the project area, and none were encountered during previous archaeological tests at Santos Park. A Monitoring and Discovery Plan has been prepared by Micronesian Archaeological Research Services (MARS) and will be implemented by MARS personnel during construction.

Wildlife Habitat. The project would not disturb any of the scrub forest along the intermittent stream in the eastern sector of the park, and the project would not result in the loss of wetlands or waters of the United States. The marine raceway would disturb portions of strand vegetation comprising beach morning glory vines and coconut trees. Very few trees occur within the raceway corridor in the Park, which is mostly a maintained lawn or gravel base course. Trees and vegetated areas will be replanted after completion of the project where the root system will not interfere with the buried facilities. Vegetation will be preserved where possible since it plays an integral role in controlling erosion along the shoreline. While common fauna, such as sinks and sparrows would be temporarily displaced by construction activities, these species are anticipated to return after the site is restored. There would be no long-term impacts on terrestrial biological resources, as the operation of the buried cable raceway is generally considered benign.

The project areas support habitat for a variety of algae, corals, macroinvertebrates, crustaceans, mollusks, and fish species. There is no designated or proposed critical habitat in the vicinity of the cable landing site. Based on information from the National Marine Fisheries Service (NMFS), the project area is within the essential fish habitat (EFH) designation for Guam. As of August 2014, NOAA has listed 22 coral species as threatened under the Endangered Species Act (ESA) of 1973, of which three species occur in Guam waters: *Acropora globiceps*, *Acropora retusa*, and *Seriatopora aculeata*. *A. globiceps* is known to occur within Piti Bay (Personal communication, Valerie Brown, NMFS); Kerr and Burdick (2016)). One colony of *A. globiceps* was found to the east of the proposed cable route and will not be disturbed. Additional pre-landing surveys will be performed to confirm there are no other colonies in the path of the bundled cables. Impacts to *A. globiceps* will be avoided by pre-marking the final route prior to the cable landing. Best management practices, such as the installation of turbidity curtains and sandbags, would be implemented throughout the course of in-water construction to minimize the movement of sediment beyond the project area. These include the NMFS Protected Resources Division's BMPS, which are recommended for general in- and near-water work including boat and diver operations to reduce potential adverse effects on protected marine species.

The threatened green and endangered hawksbill sea turtles are listed under the ESA, and small populations are known to forage around Guam. Seagrass beds, such as those in Piti Bay, are located close to shore and provide foraging habitat for green sea turtles. In order to avoid any potential impacts to sensitive species such as migratory birds, and other marine species, biological monitoring will be performed prior to commencing daily construction activities. If any protected species are observed in the vicinity of the work site, Department of Agriculture would be contacted and work would not commence until the species voluntarily leaves the area. Work would occur during low tides and avoid coral spawning periods in July and August.

Pristine marine and terrestrial communities and limestone forest. The project corridor does not fall within pristine marine or terrestrial communities, nor do they contain limestone forest communities (Moore, 1977; Stojkovich, 1977; Bureau of Planning, 1982; U.S. Forest Service, 2005).

Piti Bay was designated as a marine protected area within the Piti Bomb Holes Marine Preserve in 1997 by the Government of Guam via Public Law 24-21, and is currently managed by the Division of Aquatic and Wildlife Resources (DAWR), Guam Department of Agriculture. The project will secure a permit from DAWR for activities in the Piti Bomb Holes MPA.

Mangroves and other wetlands. The proposed action would not be located within mangroves, wetlands or seagrass beds, based on marine surveys and benthic habitat mapping (Kerr and Burdick, 2016; Burdick, 2005) (Figure 4, Exhibit A).

4. Living Marine Resources

Intent: To protect marine resources in Guam's waters.

Policy: All living resources within the territorial waters of Guam, particularly corals and fish, shall be protected from overharvesting and, in the case of marine mammals, from any taking whatsoever.

Discussion: Consistent. In order to avoid any potential impacts to sensitive species and other marine species, marine monitoring will be performed prior to commencing daily construction activities for the conduit installation, in accordance with NOAA's best management practices. Construction would be suspended until the animal voluntarily leaves the area. There are no federally-listed corals on the construction corridor for the conduit installation; however, some live corals are present and will be relocated. These coral species are widely distributed in Tepungan Bay, and will be transplanted to a site in the vicinity with similar characteristics and monitored.

During the shore landing of the cables, care will be taken to avoid laying the 1.6-inch (41 mm) diameter cables on large coral colonies during the alignment process, especially at the mouth of Tepungan Channel. The cable ship will be held in place at the mouth of the channel by its own thrusters and would not anchor in areas of live corals. Prior to landing the cables, divers will mark the route with least impact to corals, and where the cable would be exposed to the least impact from physical terrain. As they are paid out from the cable ship, the cables will have floats attached, and they will be floated towards the conduits at the bulkhead. The floats will be cut and the cables laid in place by divers. If the cable needs to be repositioned, a stopper would be used to provide slack on the cable and allow manipulation of the cable before its final placement over the substrate. Likewise, the installation of the split pipes around the fiber-optic cables for 200 m (656 ft), and selected pinning of the cables to the substrate at intervals at the channel mouth, will be conducted in such a manner as to minimize damage to live corals along the cable route. A post-construction and cable-laying inspection will be conducted to confirm these measures have been carried out. The implementation of these and other best management practices would minimize impacts to the existing marine life in Guam's coastal waters.

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5. Visual Quality

Intent: To protect the quality of Guam's natural scenic beauty.

Policy: Preservation and enhancement of, and respect for the island's scenic resources shall be encouraged through increased enforcement of and compliance with sign, litter, zoning, subdivision, building and related land-use laws. Visually objectionable uses shall be located to the maximum extent practicable so as not to degrade significant views from scenic overlooks, highways and trails.

Discussion: Consistent. There would some temporary effects on aesthetics of the reef flat and park during the construction period, but the project would not permanently obstruct or degrade natural scenic views. The cable trench will be reburied and the reef flat restored to the original grade. Similarly, the cable raceway would be buried within the Park, and not contribute to any visually objectionable uses.

6. Recreational Areas

Intent: To encourage environmentally compatible development.

Policy: The Government of Guam shall encourage development of varied types of recreational facilities located and maintained so as to be compatible with the surrounding environment and land uses, adequately serve community centers and urban areas and protect beaches and such passive recreational areas as wildlife and marine conservation areas, scenic overlooks, parks and historical sites.

Discussion: Consistent. The project would involve temporary activities in marine waters and would not have a significant effect on the use of these waters for recreation. Vessels operating in the vicinity of the cable ship would be temporarily diverted to nearby areas during the brief cable landing events.

7. Public Access

Intent: To ensure the right of public access.

Policy: The public's right of unrestricted access shall be ensured to all non-federally owned beach areas and all territorial recreation areas, parks, scenic overlooks, designated conservation areas and their public lands; and agreements shall be encouraged with the owners of private and federal property for the provision of releasable access to and use of resources of public nature located on such land.

Discussion: Consistent. The offshore activities would temporarily restrict access on the section of reef flat in the work zone for several weeks during construction, and for a few days during the cable landing events to ensure public safety. Similarly, vessels would be advised via a Coast Guard Notice to Mariners not to approach the area during the cable landing while the cable ship is offshore.

Public access to Santos Park would be limited during construction and cable landing activities for safety reasons. During construction, this project is expected to have a temporary impact on the traffic patterns along Route 1 (Marine Corps Drive) and potentially Route 11 (Cabras Highway) as materials and equipment are moved in and out of the Park. An encroachment permit would be required to safely accommodate construction access to the Park from Route 1. The permit would include a site specific traffic control plan that will be prepared and submitted to the Department of Public Works and Port Authority of Guam for review and approval. The traffic control plan would be implemented with appropriate lights and/or signage to safely divert motorists and facilitate the movement of vehicles during these construction periods. Construction is scheduled to occur during daylight hours. Motorists would be inconvenienced and may opt to travel on alternate routes or at alternate times of day.

8. Agricultural Lands

Intent: To stop urban types of development on agricultural land.

Policy: Critical agricultural land shall be preserved and maintained for agricultural use.

Discussion: Not applicable. None of the soils in the project site are identified as having major components that meet the soil requirements for prime farmland when irrigated (Young, 1988).

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EXHIBIT A. FIGURES

1. Site location map of GTA cable raceway and SEA-US cable landing site, Piti, Guam.
2. Aerial view of GTA cable raceway and SEA-US cable landing site, Piti, Guam.
3. Flood hazard map at the project site, Santos Park, Piti (Taken and adapted from FEMA, 2007).
4. Benthic habitat map of project site, Tepungan, Piti, Guam (Adapted from Burdick, 2005).

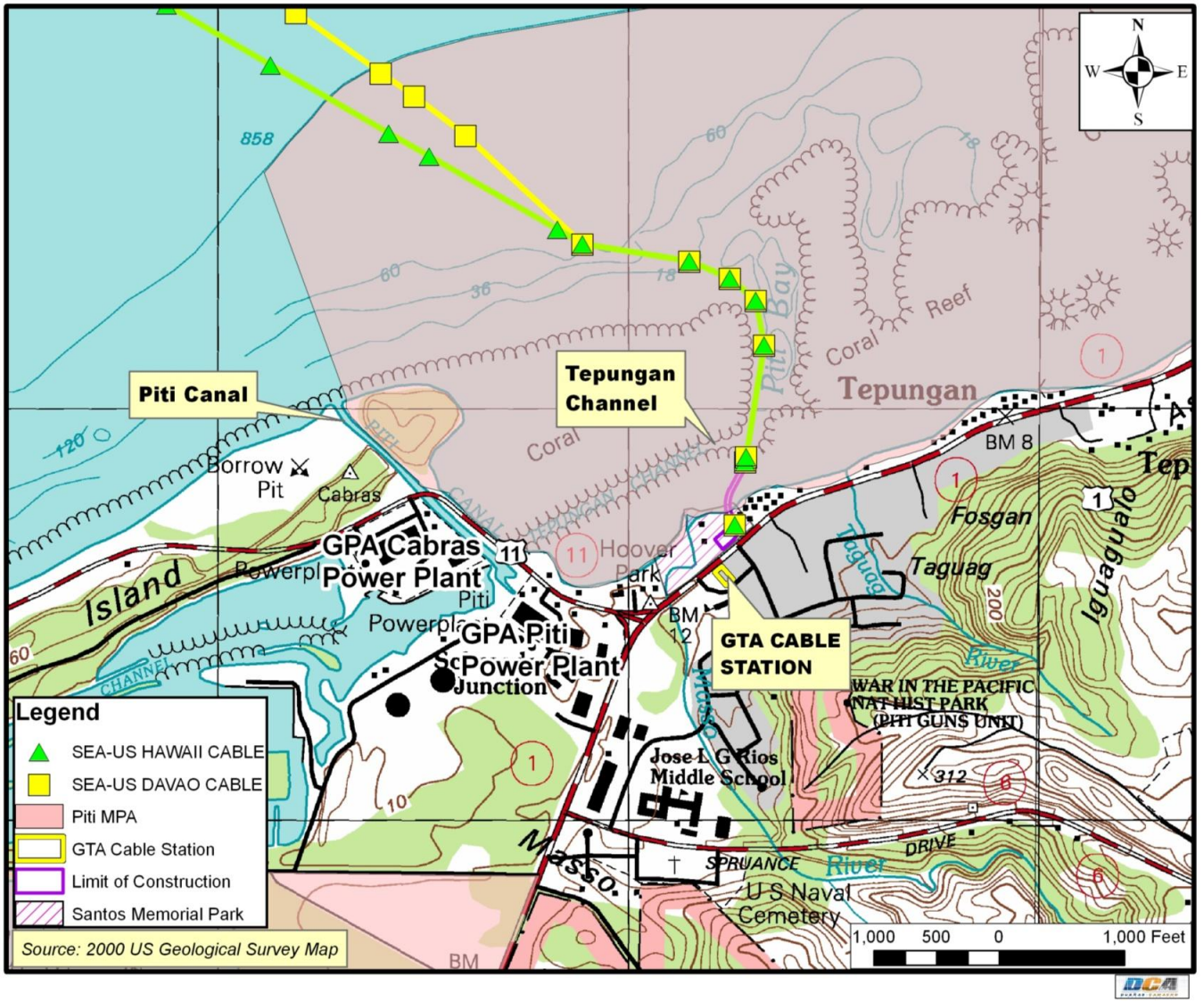


Figure 1. Site location map of GTA cable raceway and SEA-US cable landing site, Piti, Guam.

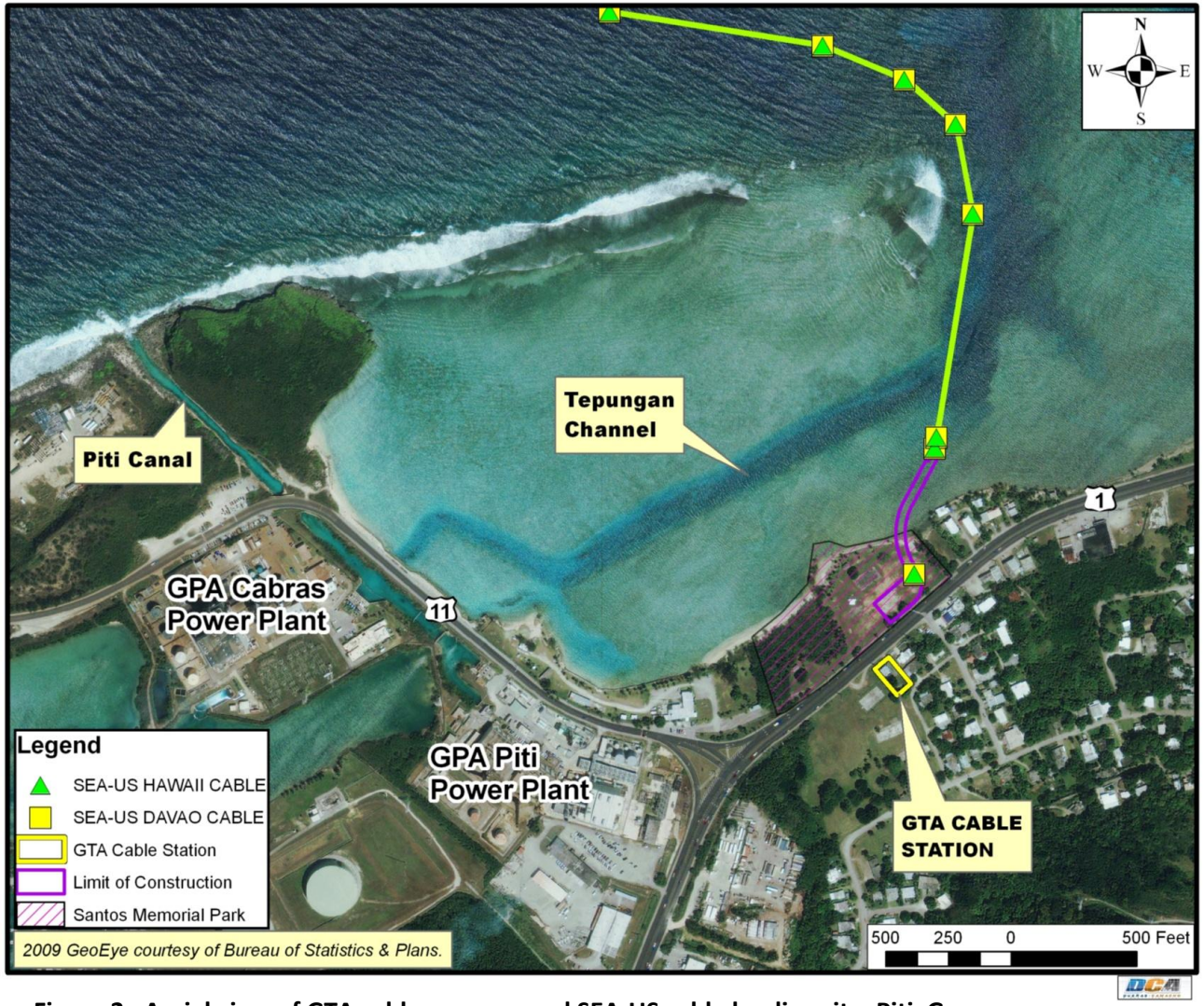


Figure 2. Aerial view of GTA cable raceway and SEA-US cable landing site, Piti, Guam.

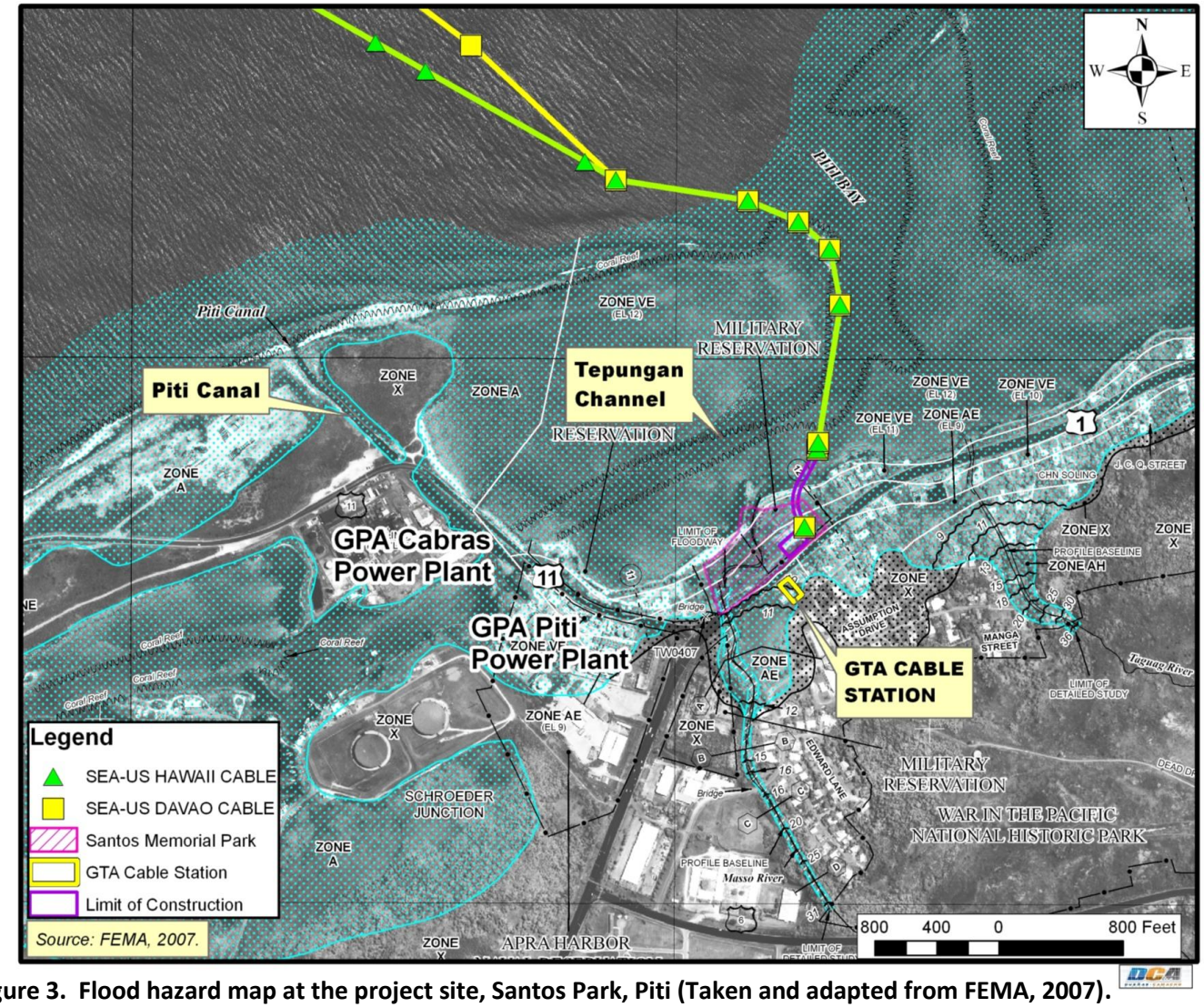


Figure 3. Flood hazard map at the project site, Santos Park, Piti (Taken and adapted from FEMA, 2007).

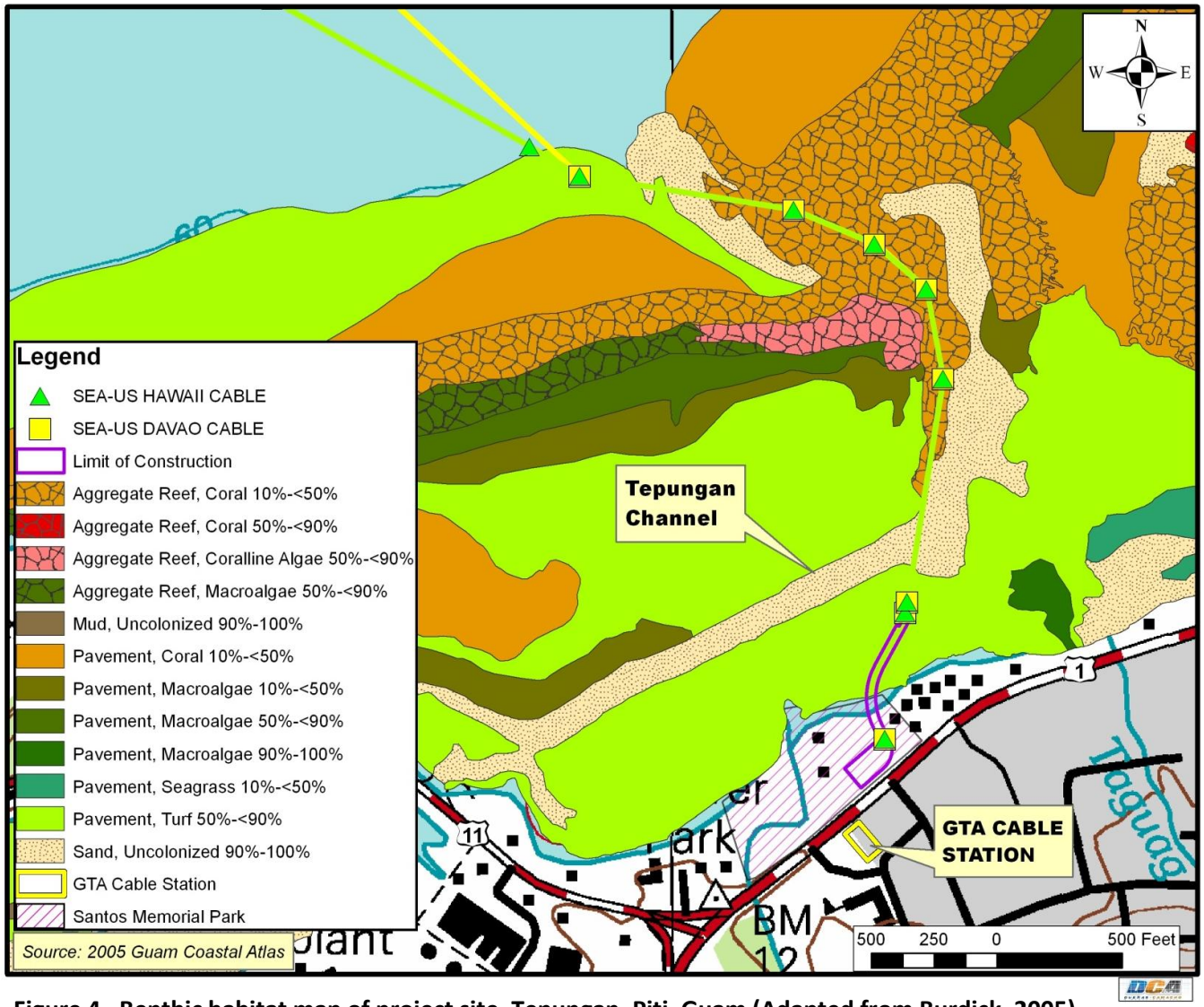
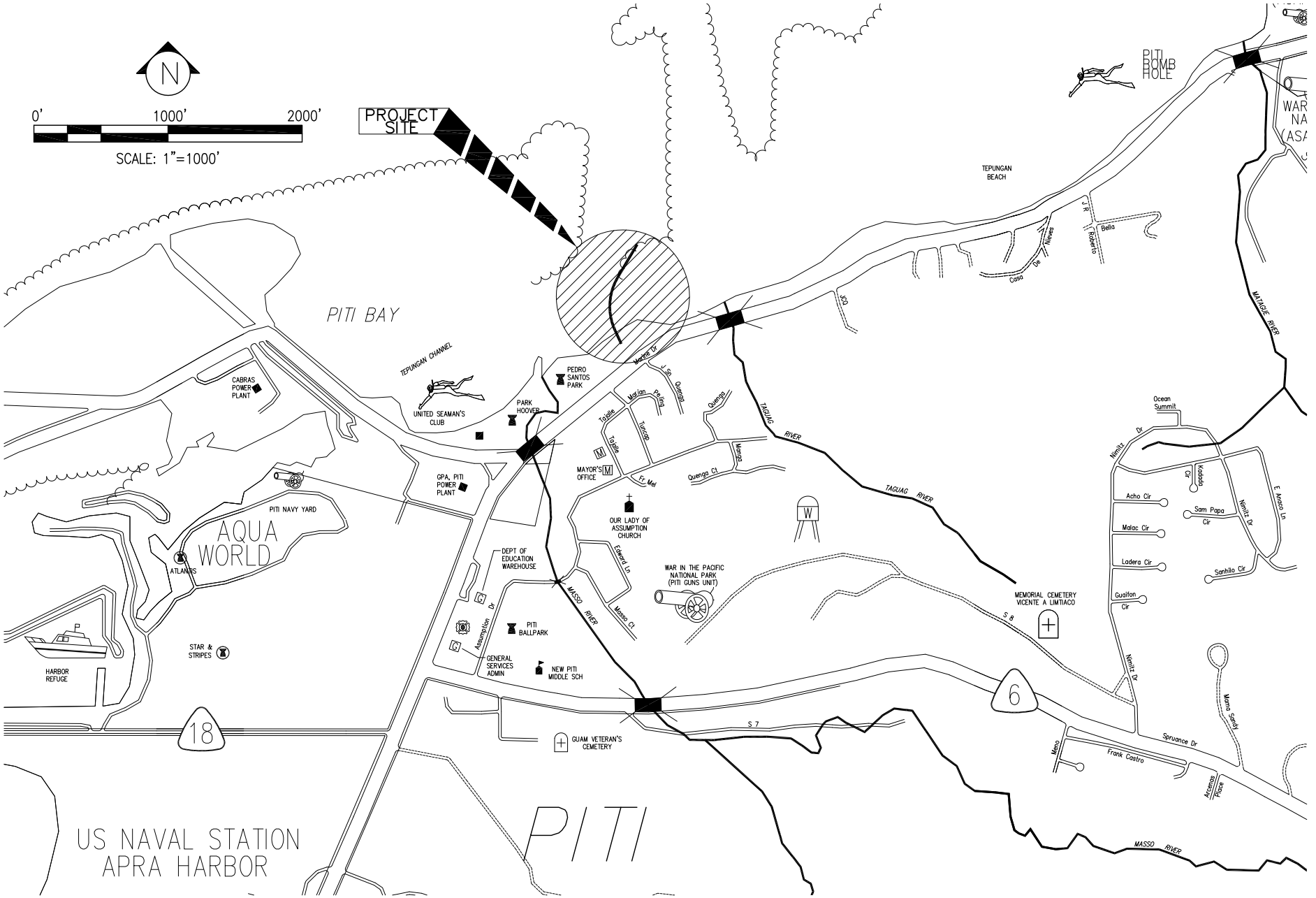


Figure 4. Benthic habitat map of project site, Tepungan, Piti, Guam (Adapted from Burdick, 2005).

EXHIBIT B. DESIGN PLANS

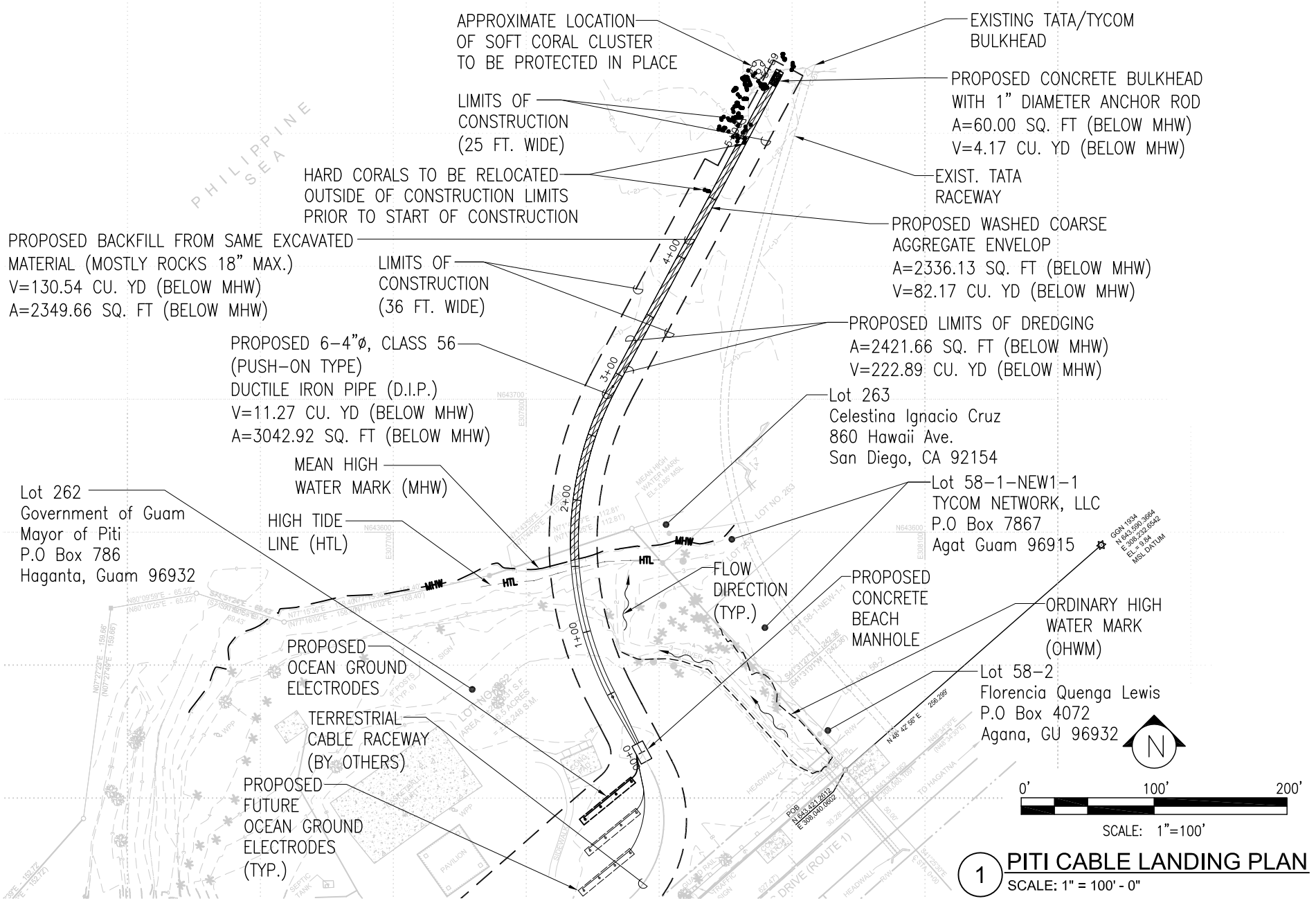


Vicinity Map

Datum: Mean lower low water

POH-2016
GTA
624 North Marine Corps Drive
Tamuning, GU 96913

GTA Cable Raceway
Route 1, Piti, Guam
Sheet 1 of 6
June 2016



SCALE: 1"=100'

1 PITI CABLE LANDING PLAN

SCALE: 1" = 100' - 0"

Plan View

Datum: Mean lower low water

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Tamuning, GU 96913

GTA Cable Raceway
Route 1, Piti, Guam
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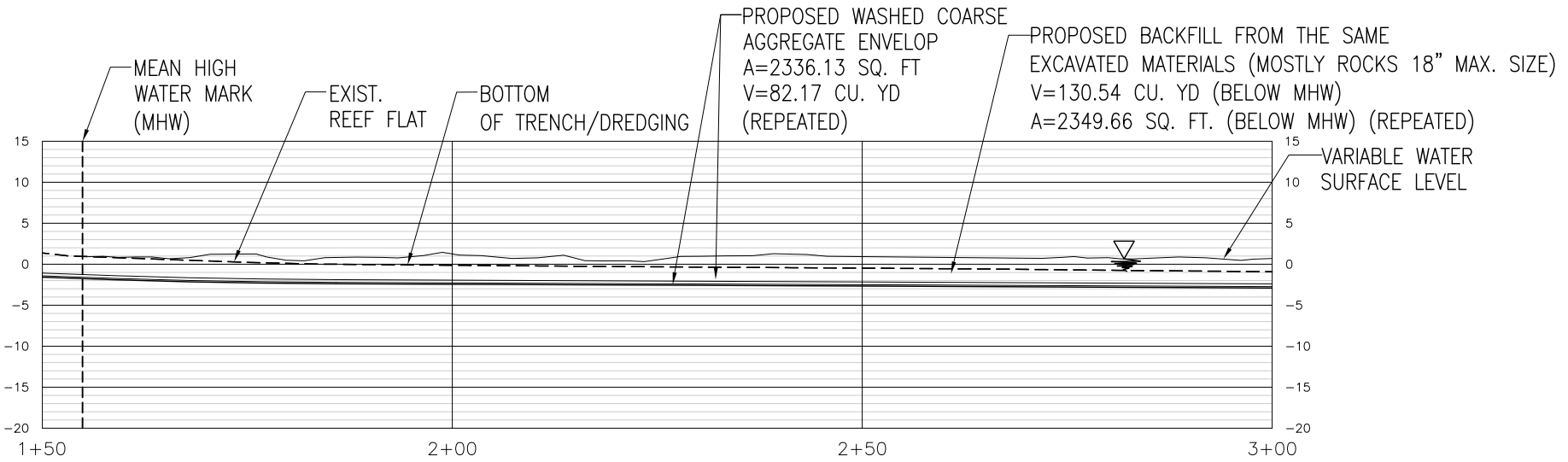
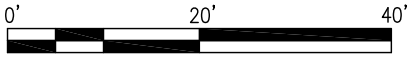
June 2016

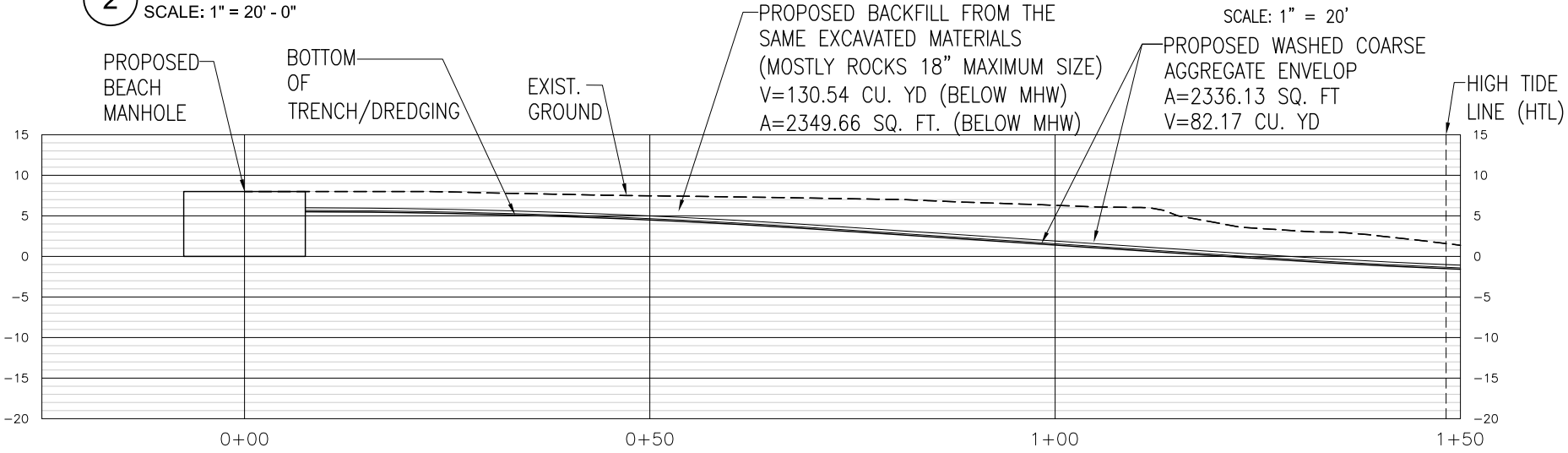


2 PITI CABLE LANDING PROFILE (STA. 1+50 TO STA 3+00)

SCALE: 1" = 20' - 0"



SCALE: 1" = 20'



1 PITI CABLE LANDING PROFILE (STA. 0+00 TO STA 1+50)

SCALE: 1" = 20' - 0"

SCALE: 1" = 20'

Trench Profile (1 of 2)

Datum: Mean lower low water

POH-2016
GTA
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Tamuning, GU 96913

GTA Cable Raceway
Route 1, Piti, Guam
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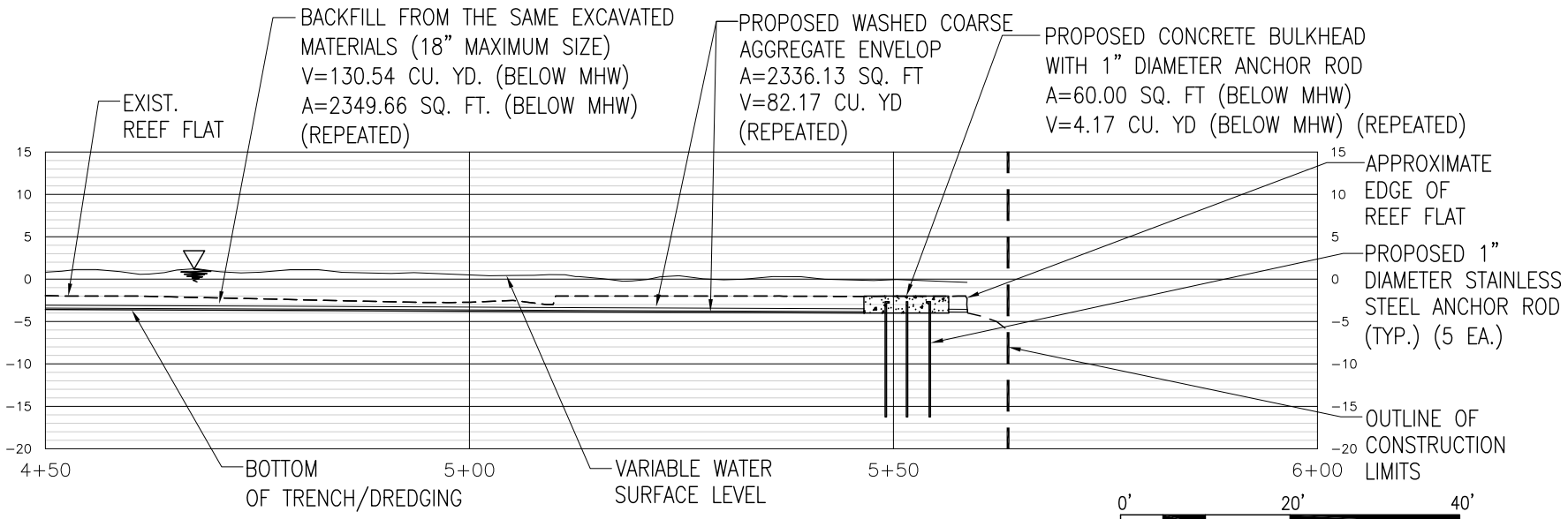
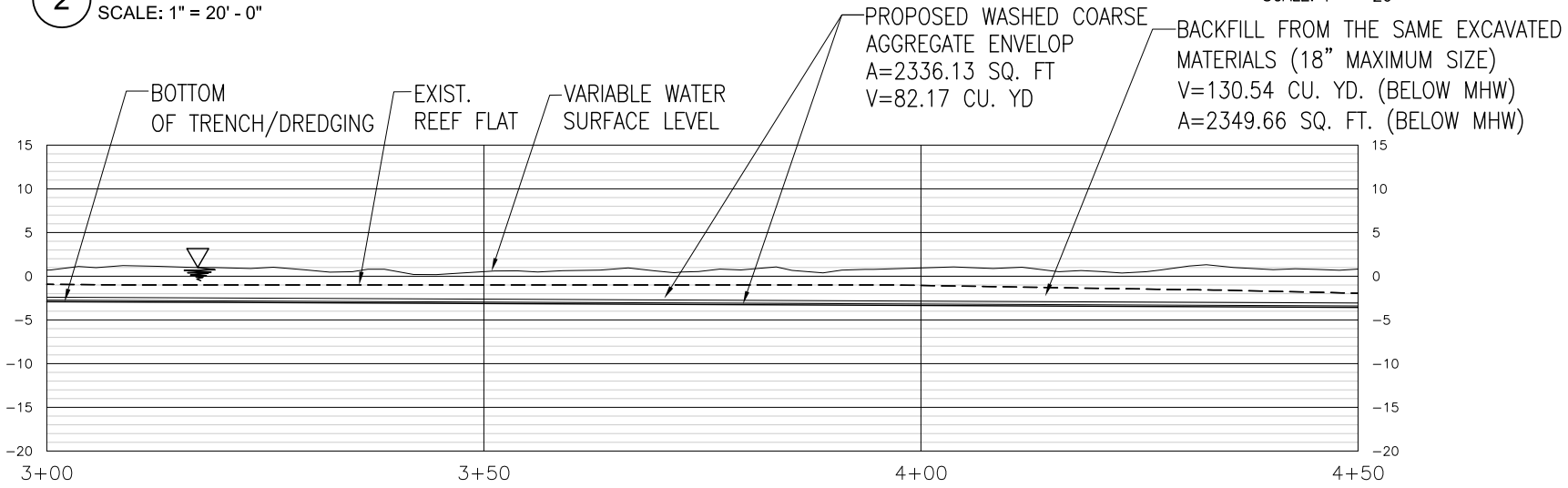
June 2016



SCALE: 1" = 20'

2 PITI CABLE LANDING PROFILE (STA. 4+50 TO STA 6+00)

SCALE: 1" = 20' - 0"



SCALE: 1" = 20'

1 PITI CABLE LANDING PROFILE (STA. 3+00 TO STA 4+50)

SCALE: 1" = 20' - 0"

Trench Profile (2 of 2)

Datum: Mean lower low water

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GTA Cable Raceway
Route 1, Piti, Guam
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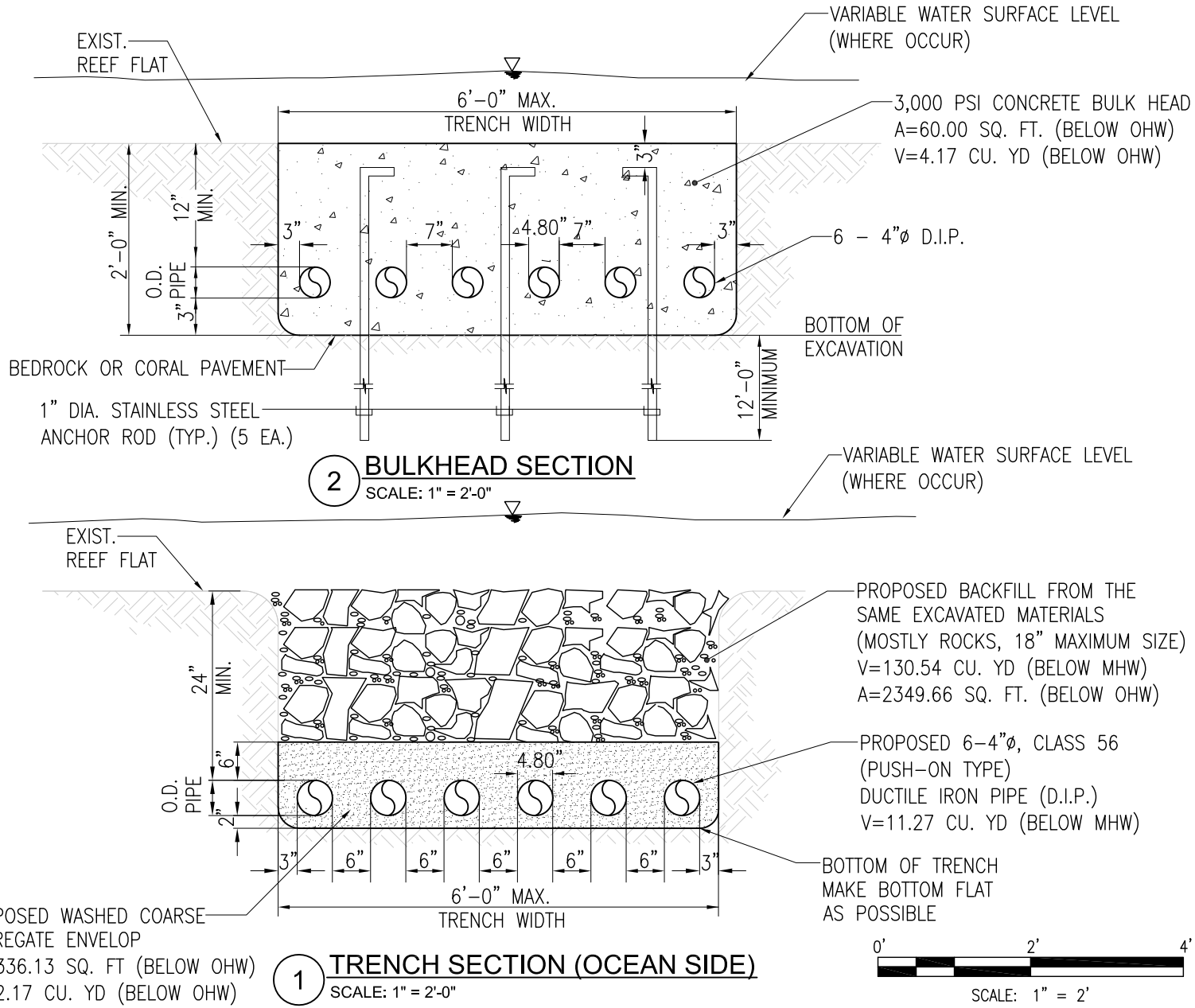

Trench and Bulkhead Section

Datum: Mean lower low water

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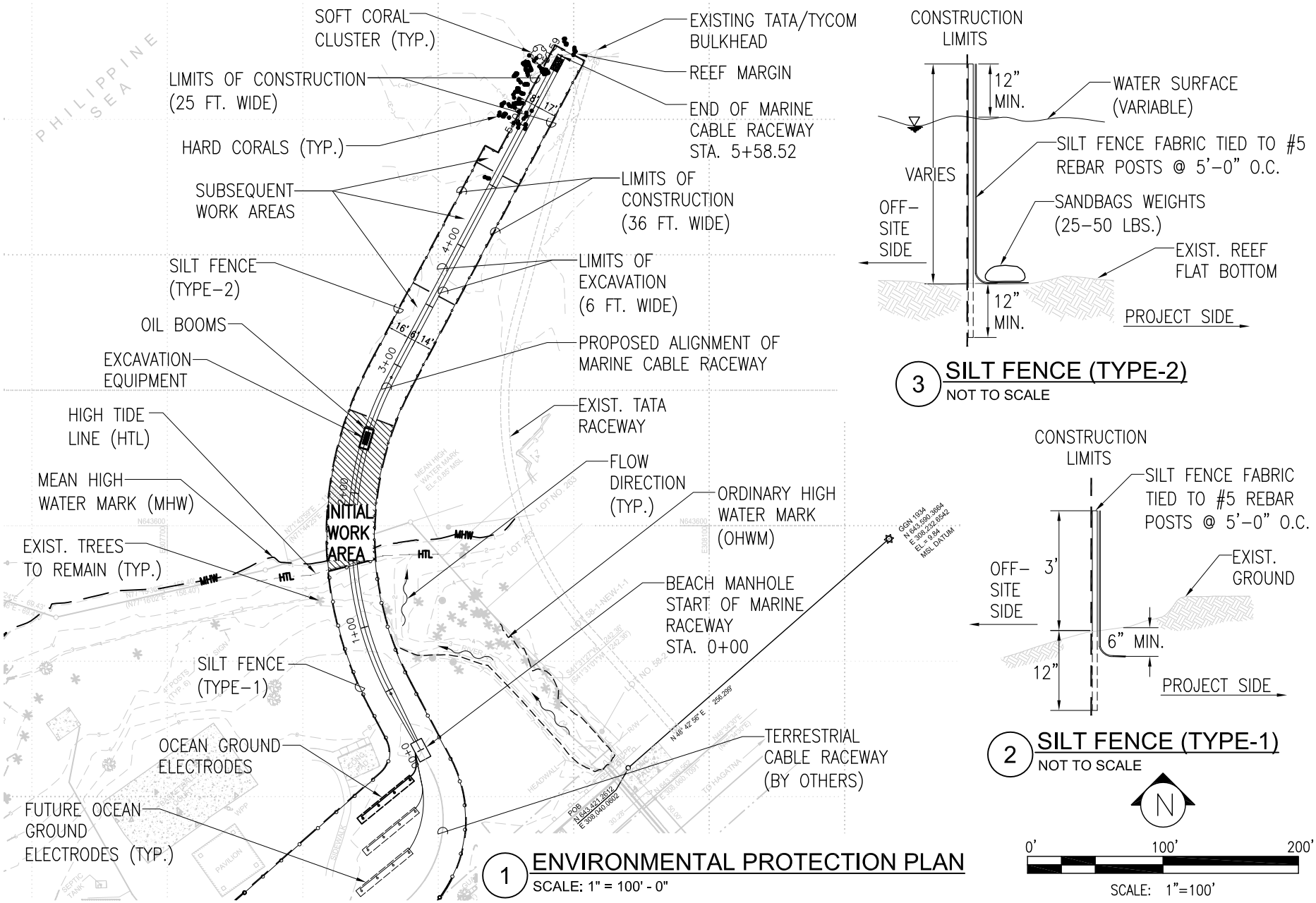

1 ENVIRONMENTAL PROTECTION PLAN
SCALE: 1" = 100' - 0"

3 SILT FENCE (TYPE-2)
NOT TO SCALE

2 SILT FENCE (TYPE-1)
NOT TO SCALE

N

0' 100' 200'
SCALE: 1"=100'

Environmental Protection Plan

Datum: Mean lower low water

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GTA Cable Raceway
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