

DEPARTMENT OF THE ARMY PERMIT

Permittee: Empire Offshore Wind, LLC
600 Washington Boulevard, Suite 800
Stamford, Connecticut 06901

Permit Number: NAN-2022-00901

Permit Date: _____

Issuing Office: US Army Corps of Engineers, New York District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer. You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

Empire Wind 1 Offshore Lease Area

Construct a wind farm in the Atlantic Ocean on the Outer Continental Shelf (OCS) within the approximately 79,350-acre BOEM Renewable Energy Lease Area OCS-A 0512. Lease Area OCS-A 0512 is located approximately 14 miles south of Long Island, New York and approximately 19.5 miles east of Long Branch, New Jersey. The Empire Wind 1 (EW 1) Wind Farm Development Area (WFDA), within OCS-A 0512, is approximately 28,733 acres. The wind farm will consist of up to fifty-seven (57) offshore wind turbine generators (WTGs) on steel monopile foundations located at up to seventy-eight (78) potential locations, scour protection around the base of the WTGs, up to approximately 116 nautical miles (nm) of submarine interarray cables connecting the WTGs and one (1) offshore substation (OSS) with a pile jacketed foundation. Each monopile foundation diameter would be up to approximately 36 feet in base diameter and installed by pile driving with a hydraulic hammer. Each monopile foundation would be protected with rock scour protection up to 207 feet in diameter (inclusive of the monopile foundation). With scour protection, the proposed footprint of each monopile foundation would be approximately 39,902 square feet. The total maximum footprint for the monopile foundations would be approximately 52.2 acres. The OSS will be constructed on a four- or six-legged pile jacketed foundation which would consist of up to twelve piles in total. Each pile for the OSS piled jacket foundation would be up to approximately 8 feet in diameter. The OSS would be protected with rock scour protection over approximately 93,560 square feet (inclusive of the piled jacket foundation).

The submarine interarray cables between the WTGs and the OSS will consist of 66kV 170 millimeter (mm) diameter HVAC cables and will total up to approximately 116 nm over a total maximum footprint of 534 acres. The cables will be buried to a minimum burial depth of six feet beneath the existing seabed as measured from the top of the cable. The interarray cables are proposed to be installed using jetting, plowing, and/or trenching methods. If the six-foot burial depth is not achievable, cable protection measures will be used. Up to 10% of the interarray cable

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length (approximately 11.6 nm) would require remedial cable protection, over a total footprint of up to approximately 25.9 acres. The cable protection would be approximately 16 feet wide at the base and three feet wide at the top with a depth of approximately three feet. The OSS would collect the electric energy generated by the WTGs through the interarray cables for transmission through the EW 1 export cables and interconnection cables to the onshore interconnection facility at the existing Gowanus 345-kV Substation in Brooklyn, New York.

Empire Wind 1 Export Cables

Install two (2) approximately 300 mm diameter 230kV HVAC submarine export cables. The submarine export cables would be approximately 40 nm in length within a single corridor from the OSS to the South Brooklyn Marine Terminal (SBMT) in Brooklyn, New York. Approximately 25 nm would be located in federal waters and approximately 15 nm would be located in New York State (NYS) waters. The two export cables will be spaced between 33 to 300 feet apart within an approximately 500-foot-wide cable corridor. The submarine export cable corridor is typically approximately 500 ft wide, and up to approximately 900 ft wide in certain locations to allow the applicant to microsite the cables based on preferable conditions. The total submarine export cable siting corridor in federal waters is approximately 1,598 acres and in NYS Waters is approximately 1,081 acres.

The cables will be buried to a minimum burial depth of six feet below the seabed as measured from the top of the cable in areas located outside of Federal Navigation Channels and Anchorages. If the six-foot burial depth is not achievable, cable protection measures may be used. It is estimated that up to approximately 10% of the export cable length would require remedial cable protection (approximately 2.5 nm along each of the two cables in federal waters and approximately 1.5 nm along each of the two cables in NYS waters). Within Federal Navigation Channels and/or Anchorages the cables will be buried a minimum of 15 feet below the authorized depth or depth of existing seabed (whichever is deeper) as measured from the top of the cable. Remedial cable protection measures are not authorized in Federal Navigation Channels or Anchorages without prior approval of this office. The total maximum footprint for the export cables would be 236 acres in federal waters and the total maximum footprint for the export cables in NYS waters would be 138 acres. The export cables are proposed to be installed using jetting, plowing, trenching, and/or dredging methods. The cable protection would be approximately 36 feet wide at the base and five feet wide at the top with a depth of approximately five feet. The proposed temporary seabed disturbance for the export cable protection, beyond the disturbance for cable installation, would be approximately 2.1 acres in federal waters and approximately 1.2 acres in NYS Waters. Approximately 80,770 cubic yards of scour protection would be discharged below the plane of Spring High Water over approximately 15.7 acres for remedial cable protection measures within NYS waters.

The proposed cable route would cross nineteen (19) in- and out-of- service existing cables and/or pipelines within NYS waters. Eleven (11) of the 19 existing cables and pipelines will require pre-installation sediment disturbance and/or cable protection measures, which shall be subject to final crossing agreement with the crossed asset owner(s). Cable protection at cable and pipeline crossings could be approximately 53 feet wide at the base and 6.6 feet wide at the top with a depth of approximately 6.6 feet. Alternatively, marine matting with either rock or concrete could be used for protection of the existing utility either by laying a protective mattress on top of the utility or both on top of the utility and above the cable. Approximately 10,774 cubic yards of sediment

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may be disturbed around asset crossings and approximately 14,688 cubic yards of scour protection below the plane of Spring High Water may be placed in these existing cable and pipeline areas.

In certain areas along the export cable route, pre-sweeping activities are necessary for cable laying activities where megaripples and sandwaves are present. Pre-sweeping will occur in up to an approximately 164-foot width along the length of the megaripples and sandwaves; the length of clearance will vary along the submarine export cable route. Megaripple and sandwave height vary depending on localized seabed and current characteristics. Along the submarine export cable route, approximately 116,044 cubic yards of sediment is anticipated to be disturbed as a result of these pre-sweeping activities. Sediment disturbance for both pre-sweeping activities and existing utility crossings would be performed using a mass flow excavator from a construction vessel.

Additional activities include pre-trenching along the submarine export cable route in areas where deeper burial depths are not suitable for traditional cable burial methods. Pre-trenching involves running cable burial equipment over portions of the route to soften the seabed and/or by using a suction hopper dredge to excavate additional sediment. Pre-trenching is anticipated in areas with medium to high strength clay and where burial requirements are a minimum of 15-feet.

Empire Wind 1 Landfall at SBMT

Remove an existing approximately 3,330 square foot low level relieving platform and install a new steel bulkhead landward of the existing bulkhead. Two (2) 30-inch diameter pipe conduits would be installed through the bulkhead for the export cables. Replace the low-level relieving platform with a new high level platform ranging from approximately 29.5 to 35 feet wide by approximately 208 feet long supported by approximately sixteen (16) 24-inch diameter steel pipe piles between 32nd Street north to the southwestern corner of the 29th Street Pier. A new approximately 74-foot long sheet pile toe wall will be installed in front of the platform.

In front of the existing outfall approximately 112 cubic yards of riprap scour will be placed over an approximately 24-foot-wide by 26.5-foot-long area.

To facilitate the export cable's approach to the conduits along the bulkhead at SBMT, approximately 103,000 CY of material will be dredged to a depth of 34.5 feet below the plane of Mean Lower Low Water (MLLW) over approximately 6.89 acres to create a trench for the cable approach. An injector pit near at the western end of Pier 35 near the Bay Ridge Channel would be dredged to 55 feet below MLLW to facilitate the transition from deeper burial depth beneath the federal channel. The dredged material would be placed in a scow, dewatered onsite and transported for disposal at an approved upland facility. A 12-inch layer of bedding stone may be placed within the trench before cable installation. Following cable installation the trenched area would be backfilled to cover the cable and restore the area to grade. In total approximately 5.52 acres of the dredged/trenched area would be backfilled with approximately 62,650 cubic yards of clean fill to protect the cable.

All work shall be performed in accordance with the attached dated permit drawings; Special Conditions (A) through (KK) listed below, and the New York State Public Service Commission Section 401 Water Quality Certificate issued for Case 21-T-0366, which are all hereby made part

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of this permit.

Project Location:

IN: Atlantic Ocean, New York Harbor and Bay Ridge Channel

AT: BOEM Renewable Energy Lease Area OCS-A 0512 with export cable landfall at the South Brooklyn Marine Terminal (SBMT) in the Borough of Brooklyn, Kings County, City of New York, New York

Permit Conditions:

General Conditions:

1. Time limit for completing the regulated work authorized herein ends on _____. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least two (2) months before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. The permittee shall allow representatives from this office to inspect the authorized activities at any time deemed necessary; and shall promptly provide any required written reports, to ensure that authorized activities are being or have been accomplished in accordance with the terms and conditions of this permit.

Special Conditions:

A. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work

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shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

B. The permittee understands and agrees that while the BOEM ROD and COP are inclusive of the Empire 1 and Empire Wind 2 project, the terms and conditions of this permit apply to only the Empire Wind 1 project.

C. The permittee shall ensure that all plans, reports, or other documents required to be submitted to this office in relation to this permit must have “Empire Wind 1 – NAN-2022-00901” on the title page. All submittals shall be submitted to CENAN-R-PERMIT-APP@USACE.ARMY.MIL and Christopher.W.Minck@usace.army.mil.

D. The permittee shall complete and return the enclosed Compliance Certification Forms to this office within 30 days of completion of construction of the authorized work.

E. The permittee shall submit an annual report to this office detailing the work that occurred to date and status of compliance with all of the Conditions of this DA Permit. Reports for each year are due by February 15th of the following year.

F. The permittee shall contact this office a minimum of three (3) years in advance of proposed decommissioning to determine permitting requirements. Decommissioning is required at the end of the life of the project is not authorized by this Department of the Army (DA) permit.

G. The permittee shall notify the National Ocean Service (NOS) Office of Coast Survey when you begin cable laying work and work on the Outer Continental Shelf (OCS) and when the work authorized by this permit is completed. When construction of the offshore export cables and other offshore subprojects is complete, the permittee shall notify the NOS’s Nautical Data Branch by email at ocs.ndb@noaa.gov, and provide as-built drawings with explicit geographic control, horizontal datum (WGS 84 or NAD83), survey unit, survey date and any other relevant information. Digital data is preferred (e.g., CAD, GIS, PDF, Excel spreadsheets for route position lists of cables, etc.). The notification of completion shall be done within 90 days of completion of the activities. The permittee shall additionally send this office a copy of this documentation as we may note the location on future survey drawings.

H. The permittee shall comply with the terms and conditions specified within BOEM’s Construction and Operations Plan Approval, dated February 21, 2024.

I. The permittee shall abide by all Section 408 permission conditions included in the enclosed Section 408 Permission decision document.

J. Pursuant to 15 CFR 930 Subparts A through I, the permittee shall be responsible for, and shall comply with, all of the conditions and stipulations contained within the New York State Department of State (NYSDOS) issued Coastal Zone Management Concurrence with

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Consistency Certification F-2022-0782 dated October 16, 2023.

K. This Department of the Army (DA) permit does not authorize you to take an endangered species. In order to legally take a listed species, you must have separate authorization under the Endangered Species Act (ESA) (e.g., an ESA Section 10 permit, or a Biological Opinion (BO) under ESA Section 7, with "incidental take" provisions with which you must comply). The United States Fish and Wildlife Service (USFWS) BO, entitled "Biological Opinion on the Effects of the Empire Wind 1 and Empire Wind 2 Projects on the Federally Listed Piping Plover (*Charadrius melodus*; threatened) and rufa Red Knot (*Calidris canutus rufa*; threatened) within the Jurisdiction of the Long Island Field Office, Shirley, New York", prepared by the U.S. Fish and Wildlife Service, and dated June 2023, contains mandatory terms and conditions to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this DA permit is conditional upon your compliance with all of the mandatory terms and conditions associated with the incidental take statement of the attached BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with the incidental take statement of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute noncompliance with your DA permit. The USFWS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

L. This DA permit does not authorize you to take an endangered species. In order to legally take a listed species, you must have separate authorization under the ESA (e.g., an ESA Section 10 permit, or a BO under ESA Section 7, with "incidental take" provisions with which you must comply). The National Marine Fisheries Service (NMFS) BO, entitled "National Marine Fisheries Service Endangered Species Act Section 7 Consultation Biological Opinion", prepared by the National Marine Fisheries Service, and dated September 8, 2023, contains mandatory terms and conditions, including specified provisions of any incidental take authorization pursuant to the Marine Mammal Protection Act, to implement the reasonable and prudent measures that are associated with "incidental take" that is also specified in the BO. Your authorization under this DA permit is conditional upon your compliance with all of the mandatory terms and conditions associated with the incidental take statement of the attached BO, which terms and conditions are incorporated by reference in this permit. Failure to comply with the terms and conditions associated with the incidental take statement of the BO, where a take of the listed species occurs, would constitute an unauthorized take, and it would also constitute noncompliance with your DA permit. The NMFS is the appropriate authority to determine compliance with the terms and conditions of its BO, and with the ESA.

M. The permittee shall comply with the enclosed Memorandum of Agreement (MOA), entitled "Memorandum of Agreement among the Bureau of Ocean Energy Management, the Delaware Tribe of Indians, the Delaware Nation, the Mashantucket (Western) Pequot Tribal Nation, the Mashpee Wampanoag Tribe, the Shinnecock Indian Nation, the Stockbridge-Munsee Community Band of Mohican Indians, the Wampanoag Tribe of Gay Head (Aquinnah), the State Preservation Officers of New York and New Jersey, the New Jersey Historic Trust, Empire Wind LLC, and the Advisory Council on Historic Preservation Regarding the Empire Wind Offshore Wind Farm Projects (Lease Number OCS-A 0512)", that was fully executed on November 20,

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2023.

N. No later than 90 days after COP approval, the permittee shall make a request to both the BSEE Tribal Liaison Officer and the Eastern Seaboard Tribal Liaison at tribalengagement@bsee.gov to coordinate with federally recognized Tribal Nations with geographic, cultural, or ancestral ties to the project area (hereinafter “interested Tribal Nation”), including, but not limited to: the Delaware Tribe of Indians, the Delaware Nation, the Mashantucket (Western) Pequot Tribal Nation, the Mashpee Wampanoag Tribe, the Shinnecock Indian Nation, the Stockbridge-Munsee Community Ban of Mohican Indians, and the Wampanoag Tribe of Gay Head (Aquinnah). The purpose of this coordination is to (1) solicit Tribal Nation interest in participating as an environmental liaison during construction and/or maintenance activities, so the environmental liaison can safely monitor, and participate in postmortem examinations of mortality events, as a result of these activities; and (2) provide open access to the following: reports generated as a result of the Fisheries Research and Monitoring Plan; reports of NARW sightings; injured or dead protected species reporting (sea turtles, NARW, sturgeon); NARW PAM monitoring; PSO reports (e.g., pile driving reports); pile driving schedules and schedule changes; and any interim and final SFV reports, and its associated data. If an interested Tribal Nation expresses interest in participating as an environmental liaison, the permittee shall provide the interested Tribal Nation information regarding training(s), certification(s), and safety measures, required for participation. Environmental liaisons must be invited to monitor/participate from a safe platform, such as a vessel. The permittee shall provide to the interested Tribal Nation, in a manner suitable to the Tribal Nation, access to all ESA reports, Post Review Discovery Plans, and other documents listed in this paragraph no later than 30 days after the information becomes available. The permittee may redact or withhold documents listed in this paragraph when it is information that the permittee would not generally make publicly available and considers that the disclosure may result contrary to the permittee's commercial interests. The permittee shall submit a justification for the request to redact/withhold in writing to the BSEE Tribal Liaison Officer and the Eastern Seaboard Tribal Liaison at tribalengagement@bsee.gov. Only upon approval of such request may the document be redacted/withheld.

O. To the extent it is technically and/or economically feasible and practicable for the permittee to construct fewer than 54 WTGs in EW1, the permittee shall prioritize removal of the six WTG positions at the farthest northwest section of EW1. The order of preference for removal is B01, C01, B02, D02, B03, and D03.

P. The permittee shall prepare and implement a Micrositing Plan that describes how inter-array cables and export cable routes will be microsited to avoid or minimize impacts to sensitive benthic habitats (defined above) complex habitat (NOAA Habitat Categories), boulders, sandwaves, and confirmed MEC/UXO. The plan must specifically describe how inter-array and export cable routes will be microsited to avoid or minimize impacts to sensitive benthic habitats, including complex benthic habitat and boulders = 0.5 m, as technically and/or economically practicable or feasible. To the extent practicable, cables should cross complex habitat areas perpendicularly at the narrowest points; cables unable to avoid benthic features such as sand waves should be sited along natural benthic contours within troughs/lows, to maximize cable burial while minimizing disturbance to local submarine topography. The permittee shall submit

detailed supporting data and analysis as part of the FDR or FIR, including relevant geophysical and geospatial data. The submission of the data may be incorporated by reference or submitted as an attachment to the FDR or FIR. The Micrositing Plan must be consistent with MEC/UXO ALARP Certification, Cable Routings and the Boulder Identification and Relocation Plan. The Micrositing Plan must include a figure for each micrositied cable segment, including benthic habitat delineations showing complex habitat and locations of boulders = 0.5 m. The plan must include a figure depicting large boulder locations, multibeam backscatter returns, and the proposed micrositied locations for cables. Any instances where the permittee believes there is technical or economic infeasibility must be supported by a technical or economic feasibility analysis, as appropriate, for review and concurrence by BOEM and BSEE.

- a. For cables that cannot be micrositied to avoid impacts to complex habitat or boulders = 0.5 m, the micrositing plan must identify technically and/or economically practicable or feasible impact minimization measures and use the following, prioritized list of complex habitat sub-types (NMFS complexity categories) to avoid during micrositing:
 - Complex habitats with boulders;
 - Complex habitats absent boulders;
 - Heterogeneous complex habitats;
 - Biogenic habitats (i.e., clam beds)
 - Areas with benthic or bathymetric features

The Micrositing Plan must be submitted to BOEM and BSEE to coordinate with NMFS GARFO HESD for a 60-day review, 120 days prior to site preparation activities for cables and WTGs. The permittee shall resolve all comments on the Micrositing Plan to BOEM's and BSEE's satisfaction prior to implementation of the plan. A copy of the final micrositing plan shall be provided to this office within 30 days of BOEM & BSEE's approval.

Q. The permittee shall submit a Boulder Identification and Relocation Plan to BSEE and BOEM for review and concurrence. The plan must detail how the permittee will avoid or minimize impacts to sensitive benthic habitats and relocate boulders as close as practicable to the original location, in areas of soft bottom but immediately adjacent to similar habitat. The plan must be submitted to BOEM and BSEE to coordinate with USACE and NMFS GARFO HESD for a 60-day review, 120 days prior to boulder relocation activities. The permittee shall resolve all comments on the Boulder Identification and Relocation Plan to BOEM's and BSEE's satisfaction prior to implementation of the plan. If BOEM or BSEE do not provide comments on the plan within 60 days of its submittal, then the permittee may presume concurrence with the plan. The plan must include sufficient scope to mitigate boulders for facility installation and operation risks. The plan must be consistent with and meet the conditions of the SMS in Section 2.8. The plan must include the following for boulders that are proposed to be relocated:

- a. A summary and detailed description of surface and subsurface boulders greater than 0.5 m in diameter, and locations along the cable routes and WTG areas where such boulders have been found;
- b. A detailed summary of methodologies to be used in boulder identification, including geological and geophysical survey results;
- c. A clear depiction (i.e., figures) of the location of boulder relocation activities specified by activity type (e.g., pick or plow, removal, or placement) and overlaid on multibeam backscatter data;

- d. A description of boulder removal and/or relocation methods for each type of boulder relocation activity and technical feasibility constraints, including capacity of crane used in grab systems, vessel specifications and metocean limits on operation, etc.;**
- e. The environmental footprint of disturbance activities by habitat type and measures taken to avoid further adverse impacts to archaeological resources, complex habitats and fishing operations;**
- f. A comprehensive list and shapefile of locations of boulders that would be relocated (latitude, longitude), boulder dimensions (m), buffer radius (m), areas of active (within last 5 years) bottom trawl fishing (latitude, longitude), areas where boulders > 2 m in diameter are anticipated to occur (latitude, longitude), and identification of approximate areas to which boulders would be relocated (latitude, longitude);**
- g. The measures taken to minimize the quantity of seafloor obstructions from relocated boulders in areas of active bottom trawl fishing, as technically and/or economically feasible;**
- h. A description of safety distances or zones to limit boulder relocation near third part assets;**
- i. A summary of any consultation and outreach with resource agencies and the fishing industry in development of the plan (e.g., notifications to mariners);**
- j. A statement of consistency with the Micrositing Plan.**

The permittee shall provide USCG, NOAA, this office, and the local harbor master with a comprehensive list and shapefile of positions and areas to which boulders greater than 2 m would be relocated (latitude, longitude) at least 60 days prior to boulder relocation activities.

R. The permittee shall implement methods identified in the approved COP and described in the Boulder Identification and Relocation Plan for boulder relocation activities. The permittee shall consider the spatial extent of boulder relocation in the micrositing of WTGs and OSS foundations and inter-array and export cables for this Project and must relocate boulders as close as practicable in areas immediately adjacent to existing similar habitat. The relocation of boulders must be consistent with the Project easement.

S. The permittee shall conduct post-construction surveys capable of detecting bathymetry changes of 0.5 m or less where plows, jets, grapnel runs, or other similar methods are used, to determine the height and width of any created berms. If there are bathymetric changes in berm height greater than 1 m (3 feet) above grade, the permittee shall develop and implement a Berm Remediation Plan to restore created berms to match adjacent natural bathymetric contours (isobaths), as technically and/or economically practical or feasible. The permittee shall submit the Berm Remediation Plan to BOEM and BSEE to coordinate with NMFS for a 60-day review within 90 days of completion of the post-construction survey where the change was detected. BOEM and BSEE will also review the plan to determine if the scope of activities (e.g., methods, disturbance area, vessel trips, emissions) is within the already completed National Environmental Policy Act analysis and ESA and EFH consultations and, if not, will complete additional environmental review and consultations. The permittee shall resolve all comments on the Berm Remediation Plan to BOEM's and BSEE's satisfaction prior to initiating restoration activities. A copy of the post-construction surveys and the Berm Remediation Plan shall be provided to this office within 30 days of BOEM & BSEE's approval.

T. The permittee shall prepare and implement an Anchoring Plan for all areas where anchoring occurs and jack-up barges are used during construction and operations/maintenance within 1,640 feet (500 m) of habitats, resources, and submerged infrastructure that are sensitive, including sensitive benthic habitats; boulders = 0.5 m; ancient submerged landform features; known and potential shipwrecks; potentially significant debris fields; potential hazards; third-party infrastructure; and any related facility installation activities (such as cable, WTG, and OSS installation). The permittee shall provide to all construction and support vessels the locations where anchoring and jack-up barges must be avoided to the extent technically and/or economically practicable or feasible, including sensitive benthic habitats ; boulders = 0.5 m; ancient submerged landform features (ASLFs); known and potential shipwrecks; potentially significant debris fields; potential hazards; and any related facility installation activities (such as cable, WTG, and OSS installation). Dynamic positioning systems should be used in these areas instead of anchoring, as practicable. If anchoring is necessary at these locations, then all vessels deploying anchors must extend the anchor lines to the extent practicable to minimize the number of times the anchors must be raised and lowered to reduce the amount of habitat disturbance, unless the anchor chain sweep area includes complex habitat that may be impacted by the chain sweep. On all vessels deploying anchors, the permittee shall use mid-line anchor buoys to reduce the amount of anchor chain or line that touches the seabed, unless the permittee demonstrates, and BOEM and BSEE accept, that (1) the use of mid-line anchor buoys to reduce the amount of anchor chain or line that touches the seabed is not technically practicable or feasible; or (2) a different alternative is as safe and provides the same or greater environmental protection. If placement of jack-up barge spud cans is necessary in sensitive benthic habitats, locations for the spud cans must be selected to avoid or minimize impacts in the following order of preference: (i) complex habitats with boulders; (ii) complex habitats absent boulders; (iii) heterogeneous complex habitats; (iv) biogenic habitat (i.e., clam beds); and (v) areas with benthic or bathymetric features, as technically practicable or feasible. Any instances where the permittee believes there is technical infeasibility must be supported by a technical feasibility analysis, as appropriate, for review and concurrence by BOEM and BSEE. Benthic habitat (NOAA complexity categories) and Benthic Feature/Habitat Type maps in conjunction with backscatter, bathymetry, and boulder layers should be used to inform the anchoring plan.

a. The permittee shall provide the Anchoring Plan to BOEM and BSEE with a notification email sent to NMFS GARFO HESD for a 60-day review at least 120 days before anchoring activities and construction begins. The permittee shall resolve all comments on the Anchoring Plan to BOEM's and BSEE's satisfaction before conducting any seabed-disturbing activities that require anchoring.

b. A copy of the final Anchoring Plan shall be provided to this office within 30 days of BOEM & BSEE's approval.

U. The permittee shall prepare and implement a Scour and Cable Protection Plan that includes descriptions and specifications for all scour and cable protection materials. The plan must facilitate the avoidance and minimization of impacts to sensitive benthic habitats (defined above), including complex habitats and boulders = 0.5 m. The plan must include a depiction of the location and extent of proposed scour or cable protection, the habitat delineations (NOAA complexity categories map) for the areas of proposed scour and cable protection, and detailed information on the proposed scour or cable protection materials for each area and habitat type.

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Benthic habitat (NOAA complexity category) and Benthic Feature/Habitat Type project maps in conjunction with backscatter, bathymetry and boulder layers should be used to inform this plan.

- a. The permittee shall avoid the use of engineered stone or concrete mattresses in complex habitat, as practicable. The permittee shall ensure that any materials used for scour and cable protection measures consisting of natural or engineered stone does not inhibit epibenthic growth and provides three-dimensional complexity in height and in interstitial spaces, as practicable. If concrete mattresses are necessary, bioactive concrete (i.e., with bio-enhancing admixtures) must be used as practicable as the primary scour protection (e.g., concrete mattresses) or veneer to support biotic growth. The permittee shall minimize the use of scour protection to the minimum amount necessary to accomplish the purpose.**
- b. Cable protection measures must have tapered or sloped edges to reduce hangs for mobile fishing gear. The permittee shall avoid the use of plastics/recycled polyesters/net material (i.e., rock-filled mesh bags, fronded mattresses) for scour protection.**
- c. Any instances where the permittee believes there is technical or economic infeasibility must be supported by a technical or economic feasibility analysis, as appropriate, for review and concurrence by BOEM and BSEE.**
- d. The Scour and Cable Protection Plan must be submitted to BOEM and BSEE to coordinate with NMFS GARFO HESD for a 60-day review, 120 days prior to placement of scour and cable protection. The permittee shall resolve all comments on the plan to BOEM's and BSEE's satisfaction before placement of the scour and cable protection materials.**
- e. A copy of the final Scour and Cable Protection Plan shall be provided to this office within 30 days of BOEM & BSEE's approval.**

V. The permittee shall be required to follow its Fisheries Communication Plan to provide advanced notice of HRG survey plans to the commercial fishing industry in the region and must schedule surveys that, to the extent practicable, avoid peak longfin squid fishing activity in the survey area.

W. The permittee shall avoid the use of boomers and sparkers in HRG surveys in the 29 northwestern aliquots of the lease area from April 1 through July 31 of any year, as practicable.

X. The permittee shall report any occurrence of at least 10 dead non-ESA-listed fish within established shutdown or monitoring zones to BOEM at renewable_reporting@boem.gov and to BSEE via email to protectedspecies@bsee.gov as soon as practicable (taking into account crew and vessel safety), but no later than 24 hours after the sighting. BOEM or BSEE will notify NMFS GARFO via NMFS.GAR.HESDoffshorewind@noaa.gov. The permittee shall confirm the relevant point of contact prior to reporting and confirm the reporting was received.

Y. The permittee shall conduct fisheries and benthic monitoring according to the Empire Wind Fisheries and Benthic Monitoring Plan to assess fisheries and benthic habitat status in the Project area pre-, during, and post-construction. The permittee shall review all NMFS GARFO comments on the Fisheries and Benthic Monitoring Plan that BOEM provides to the permittee and revise the Plan, as appropriate. The permittee shall resolve all comments on the Plan to BOEM's and BSEE's satisfaction prior to implementation of the revised Plan. A copy of the final Fisheries and Benthic Monitoring Plan shall be provided to this office within 30 days of BOEM & BSEE's approval.

Z. The permittee shall submit an annual report to BOEM, BSEE, this office, and NMFS GARFO's Protected Resources Division (nmfs.gar.incidental-take@noaa.gov) for benthic habitat and fisheries monitoring activities in the preceding calendar year by February 15 (i.e., the report of 2023 activities is due by February 15, 2024). The report must include a summary of all activities conducted, the dates and locations of all fisheries ventless trap surveys and otter trawl surveys, number of sets and soak duration for all ventless trap surveys and tows and duration for all trawl surveys summarized by month, number of vessel transits (port of origin and destination), and a summary table of any observations and captures of ESA listed species during these surveys. The report must also summarize all acoustic telemetry and benthic monitoring activities that occurred, inclusive of vessel transits. The permittee shall share data consistent with its data sharing plan and upon BOEM's or BSEE's request.

AA. To the extent it is technically and/or economically practical or feasible, the permittee shall avoid using Zinc sacrificial anodes on external components of WTG and OSS foundations to reduce the release of metal contaminants in the water column.

BB. The permittee shall avoid in-water work including dredging, cable installation, seabed preparation, pile installation (i.e., for bulkheads/cofferdams, wharfs), or other extractive or turbidity/sediment generating activities from January 15 to May 31 of any calendar year in estuarine/nearshore waters of six meters in depth or less within the waters of New York Harbor (inshore of Sandy Hook to Rockaway Point) to avoid impacts to winter flounder early life stages (spawning adults, eggs, larvae).

CC. The permittee shall avoid in-water work including dredging, cable installation, seabed preparation, pile driving, or other extractive or turbidity/sediment-generating activities from December 15 to April 15 of any given year in the Bay Ridge Channel and adjacent nearpier and inter-pier areas, including the SBMT to avoid impacts to overwintering winter flounder and striped bass.

DD. The permittee shall avoid dredging, pre-sweeping, and cable installation activities in Lower Bay, particularly along the edges of the Ambrose Channel from December 1 to March 31 of any calendar year to minimize impacts to overwinter, dormant blue crabs, as practicable.

EE. The permittee shall avoid and minimize impacts to sensitive benthic habitat in all inshore/estuarine areas where seafloor preparation and cable installation activities will occur, through the use of micrositing. The permittee shall ensure that disturbed areas will be restored to pre-construction conditions, inclusive of bathymetry, contours, and sediment types with the exception of the cable landfall area within the interpier area at South Brooklyn Marine Terminal. The pre-construction surveys to determine conditions and post-construction surveys should be conducted to verify restoration has occurred. Survey results should be provided to this office and to NMFS HESD at NMFS.GAR.HESDoffshorewind@noaa.gov.

FF. The permittee shall avoid trenching in open nearshore/estuarine waters, as practicable. If open trenching is used, dredged/excavated materials shall not be sidecast or placed in the aquatic environment. In areas with elevated levels of contaminants, a closed

PERMITTEE: Empire Offshore Wind, LLC

PERMIT NUMBER: NAN-2022-00901

clamshell/environmental bucket dredge shall be used. All dredged/excavated materials shall be stored on uplands or barges and placed back into the trench to restore the excavated areas, or removed to a suitable upland disposal site if the material contains elevated levels of contaminants. Any trenched areas shall be restored to pre-construction conditions with native and/or clean, compatible material.

GG. The permittee shall ensure that all vessels float at all stages of the tide (i.e. avoid vessel grounding) and shall ensure that vessel anchoring and/or jack-up barges avoid sensitive benthic habitats to the maximum extent possible.

HH. As there are eight NMFS scientific surveys that overlap with Empire Wind lease area, consistent with NMFS and BOEM survey mitigation strategy, the permittee shall submit to BOEM and this office, a survey mitigation agreement between NMFS and the Permittee within 120 days of the COP approval. The survey mitigation agreement must describe how the permittee will mitigate the Project impacts on the eight NMFS surveys. The permittee shall conduct activities in accordance with such agreement.

If the permittee and NMFS fail to reach a survey mitigation agreement, then the permittee shall submit a Survey Mitigation Plan to BOEM and NMFS that is consistent with the mitigation activities, actions, and procedures described below, within 180 days of COP approval. BOEM will review the Survey Mitigation Plan in consultation with NMFS Northeast Fisheries Science Center (NEFSC). The permittee shall resolve comments to BOEM's satisfaction and must conduct activities in accordance with the plan.

- a) As soon as reasonably practicable, but no later than 30 days after the issuance of the Project's COP approval, the permittee shall initiate coordination with NMFS NEFSC at nefsc.survey.mitig@noaa.gov to develop the survey mitigation agreement described above. Mitigation activities specified under the agreement must be designed to mitigate the Project impacts on the following NMFS NEFSC surveys: (a) Spring Multi-species Bottom Trawl survey; (b) Autumn Multi-species Bottom Trawl survey; (c) Ecosystem Monitoring survey; (d) Aerial marine mammal and sea turtle survey; (e) Shipboard marine mammal and sea turtle survey; (f) Atlantic surfclam and ocean quahog survey; (g) Atlantic sea scallop survey; and (h) Seal survey. At a minimum, the survey mitigation agreement must describe actions and the means to address impacts on the affected surveys due to the preclusion of sampling platforms and impacts on statistical designs. NMFS has determined that the project area is a discrete stratum for surveys that use a random stratified design. This agreement may also consider other anticipated Project impacts on NMFS surveys, such as changes in habitat and increased operational costs due to loss of sampling efficiencies.
- b) The survey mitigation agreement must identify activities that will result in the generation of data equivalent to data generated by NMFS's affected surveys for the duration of the Project. The survey mitigation agreement must describe the implementation procedures by which the permittee will work with NEFSC to generate, share, and manage the data required by NEFSC for each of the surveys impacted by the Project, as mutually agreed upon between the permittee and NMFS NEFSC. The survey mitigation agreement must also describe the permittee's participation in the NMFS NEFSC Northeast Survey Mitigation Program to support activities that address regional-level impacts for the

PERMITTEE: Empire Offshore Wind, LLC

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surveys listed above.

II. The permittee shall provide the locations of all relocated boulders, created berms, and scour protection including cable protection measures (i.e. concrete mattresses) to NMFS, USCG, and this office to inform the public of potential gear obstructions.

JJ. The permittee shall ensure that the minimum burial depth for the export and inter-array cables on the Outer Continental Shelf is six feet below the seabed. The minimum burial depth shall be measured from the top of the cable.

- a. Any area on the OCS where the minimum burial depth requirement can not be met, the permittee shall deploy cable protection measures (i.e. concrete mattressing, rock bags or rock placement). The cable protection measures must comply with the scour and/or cable protection measure plans.**

KK. The permittee shall conduct an inspection of each inter-array and export cable to determine cable location, burial depths, the state of the cable, and site conditions within 6 months, 1 year, and 2 years of commissioning, and every 3 years thereafter (e.g., years 5, 8, 11, 14, 17, 20, and 23 after commissioning). These surveys must also be conducted within 180 days of a storm event (as defined in the Post-Storm Event Monitoring Plan). The permittee shall provide BSEE, BOEM, and this office with a cable monitoring report within 90 days following each inspection. Inspections of the inter-array and export cables must include high-resolution geophysical (HRG) methods, involving, for example, multibeam bathymetric survey equipment; and must identify seabed features, natural and man-made hazards, and site conditions along Federal sections of the cable routing.

- a. If this office determines that burial conditions have deteriorated or changed significantly and remedial actions are warranted, this office will notify the permittee and the permittee shall implement corrective actions required to ensure compliance with this permit.**

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S. Code 403).

(X) Section 14 of the Rivers and Harbors Act of 1899 (33 U.S. Code 408).

(X) Section 404 of the Clean Water Act (33 U.S. Code 1344).

() Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization:

- a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.**

PERMITTEE: Empire Offshore Wind, LLC

PERMIT NUMBER: NAN-2022-00901

- b. This permit does not grant any property rights or exclusive privileges.
 - c. This permit does not authorize any injury to the property or rights of others.
 - d. This permit does not authorize interference with any existing or proposed Federal project.
- 3. Limits of Federal Liability: In issuing this permit, the Federal Government does not assume any liability for the following:**
- a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.
 - b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.
 - c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.
 - d. Design or construction deficiencies associated with the permitted work.
 - e. Damage claims associated with any future modification, suspension, or revocation of this permit.
- 4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.**
- 5. Reevaluation of Permit Decision: This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:**
- a. You fail to comply with the terms and conditions of this permit.
 - b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).
 - c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with

PERMITTEE: Empire Offshore Wind, LLC
PERMIT NUMBER: NAN-2022-00901

such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions: General Condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit. Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.


(PERMITTEE)

3/12/2024
(DATE)

Empire Offshore Wind, LLC

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

YOUNG.ALEXANDER.LLOYD.1014790841
Digitally signed by
YOUNG.ALEXANDER.LLOYD.1014790841
Date: 2024.03.15 15:12:15 -04'00'
(COMMANDER AND DISTRICT ENGINEER)

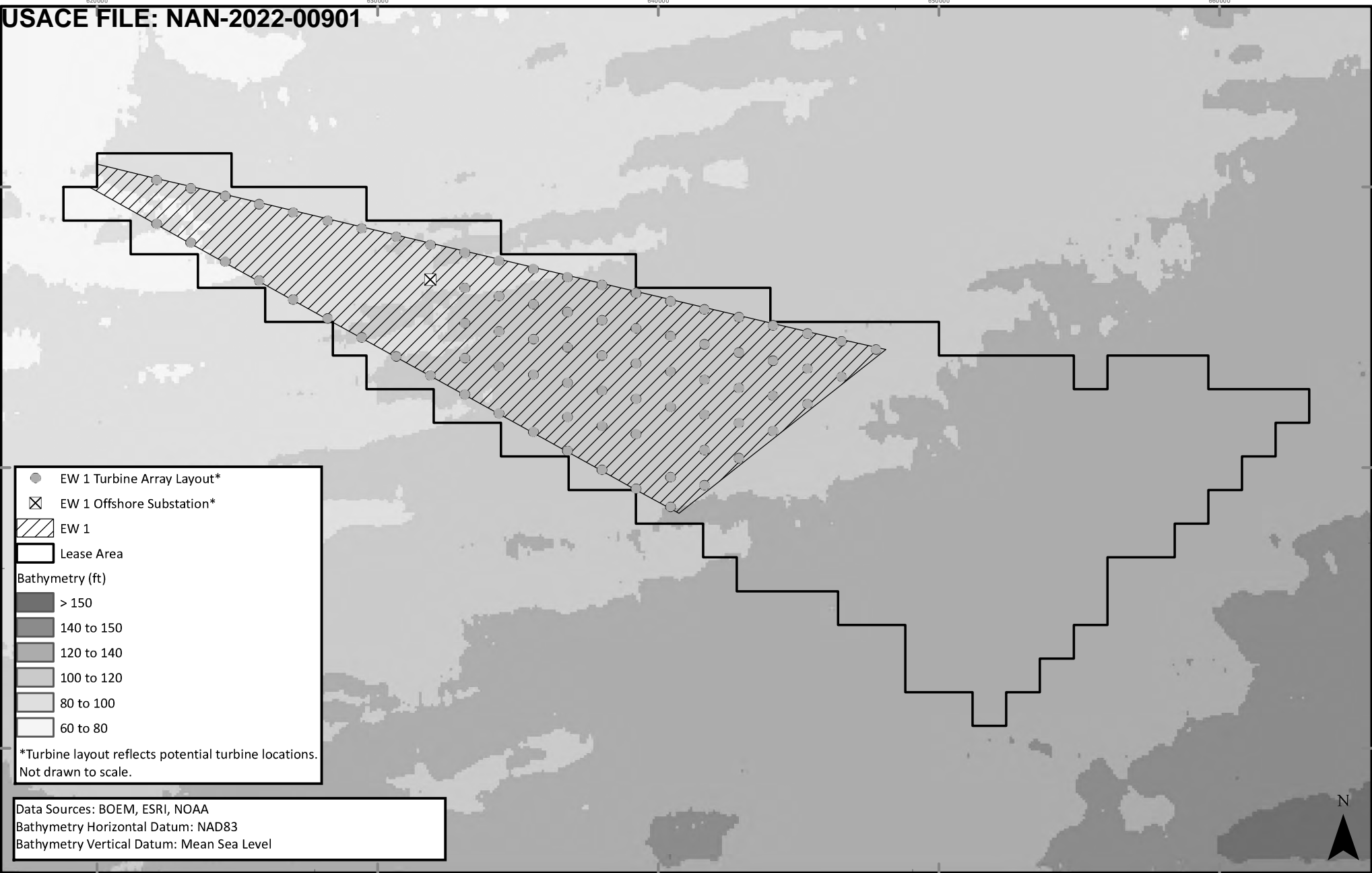
March 15, 2024
(DATE)


Alexander L. Young
Colonel, U.S. Army
Commander and District Engineer

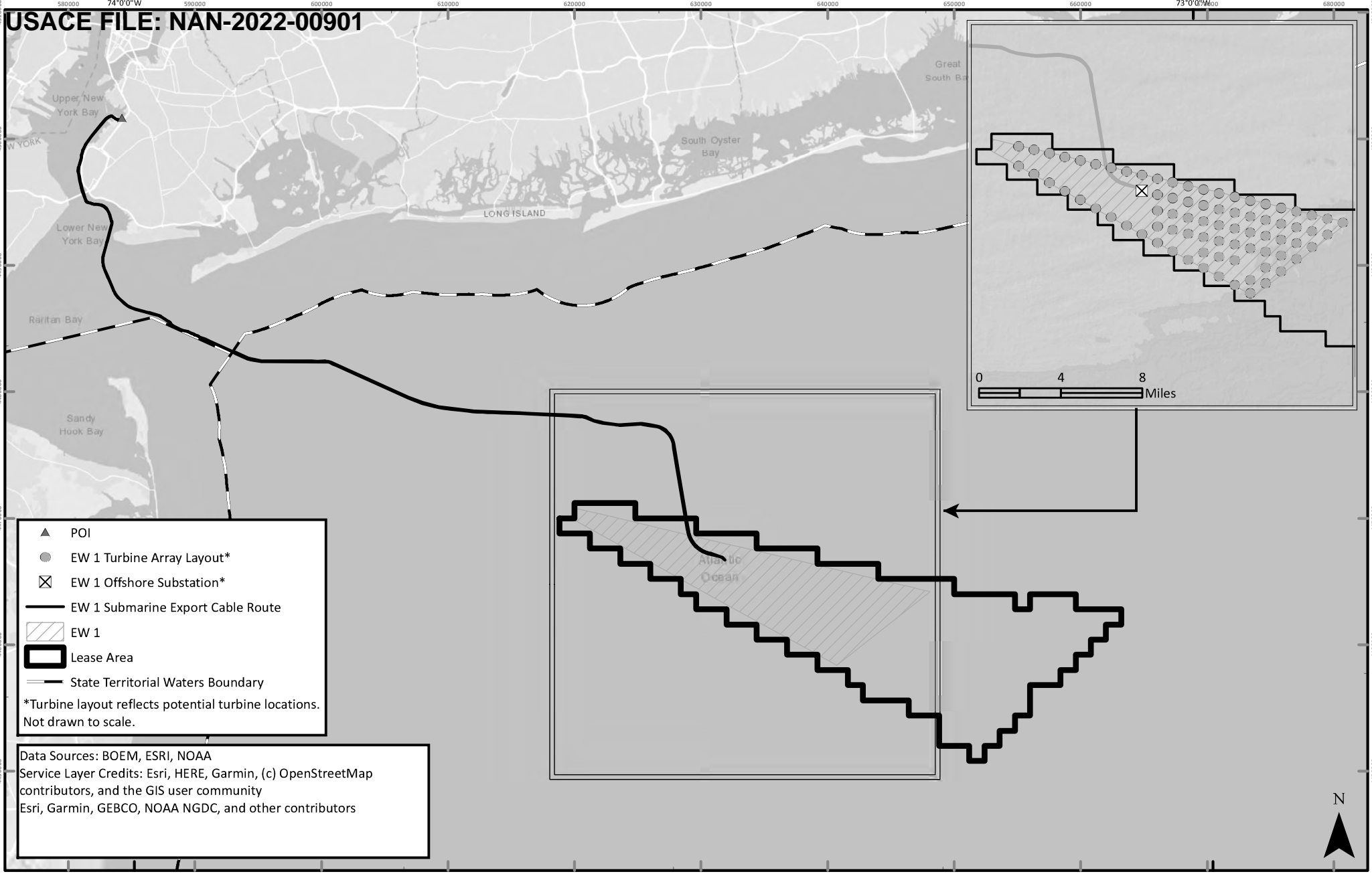
When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below. A copy of the permit signed by the transferee should be sent to this office.

(TRANSFeree)

(DATE)




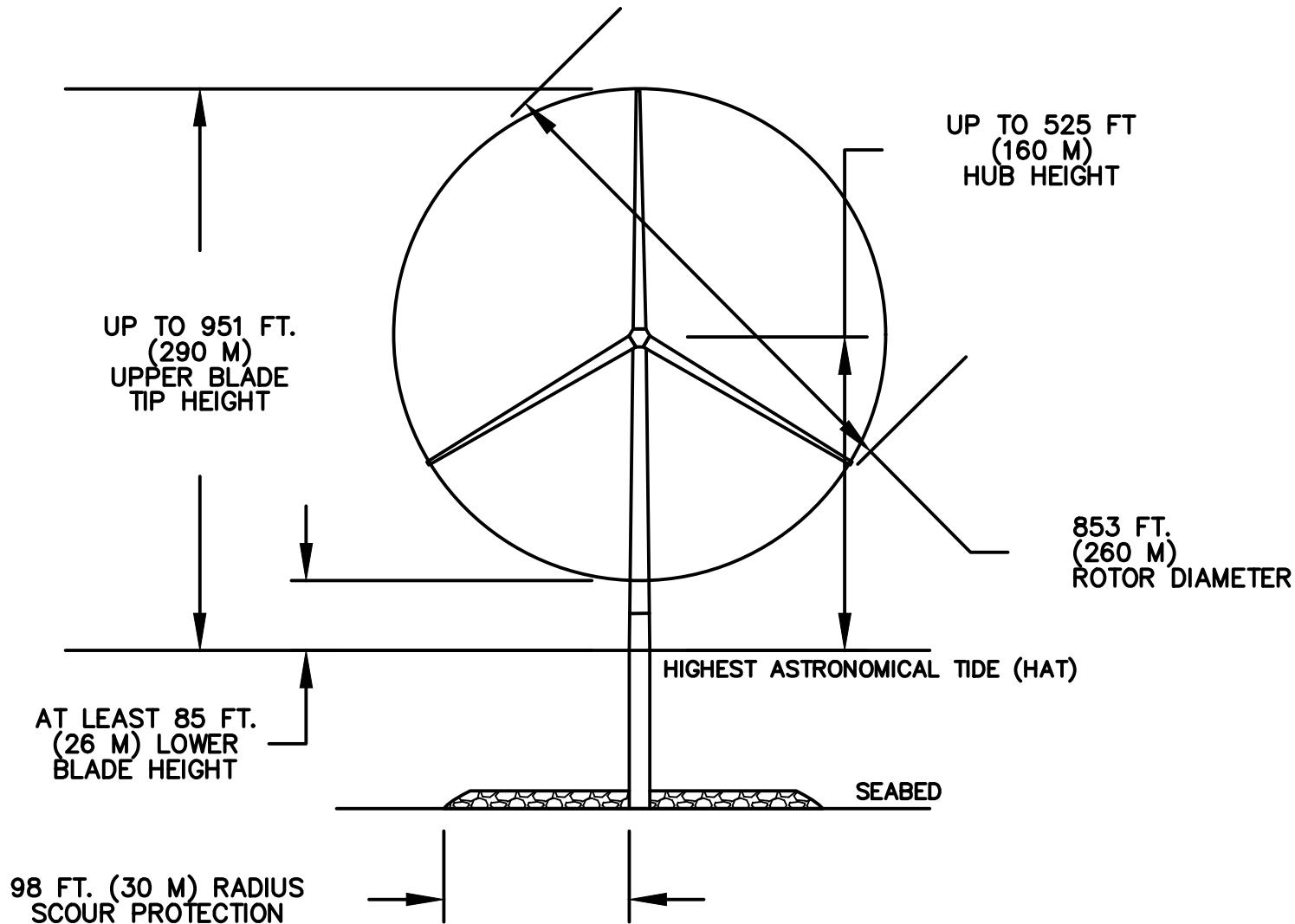
APPLICATION NUMBER: NAN-2022-00901-EMI APPLICANT NAME: EMPIRE OFFSHORE WIND LLC PROPOSED PROJECT: EMPIRE WIND 1 PROJECT LOCATION: LEASE AREA OCS-A 0512, ATLANTIC OCEAN	 TETRA TECH WWW.TETRATECH.COM 10 POST OFFICE SQUARE, 11TH FLOOR BOSTON, MA 02109 Phone: (617)-443-7500 Fax: (617)737-34809	EMPIRE OFFSHORE WIND LLC CONCEPTUAL LAYOUT	REVISION 2
			DATE: 6/1/2023
			DESN: W. SCALES
			0 1.5 3 Miles



- ▲ POI
 - EW 1 Turbine Array Layout*
 - ⊗ EW 1 Offshore Substation*
 - EW 1 Submarine Export Cable Route
 - ▨ EW 1
 - ▭ Lease Area
 - State Territorial Waters Boundary
- *Turbine layout reflects potential turbine locations.
Not drawn to scale.

Data Sources: BOEM, ESRI, NOAA
Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community
Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

APPLICATION NUMBER: NAN-2022-00901-EMI APPLICANT NAME: EMPIRE OFFSHORE WIND LLC PROPOSED PROJECT: EMPIRE WIND 1 PROJECT LOCATION: LEASE AREA OCS-A 0512, ATLANTIC OCEAN	 TETRA TECH WWW.TETRATECH.COM 10 POST OFFICE SQUARE, 11TH FLOOR BOSTON, MA 02109 Phone: (617)-443-7500 Fax: (617)737-34809	EMPIRE OFFSHORE WIND LLC		REVISION 2
		PROJECT VICINITY		DATE: 6/1/2023
				DESN: W. SCALES
				0 4 8 Miles



USACE # NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: LEASE AREA OCS-A 0512

WATERBODY: ATLANTIC OCEAN

ISSUED FOR USACE PERMIT APPLICATION

SHEET 1 OF 1 DATE: 11/3/22

NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22

EMPIRE OFFSHORE WIND LLC

EMPIRE WIND 1
WIND TURBINE
GENERATOR

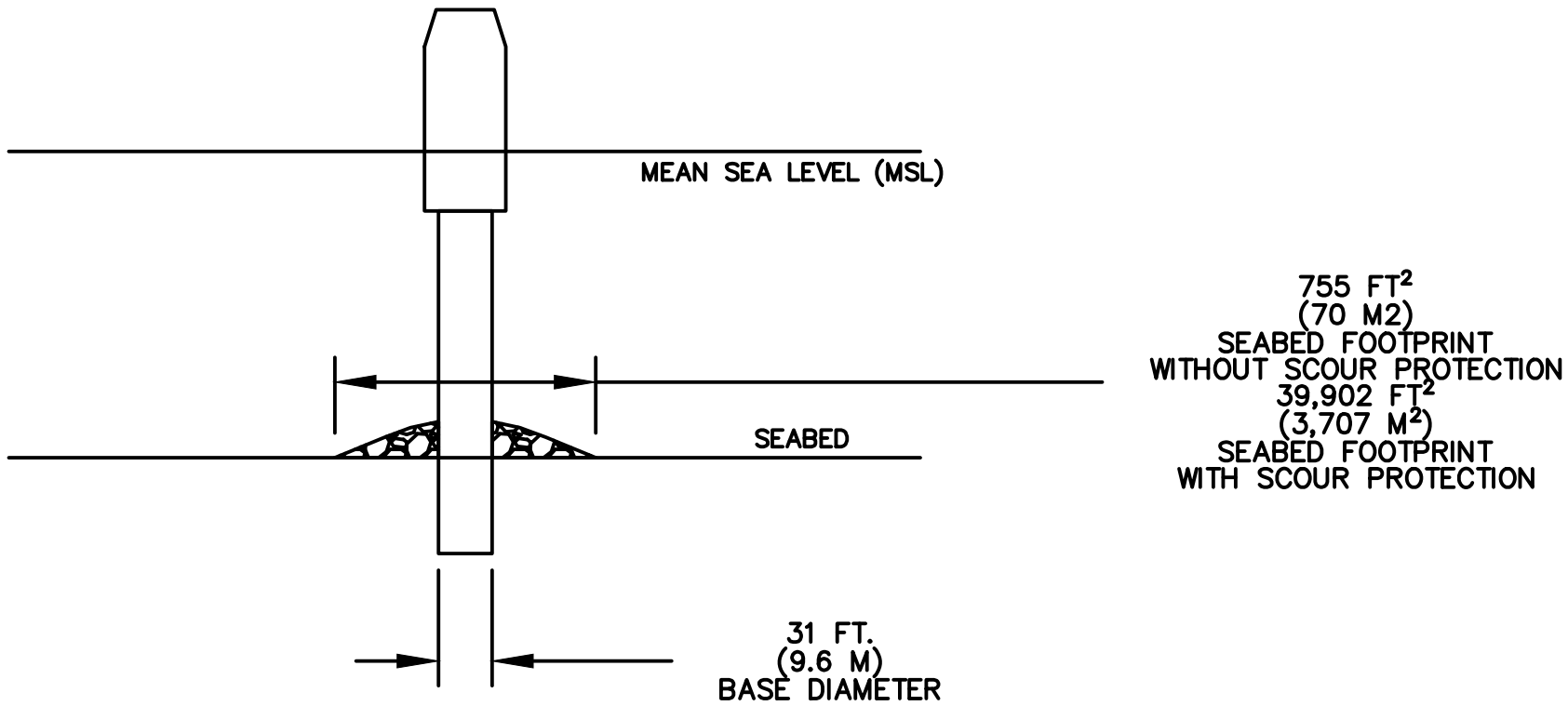
 WWW.TETRATECH.COM
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

DESN: R. GIFFORD

Scale at ANSI A NTS

NTS

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USACE # NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: LEASE AREA OCS-A 0512

WATERBODY: ATLANTIC OCEAN

ISSUED FOR USACE PERMIT APPLICATION
SHEET 1 OF 1 DATE: 11/3/22

NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22

EMPIRE OFFSHORE WIND LLC

EMPIRE WIND 1
FOUNDATION CROSS
SECTION



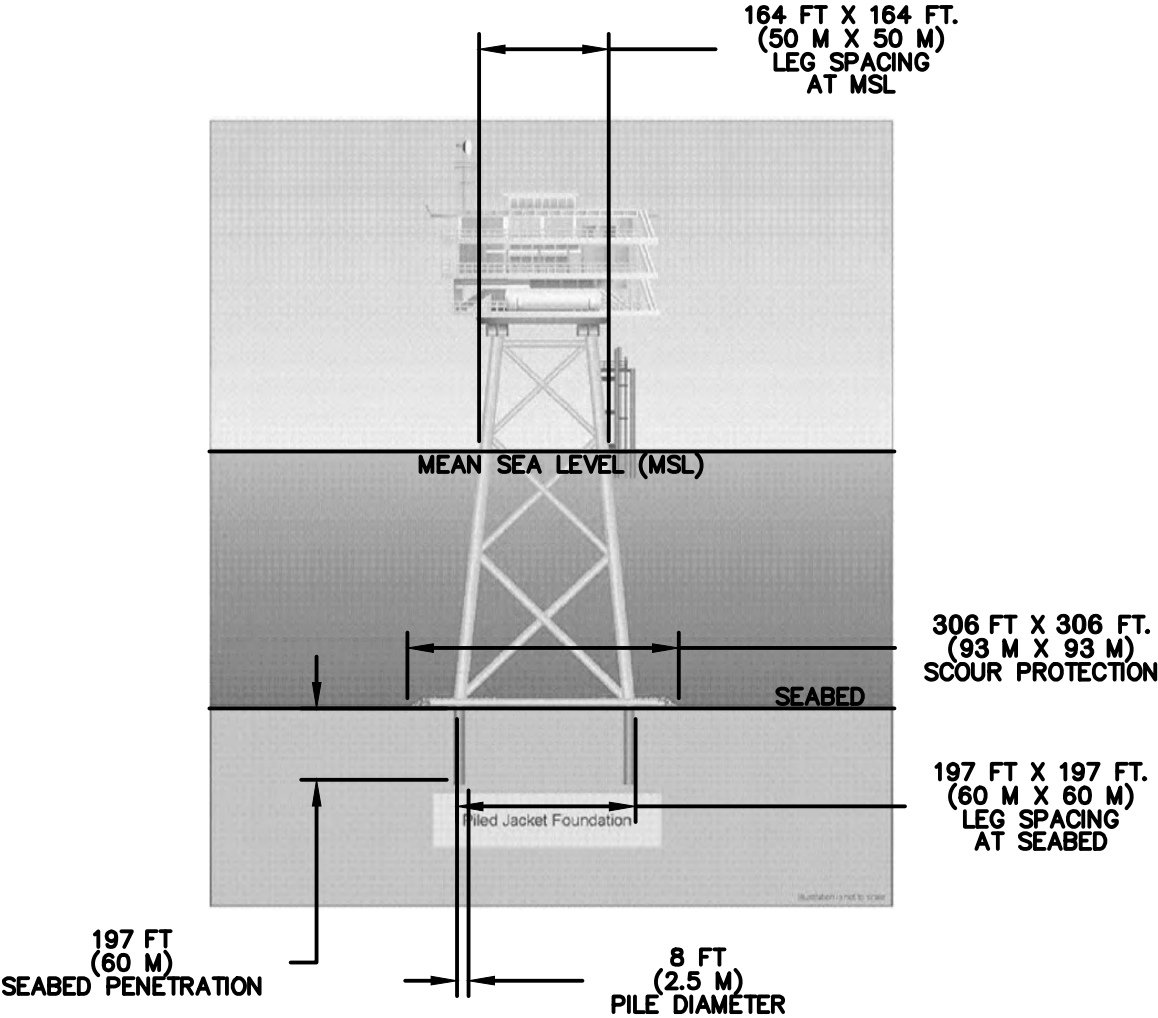
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DESN: R. GIFFORD

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USACE # NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: LEASE AREA OCS-A 0512

WATERBODY: ATLANTIC OCEAN
LAT/LONG: 40.34035485, -73.44726552

ISSUED FOR USACE PERMIT APPLICATION
SHEET 1 OF 1 DATE: 2/8/24

NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22
3	ISSUE TO USACE	2/8/24

EMPIRE OFFSHORE WIND LLC

EMPIRE WIND 1
OFFSHORE SUBSTATION
CROSS SECTION



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DESN: R. GIFFORD
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LOC	Northing	Easting	Lat	Long	Depth (m)
1	75785.73	1106423.83	40.37386	-73.56153	-26.4
2	70675.11	1106366.30	40.35983	-73.56183	-26.0
3	74797.41	1110418.98	40.37109	-73.54721	-26.3
4	68417.14	1110347.17	40.35358	-73.54759	-24.7
5	73809.08	1114414.12	40.36832	-73.53289	-27.1
6	66159.19	1114328.04	40.34732	-73.53335	-25.7
7	72820.76	1118409.24	40.36554	-73.51858	-26.1
8	63901.26	1118308.91	40.34106	-73.51911	-27.3
9	71832.49	1122404.33	40.36277	-73.50426	-29.0
10	61643.37	1122289.75	40.33481	-73.50488	-29.4
11	70844.19	1126399.43	40.35999	-73.48994	-30.8
12	59385.49	1126270.61	40.32855	-73.49065	-30.1
13	69855.95	1130394.52	40.35722	-73.47563	-31.0
14	57127.62	1130251.47	40.32228	-73.47642	-31.7
15	68867.68	1134389.60	40.35444	-73.46132	-31.4
16	54869.78	1134232.33	40.31602	-73.46219	-32.4
17	67879.43	1138384.67	40.35166	-73.44701	-30.9
18	52611.96	1138213.18	40.30975	-73.44797	-32.6
19	66891.22	1142379.73	40.34888	-73.43270	-32.6
20	62776.01	1142333.50	40.33758	-73.43296	-30.7
21	58660.81	1142287.28	40.32629	-73.43322	-32.0
22	54545.58	1142241.07	40.31499	-73.43348	-33.0
23	50354.16	1142194.03	40.30349	-73.43375	-32.4
24	65903.00	1146374.78	40.34609	-73.41839	-30.6
25	61787.83	1146328.55	40.33480	-73.41865	-32.9
26	57672.62	1146282.35	40.32350	-73.41892	-32.6
27	53557.40	1146236.15	40.31221	-73.41918	-32.4
28	48096.39	1146174.88	40.29722	-73.41953	-32.6
29	64914.79	1150369.81	40.34330	-73.40408	-30.3
30	60799.63	1150323.60	40.33201	-73.40435	-33.3
31	56684.44	1150277.40	40.32072	-73.40461	-32.5
32	52569.26	1150231.22	40.30942	-73.40488	-32.9
33	45838.64	1150155.73	40.29095	-73.40531	-34.5
34	63926.63	1154364.83	40.34052	-73.38978	-31.8
35	59811.45	1154318.63	40.32922	-73.39004	-32.5
36	55696.30	1154272.45	40.31793	-73.39031	-34.0
37	51581.11	1154226.28	40.30663	-73.39058	-32.6
38	47581.01	1154181.42	40.29566	-73.39084	-35.7
39	43580.91	1154136.57	40.28468	-73.39110	-32.5
40	62938.45	1158359.84	40.33773	-73.37547	-32.4
41	58823.32	1158313.65	40.32643	-73.37574	-33.3
42	54708.15	1158267.48	40.31514	-73.37601	-33.4

43	50593.01	1158221.32	40.30384	-73.37628	-33.4
44	46477.83	1158175.18	40.29255	-73.37655	-33.6
45	41323.21	1158117.41	40.27840	-73.37689	-35.2
46	61950.31	1162354.84	40.33494	-73.36117	-32.8
47	57835.17	1162308.66	40.32364	-73.36144	-34.8
48	53720.05	1162262.50	40.31235	-73.36171	-33.1
49	49604.89	1162216.36	40.30105	-73.36199	-32.8
50	45489.75	1162170.23	40.28976	-73.36226	-33.6
51	39065.52	1162098.25	40.27213	-73.36268	-35.4
52	60962.15	1166349.83	40.33214	-73.34686	-32.8
53	56847.06	1166303.66	40.32085	-73.34714	-34.4
54	52731.92	1166257.51	40.30955	-73.34742	-32.9
55	48616.78	1166211.38	40.29826	-73.34769	-34.5
56	40386.50	1166119.16	40.27567	-73.34824	-35.4
57	59974.02	1170344.80	40.32935	-73.33256	-35.1
58	55858.94	1170298.65	40.31805	-73.33284	-33.1
59	51743.82	1170252.51	40.30676	-73.33312	-33.4
60	47628.72	1170206.38	40.29547	-73.33340	-36.0
61	43513.58	1170160.28	40.28417	-73.33367	-36.0
62	58985.93	1174339.76	40.32655	-73.31826	-34.8
63	54870.83	1174293.62	40.31526	-73.31854	-34.1
64	50755.76	1174247.49	40.30396	-73.31882	-34.5
65	46640.64	1174201.38	40.29267	-73.31910	-36.0
66	57997.82	1178334.71	40.32375	-73.30396	-35.9
67	53882.77	1178288.58	40.31246	-73.30425	-34.3
68	49767.68	1178242.46	40.30117	-73.30453	-35.0
69	57009.75	1182329.65	40.32095	-73.28967	-36.6
70	52894.69	1182283.52	40.30966	-73.28995	-35.0
71	56021.68	1186324.57	40.31815	-73.27537	-35.2
EW 1 OS1	63764.23	1138338.43	40.34036	-73.44727	-30.3
T1	36890.77	1166078.47	40.26608	-73.34848	-37.0
T2	39398.47	1170114.20	40.27288	-73.33395	-36.5
T3	42525.55	1174155.29	40.28138	-73.31938	-36.0
T4	45652.61	1178196.37	40.28987	-73.30481	-36.8
T5	48779.65	1182237.43	40.29837	-73.29024	-35.8
T6	51906.66	1186278.47	40.30686	-73.27566	-35.3
T7	55033.61	1190319.49	40.31535	-73.26108	-35.9

NOTES

1. HORIZONTAL DATUM REFERENCED TO NAD83, NEW YORK STATE PLANE, LONG ISLAND US FOOT
2. TURBINE LAYOUT REFLECTS POTENTIAL TURBINE LOCATIONS, NOT THE ACTUAL NUMBER OF TURBINES.

USACE # NAN-2022-00901-EMI

APPLICANT NAME: EMPIRE OFFSHORE WIND LLC

PROPOSED PROJECT: EMPIRE WIND 1 PROJECT

LOCATION: LEASE AREA OCS-A 0512

WATERBODY: ATLANTIC OCEAN

ISSUED FOR USACE PERMIT APPLICATION

SHEET 1 OF 1 DATE: 11/3/22

NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22

EMPIRE OFFSHORE WIND LLC

DESIGN: R. GIFFORD

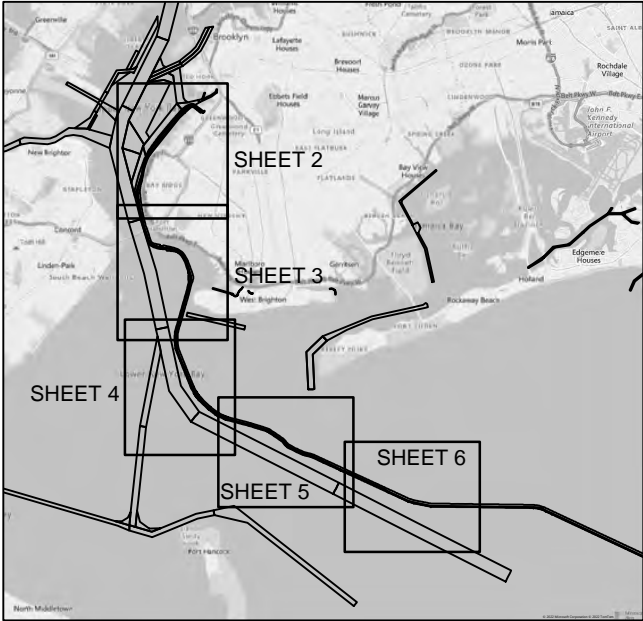
EMPIRE WIND 1
FOUNDATION LOCATIONS
AND WATER DEPTHS

Scale at ANSI A NTS



WWW.TETRATECH.COM
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

NTS



NOTES:

1. HORIZONTAL AND VERTICAL DATUM REFERENCED TO NEW YORK STATE PLANES, LONG ISLAND, US FOOT, NAD83.
2. BATHYMETRY WAS COLLECTED BY GARDLINE LTD. (2018 AND 2019). SURVEY ID EQ20540 AND EQ19548.
3. CABLE SEPARATION DISTANCE MAY CHANGE FOLLOWING ADDITIONAL ASSESSMENTS AND ENGINEERING.

USACE # NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: SOUTH BROOKLYN MARINE TERMINAL /
EASE AREA OCS-A 0512

WATERBODY: GOWANUS BAY / ATLANTIC OCEAN

ISSUED FOR USACE PERMIT APPLICATION
SHEET 1 OF 6 DATE: 06/16/23

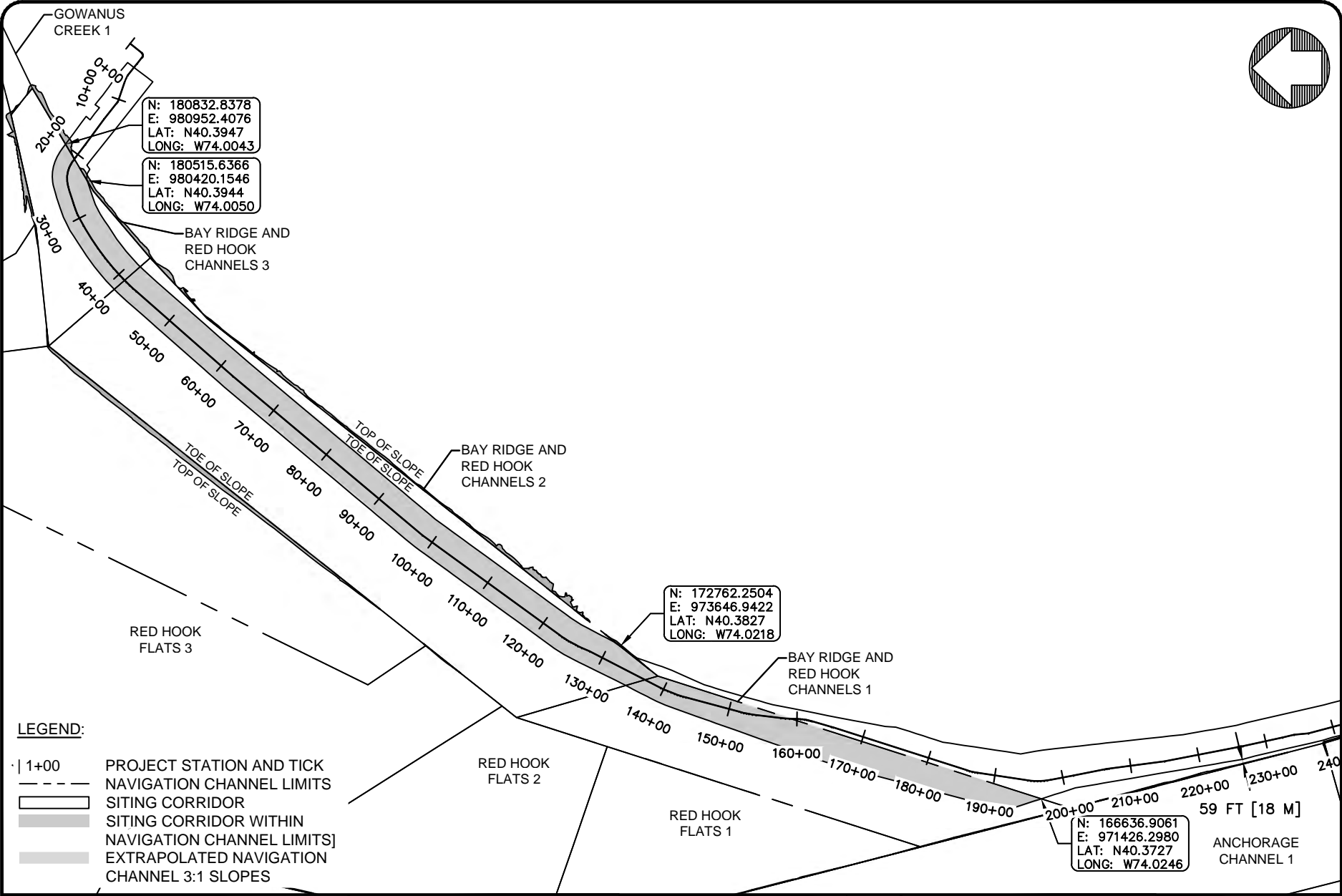
NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22
3	ISSUE TO USACE	4/17/23
4	ISSUE TO USACE	6/16/23

EMPIRE OFFSHORE WIND LLC

DESIGN: R. GIFFORD

EMPIRE WIND 1
NAVIGATION CHANNEL
LIMITS

 WWW.TETRATECH.COM
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480



USACE # NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: SOUTH BROOKLYN MARINE TERMINAL /
EASE AREA OCS-A 0512

WATERBODY: GOWANUS BAY / ATLANTIC OCEAN

ISSUED FOR USACE PERMIT APPLICATION
SHEET 2 OF 6 DATE: 06/16/23

NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22
3	ISSUE TO USACE	4/17/23
4	ISSUE TO USACE	6/16/23

EMPIRE OFFSHORE WIND LLC

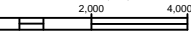
EMPIRE WIND 1
NAVIGATION CHANNEL LIMITS
STA 0+00 - 230+00



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BOSTON, MA 02109
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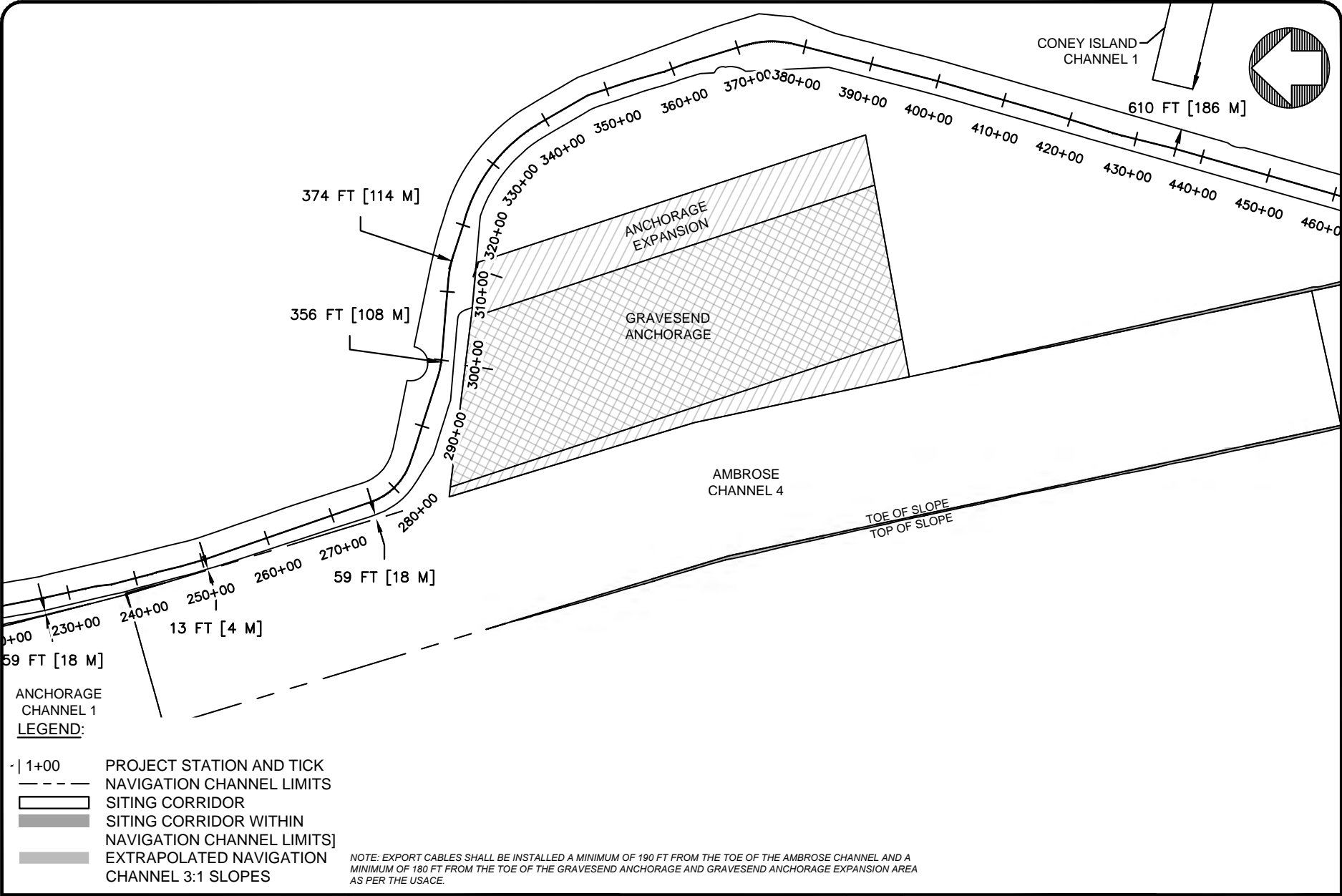
DESN: R. GIFFORD

Scale at ANSI A 1" = 400'



Horizontal (feet)
0 2,000 4,000

Copyright: Tetra Tech



USACE # NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: SOUTH BROOKLYN MARINE TERMINAL /
EASE AREA OCS-A 0512

WATERBODY: GOWANUS BAY / ATLANTIC OCEAN

ISSUED FOR USACE PERMIT APPLICATION
SHEET 3 OF 6 DATE: 06/16/23

NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22
3	ISSUE TO USACE	4/17/23
4	ISSUE TO USACE	6/16/23

EMPIRE OFFSHORE WIND LLC

EMPIRE WIND 1
NAVIGATION CHANNEL LIMITS
STA 230+00 - 450+00

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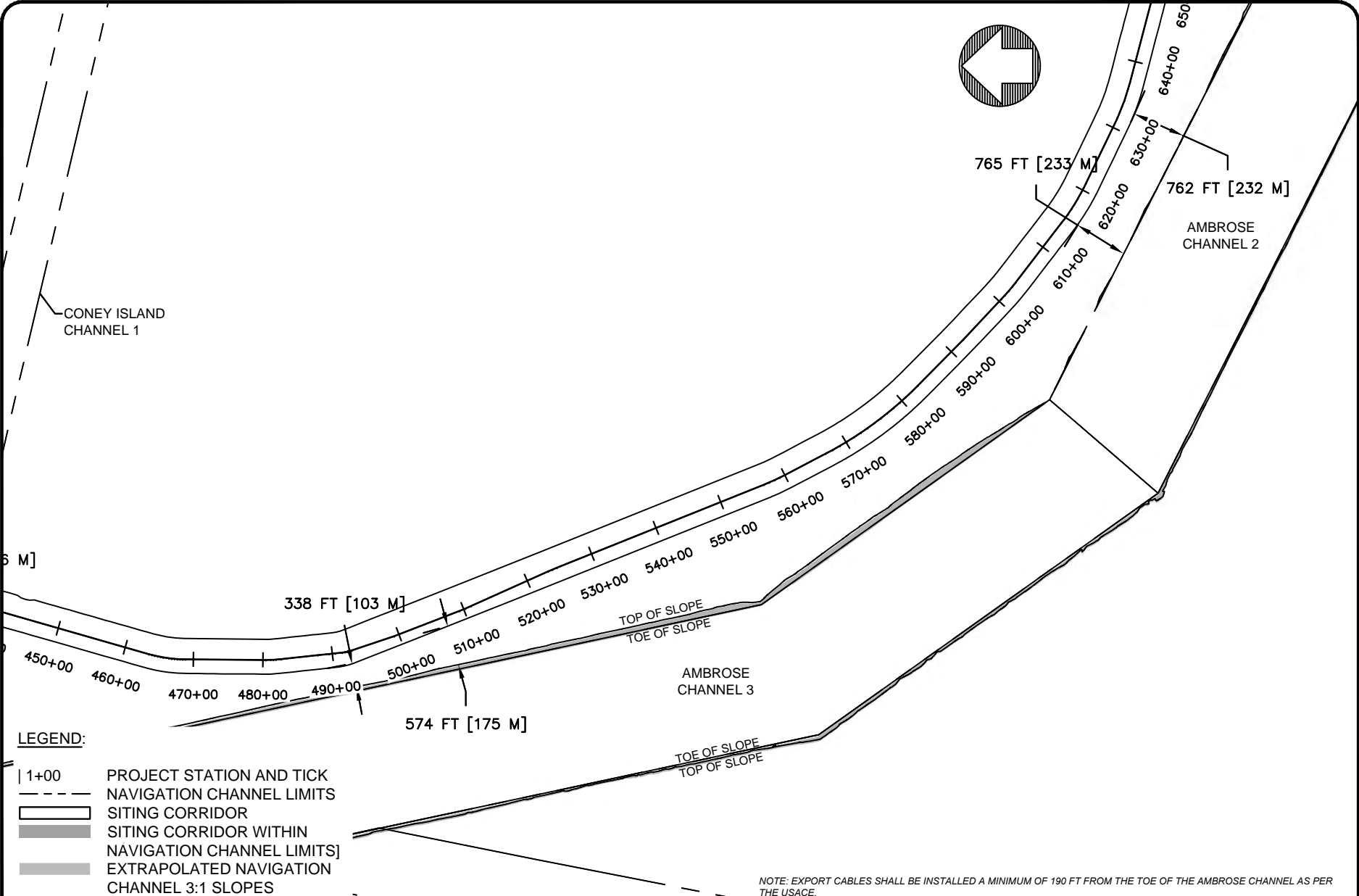
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DESIGN: R. GIFFORD

Scale at ANSI A 1" = 400'

Horizontal (feet)
0 2,000 4,000

Copyright: Tetra Tech



USACE # NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: SOUTH BROOKLYN MARINE TERMINAL /
EASE AREA OCS-A 0512

WATERBODY: GOWANUS BAY / ATLANTIC OCEAN

ISSUED FOR USACE PERMIT APPLICATION
SHEET 4 OF 6 DATE: 06/16/23

NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22
3	ISSUE TO USACE	4/17/23
4	ISSUE TO USACE	6/16/23

EMPIRE OFFSHORE WIND LLC

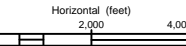
EMPIRE WIND 1
NAVIGATION CHANNEL LIMITS
STA 450+00 - 640+00



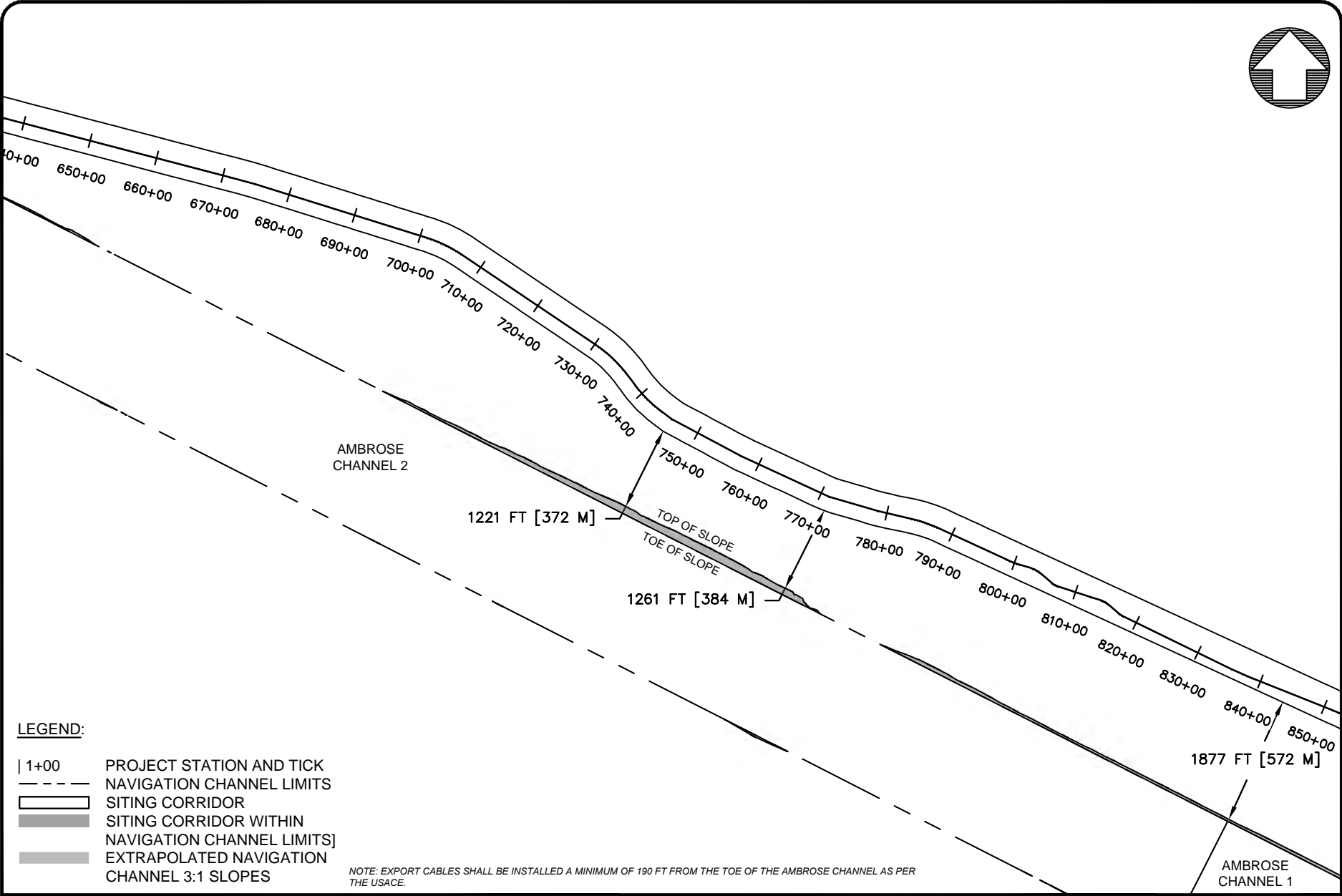
WWW.TETRATECH.COM
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480



DESN: R. GIFFORD

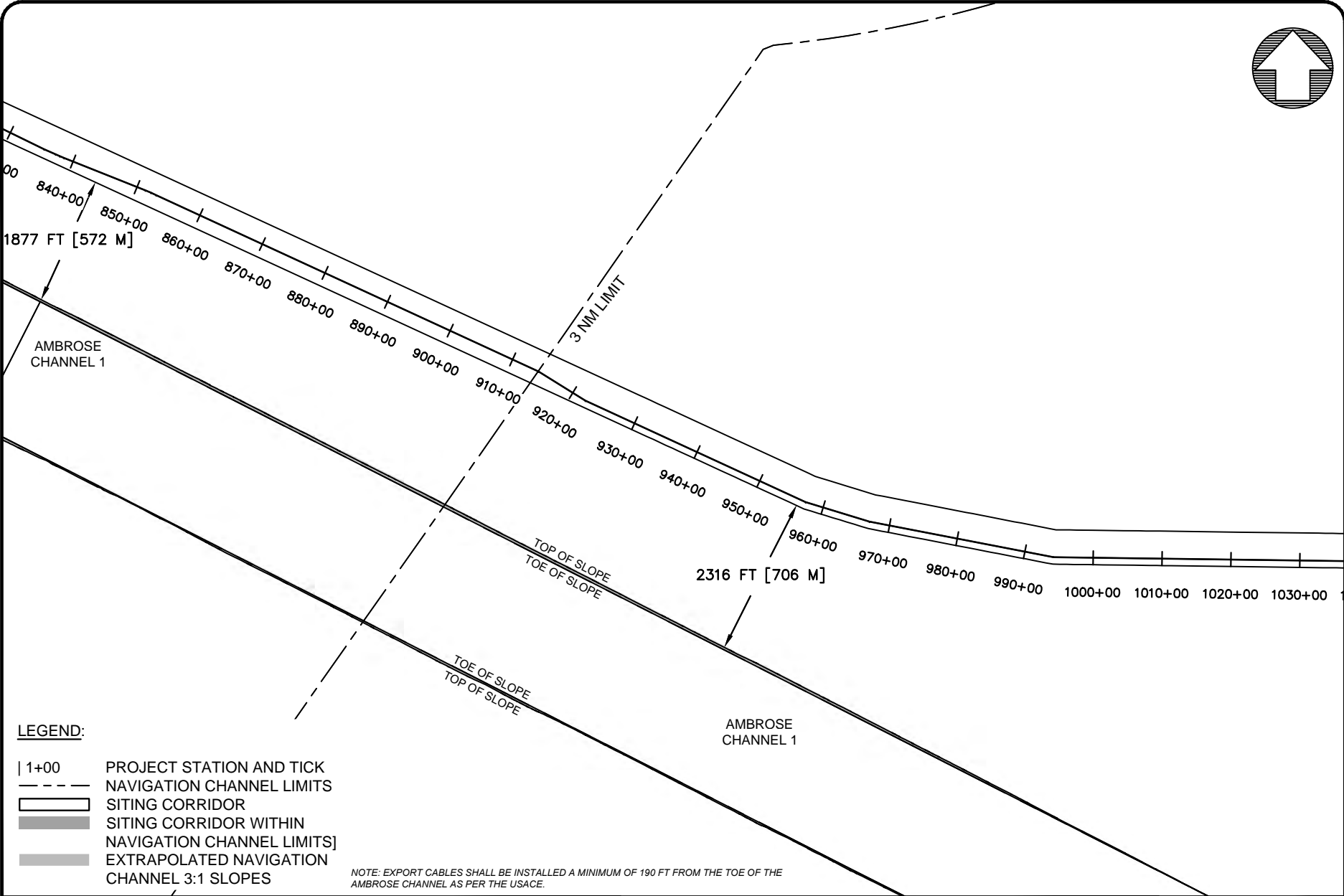
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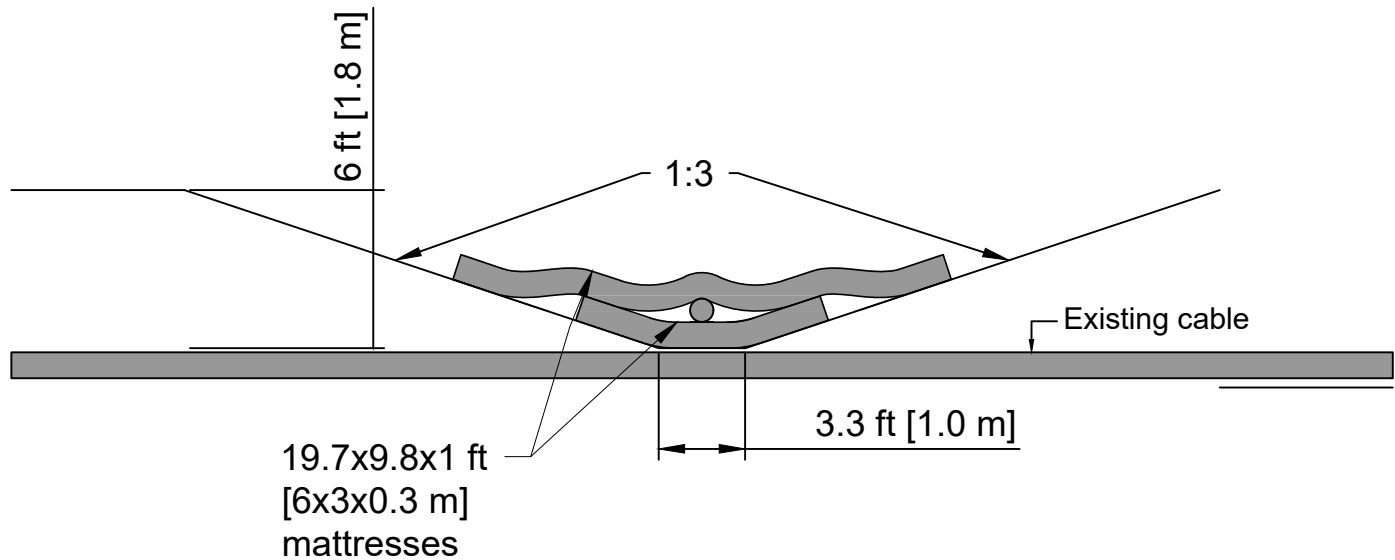
Copyright: Tetra Tech



USACE # NAN-2022-00901-EMI	WATERBODY: GOWANUS BAY / ATLANTIC OCEAN	NO	REVISION	DATE	EMPIRE OFFSHORE WIND LLC	DESIGN: R. GIFFORD
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC		1	ISSUE TO USACE	10/3/22	EMPIRE WIND 1 NAVIGATION CHANNEL LIMITS STA 650+00 - 840+00	Scale at ANSI A 1" = 400'
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT		2	ISSUE TO USACE	11/3/22		
LOCATION: SOUTH BROOKLYN MARINE TERMINAL /		3	ISSUE TO USACE	4/17/23		
EASE AREA OCS-A 0512		4	ISSUE TO USACE	6/16/23		
						WWW.TETRATECH.COM 10 POST OFFICE SQUARE, 11TH FLOOR BOSTON, MA 02109 Phone: (617) 443-7500 Fax: (617) 737-3480
	ISSUED FOR USACE PERMIT APPLICATION					
	SHEET 5 OF 6	DATE: 06/16/23				



USACE # NAN-2022-00901-EMI APPLICANT NAME: EMPIRE OFFSHORE WIND LLC PROPOSED PROJECT: EMPIRE WIND 1 PROJECT LOCATION: SOUTH BROOKLYN MARINE TERMINAL / EASE AREA OCS-A 0512	WATERBODY: GOWANUS BAY / ATLANTIC OCEAN ISSUED FOR USACE PERMIT APPLICATION SHEET 6 OF 6 DATE: 06/16/23	NO	REVISION	DATE	EMPIRE OFFSHORE WIND LLC	DESN: R. GIFFORD
		1	ISSUE TO USACE	10/3/22	EMPIRE WIND 1 NAVIGATION CHANNEL LIMITS STA 840+00 - 1030+00  <div>WWW.TETRATECH.COM 10 POST OFFICE SQUARE, 11TH FLOOR BOSTON, MA 02109 Phone: (617) 443-7500 Fax: (617) 737-3480</div>	
		2	ISSUE TO USACE	11/3/22		
		3	ISSUE TO USACE	4/17/23		
		4	ISSUE TO USACE	6/16/23		



USACE # NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: LEASE AREA OCS-A 0512

WATERBODY: ATLANTIC OCEAN

ISSUED FOR USACE PERMIT APPLICATION

SHEET 1 OF 1 DATE: 11/3/22

NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22

EMPIRE OFFSHORE WIND LLC

EMPIRE WIND 1
DOUBLE MATTRESS
CROSSING DETAIL (TYP.)



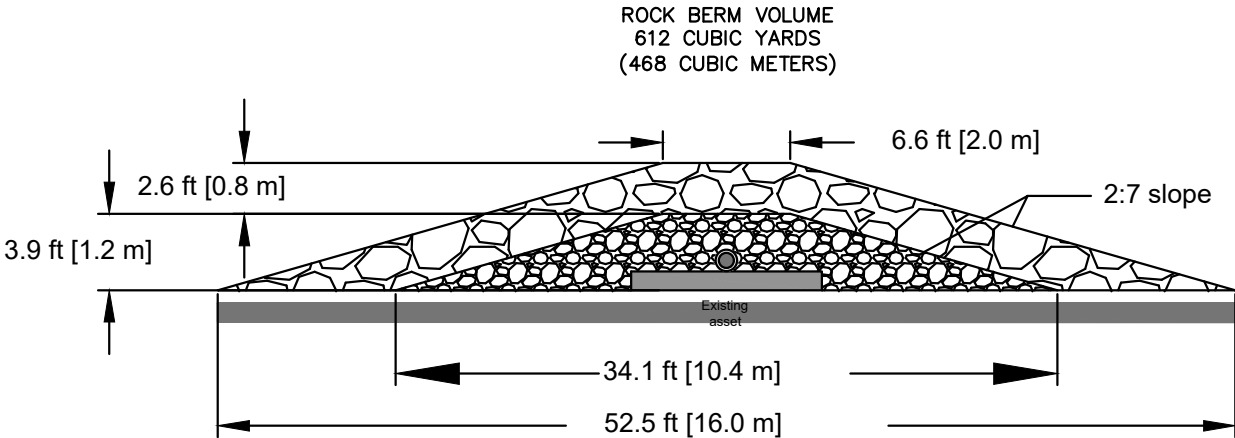
WWW.TETRATECH.COM
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

DESN: R. GIFFORD

Scale at ANSI A NTS

NTS

Copyright: Tetra Tech



CONCEPTUAL, NOT FOR CONSTRUCTION. FINAL ROCK BERM DESIGN TO BE ENGINEERED BASED ON SITE-SPECIFIC STABILITY CALCULATIONS AND CABLE BURIAL RISK ASSESSMENT.

USACE # NAN-2022-00901-EMI EMPIRE WIND 1
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: LEASE AREA OCS-A 0512

WATERBODY: ATLANTIC OCEAN

ISSUED FOR USACE PERMIT APPLICATION
SHEET 1 OF 1 DATE: 11/3/22

NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22

EMPIRE OFFSHORE WIND LLC

EMPIRE WIND 1
ROCK BERM CROSSING
DETAIL (TYP.)

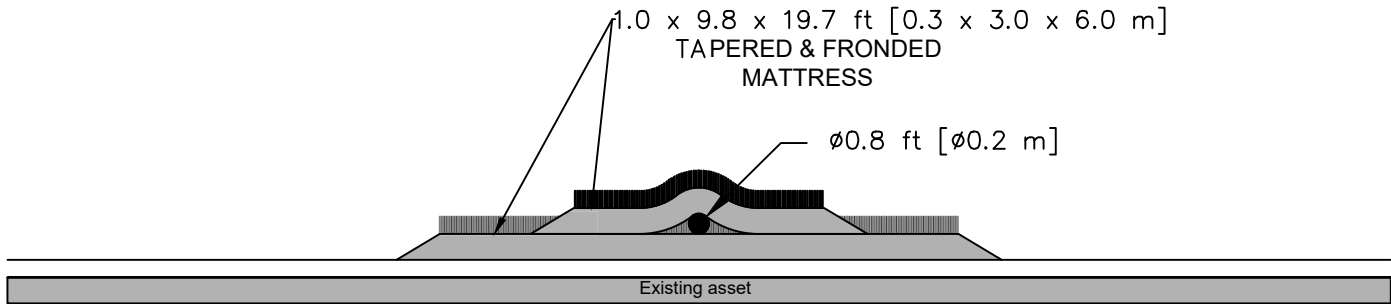


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DESN: R. GIFFORD

Scale at ANSI A NTS

NTS



USACE # NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: LEASE AREA OCS-A 0512

WATERBODY: ATLANTIC OCEAN

ISSUED FOR USACE PERMIT APPLICATION

SHEET 1 OF 1 DATE: 11/3/22

NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22

EMPIRE OFFSHORE WIND LLC

EMPIRE WIND 1
FRONDED MATTRESS
CROSSING DETAIL (TYP.)



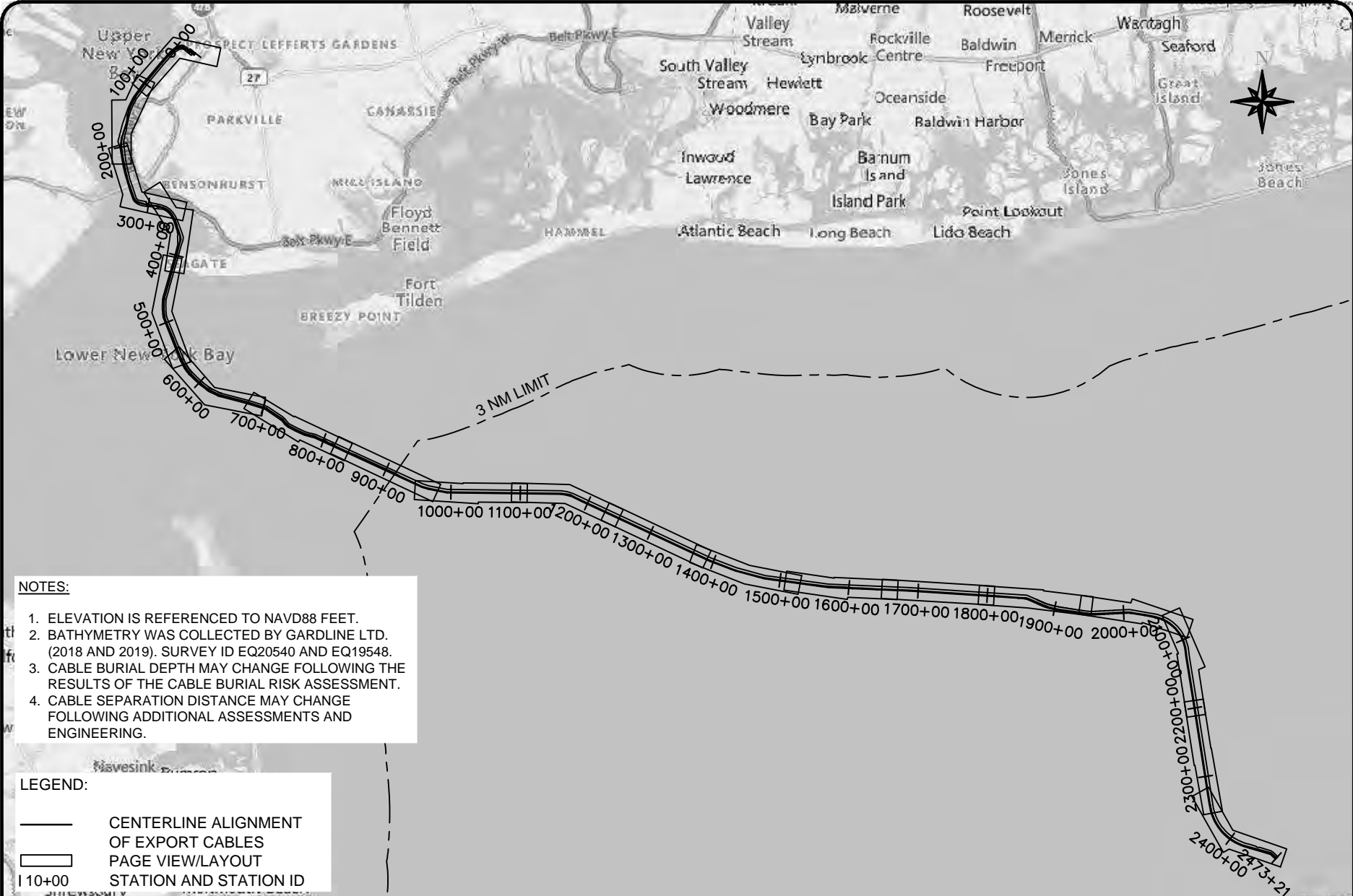
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DESN: R. GIFFORD

Scale at ANSI A NTS

NTS

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- NOTES:
- 1. ELEVATION IS REFERENCED TO NAVD88 FEET.
 - 2. BATHYMETRY WAS COLLECTED BY GARDLINE LTD. (2018 AND 2019). SURVEY ID EQ20540 AND EQ19548.
 - 3. CABLE BURIAL DEPTH MAY CHANGE FOLLOWING THE RESULTS OF THE CABLE BURIAL RISK ASSESSMENT.
 - 4. CABLE SEPARATION DISTANCE MAY CHANGE FOLLOWING ADDITIONAL ASSESSMENTS AND ENGINEERING.

LEGEND:

- CENTERLINE ALIGNMENT OF EXPORT CABLES
- PAGE VIEW/LAYOUT
- STATION AND STATION ID

USACE # NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: SOUTH BROOKLYN MARINE TERMINAL / EASE AREA OCS-A 0512

WATERBODY: GOWANUS BAY / ATLANTIC OCEAN

ISSUED FOR USACE PERMIT APPLICATION
SHEET 1 OF 19 DATE: 06/1/23

NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22
3	ISSUE TO USACE	04/17/23
4	ISSUE TO USACE	06/1/23

EMPIRE OFFSHORE WIND LLC

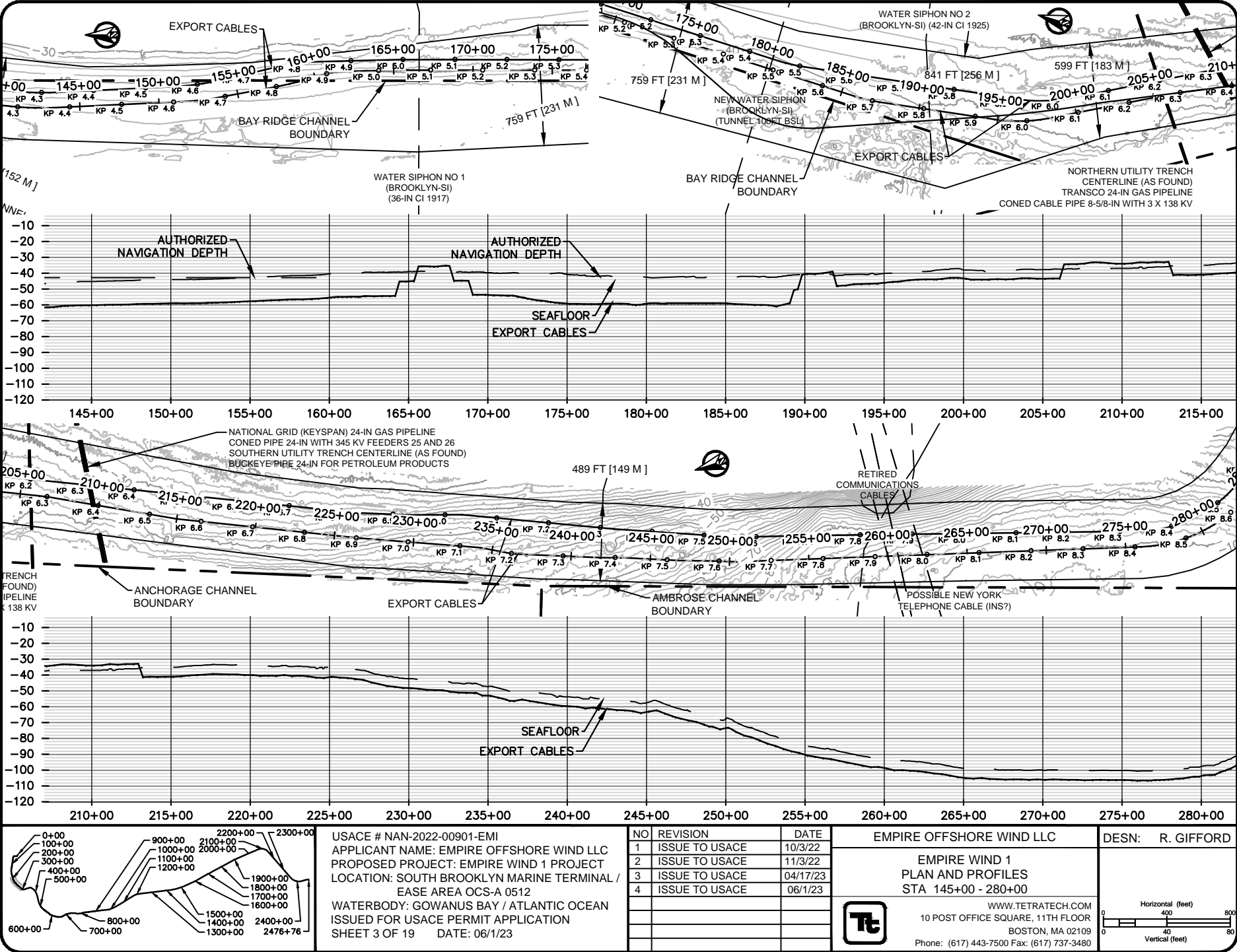
EMPIRE WIND 1
OVERALL PLAN VIEW



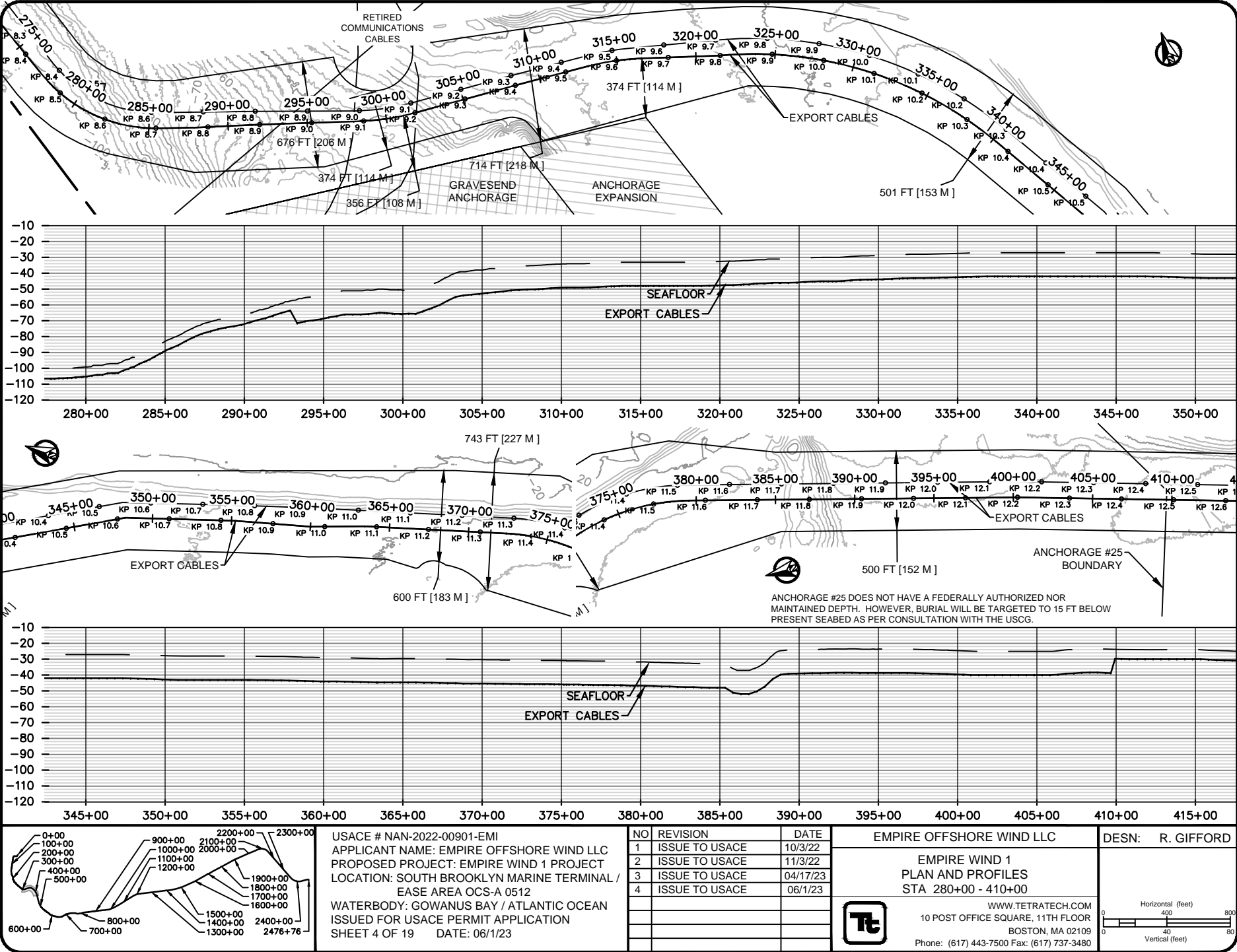
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BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

DESN: R. GIFFORD

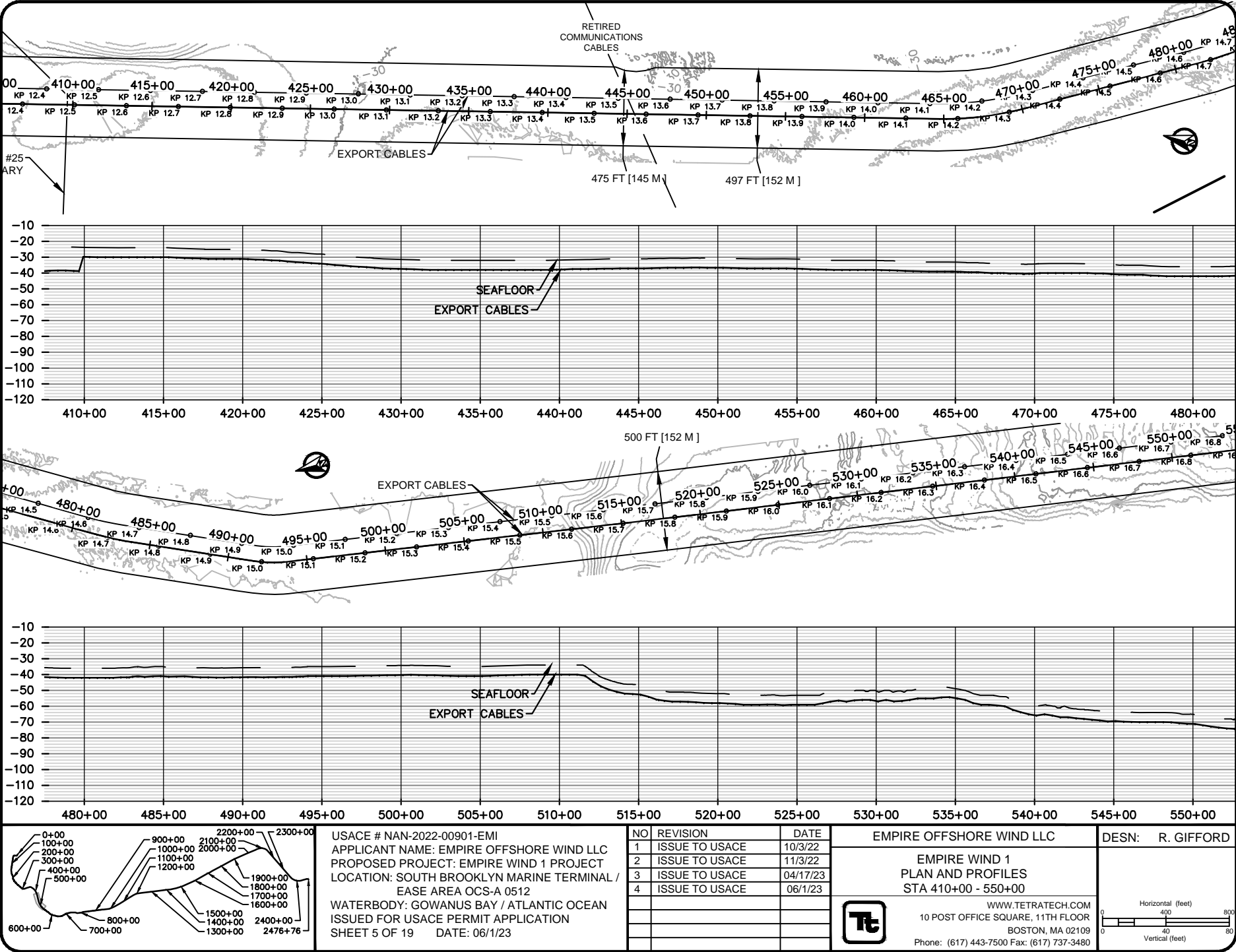
Copyright: Tetra Tech



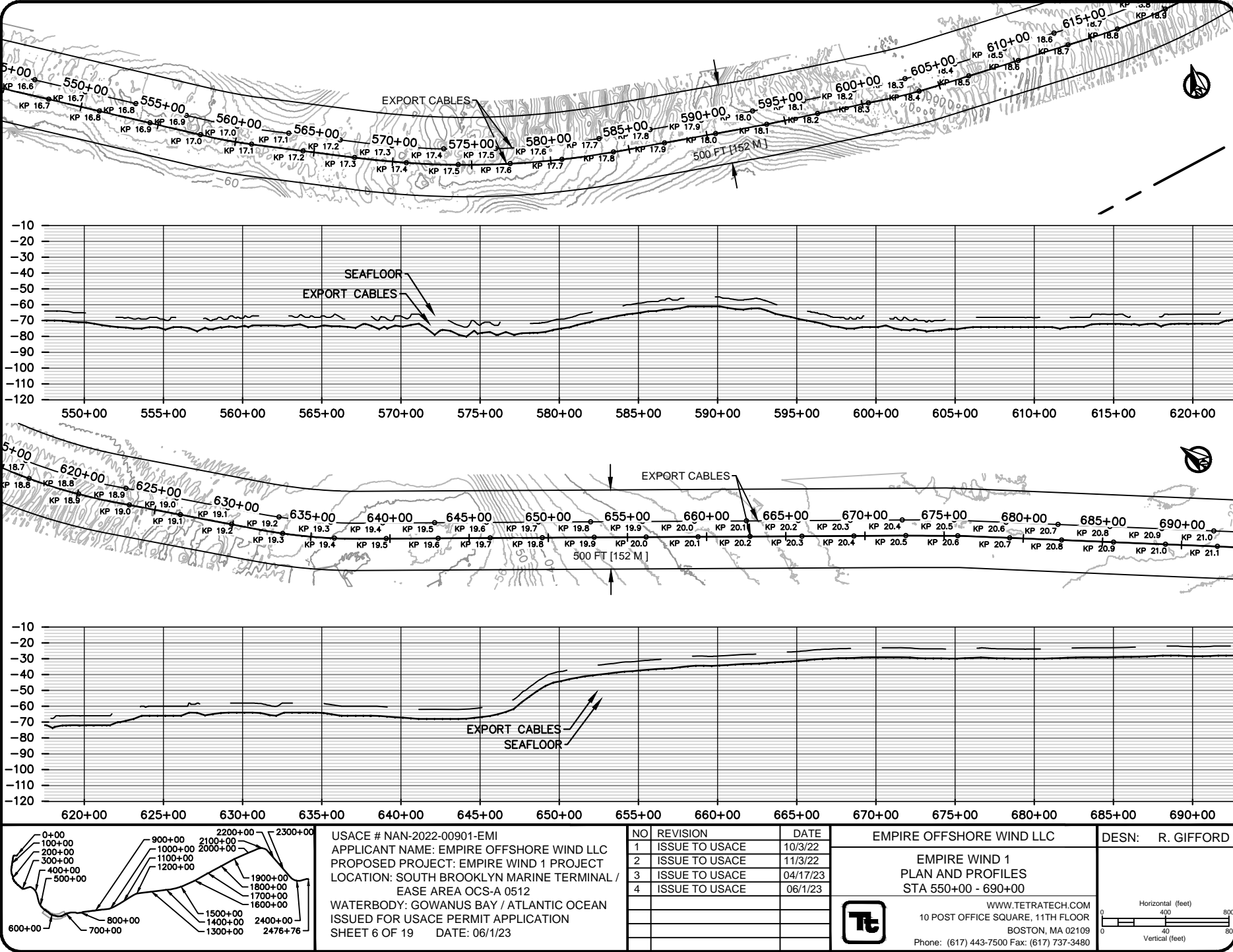
NOTE: EXPORT CABLES SHALL BE INSTALLED A MINIMUM OF 190 FT FROM THE TOE OF THE AMBROSE CHANNEL AS PER THE USACE.



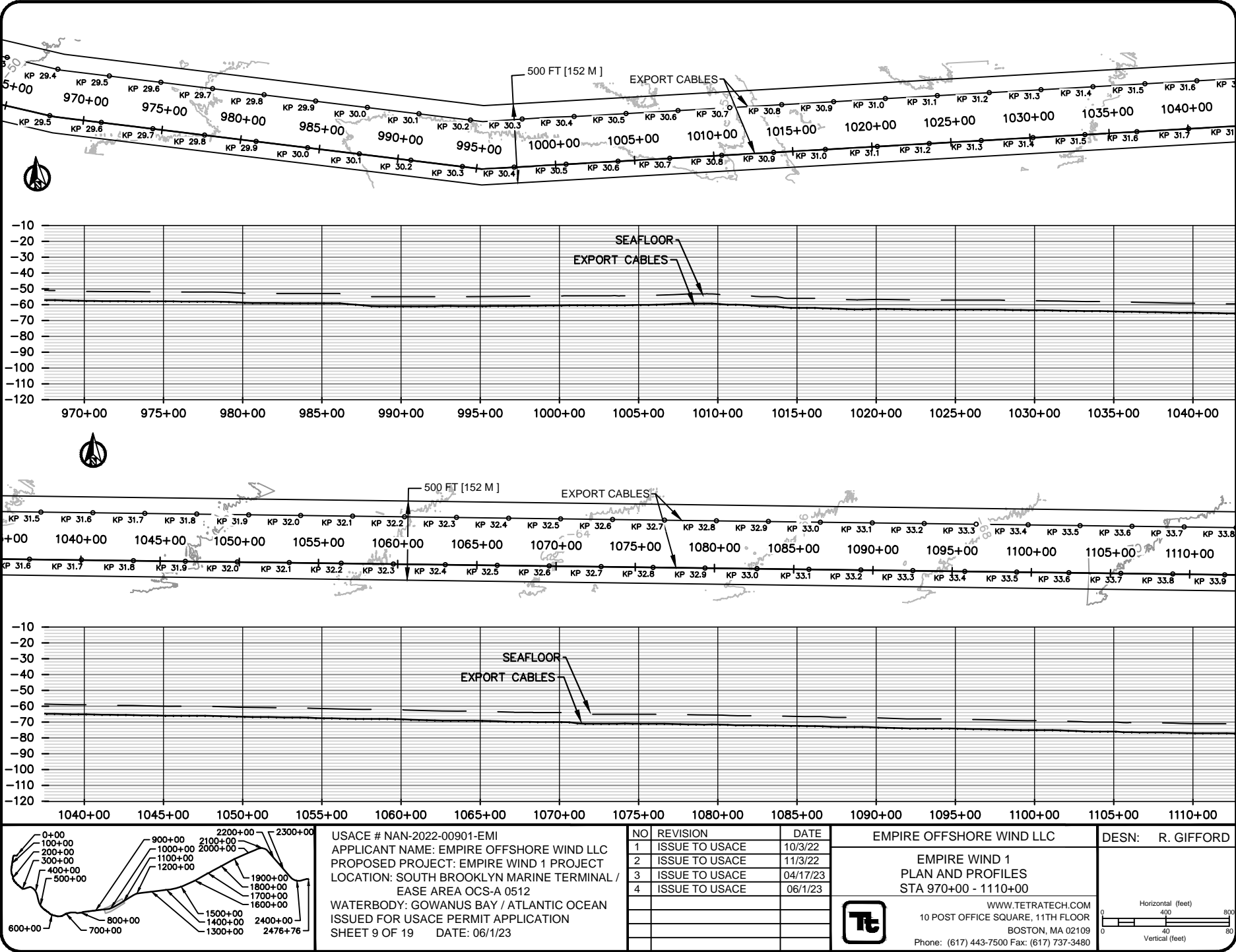
NOTE: EXPORT CABLES SHALL BE INSTALLED A MINIMUM OF 190 FT FROM THE TOE OF THE AMBROSE CHANNEL AND A MINIMUM OF 180 FT FROM THE TOE OF THE GRAVESEND ANCHORAGE AND GRAVESEND ANCHORAGE EXPANSION AREA AS PER THE USACE.



NOTE: EXPORT CABLES SHALL BE INSTALLED A MINIMUM OF 190 FT FROM THE TOE OF THE AMBROSE CHANNEL AS PER THE USACE.



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USACE # NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: SOUTH BROOKLYN MARINE TERMINAL /
EASE AREA OCS-A 0512
WATERBODY: GOWANUS BAY / ATLANTIC OCEAN
ISSUED FOR USACE PERMIT APPLICATION
SHEET 9 OF 19 DATE: 06/1/23

NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22
3	ISSUE TO USACE	04/17/23
4	ISSUE TO USACE	06/1/23

EMPIRE OFFSHORE WIND LLC

EMPIRE WIND 1
PLAN AND PROFILES
STA 970+00 - 1110+00

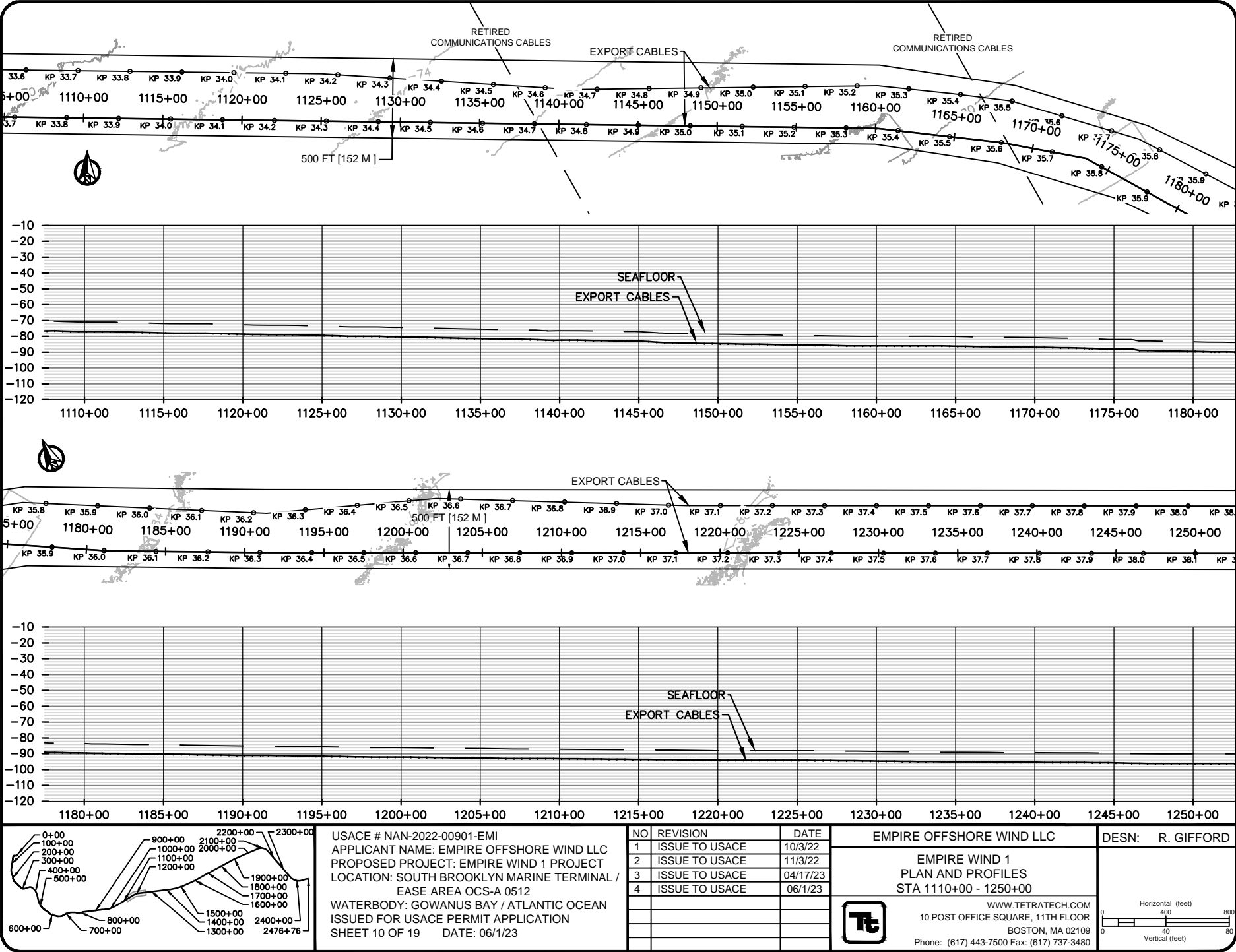
WWW.TETRATECH.COM
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

DESIGN: R. GIFFORD

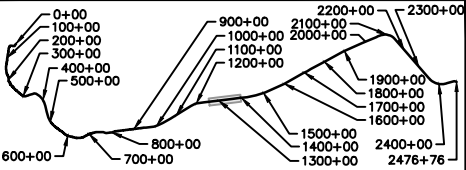
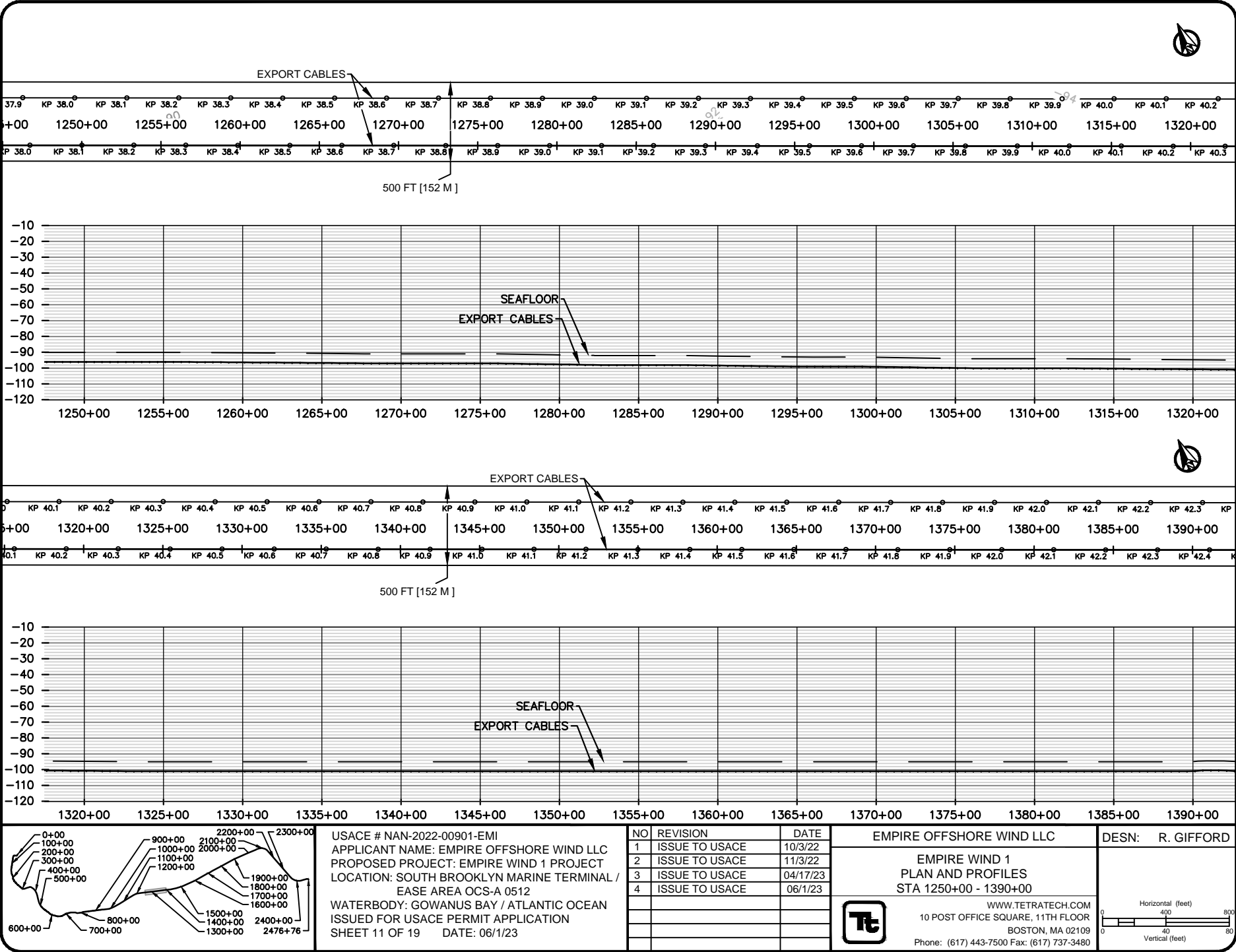
Horizontal (feet)

Vertical (feet)

Copyright: Tetra Tech



Copyright: Tetra Tech



USACE # NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: SOUTH BROOKLYN MARINE TERMINAL / EASE AREA OCS-A 0512
WATERBODY: GOWANUS BAY / ATLANTIC OCEAN
ISSUED FOR USACE PERMIT APPLICATION
SHEET 11 OF 19 DATE: 06/1/23

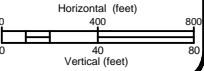
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1	ISSUE TO USACE	10/3/22
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3	ISSUE TO USACE	04/17/23
4	ISSUE TO USACE	06/1/23

EMPIRE OFFSHORE WIND LLC

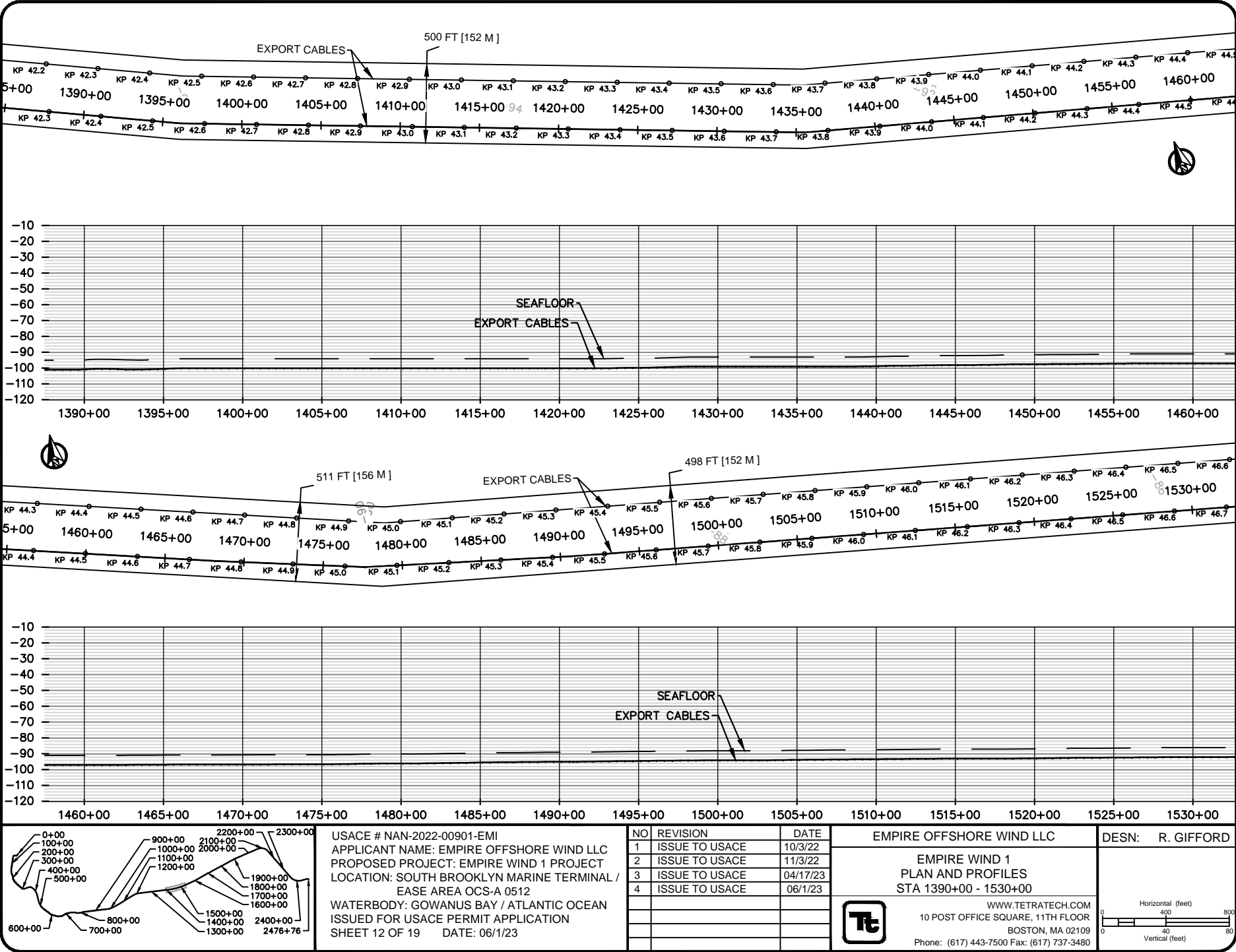
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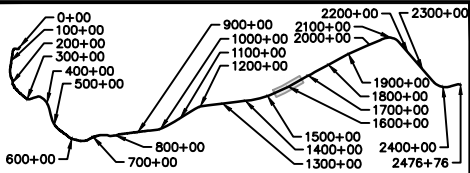
EMPIRE WIND 1
PLAN AND PROFILES
STA 1250+00 - 1390+00

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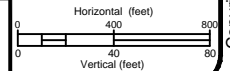


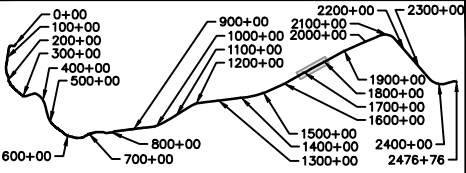
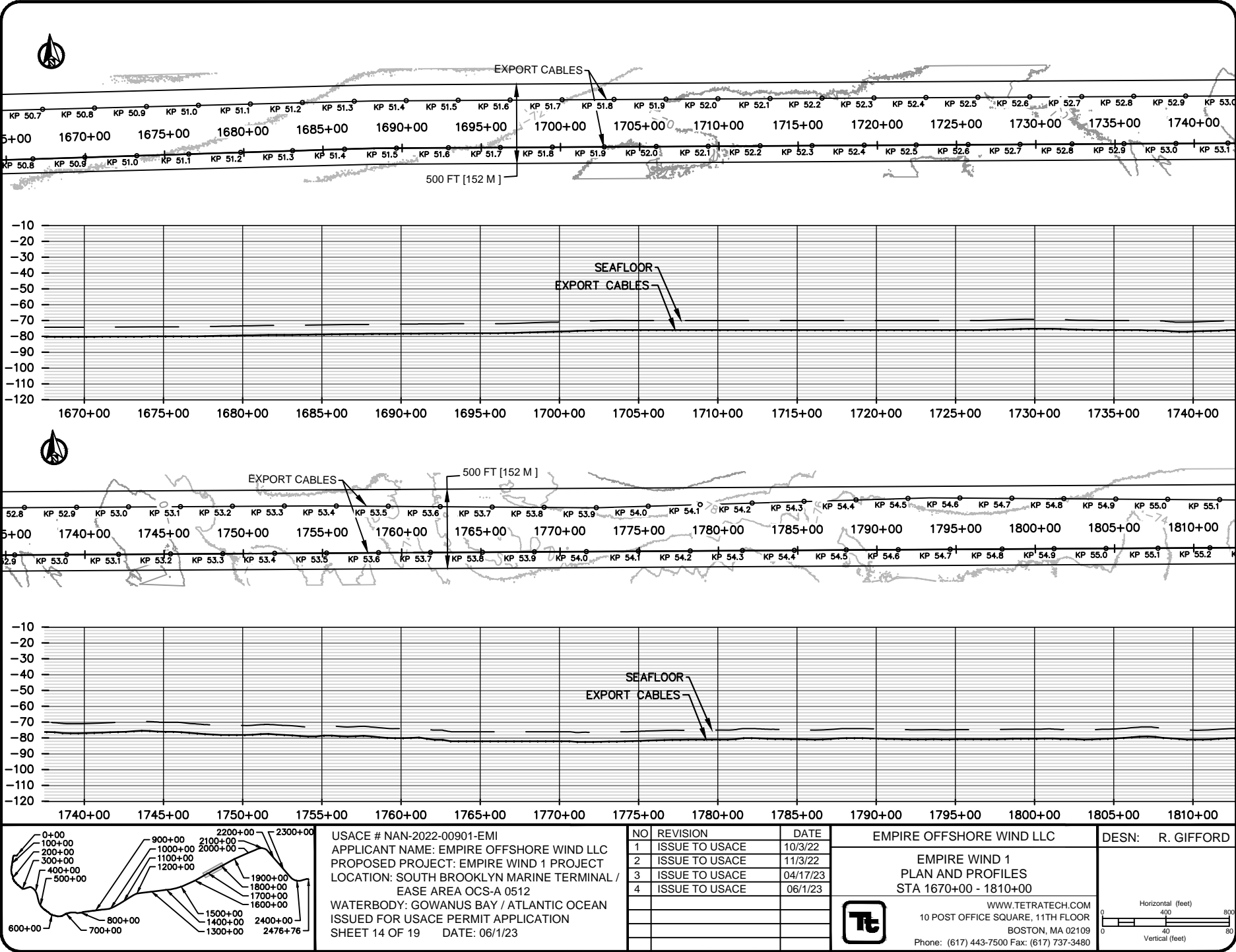


NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22
3	ISSUE TO USACE	04/17/23
4	ISSUE TO USACE	06/1/23

DESN: R. GIFFORD

Phone: (617) 443-7500 Fax: (617) 737-3480





USACE # NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: SOUTH BROOKLYN MARINE TERMINAL / EASE AREA OCS-A 0512
WATERBODY: GOWANUS BAY / ATLANTIC OCEAN
ISSUED FOR USACE PERMIT APPLICATION
SHEET 14 OF 19 DATE: 06/1/23

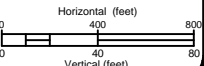
NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
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3	ISSUE TO USACE	04/17/23
4	ISSUE TO USACE	06/1/23

EMPIRE OFFSHORE WIND LLC

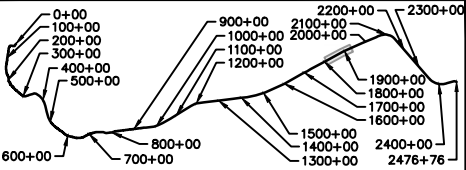
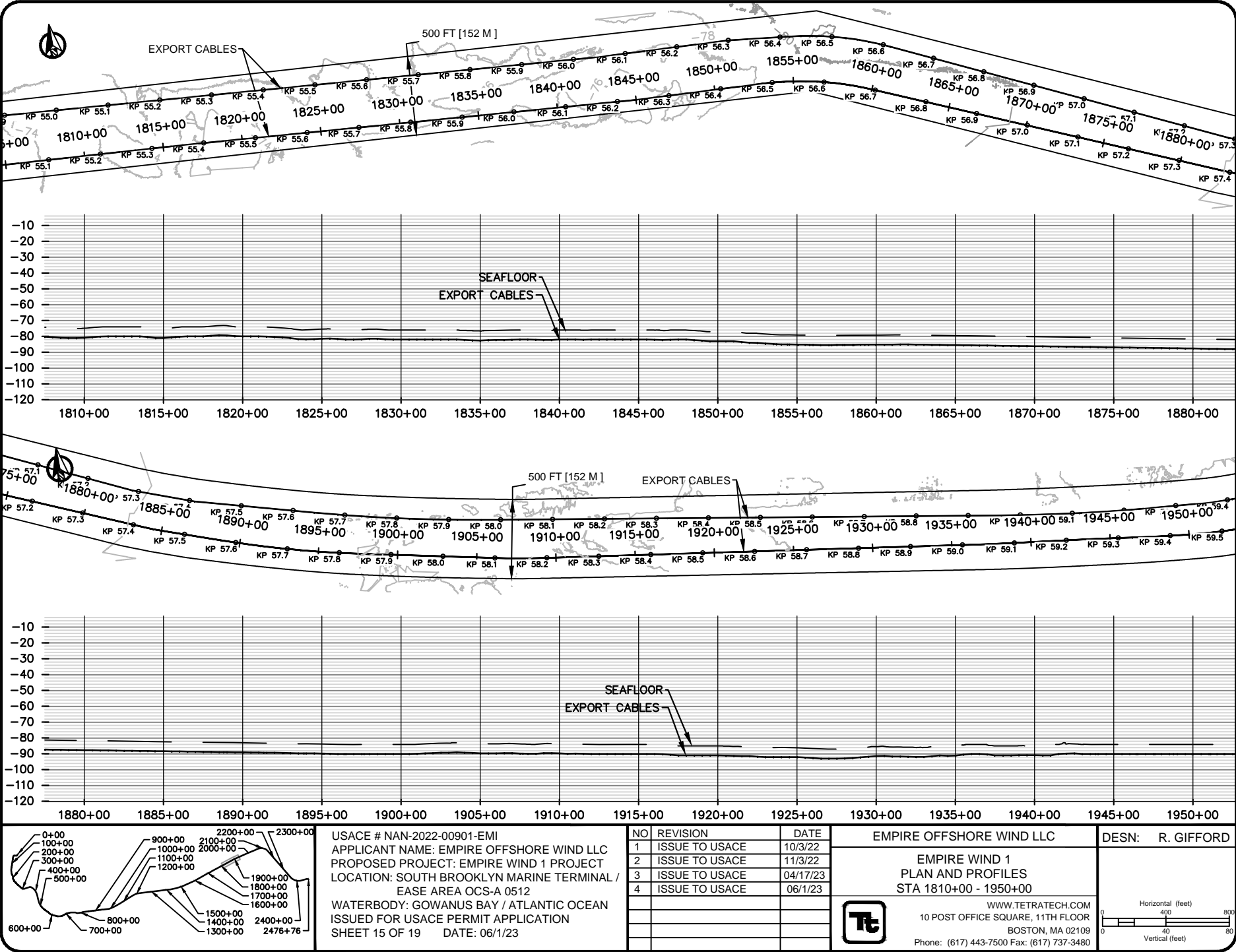
DESIGN: R. GIFFORD

EMPIRE WIND 1
PLAN AND PROFILES
STA 1670+00 - 1810+00

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USACE # NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: SOUTH BROOKLYN MARINE TERMINAL /
EASE AREA OCS-A 0512
WATERBODY: GOWANUS BAY / ATLANTIC OCEAN
ISSUED FOR USACE PERMIT APPLICATION
SHEET 15 OF 19 DATE: 06/1/23

NO	REVISION	DATE
1	ISSUE TO USACE	10/3/22
2	ISSUE TO USACE	11/3/22
3	ISSUE TO USACE	04/17/23
4	ISSUE TO USACE	06/1/23

EMPIRE OFFSHORE WIND LLC

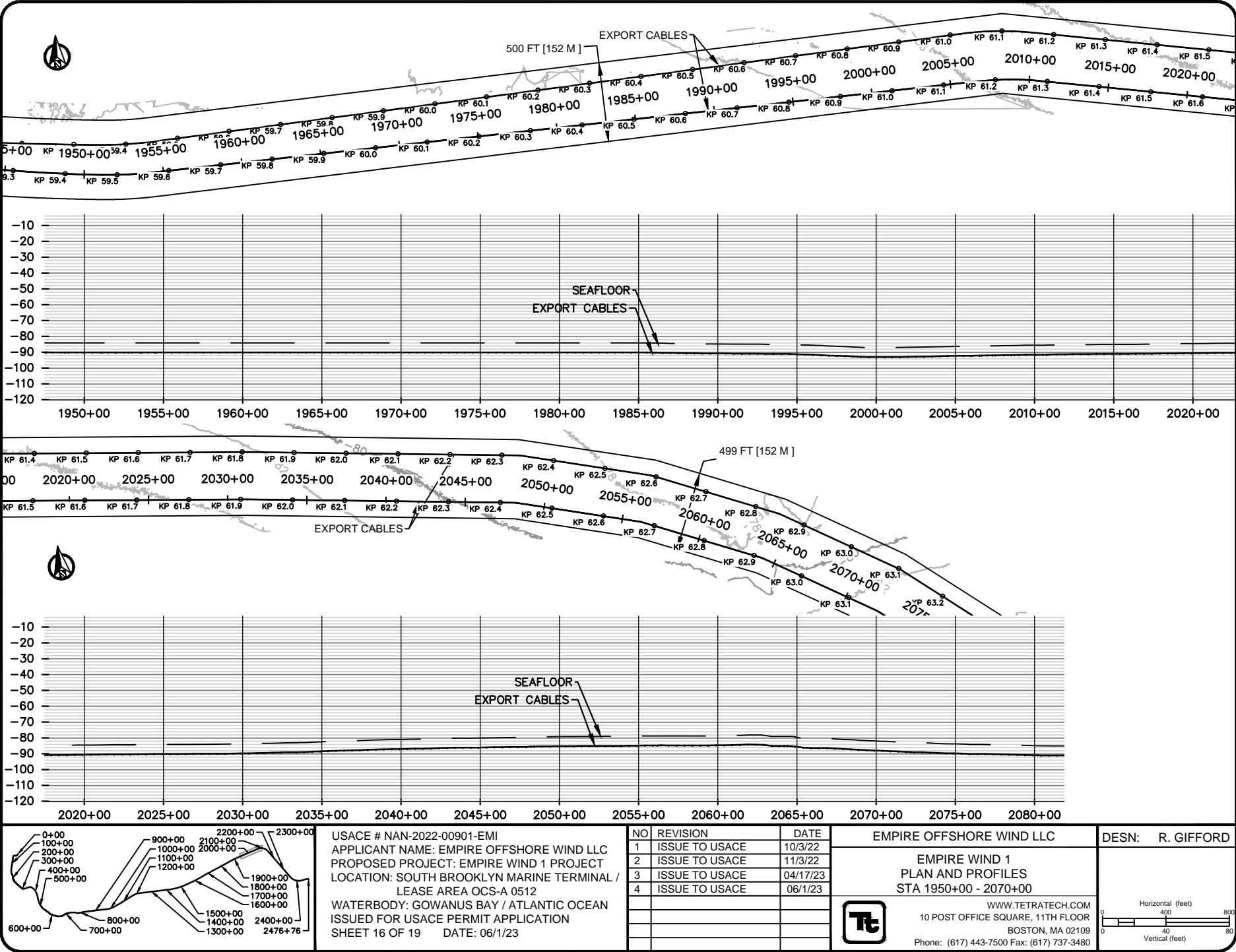
EMPIRE WIND 1
PLAN AND PROFILES
STA 1810+00 - 1950+00

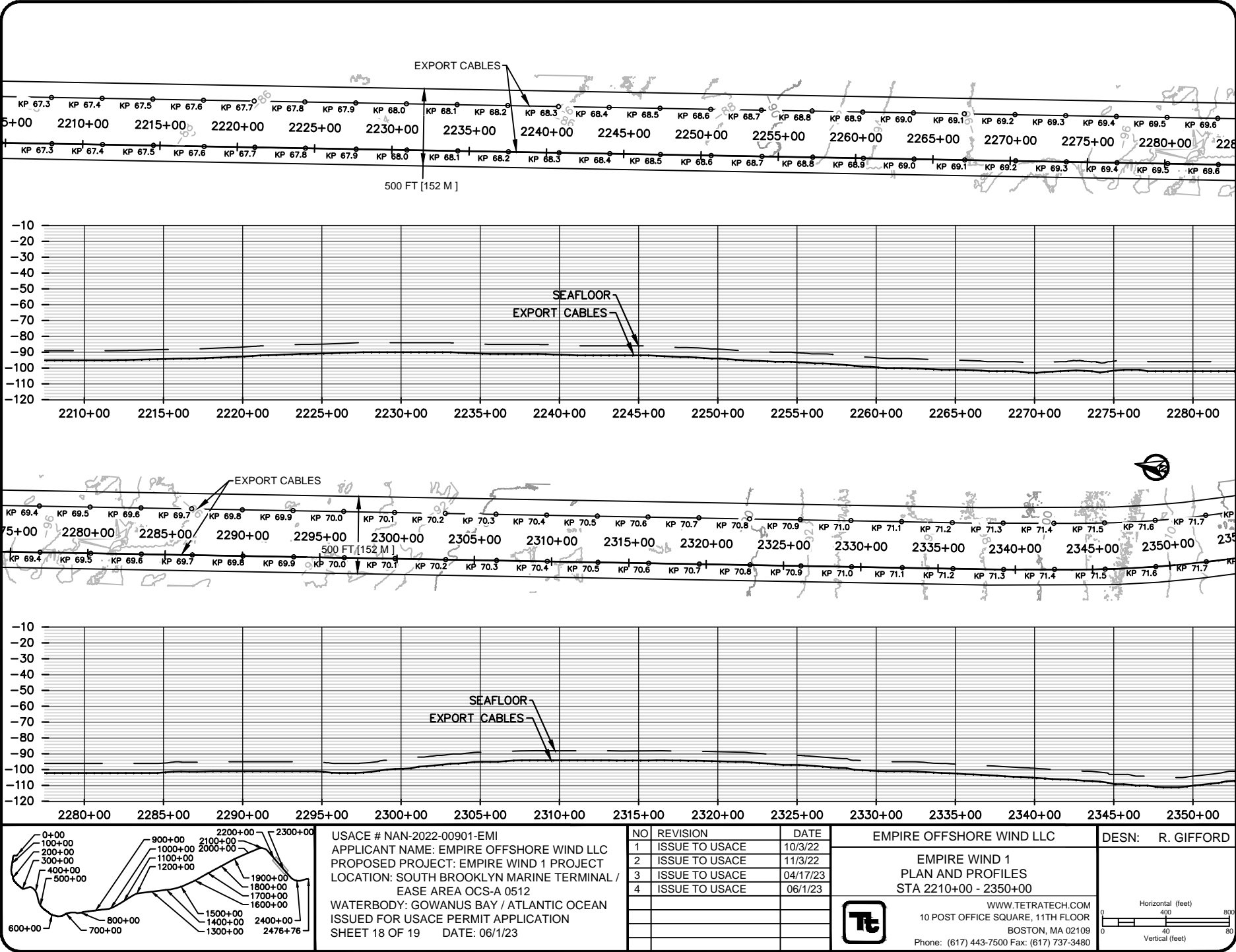
WWW.TETRATECH.COM
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

DESIGN: R. GIFFORD

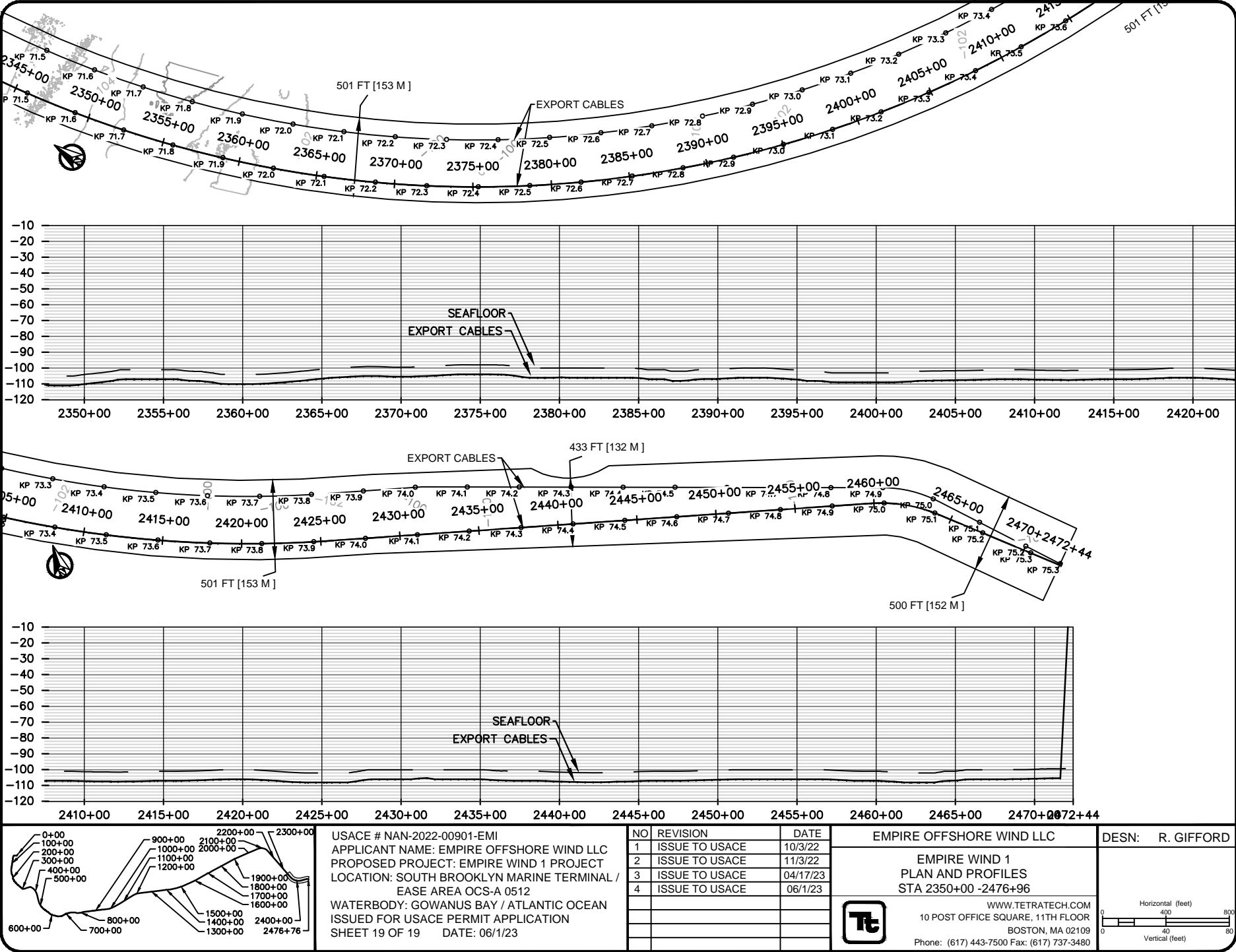
Horizontal (feet)
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Vertical (feet)
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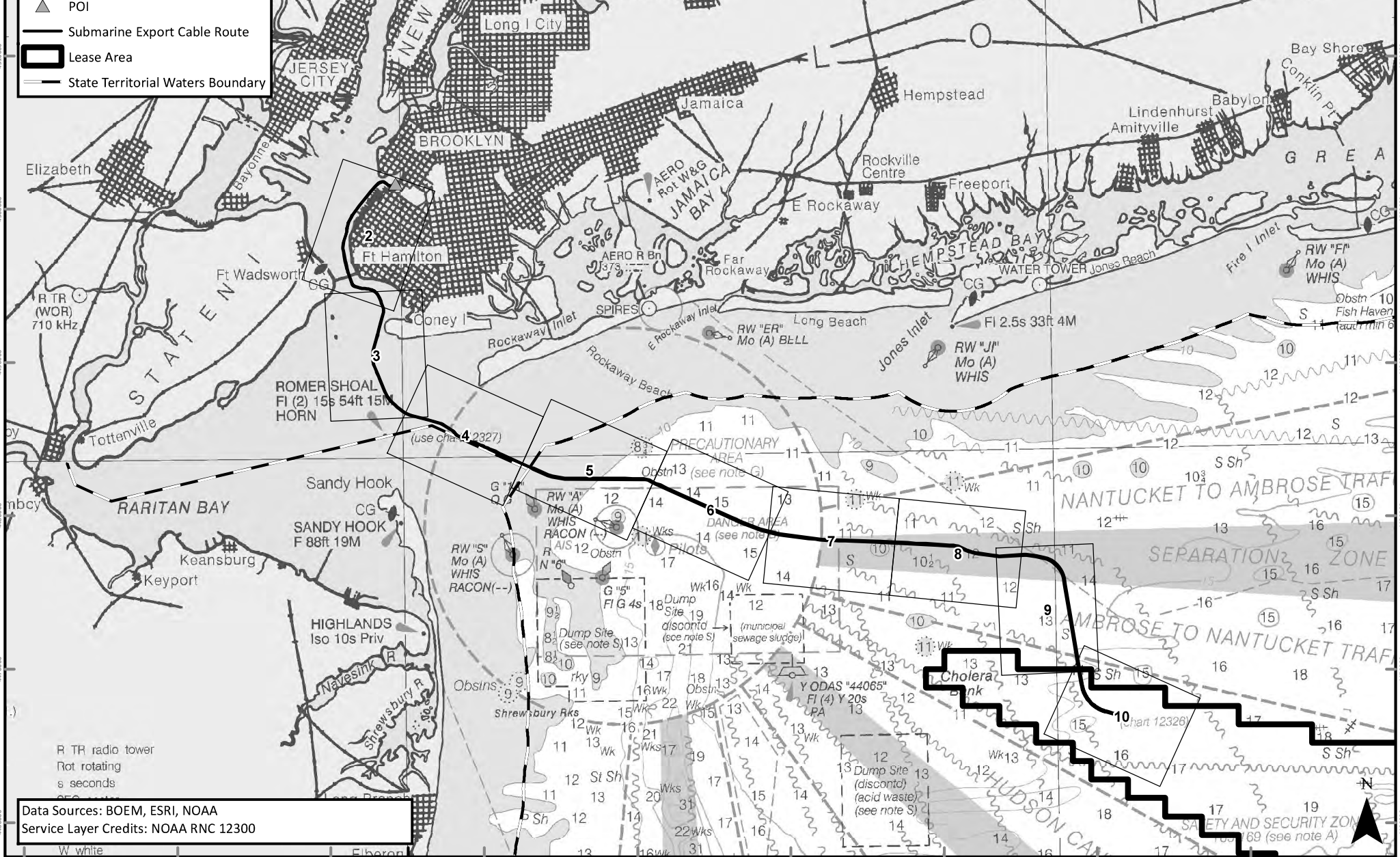




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APPLICATION NUMBER: NAN-2022-00901-EMI
 APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
 PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
 LOCATION: LEASE AREA OCS-A 0512,
 ATLANTIC OCEAN
 SHEET OF 1 OF 10



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 Phone: (617)-443-7500
 Fax: (617)737-34809

EMPIRE OFFSHORE WIND LLC

CABLE ROUTE MAP: NOAA RASTER NAVIGATIONAL CHART

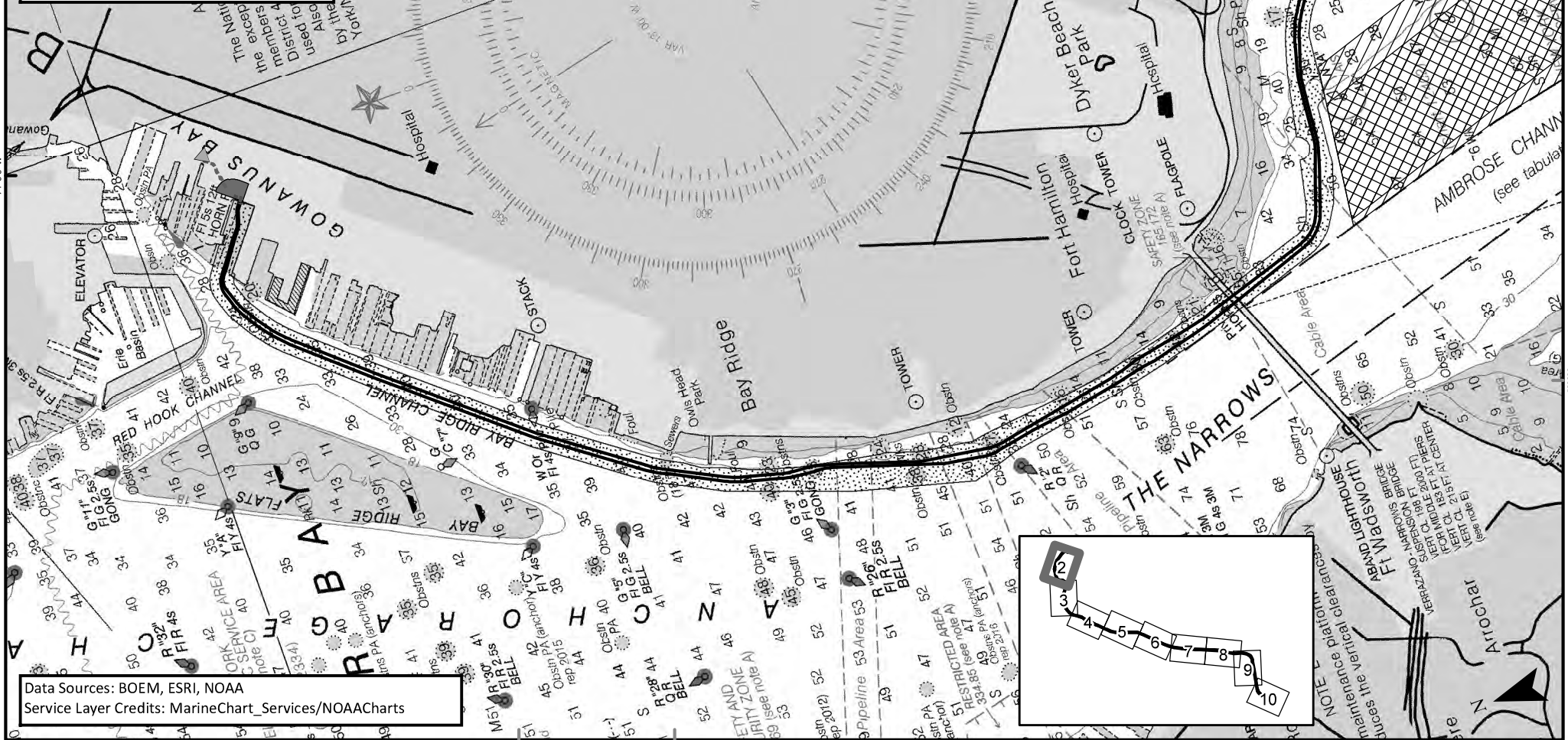
REVISION 3

DATE: 6/1/2023

DESN: W. SCALES

0 3.5 7
 Miles

- POI
- Onshore Substation
- Onshore Export Cable Route
- Interconnection Cable Route
- Submarine Export Cable Route
- Submarine Export Cable Corridor
- Gravesend Bay Anchorage
- Gravesend Anchorage Expansion Area



Data Sources: BOEM, ESRI, NOAA
Service Layer Credits: MarineChart_Services/NOAACharts

APPLICATION NUMBER: NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: KINGS COUNTY, GOWANUS BAY
SHEET 2 OF 10



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Phone: (617)-443-7500
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EMPIRE OFFSHORE WIND LLC

CABLE ROUTE MAP: NOAA RASTER NAVIGATIONAL CHART

NOTE: EXPORT CABLES SHALL BE INSTALLED A MINIMUM OF 190 FT FROM THE TOE OF THE AMBROSE CHANNEL AND A MINIMUM OF 180 FT FROM THE TOE OF THE GRAVESEND ANCHORAGE AND GRAVESEND ANCHORAGE EXPANSION AREA AS PER THE USACE.

REVISION 2

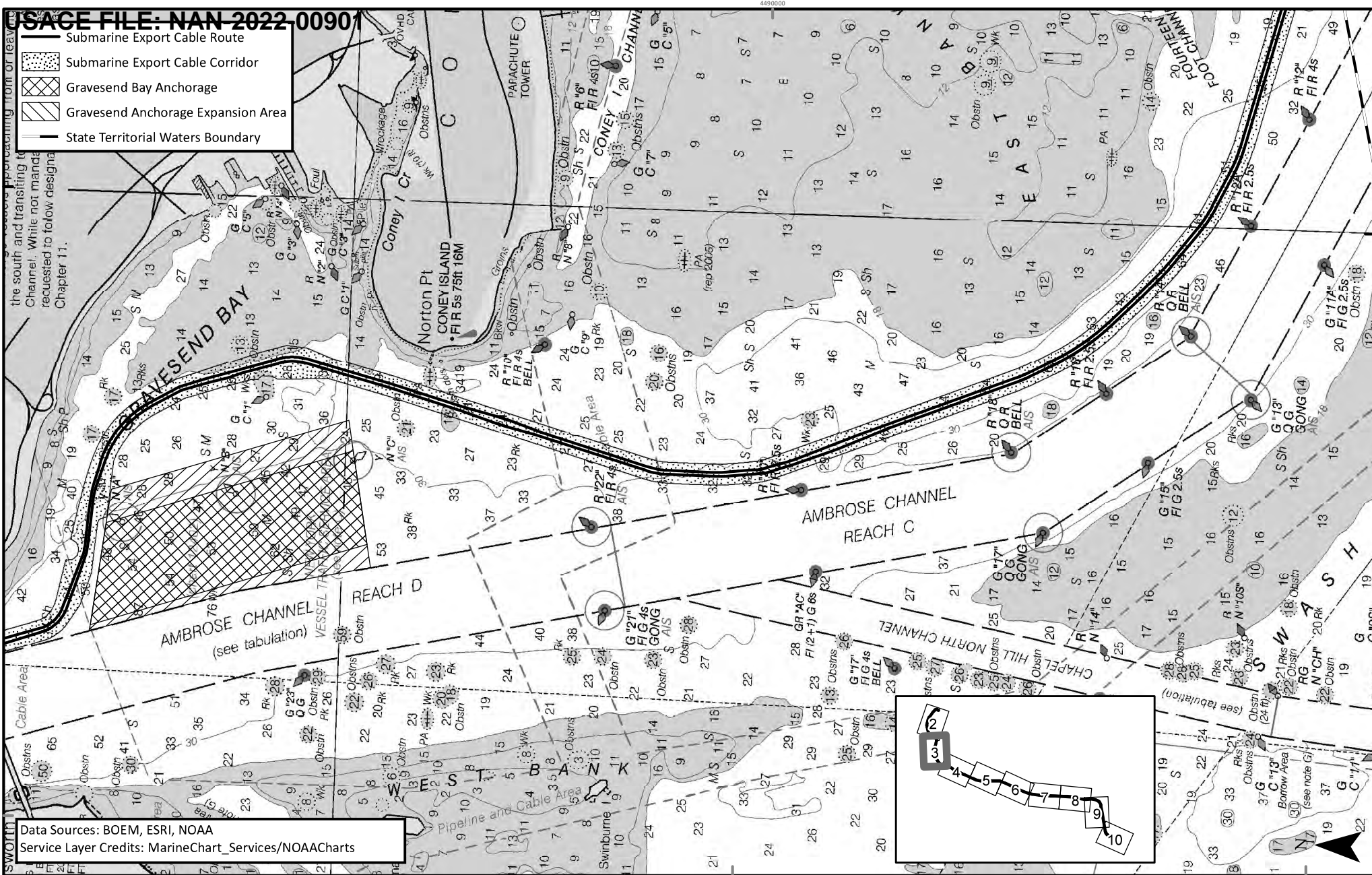
DATE: 6/1/2023

DESN: W. SCALES

0 0.35 0.7
Miles

- Submarine Export Cable Route
- Submarine Export Cable Corridor
- Gravesend Bay Anchorage
- Gravesend Anchorage Expansion Area
- State Territorial Waters Boundary

the south and transiting the Channel. While not mandated by Chapter 11.



Data Sources: BOEM, ESRI, NOAA
Service Layer Credits: MarineChart_Services/NOAACharts

APPLICATION NUMBER: NAN-2022-00901-EMI

APPLICANT NAME: EMPIRE OFFSHORE WIND LLC

PROPOSED PROJECT: EMPIRE WIND 1 PROJECT

LOCATION: GOWANUS BAY

SHEET 3 OF 10



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BOSTON, MA 02109

Phone: (617)-443-7500

Fax: (617)737-34809

EMPIRE OFFSHORE WIND LLC

CABLE ROUTE MAP: NOAA RASTER NAVIGATIONAL CHART

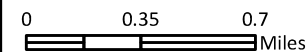
NOTE: EXPORT CABLES SHALL BE INSTALLED A MINIMUM OF 190 FT FROM THE TOE OF THE AMBROSE CHANNEL AND A MINIMUM OF 180 FT FROM THE TOE OF THE GRAVESEND ANCHORAGE AND GRAVESEND ANCHORAGE EXPANSION AREA AS PER THE USAGE.

REVISION 2

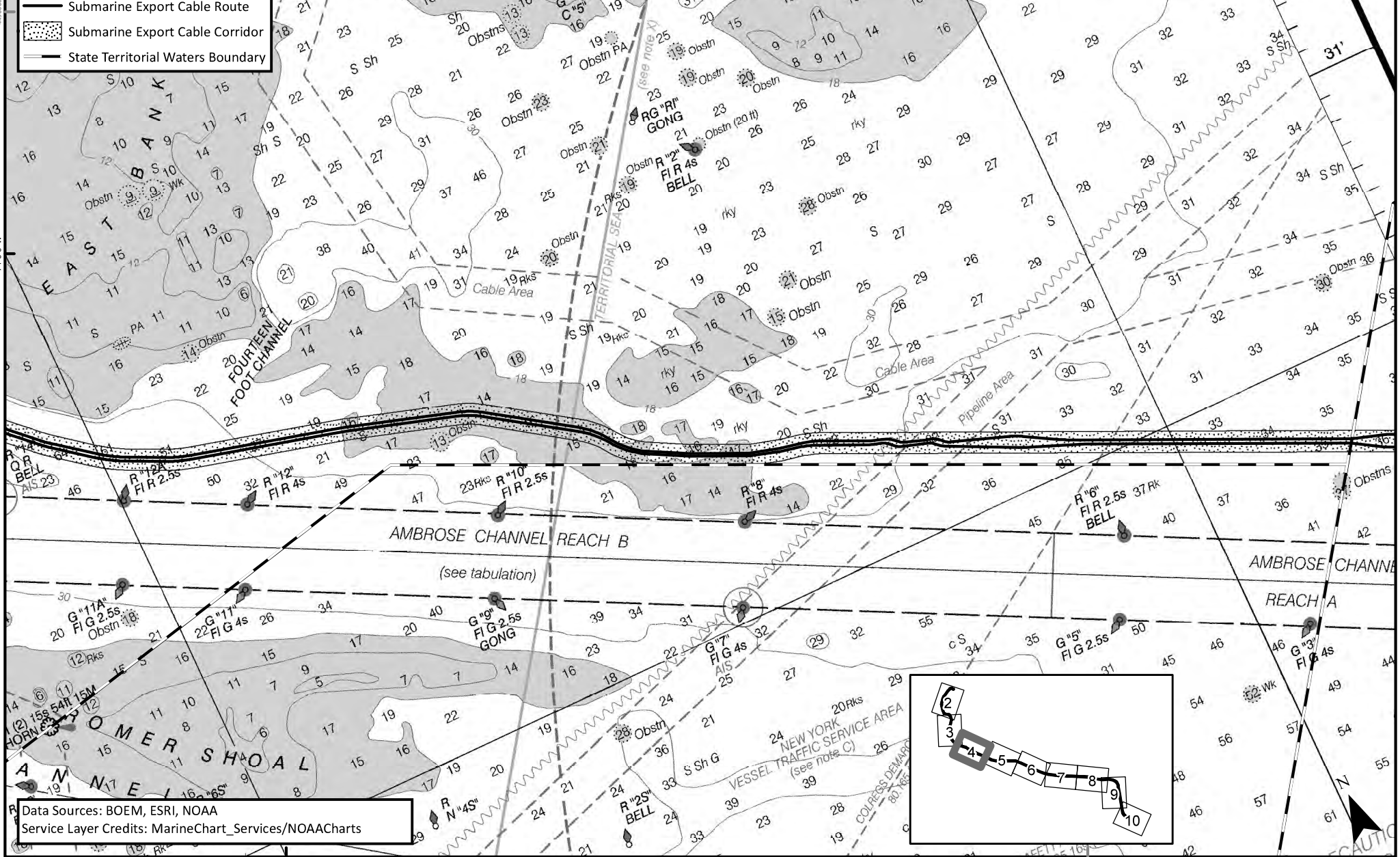
DATE: 6/1/2023

DESN:

W. SCALES



USACE FILE: NAN-2022-00901



APPLICATION NUMBER: NAN-2022-00901-EMI

APPLICANT NAME: EMPIRE OFFSHORE WIND LLC

PROPOSED PROJECT: EMPIRE WIND 1 PROJECT

LOCATION: ATLANTIC OCEAN

SHEET 4 OF 10



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BOSTON, MA 02109
Phone: (617)-443-7500
Fax: (617)737-34809

EMPIRE OFFSHORE WIND LLC

CABLE ROUTE MAP: NOAA RASTER NAVIGATIONAL CHART

NOTE: EXPORT CABLES SHALL BE INSTALLED A MINIMUM OF 190 FT FROM THE TOE OF THE AMBROSE CHANNEL AS PER THE USAGE.

REVISION 2

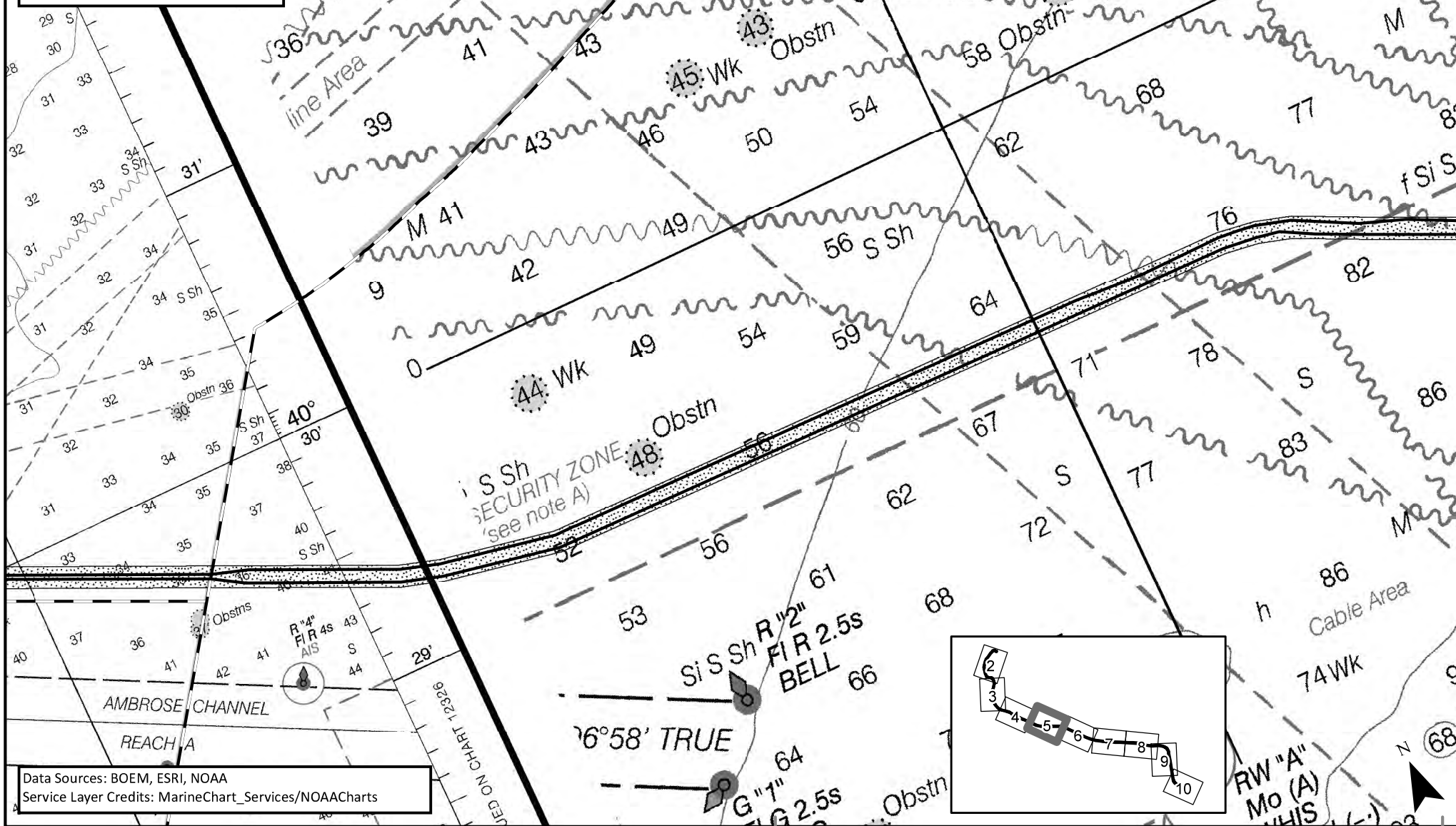
DATE: 6/1/2023

DESN: W. SCALES

0 0.35 0.7
Miles

USACE FILE: NAN-2022-00901

- Submarine Export Cable Route
- Submarine Export Cable Corridor
- State Territorial Waters Boundary



Data Sources: BOEM, ESRI, NOAA
Service Layer Credits: MarineChart_Services/NOAACharts

APPLICATION NUMBER: NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: ATLANTIC OCEAN
SHEET 5 OF 10



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10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617)-443-7500
Fax: (617)737-34809

EMPIRE OFFSHORE WIND LLC

CABLE ROUTE MAP: NOAA RASTER NAVIGATIONAL CHART

NOTE: EXPORT CABLES SHALL BE INSTALLED A MINIMUM OF 190 FT FROM THE TOE OF THE AMBROSE CHANNEL
AS PER THE USAGE.

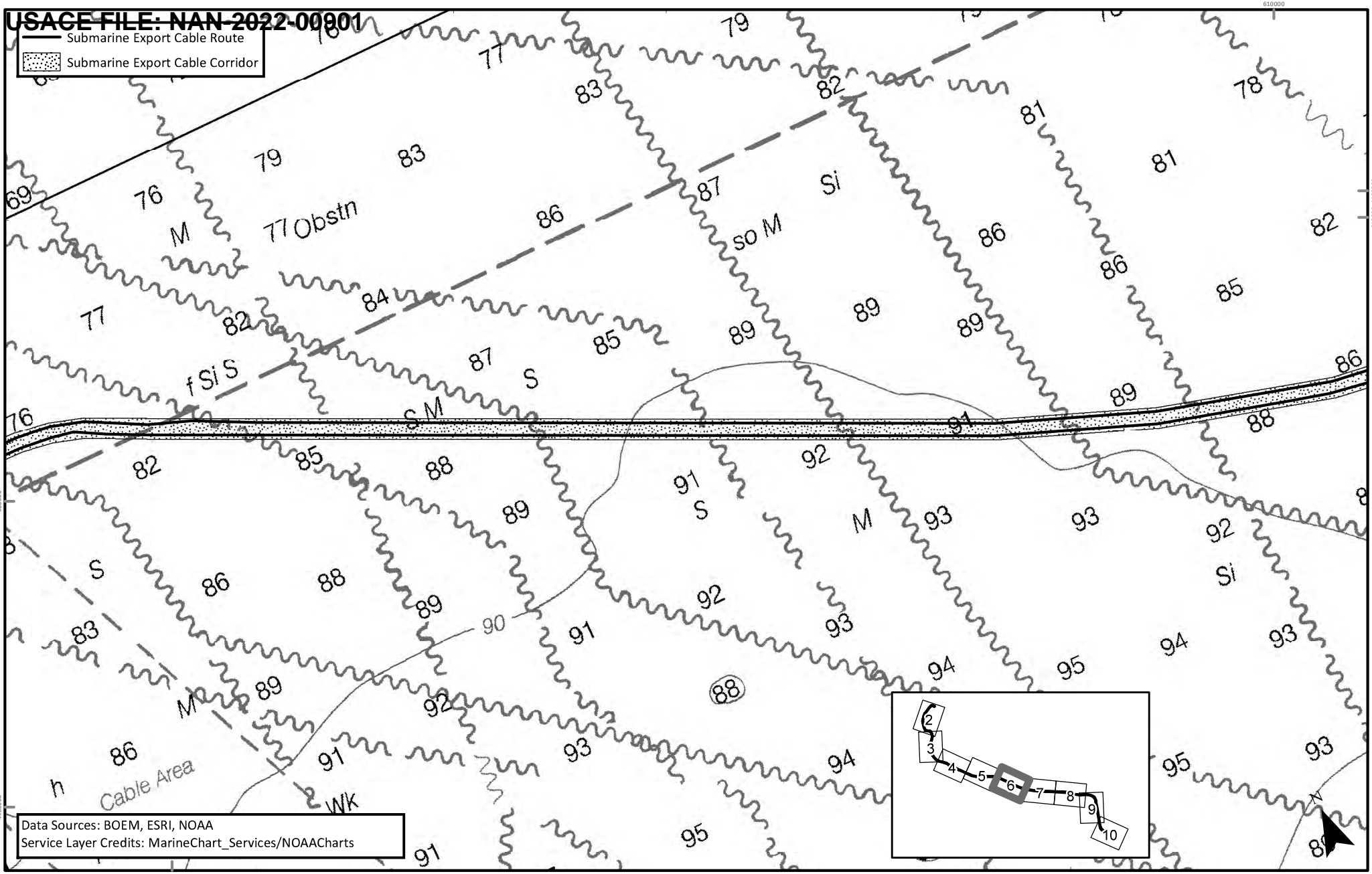
REVISION 2

DATE: 6/1/2023

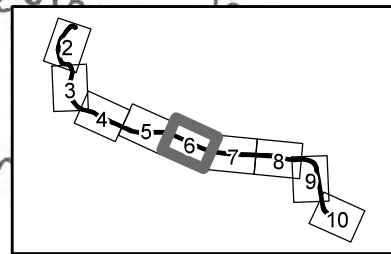
DESN: W. SCALES

0 0.35 0.7
Miles

Submarine Export Cable Route
Submarine Export Cable Corridor



Data Sources: BOEM, ESRI, NOAA
Service Layer Credits: MarineChart_Services/NOAACharts



APPLICATION NUMBER: NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: ATLANTIC OCEAN
SHEET 6 OF 10



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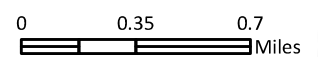
EMPIRE OFFSHORE WIND LLC

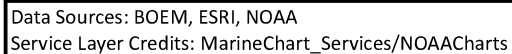
CABLE ROUTE MAP: NOAA RASTER NAVIGATIONAL CHART

REVISION 2

DATE: 6/1/2023

DESN: W. SCALES

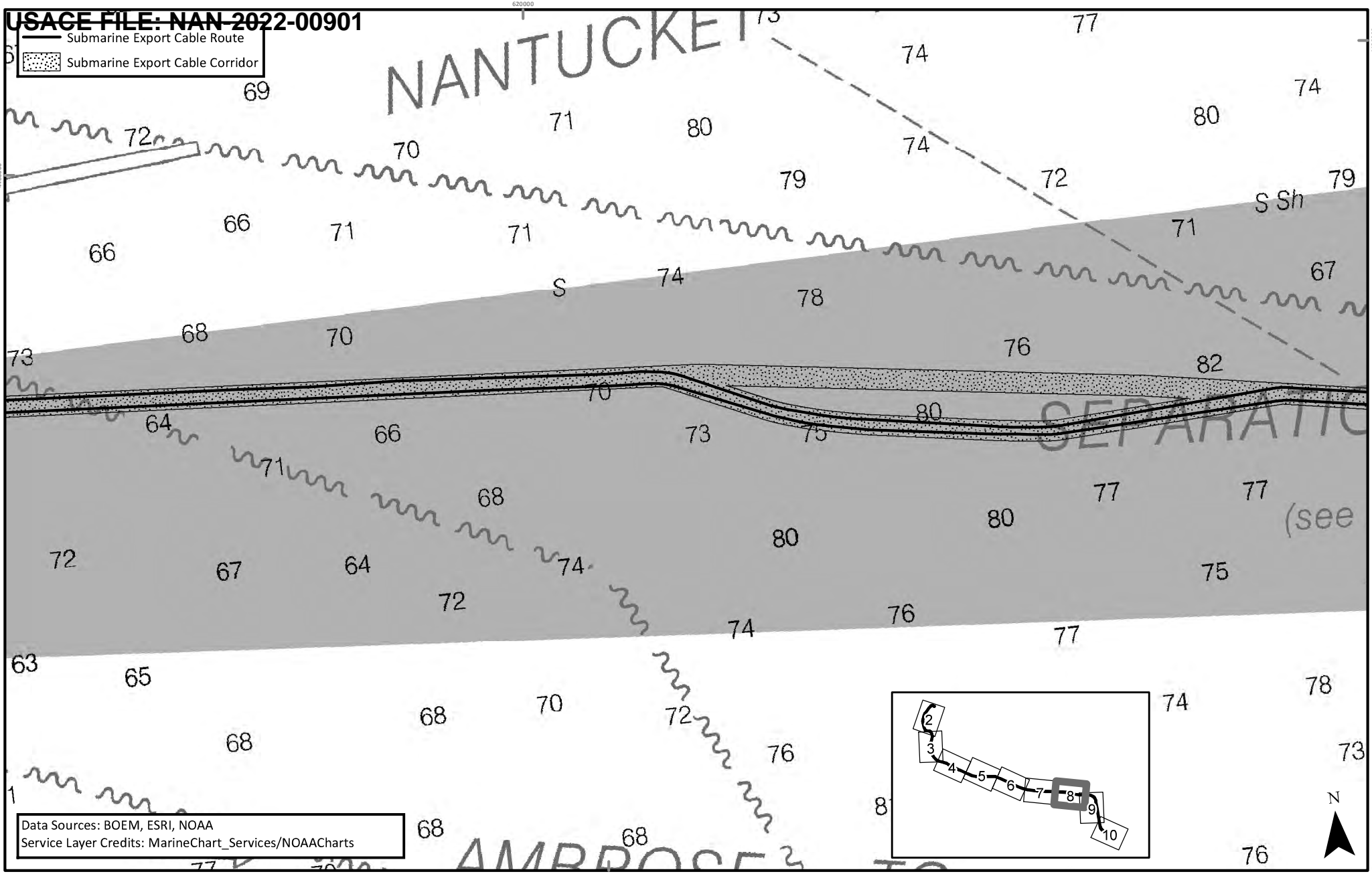




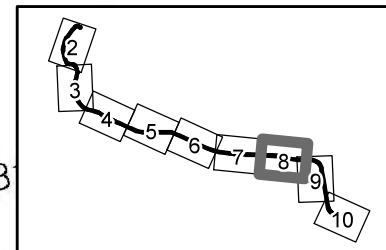
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617)-443-7500
Fax: (617)737-34809

A horizontal number line representing distance in miles. It has three major tick marks labeled 0, 0.35, and 0.7. The word "Miles" is written at the right end of the line.

Submarine Export Cable Route
Submarine Export Cable Corridor



Data Sources: BOEM, ESRI, NOAA
Service Layer Credits: MarineChart_Services/NOAACharts



APPLICATION NUMBER: NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: ATLANTIC OCEAN
SHEET 8 OF 10



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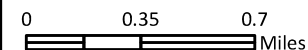
EMPIRE OFFSHORE WIND LLC

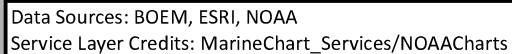
CABLE ROUTE MAP: NOAA RASTER NAVIGATIONAL CHART

REVISION 2

DATE: 6/1/2023

DESN: W. SCALES

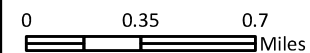




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BOSTON, MA 02109
Phone: (617)-443-7500
Fax: (617)737-34809

CABLE ROUTE MAP: NOAA RASTER NAVIGATIONAL CHART

DESN:	W. SCALES
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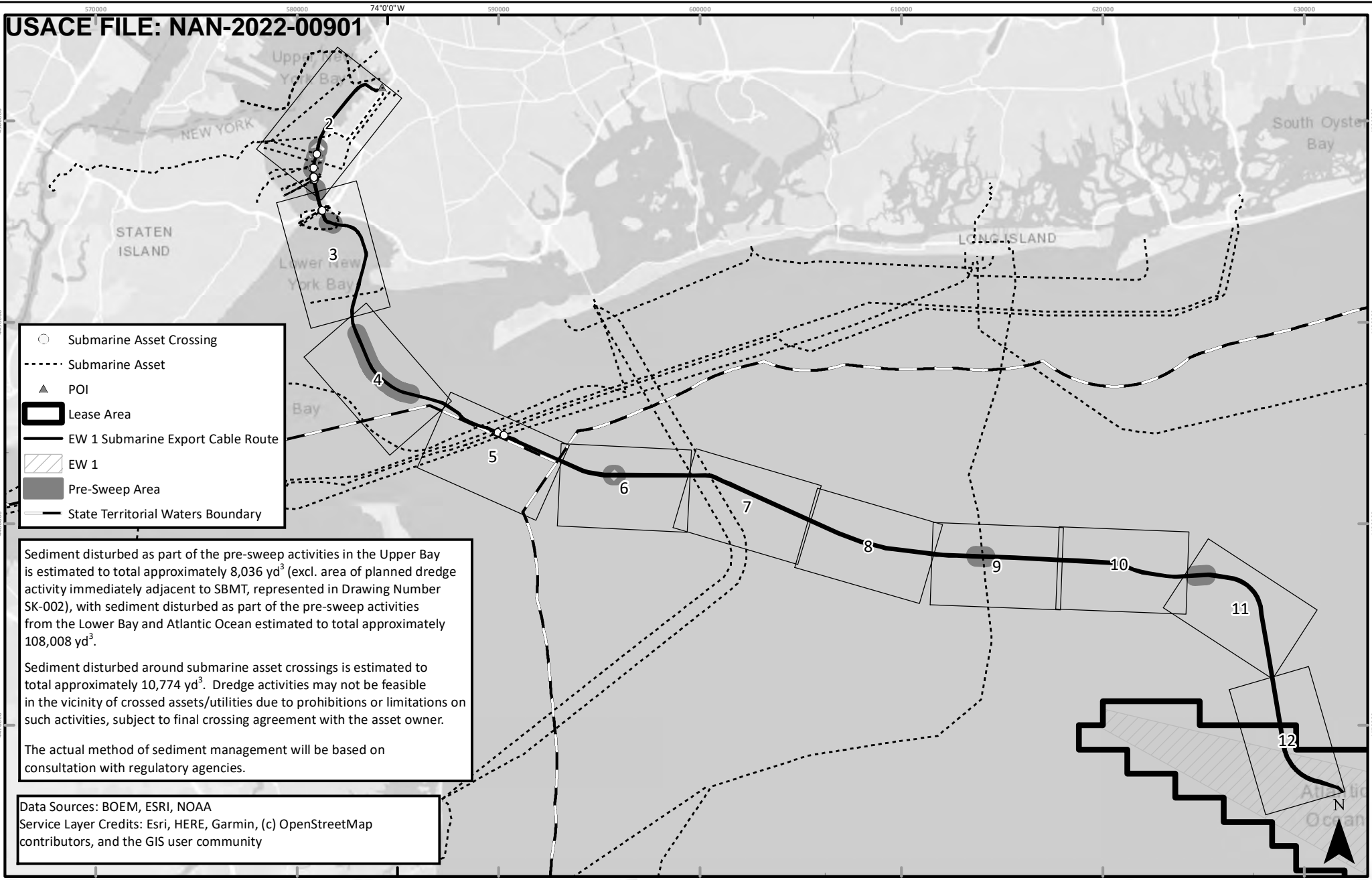
USACE FILE: NAN-2022-00901

Submarine Export Cable Route
Submarine Export Cable Corridor
Lease Area

Data Sources: BOEM, ESRI, NOAA
Service Layer Credits: MarineChart_Services/NOAACharts

The map displays a proposed submarine export cable route (dashed line) and its corridor (stippled area) within a lease area (thick black line). The route starts near the top left, curves south, and then runs east. The map includes depth contours (e.g., 85, 90, 95, 100, 105, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000, 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1140, 1150, 1160, 1170, 1180, 1190, 1200, 1210, 1220, 1230, 1240, 1250, 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1340, 1350, 1360, 1370, 1380, 1390, 1400, 1410, 1420, 1430, 1440, 1450, 1460, 1470, 1480, 1490, 1500, 1510, 1520, 1530, 1540, 1550, 1560, 1570, 1580, 1590, 1600, 1610, 1620, 1630, 1640, 1650, 1660, 1670, 1680, 1690, 1700, 1710, 1720, 1730, 1740, 1750, 1760, 1770, 1780, 1790, 1800, 1810, 1820, 1830, 1840, 1850, 1860, 1870, 1880, 1890, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, 2000, 2010, 2020, 2030, 2040, 2050, 2060, 2070, 2080, 2090, 2100, 2110, 2120, 2130, 2140, 2150, 2160, 2170, 2180, 2190, 2200, 2210, 2220, 2230, 2240, 2250, 2260, 2270, 2280, 2290, 2300, 2310, 2320, 2330, 2340, 2350, 2360, 2370, 2380, 2390, 2400, 2410, 2420, 2430, 2440, 2450, 2460, 2470, 2480, 2490, 2500, 2510, 2520, 2530, 2540, 2550, 2560, 2570, 2580, 2590, 2600, 2610, 2620, 2630, 2640, 2650, 2660, 2670, 2680, 2690, 2700, 2710, 2720, 2730, 2740, 2750, 2760, 2770, 2780, 2790, 2800, 2810, 2820, 2830, 2840, 2850, 2860, 2870, 2880, 2890, 2900, 2910, 2920, 2930, 2940, 2950, 2960, 2970, 2980, 2990, 3000, 3010, 3020, 3030, 3040, 3050, 3060, 3070, 3080, 3090, 3100, 3110, 3120, 3130, 3140, 3150, 3160, 3170, 3180, 3190, 3200, 3210, 3220, 3230, 3240, 3250, 3260, 3270, 3280, 3290, 3300, 3310, 3320, 3330, 3340, 3350, 3360, 3370, 3380, 3390, 3400, 3410, 3420, 3430, 3440, 3450, 3460, 3470, 3480, 3490, 3500, 3510, 3520, 3530, 3540, 3550, 3560, 3570, 3580, 3590, 3600, 3610, 3620, 3630, 3640, 3650, 3660, 3670, 3680, 3690, 3700, 3710, 3720, 3730, 3740, 3750, 3760, 3770, 3780, 3790, 3800, 3810, 3820, 3830, 3840, 3850, 3860, 3870, 3880, 3890, 3900, 3910, 3920, 3930, 3940, 3950, 3960, 3970, 3980, 3990, 4000, 4010, 4020, 4030, 4040, 4050, 4060, 4070, 4080, 4090, 4100, 4110, 4120, 4130, 4140, 4150, 4160, 4170, 4180, 4190, 4200, 4210, 4220, 4230, 4240, 4250, 4260, 4270, 4280, 4290, 4300, 4310, 4320, 4330, 4340, 4350, 4360, 4370, 4380, 4390, 4400, 4410, 4420, 4430, 4440, 4450, 4460, 4470, 4480, 4490, 4500, 4510, 4520, 4530, 4540, 4550, 4560, 4570, 4580, 4590, 4600, 4610, 4620, 4630, 4640, 4650, 4660, 4670, 4680, 4690, 4700, 4710, 4720, 4730, 4740, 4750, 4760, 4770, 4780, 4790, 4800, 4810, 4820, 4830, 4840, 4850, 4860, 4870, 4880, 4890, 4900, 4910, 4920, 4930, 4940, 4950, 4960, 4970, 4980, 4990, 5000, 5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5090, 5100, 5110, 5120, 5130, 5140, 5150, 5160, 5170, 5180, 5190, 5200, 5210, 5220, 5230, 5240, 5250, 5260, 5270, 5280, 5290, 5300, 5310, 5320, 5330, 5340, 5350, 5360, 5370, 5380, 5390, 5400, 5410, 5420, 5430, 5440, 5450, 5460, 5470, 5480, 5490, 5500, 5510, 5520, 5530, 5540, 5550, 5560, 5570, 5580, 5590, 5600, 5610, 5620, 5630, 5640, 5650, 5660, 5670, 5680, 5690, 5700, 5710, 5720, 5730, 5740, 5750, 5760, 5770, 5780, 5790, 5800, 5810, 5820, 5830, 5840, 5850, 5860, 5870, 5880, 5890, 5900, 5910, 5920, 5930, 5940, 5950, 5960, 5970, 5980, 5990, 6000, 6010, 6020, 6030, 6040, 6050, 6060, 6070, 6080, 6090, 6100, 6110, 6120, 6130, 6140, 6150, 6160, 6170, 6180, 6190, 6200, 6210, 6220, 6230, 6240, 6250, 6260, 6270, 6280, 6290, 6300, 6310, 6320, 6330, 6340, 6350, 6360, 6370, 6380, 6390, 6400, 6410, 6420, 6430, 6440, 6450, 6460, 6470, 6480, 6490, 6500, 6510, 6520, 6530, 6540, 6550, 6560, 6570, 6580, 6590, 6600, 6610, 6620, 6630, 6640, 6650, 6660, 6670, 6680, 6690, 6700, 6710, 6720, 6730, 6740, 6750, 6760, 6770, 6

Path: \\Cess706\gis\2\GIS\Projects\BOS\GIS\StatoilWind\NewYork_OffshoreWind\Project\GIS\Spatial\MXD\USACE_Application_4-22-11\Drawings\ackage\USACE_Application_W1_DP_CableRoute_NOAA_100K.mxd


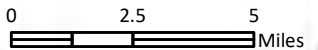


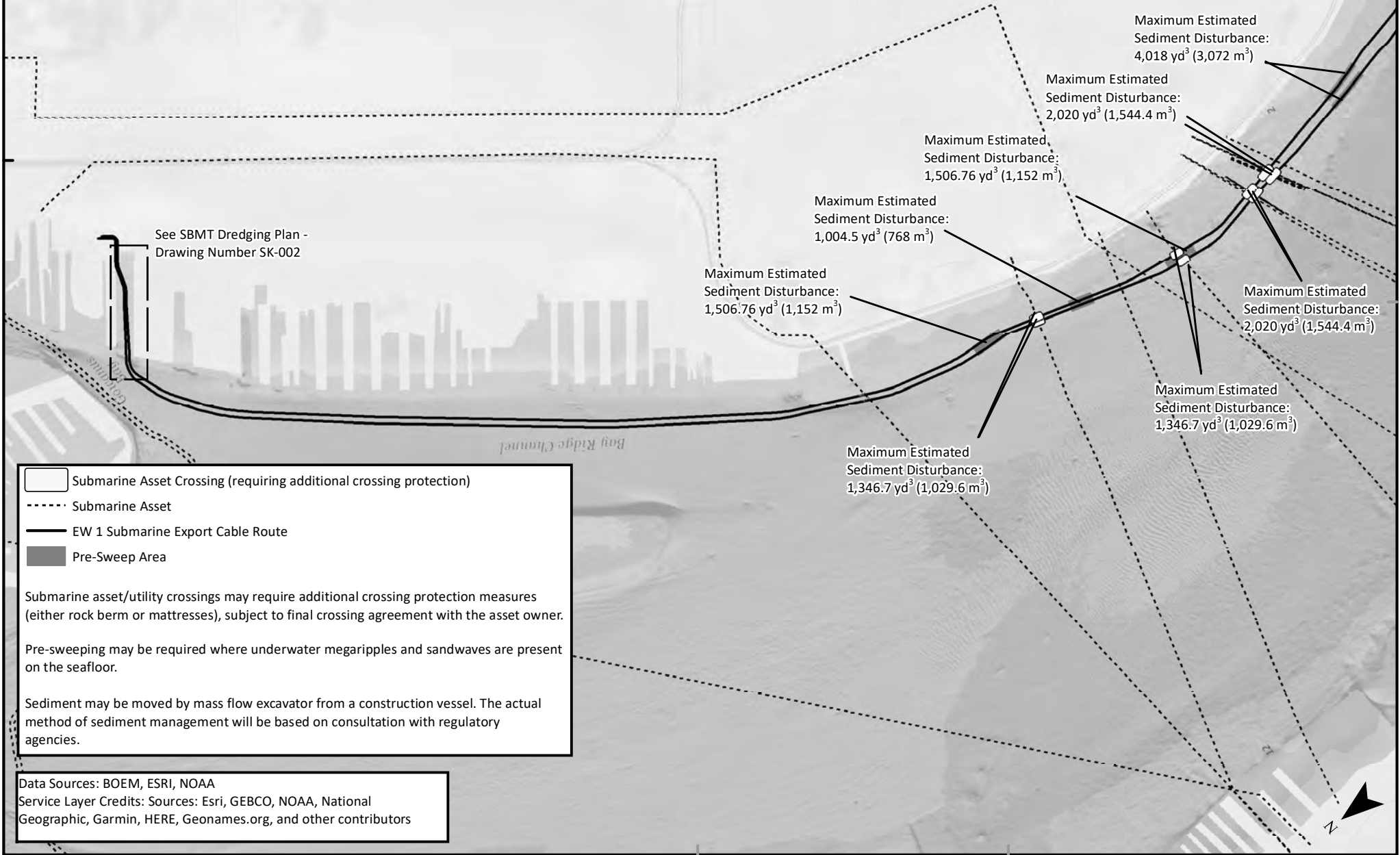
Sediment disturbed as part of the pre-sweep activities in the Upper Bay is estimated to total approximately 8,036 yd³ (excl. area of planned dredge activity immediately adjacent to SBMT, represented in Drawing Number SK-002), with sediment disturbed as part of the pre-sweep activities from the Lower Bay and Atlantic Ocean estimated to total approximately 108,008 yd³.

Sediment disturbed around submarine asset crossings is estimated to total approximately 10,774 yd³. Dredge activities may not be feasible in the vicinity of crossed assets/utilities due to prohibitions or limitations on such activities, subject to final crossing agreement with the asset owner.

The actual method of sediment management will be based on consultation with regulatory agencies.

Data Sources: BOEM, ESRI, NOAA
 Service Layer Credits: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

APPLICATION NUMBER: NAN-2022-00901-EMI APPLICANT NAME: EMPIRE OFFSHORE WIND LLC PROPOSED PROJECT: EMPIRE WIND 1 PROJECT LOCATION: LEASE AREA OCS-A 0512, ATLANTIC OCEAN SHEET 1 OF 12	 TETRA TECH WWW.TETRATECH.COM 10 POST OFFICE SQUARE, 11TH FLOOR BOSTON, MA 02109 Phone: (617)-443-7500 Fax: (617)737-34809	EMPIRE OFFSHORE WIND LLC PROJECT VICINITY	REVISION 2 DATE: 6/1/2023 DESN: W. SCALES 
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APPLICATION NUMBER: NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: KINGS COUNTY, GOWANUS BAY
SHEET 2 OF 12



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BOSTON, MA 02109
Phone: (617)-443-7500
Fax: (617)737-34809

EMPIRE OFFSHORE WIND LLC

PROJECT VICINITY

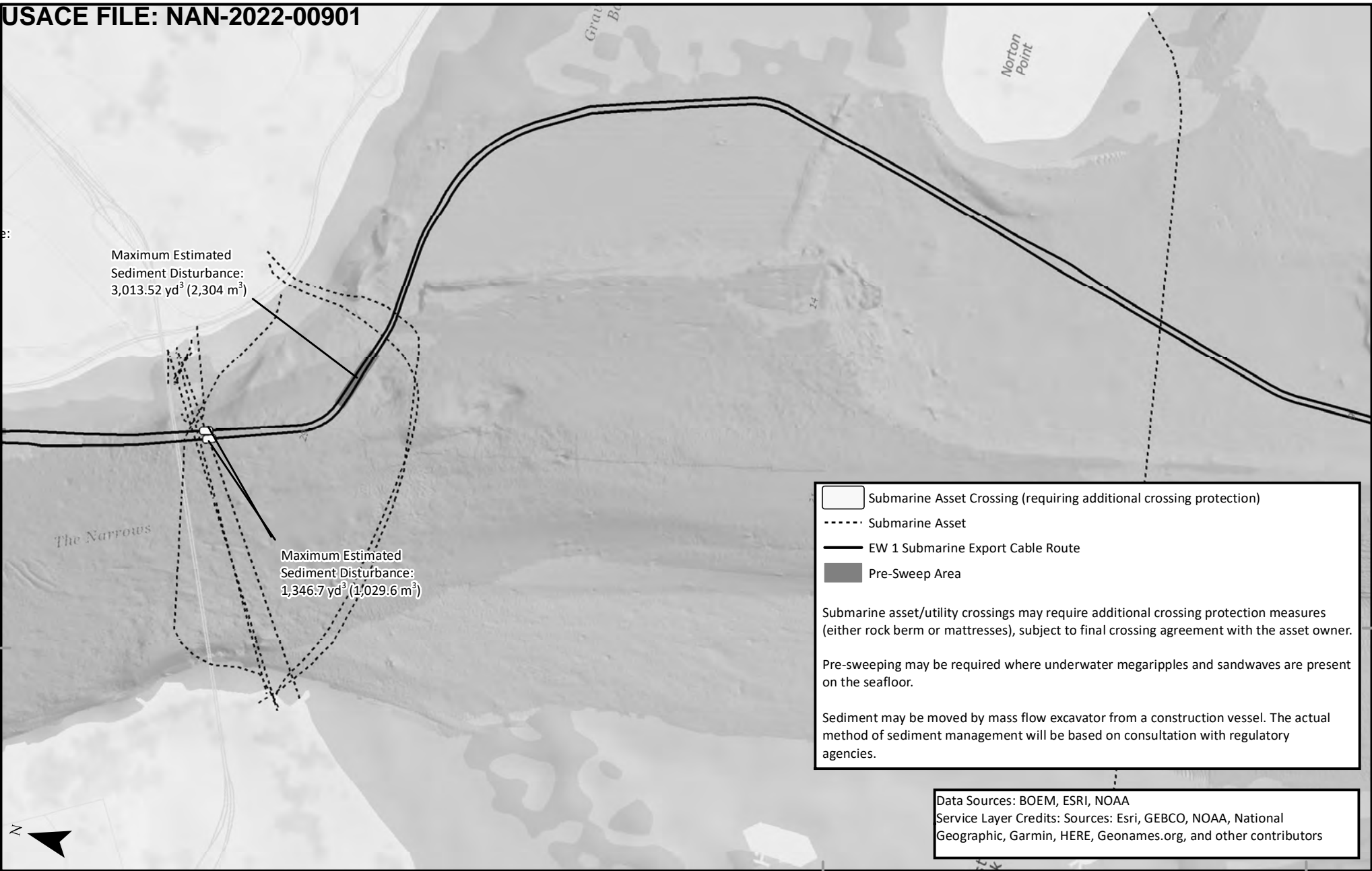
REVISION 2



DATE: 6/1/2023

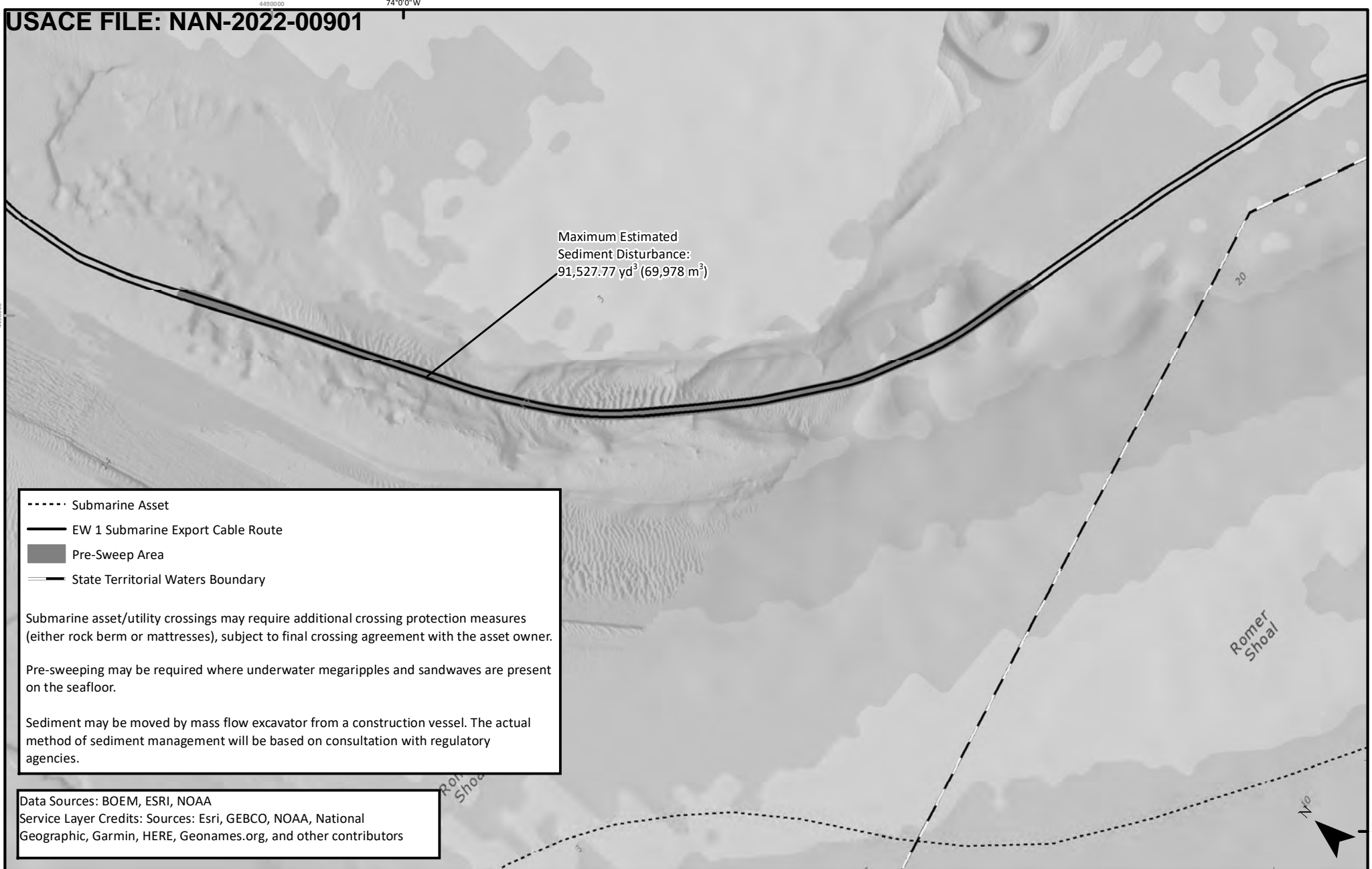
DESN:

W. SCALES

0 0.25 0.5
Miles



APPLICATION NUMBER: NAN-2022-00901-EMI APPLICANT NAME: EMPIRE OFFSHORE WIND LLC PROPOSED PROJECT: EMPIRE WIND 1 PROJECT LOCATION: GOWANUS BAY SHEET 3 OF 12	 TETRA TECH WWW.TETRATECH.COM 10 POST OFFICE SQUARE, 11TH FLOOR BOSTON, MA 02109 Phone: (617)-443-7500 Fax: (617)737-34809	EMPIRE OFFSHORE WIND LLC		REVISION 2
		PROJECT VICINITY		DATE: 6/1/2023
				DESN: W. SCALES
				0 0.2 0.4 Miles 



APPLICATION NUMBER: NAN-2022-00901-EMI

APPLICANT NAME: EMPIRE OFFSHORE WIND LLC

PROPOSED PROJECT: EMPIRE WIND 1 PROJECT

LOCATION: ATLANTIC OCEAN

SHEET 4 OF 12



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BOSTON, MA 02109
Phone: (617)-443-7500
Fax: (617)737-34809

EMPIRE OFFSHORE WIND LLC

PROJECT VICINITY

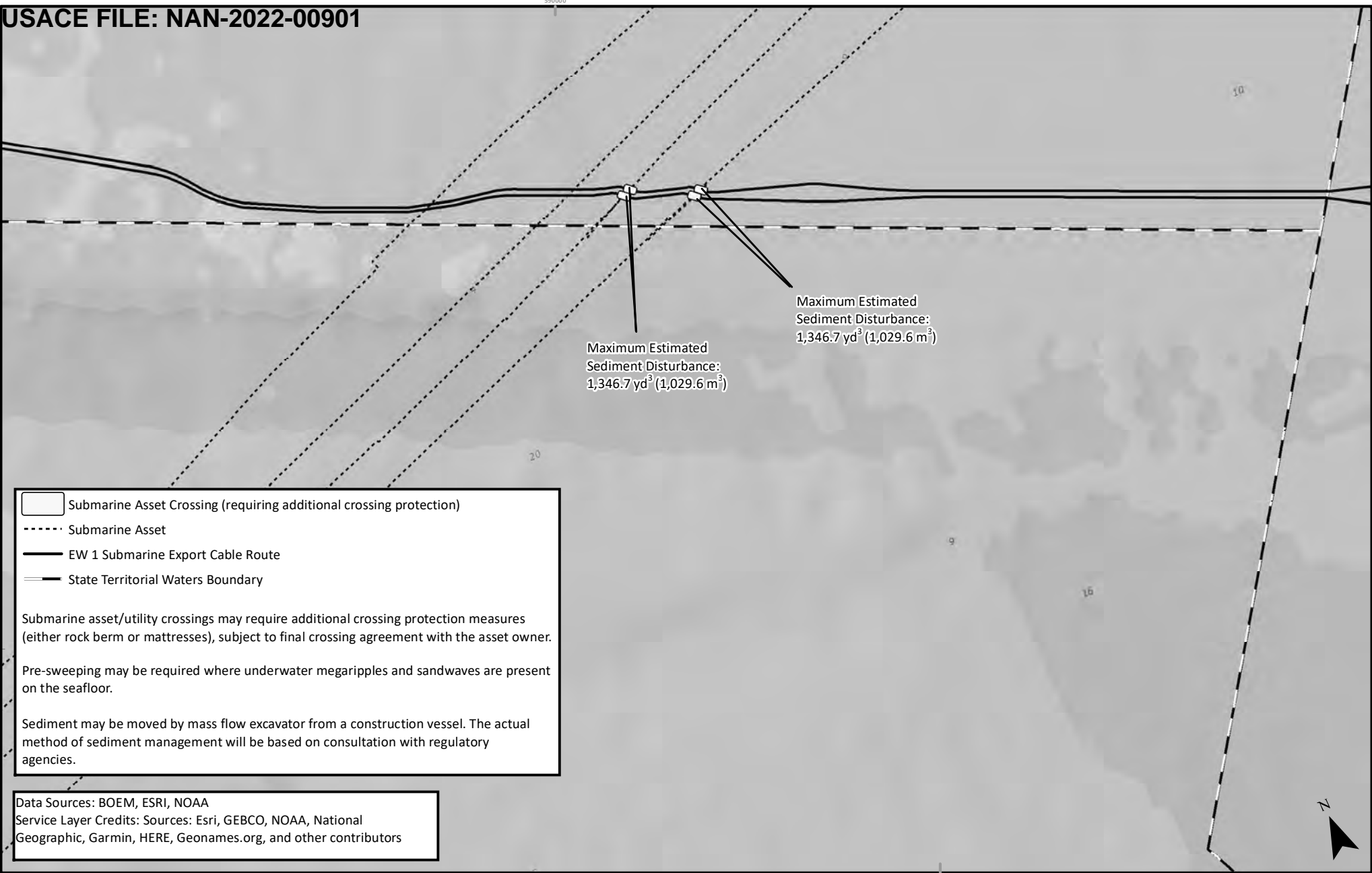
REVISION 2

DATE: 6/1/2023

DESN:

W. SCALES

0 0.2 0.4
Miles



Submarine Asset Crossing (requiring additional crossing protection)

Submarine Asset

EW 1 Submarine Export Cable Route

State Territorial Waters Boundary

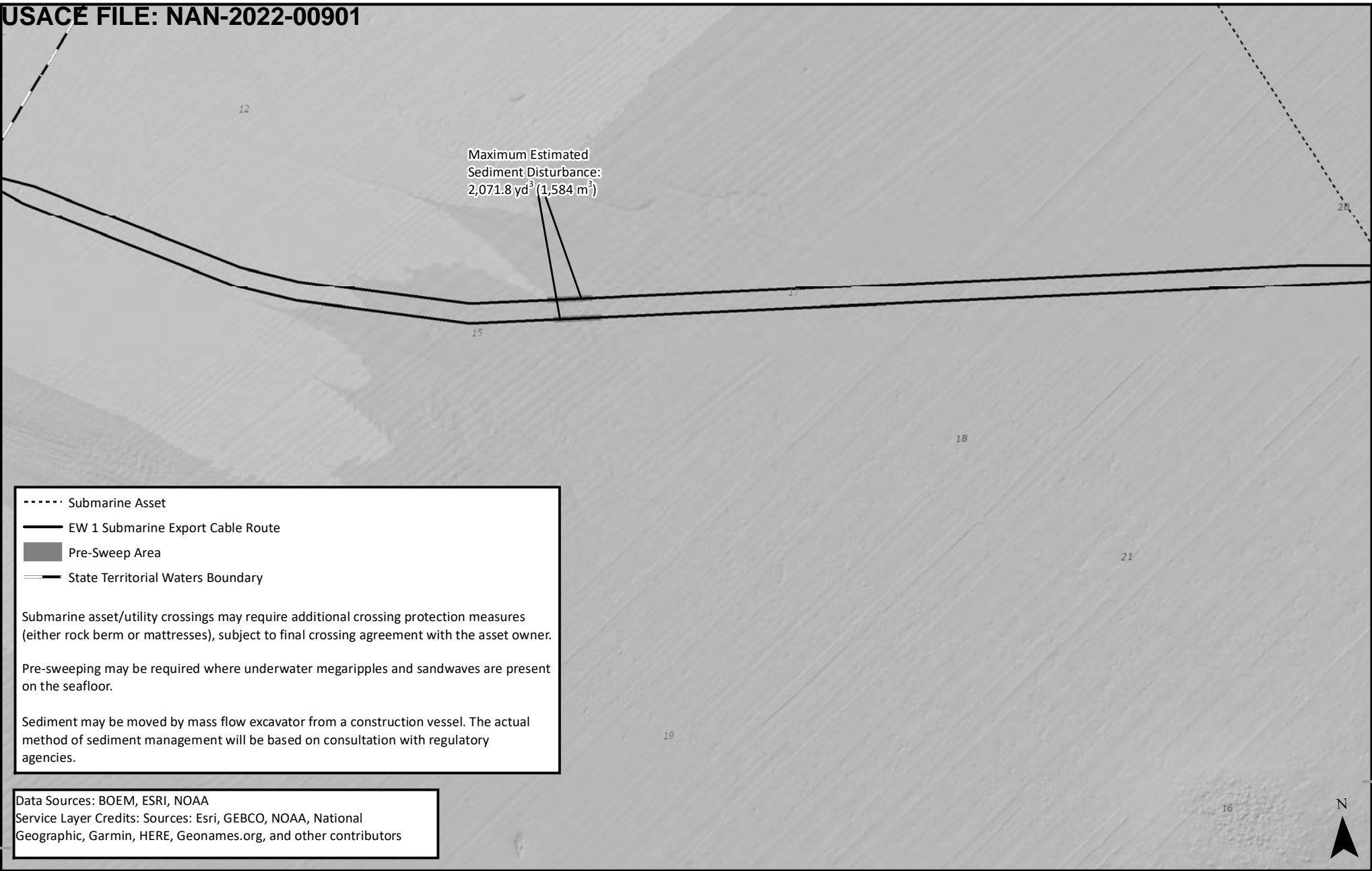
Submarine asset/utility crossings may require additional crossing protection measures (either rock berm or mattresses), subject to final crossing agreement with the asset owner.

Pre-sweeping may be required where underwater megaripples and sandwaves are present on the seafloor.

Sediment may be moved by mass flow excavator from a construction vessel. The actual method of sediment management will be based on consultation with regulatory agencies.

Data Sources: BOEM, ESRI, NOAA
 Service Layer Credits: Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors

APPLICATION NUMBER: NAN-2022-00901-EMI APPLICANT NAME: EMPIRE OFFSHORE WIND LLC PROPOSED PROJECT: EMPIRE WIND 1 PROJECT LOCATION: ATLANTIC OCEAN SHEET 5 OF 12	<p>TETRA TECH</p> <p>WWW.TETRATECH.COM</p> <p>10 POST OFFICE SQUARE, 11TH FLOOR BOSTON, MA 02109 Phone: (617)-443-7500 Fax: (617)737-34809</p>	EMPIRE OFFSHORE WIND LLC		REVISION 2
		PROJECT VICINITY		DATE: 6/1/2023
				DESN: W. SCALES
				0 0.2 0.4 Miles



APPLICATION NUMBER: NAN-2022-00901-EMI
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
LOCATION: ATLANTIC OCEAN
SHEET 6 OF 12



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EMPIRE OFFSHORE WIND LLC

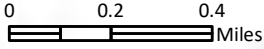
PROJECT VICINITY

REVISION 2

DATE: 6/1/2023

DESN:

W. SCALES



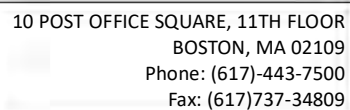
— EW 1 Submarine Export Cable Route

Pre-sweeping may be required where underwater megaripples and sandwaves are present on the seafloor.

Sediment may be moved by mass flow excavator from a construction vessel. The actual method of sediment management will be based on consultation with regulatory agencies.

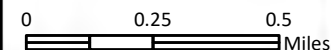
Service Layer Credits: Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors

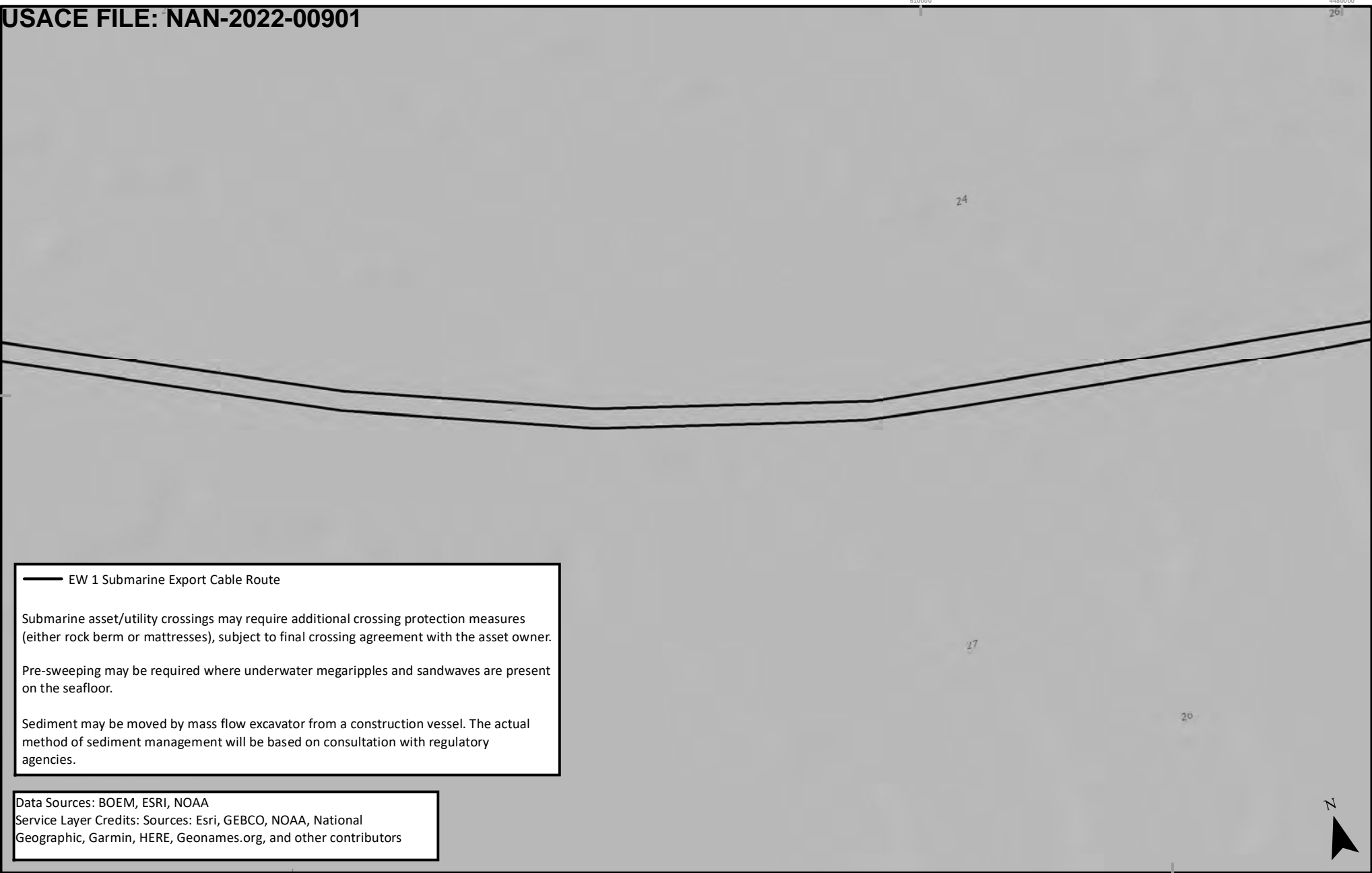
SHEET 7 OF 12



PROJECT VICINITY

W. SCALES






EW 1 Submarine Export Cable Route

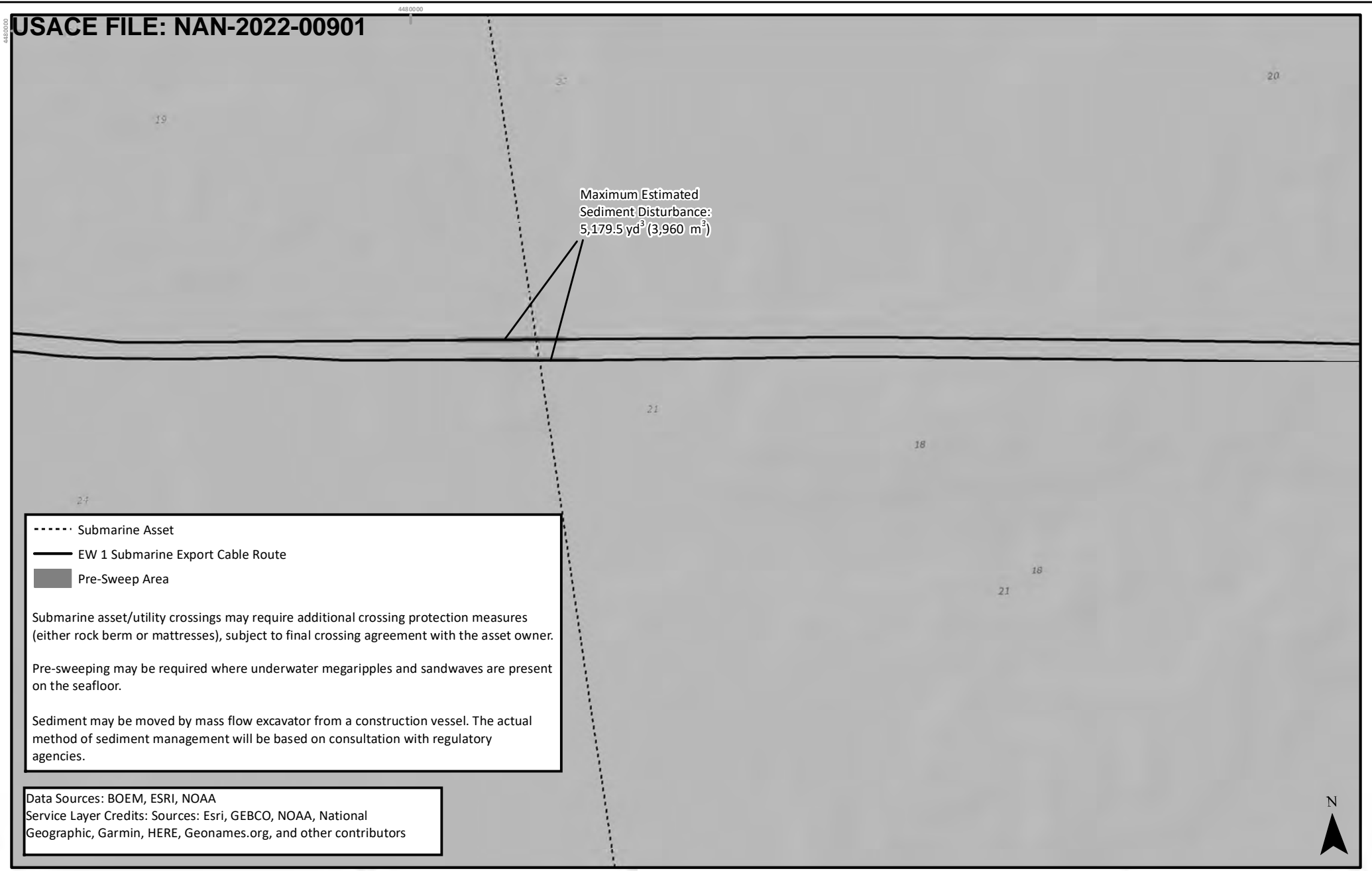
Submarine asset/utility crossings may require additional crossing protection measures (either rock berm or mattresses), subject to final crossing agreement with the asset owner.


Pre-sweeping may be required where underwater megaripples and sandwaves are present on the seafloor.

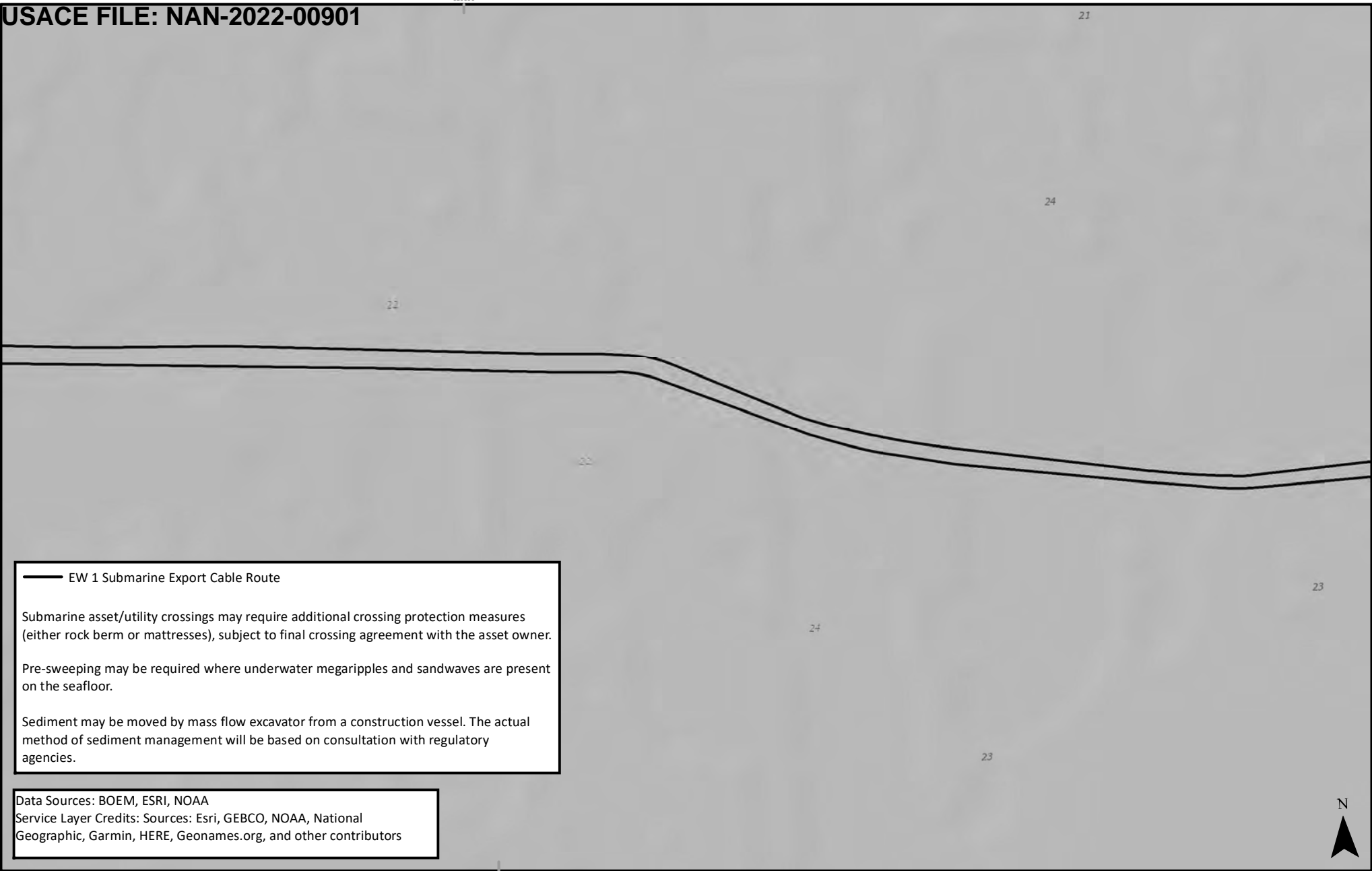
Sediment may be moved by mass flow excavator from a construction vessel. The actual method of sediment management will be based on consultation with regulatory agencies.

Data Sources: BOEM, ESRI, NOAA
Service Layer Credits: Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors

APPLICATION NUMBER: NAN-2022-00901-EMI APPLICANT NAME: EMPIRE OFFSHORE WIND LLC PROPOSED PROJECT: EMPIRE WIND 1 PROJECT LOCATION: ATLANTIC OCEAN SHEET 8 OF 12	 TETRA TECH WWW.TETRATECH.COM 10 POST OFFICE SQUARE, 11TH FLOOR BOSTON, MA 02109 Phone: (617)-443-7500 Fax: (617)737-34809	EMPIRE OFFSHORE WIND LLC	REVISION 2
		PROJECT VICINITY	DATE: 6/1/2023
			DESN: W. SCALES
			0 0.25 0.5 Miles



APPLICATION NUMBER: NAN-2022-00901-EMI APPLICANT NAME: EMPIRE OFFSHORE WIND LLC PROPOSED PROJECT: EMPIRE WIND 1 PROJECT LOCATION: ATLANTIC OCEAN SHEET 9 OF 12	 TETRA TECH WWW.TETRATECH.COM 10 POST OFFICE SQUARE, 11TH FLOOR BOSTON, MA 02109 Phone: (617)-443-7500 Fax: (617)737-34809	EMPIRE OFFSHORE WIND LLC PROJECT VICINITY	REVISION 2
			DATE: 6/1/2023
			DESN: W. SCALES
			0 0.25 0.5 Miles




EW 1 Submarine Export Cable Route

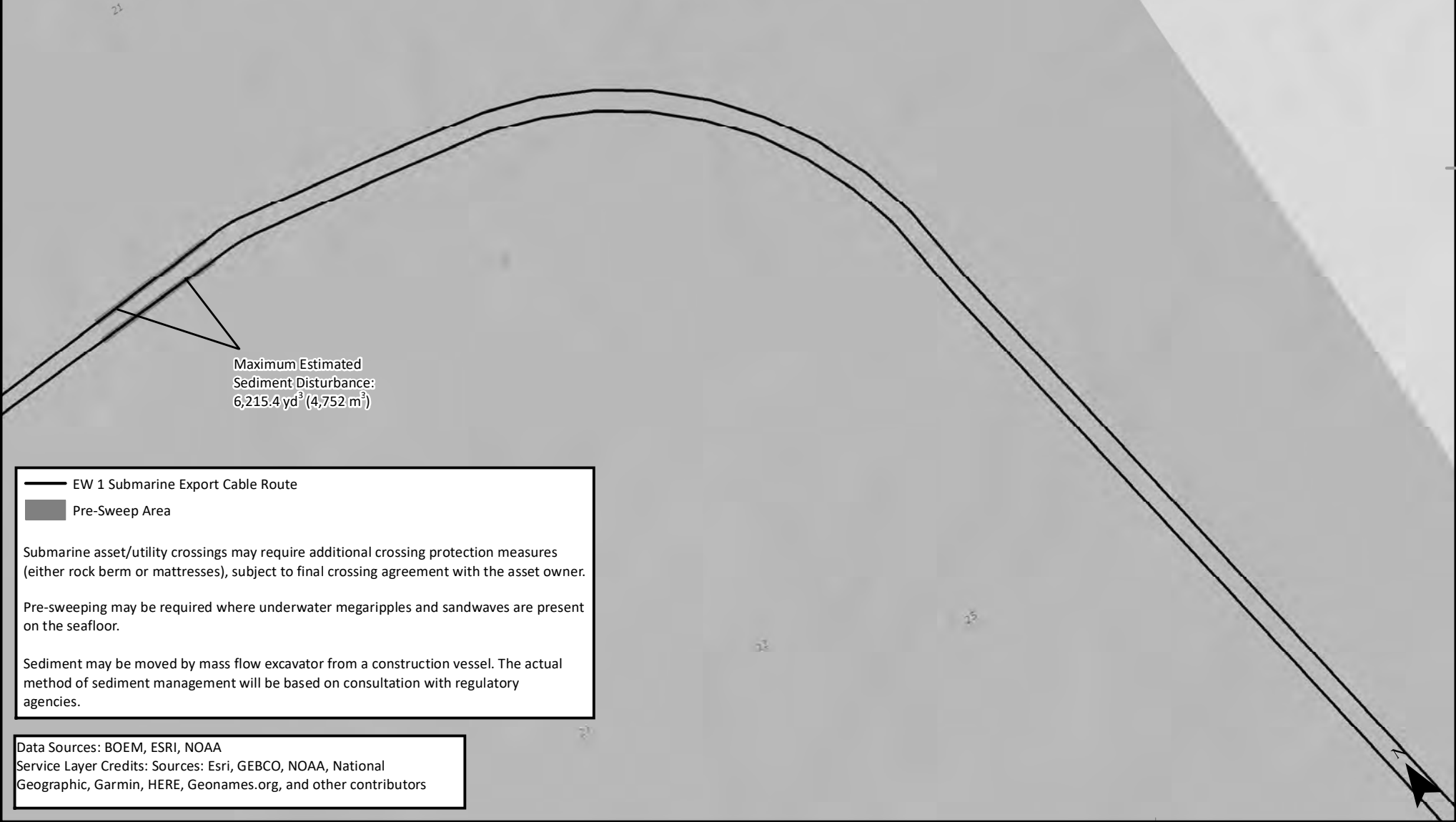
Submarine asset/utility crossings may require additional crossing protection measures (either rock berm or mattresses), subject to final crossing agreement with the asset owner.


Pre-sweeping may be required where underwater megaripples and sandwaves are present on the seafloor.

Sediment may be moved by mass flow excavator from a construction vessel. The actual method of sediment management will be based on consultation with regulatory agencies.

Data Sources: BOEM, ESRI, NOAA
Service Layer Credits: Sources: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors

APPLICATION NUMBER: NAN-2022-00901-EMI APPLICANT NAME: EMPIRE OFFSHORE WIND LLC PROPOSED PROJECT: EMPIRE WIND 1 PROJECT LOCATION: ATLANTIC OCEAN SHEET 10 OF 12	 TETRA TECH WWW.TETRATECH.COM 10 POST OFFICE SQUARE, 11TH FLOOR BOSTON, MA 02109 Phone: (617)-443-7500 Fax: (617)737-34809	EMPIRE OFFSHORE WIND LLC	REVISION 2
		PROJECT VICINITY	DATE: 6/1/2023
			DESN: W. SCALES
			0 0.25 0.5 Miles



APPLICATION NUMBER: NAN-2022-00901-EMI APPLICANT NAME: EMPIRE OFFSHORE WIND LLC PROPOSED PROJECT: EMPIRE WIND 1 PROJECT LOCATION: ATLANTIC OCEAN SHEET 11 OF 12	 TETRA TECH WWW.TETRATECH.COM 10 POST OFFICE SQUARE, 11TH FLOOR BOSTON, MA 02109 Phone: (617)-443-7500 Fax: (617)737-34809	EMPIRE OFFSHORE WIND LLC		REVISION 2
		PROJECT VICINITY		DATE: 6/1/2023
				DESN: W. SCALES
				0 0.25 0.5 Miles

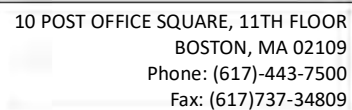
 EW 1

 Lease Area

Sediment may be moved by mass flow excavator from a construction vessel. The actual method of sediment management will be based on consultation with regulatory agencies.

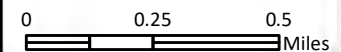
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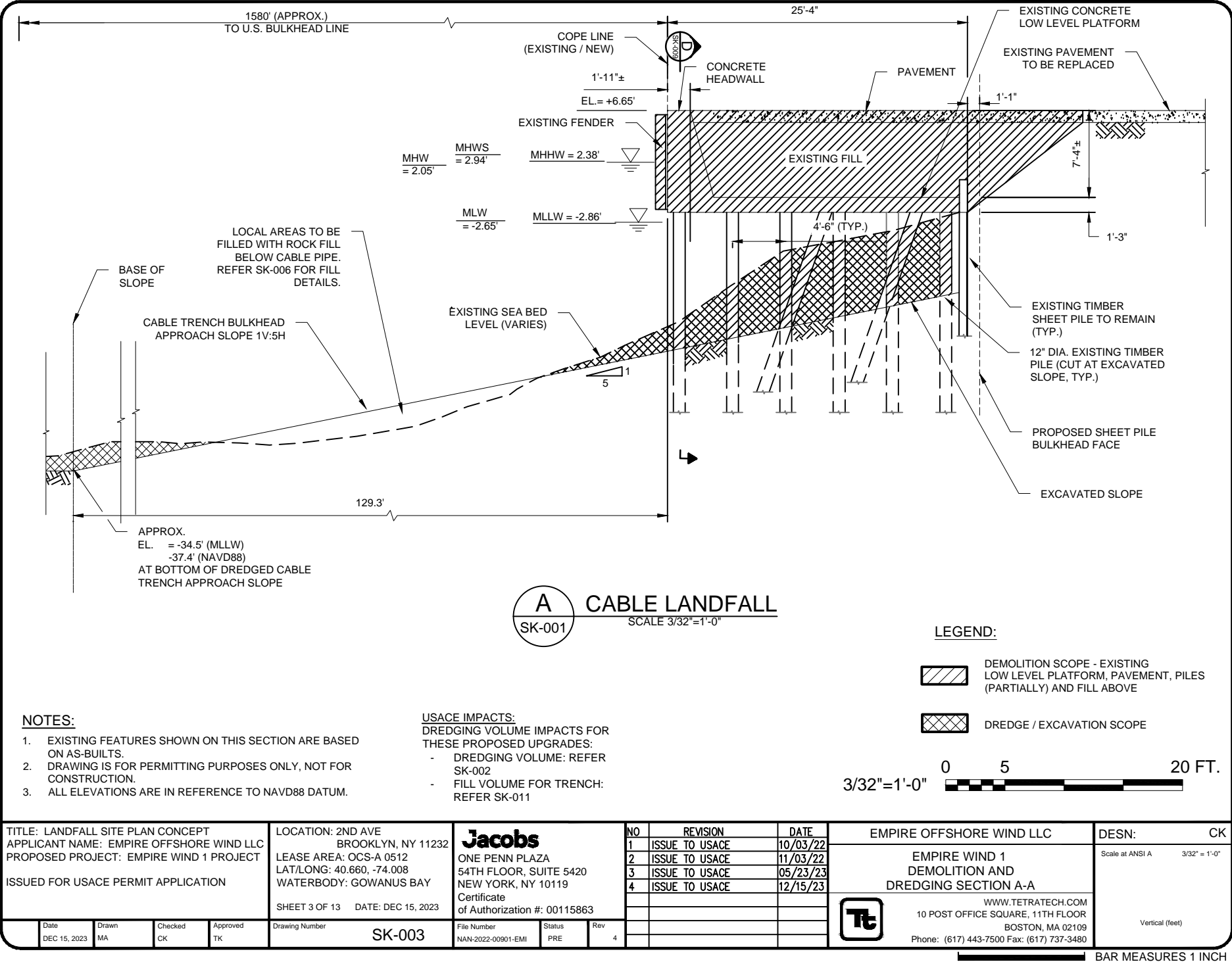
SHEET 12 OF 12

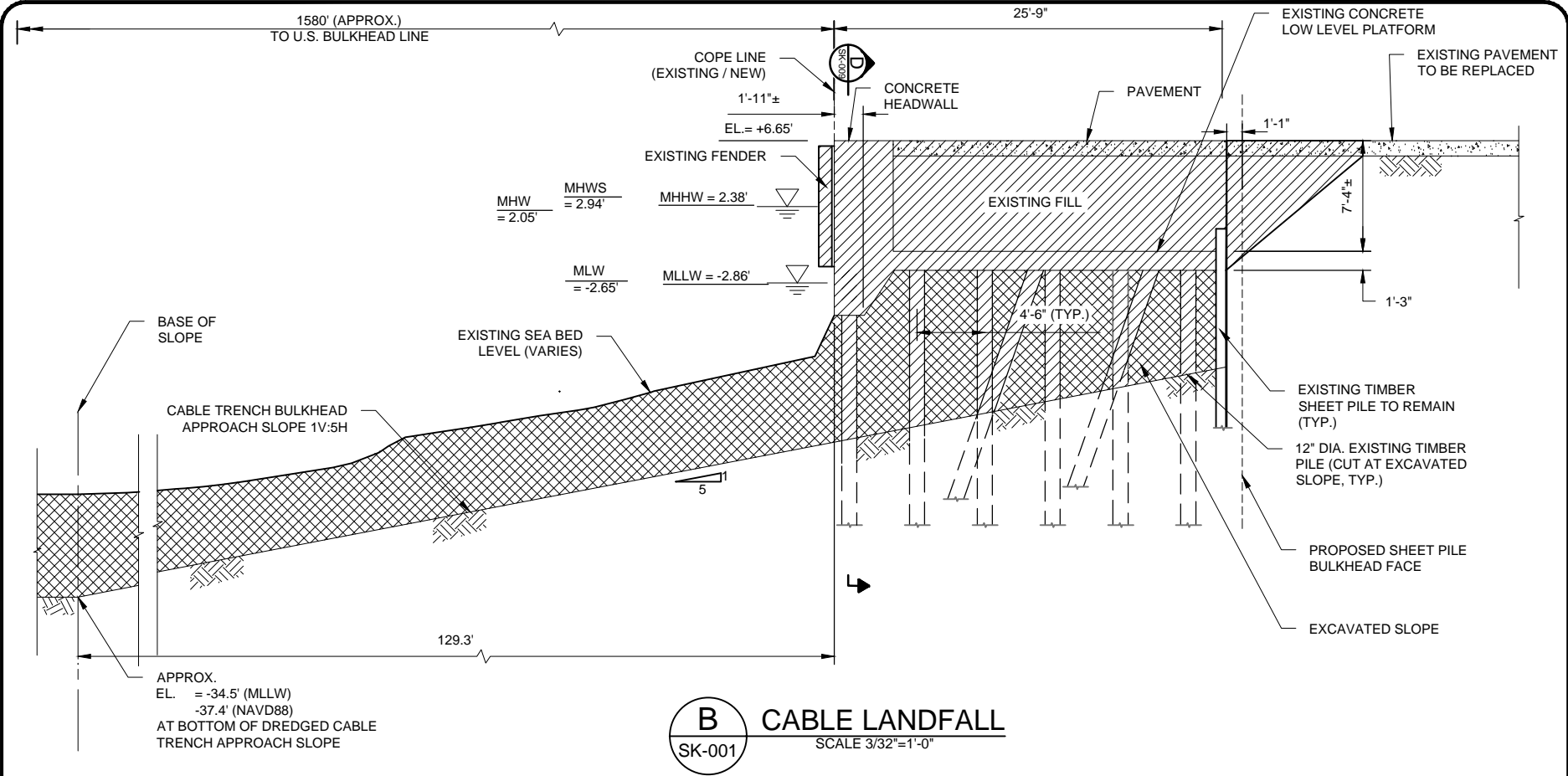


PROJECT VICINITY

W. SCALES







NOTES:

- 1. EXISTING FEATURES SHOWN ON THIS SECTION ARE BASED ON AS-BUILTS.
- 2. DRAWING IS FOR PERMITTING PURPOSES ONLY, NOT FOR CONSTRUCTION.
- 3. ALL ELEVATIONS ARE IN REFERENCE TO NAVD88 DATUM.

USACE IMPACTS:
DREDGING VOLUME IMPACTS FOR THESE PROPOSED UPGRADES:
- DREDGING VOLUME: REFER SK-002
- FILL VOLUME FOR TRENCH: REFER SK-011

LEGEND:

- DEMOLITION SCOPE - EXISTING LOW LEVEL PLATFORM, PAVEMENT, PILES (PARTIALLY) AND FILL ABOVE
- DREDGE / EXCAVATION SCOPE



TITLE: LANDFALL SITE PLAN CONCEPT
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
ISSUED FOR USACE PERMIT APPLICATION

LOCATION: 2ND AVE
BROOKLYN, NY 11232
LEASE AREA: OCS-A 0512
LAT/LONG: 40.660, -74.008
WATERBODY: GOWANUS BAY
SHEET 4 OF 13 DATE: DEC 15, 2023

Jacobs
ONE PENN PLAZA
54TH FLOOR, SUITE 5420
NEW YORK, NY 10119
Certificate of Authorization #: 00115863

NO	REVISION	DATE
1	ISSUE TO USACE	10/03/22
2	ISSUE TO USACE	11/03/22
3	ISSUE TO USACE	05/23/23
4	ISSUE TO USACE	12/15/23

EMPIRE OFFSHORE WIND LLC
EMPIRE WIND 1
DEMOLITION AND
DREDGING SECTION B-B
WWW.TETRATECH.COM
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

DESN: CK
Scale at ANSI A 3/32" = 1'-0"
Vertical (feet)

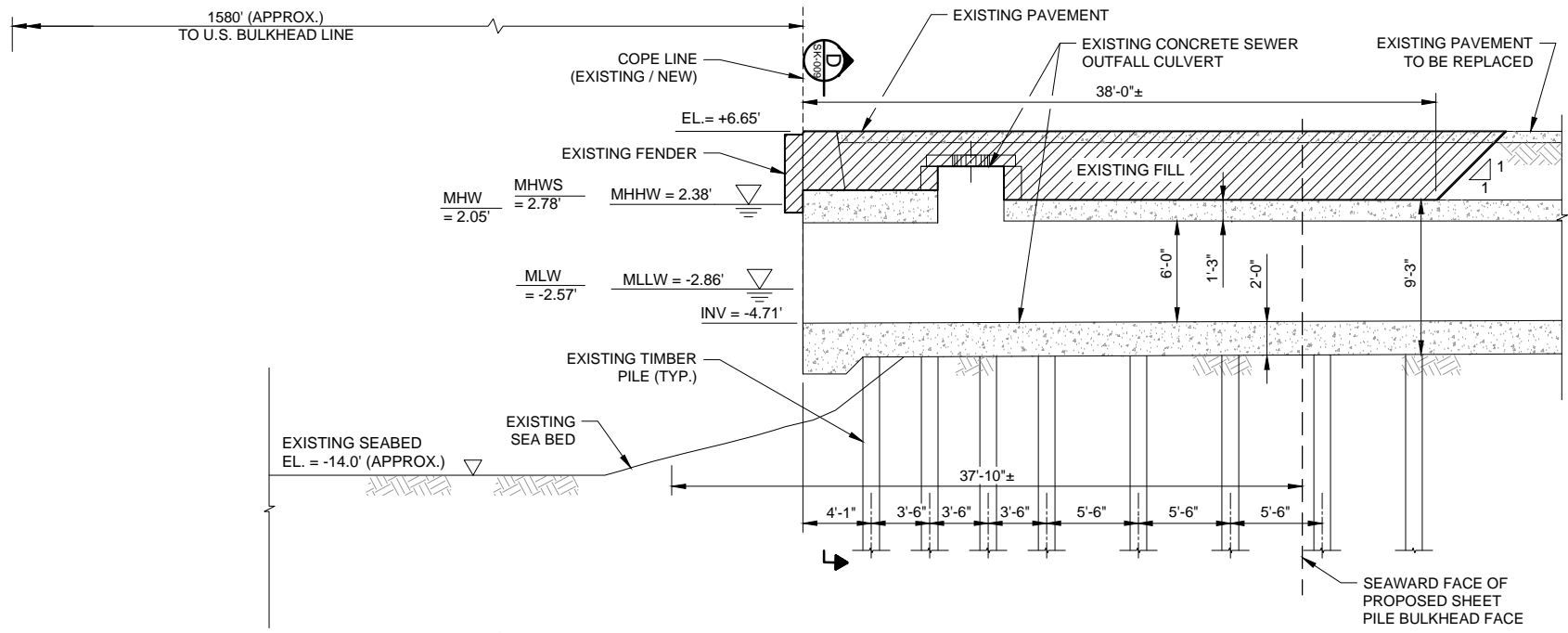
Date	Drawn	Checked	Approved
DEC 15, 2023	MA	CK	TK

Drawing Number SK-004

File Number	Status	Rev
NAN-2022-00901-EMI	PRE	4



BAR MEASURES 1 INCH




C EXISTING SECTION AT SEWER OUTFALL CULVERT
SK-001 SCALE 3/32"=1'-0"

NOTES:

1. EXISTING FEATURES SHOWN ON THIS SECTION ARE BASED ON AS-BUILTS.
2. DRAWING IS FOR PERMITTING PURPOSES ONLY, NOT FOR CONSTRUCTION.
3. ALL ELEVATIONS ARE IN REFERENCE TO NAVD88 DATUM.

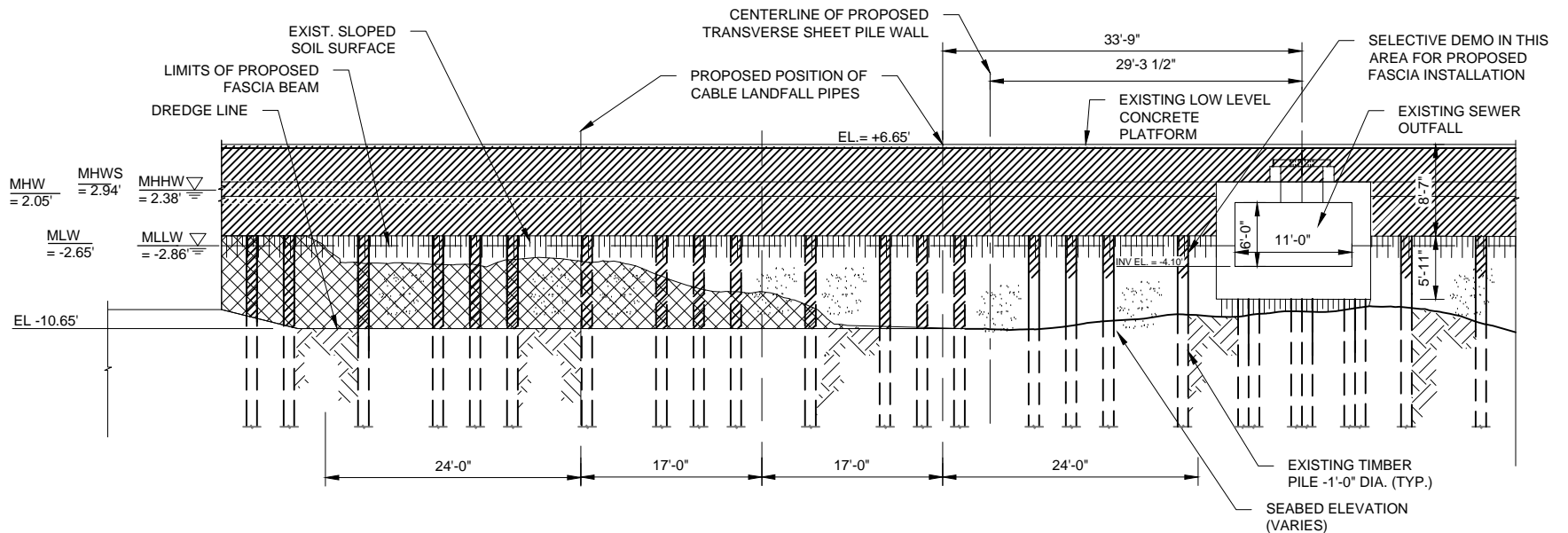
LEGEND:

 DEMOLITION



TITLE: LANDFALL SITE PLAN CONCEPT APPLICANT NAME: EMPIRE OFFSHORE WIND LLC PROPOSED PROJECT: EMPIRE WIND 1 PROJECT ISSUED FOR USACE PERMIT APPLICATION					LOCATION: 2ND AVE BROOKLYN, NY 11232 LEASE AREA: OCS-A 0512 LAT/LONG: 40.660, -74.008 WATERBODY: GOWANUS BAY SHEET 5 OF 13 DATE: 12/15/23					<div>Jacobs</div> ONE PENN PLAZA 54TH FLOOR, SUITE 5420 NEW YORK, NY 10119 Certificate of Authorization #: 00115863					NO		REVISION		DATE		EMPIRE OFFSHORE WIND LLC						DESN:		CK	
															1		ISSUE TO USACE		10/03/22		<div>EMPIRE WIND 1 DEMOLITION SECTION AT OUTFALL CULVERT</div> <div><div><div>Tt</div></div><div>WWW.TETRATECH.COM 10 POST OFFICE SQUARE, 11TH FLOOR BOSTON, MA 02109 Phone: (617) 443-7500 Fax: (617) 737-3480</div></div>						Scale at ANSI A 3/32" = 1'-0"			
															2		ISSUE TO USACE		11/03/22											
															3		ISSUE TO USACE		05/30/23											
															4		ISSUE TO USACE		12/15/23											

BAR MEASURES 1 INCH



D EXISTING LONGITUDINAL SECTION AT CABLE LANDFALL AND OUTFALL
SCALE 1/16"=1'-0"

SK-001
SK-003
SK-004
SK-005

LEGEND:



DEMOLITION - EXISTING LOW LEVEL PLATFORM, PILES (PARTIALLY) AND FILL BEHIND THE PLATFORM



DREDGE/ EXCAVATION



SLOPED SURFACE (DOWN)

NOTES:

- EXISTING FEATURES SHOWN ON THIS SECTION ARE BASED ON AS-BUILTS.
- DRAWING IS FOR PERMITTING PURPOSES ONLY, NOT FOR CONSTRUCTION.
- ALL ELEVATIONS ARE IN REFERENCE TO NAVD88 DATUM.

1/16"=1'-0" 0 10 20 30 FT.

TITLE: LANDFALL SITE PLAN CONCEPT
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
ISSUED FOR USACE PERMIT APPLICATION

LOCATION: 2ND AVE
BROOKLYN, NY 11232
LEASE AREA: OCS-A 0512
LAT/LONG: 40.660, -74.008
WATERBODY: GOWANUS BAY
SHEET 9 OF 13 DATE: 12/15/23

Jacobs
ONE PENN PLAZA
54TH FLOOR, SUITE 5420
NEW YORK, NY 10119
Certificate
of Authorization #: 00115863

NO	REVISION	DATE
1	ISSUE TO USACE	10/03/22
2	ISSUE TO USACE	11/03/22
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4	ISSUE TO USACE	12/15/23

EMPIRE OFFSHORE WIND LLC

DESN: CK

EMPIRE WIND 1
DEMOLITION AND DREDGING
LONGITUDINAL SECTION

Scale at ANSI A 1/16" = 1'-0"



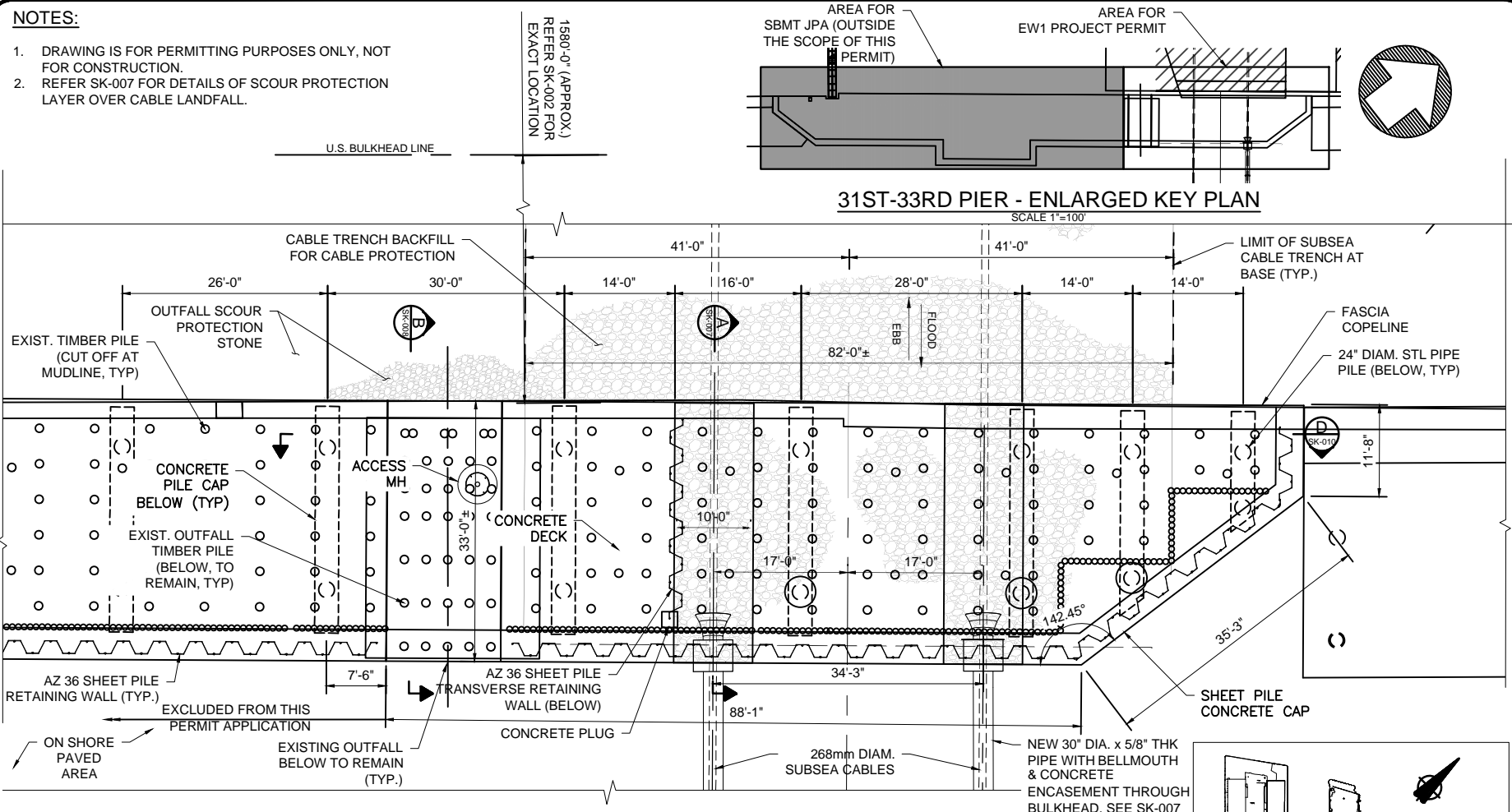
WWW.TETRATECH.COM
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

Vertical (feet)

BAR MEASURES 1 INCH

NOTES:

- 1. DRAWING IS FOR PERMITTING PURPOSES ONLY, NOT FOR CONSTRUCTION.
- 2. REFER SK-007 FOR DETAILS OF SCOUR PROTECTION LAYER OVER CABLE LANDFALL.

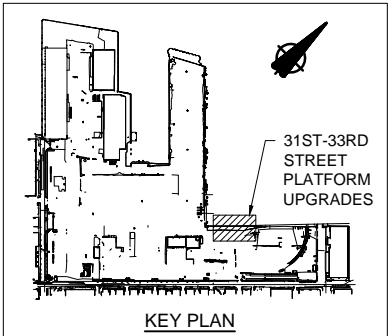
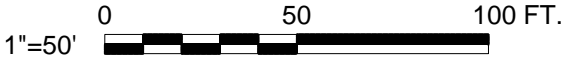


31ST-33RD PIER - HIGH LEVEL PLATFORM AND CABLE LANDFALL - LAYOUT

SCALE 1"=20'

CONSTRUCTION SEQUENCE:

- 1. INSTALL A PERIMETER STEEL SHEET PILE WALL OUTSIDE OF THE EXISTING TIMBER SHEETING WALL (REFER SK-006,SK-007).
- 2. REMOVE EXISTING LOW-LEVEL PLATFORM.(REFER SK-001, SK-003, SK-004).
- 3. INSTALL TRANSVERSE SHEET PILE WALL.
- 4. CUT OFF EXISTING TIMBER PILES AND DREDGE SEABED.
- 5. INSTALL STEEL PIPE PILES (ONLY) FOR HIGH LEVEL PLATFORM.
- 6. INSTALL 30" DIA PIPE CONDUIT FOR EXPORT CABLE AND CONCRETE ENCASEMENT.
- 7. INSTALL SUBMARINE EXPORT CABLE (ON BEDDING), ANCHOR TO SHORE AND BACKFILL (REFER SK-006, SK-007).
- 8. INSTALL REMAINDER OF HIGH LEVEL PLATFORM.



TITLE: LANDFALL SITE PLAN CONCEPT
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
ISSUED FOR USACE PERMIT APPLICATION

LOCATION: 2ND AVE
BROOKLYN, NY 11232
LEASE AREA: OCS-A 0512
LAT/LONG: 40.660, -74.008
WATERBODY: GOWANUS BAY
SHEET 6 OF 13 DATE: 12/15/23

Jacobs
ONE PENN PLAZA
54TH FLOOR, SUITE 5420
NEW YORK, NY 10119
Certificate
of Authorization #: 00115863

NO	REVISION	DATE
1	ISSUE TO USACE	10/03/22
2	ISSUE TO USACE	11/03/22
3	ISSUE TO USACE	05/23/23
4	ISSUE TO USACE	12/15/23

EMPIRE OFFSHORE WIND LLC
EMPIRE WIND 1
PROPOSED LAYOUT

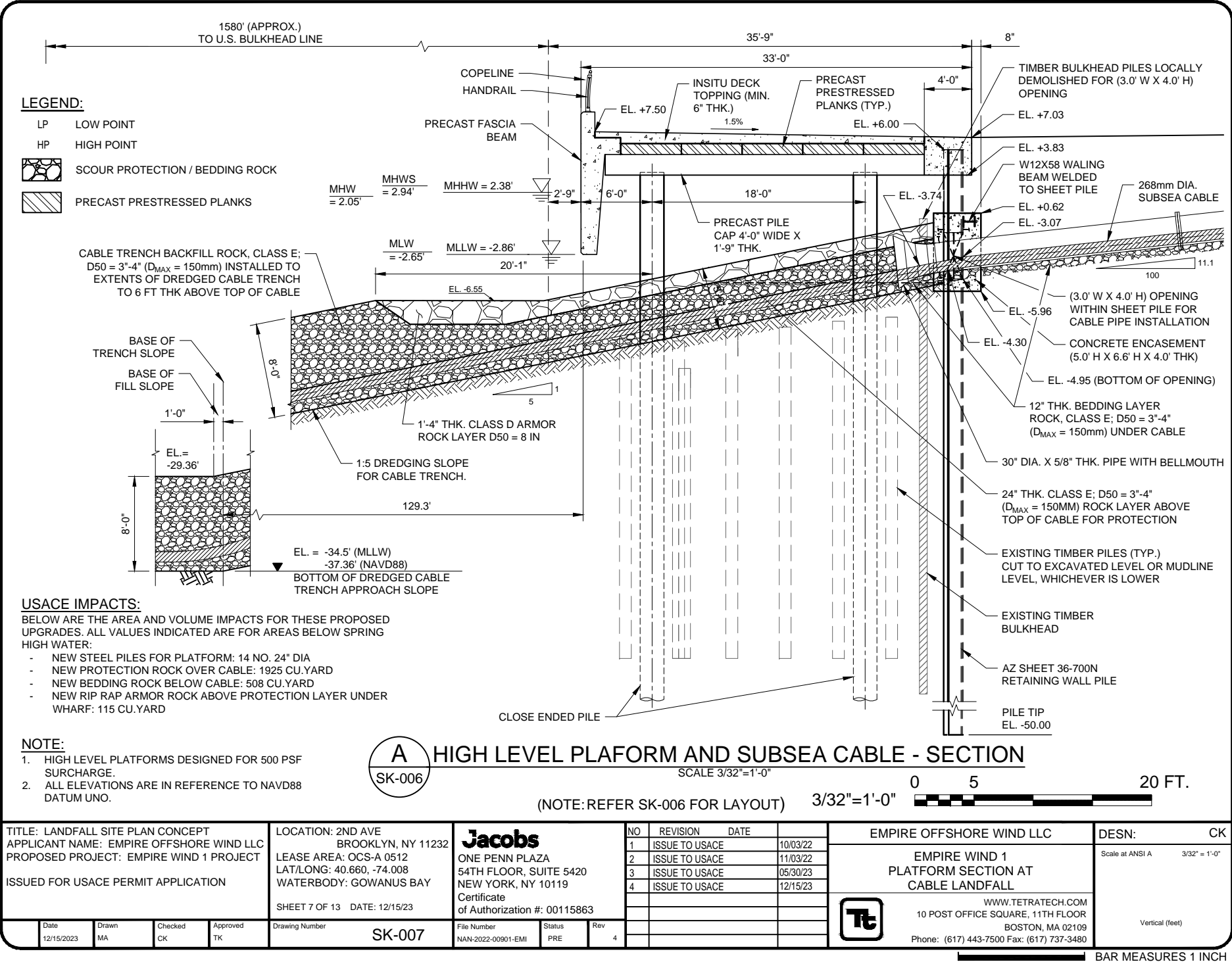


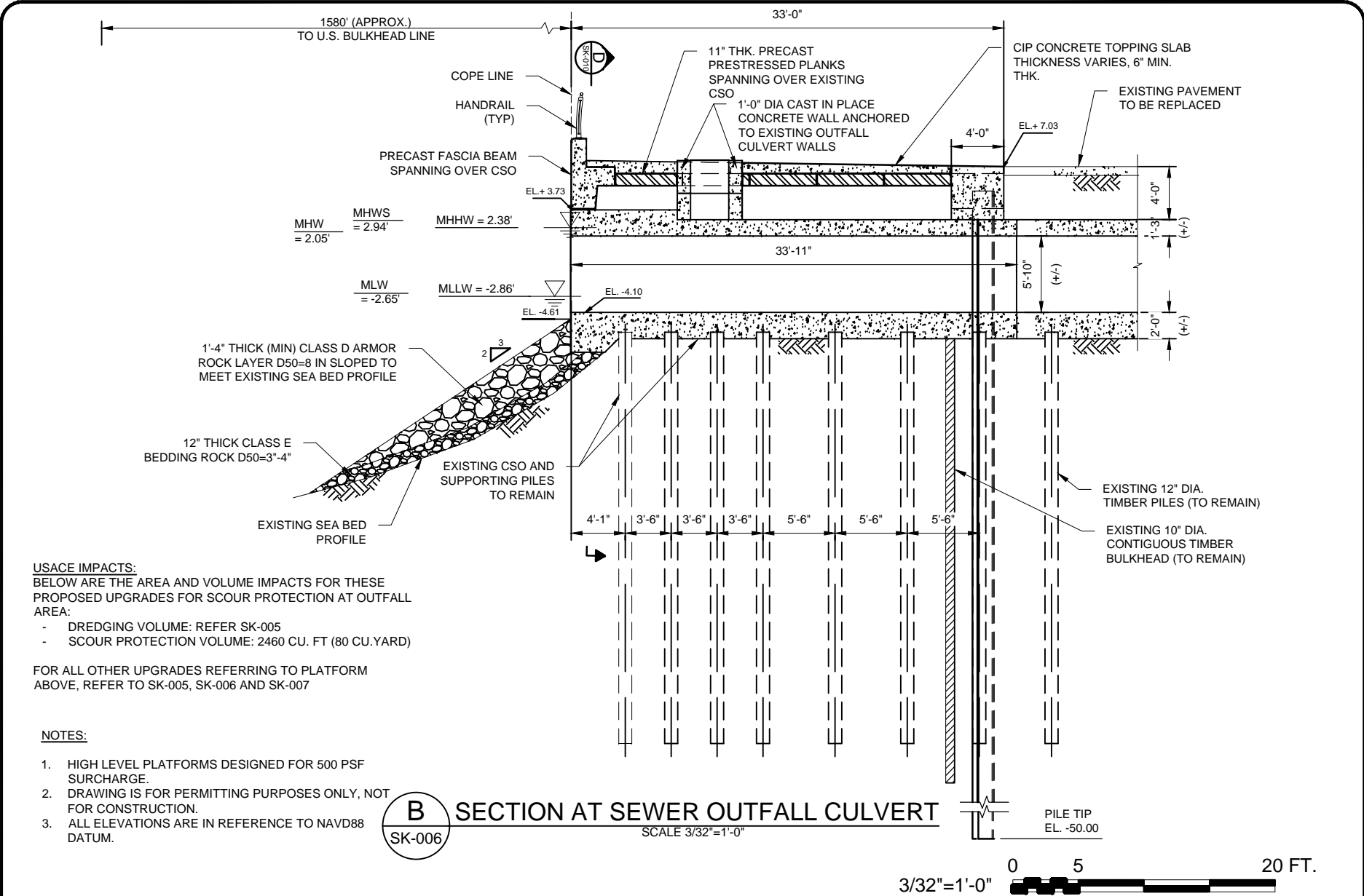
WWW.TETRATTECH.COM
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

DESIGN: CK
Scale at ANSI A 1" = 50'

Vertical (feet)

BAR MEASURES 1 INCH





TITLE: LANDFALL SITE PLAN CONCEPT
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
ISSUED FOR USACE PERMIT APPLICATION

LOCATION: 2ND AVE
BROOKLYN, NY 11232
LEASE AREA: OCS-A 0512
LAT/LONG: 40.660, -74.008
WATERBODY: GOWANUS BAY
SHEET 8 OF 13 DATE: 12/15/23

Jacobs
ONE PENN PLAZA
54TH FLOOR, SUITE 5420
NEW YORK, NY 10119
Certificate
of Authorization #: 00115863

NO	REVISION	DATE
1	ISSUE TO USACE	10/03/22
2	ISSUE TO USACE	11/03/22
3	ISSUE TO USACE	05/23/23
4	ISSUE TO USACE	12/15/23

EMPIRE OFFSHORE WIND LLC
EMPIRE WIND 1
PLATFORM SECTION AT
OUTFALL CULVERT
WWW.TETRATECH.COM
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

DESIGN: CK
Scale at ANSI A 3/32" = 1'-0"
Vertical (feet)

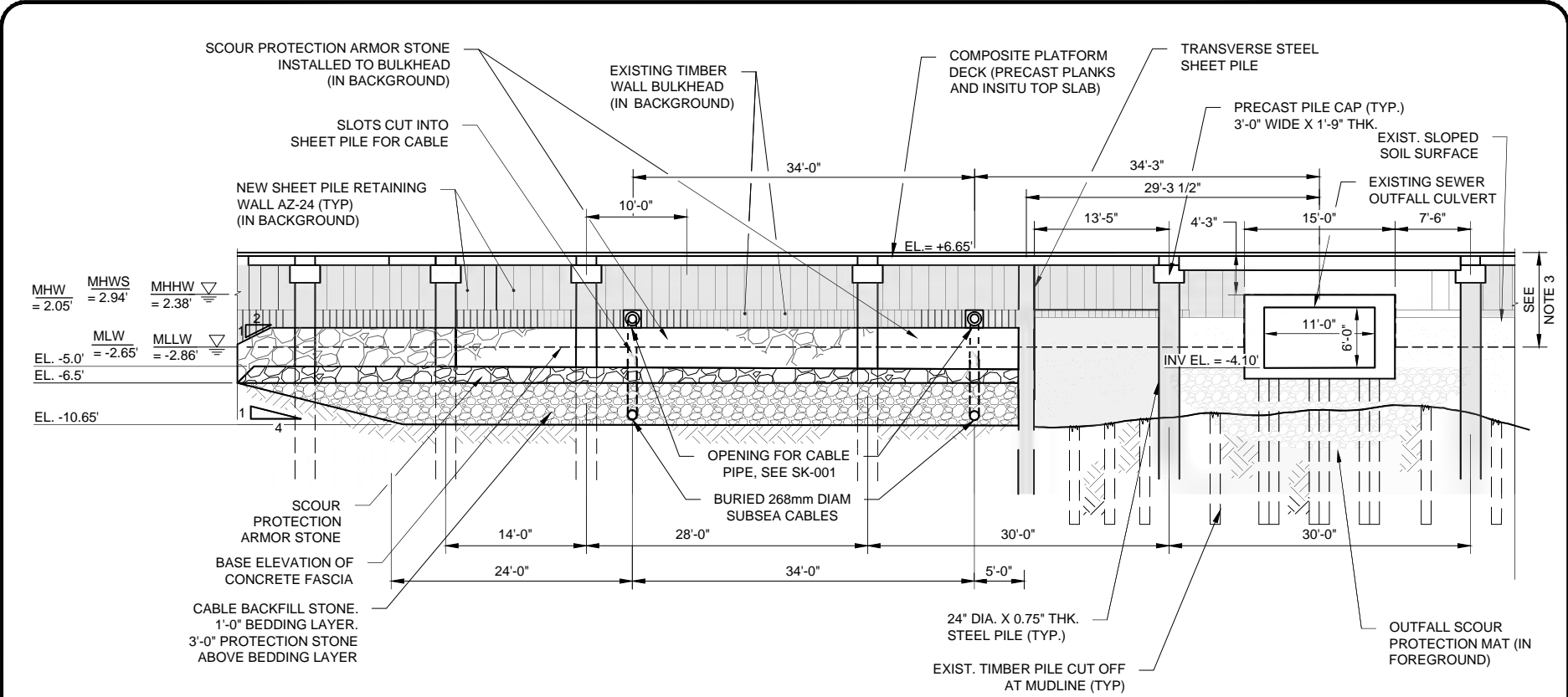
Date	Drawn	Checked	Approved
12/15/2023	MA	CK	TK

Drawing Number
SK-008

File Number
NAN-2022-00901-EMI
Status
PRE
Rev
4



BAR MEASURES 1 INCH



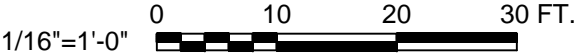
D LONGITUDINAL SECTION AT CABLE LANDFALL AND OUTFALL
SCALE 1/16"=1'-0"
SK-006
SK-007
SK-008

USACE IMPACTS:
- REFER SK-005, SK-007 AND SK-008

- NOTES:**
- 1. CONCRETE PAD PLATFORMS DESIGNED FOR 500 PSF SURCHARGE.
 - 2. ALL ELEVATIONS ARE IN REFERENCE TO NAVD88 DATUM.
 - 3. PRECAST FASCIA BEAM NOT SHOWN (FOR CLARITY).

LEGEND:

||| SLOPED SURFACE (DOWN)



TITLE: LANDFALL SITE PLAN CONCEPT
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
ISSUED FOR USACE PERMIT APPLICATION

LOCATION: 2ND AVE
BROOKLYN, NY 11232
LEASE AREA: OCS-A 0512
LAT/LONG: 40.660, -74.008
WATERBODY: GOWANUS BAY
SHEET 10 OF 13 DATE: 12/15/23

Jacobs
ONE PENN PLAZA
54TH FLOOR, SUITE 5420
NEW YORK, NY 10119
Certificate
of Authorization #: 00115863

NO	REVISION	DATE
1	ISSUE TO USACE	10/03/22
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3	ISSUE TO USACE	05/23/23
4	ISSUE TO USACE	12/15/23

EMPIRE OFFSHORE WIND LLC
EMPIRE WIND 1
LONGITUDINAL SECTION

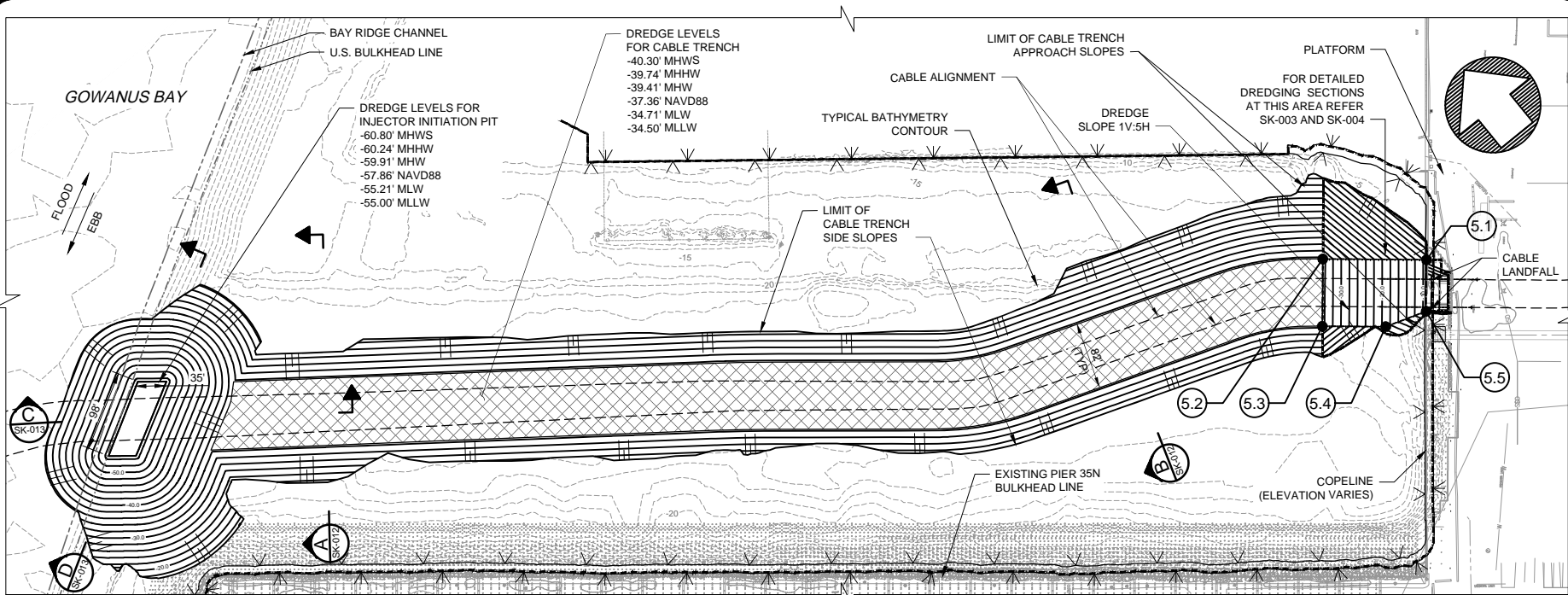
DESN: CK
Scale at ANSI A 3/32" = 1'-0"



WWW.TETRATTECH.COM
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

Vertical (feet)

BAR MEASURES 1 INCH



DREDGING PLAN
SCALE 1"=200'

LEGEND:

- -10 --- EXISTING WATER DEPTH RELATIVE TO MLLW (10 FT INTERVAL)
- -2 --- EXISTING WATER DEPTH RELATIVE TO MLLW (2 FT INTERVAL)
- -10 --- DREDGE DEPTH RELATIVE TO MLLW (10 FT INTERVAL)
- -2 --- DREDGE DEPTH RELATIVE TO MLLW (2 FT INTERVAL)
- ||| DREDGING SLOPE ((TYPICAL SLOPE 1V:4H UNO)
- [Hatched Box] BASE OF DREDGED TRENCH AT EL -34.5' MLLW (-39.41' MHW)
- [Dashed Line] LIMITS OF TRENCH APPROACH AND SCOUR PROTECTION DREDGING AT PLATFORM WATERSIDE. REFER SK-003, 004, 005, AND 007
- [Solid Line] U.S. BULKHEAD LINE
- [Dashed Line] BAY RIDGE CHANNEL
- [Wavy Line] MEAN HIGH WATER SPRING (MHWS) +0.89 FT LIMITS
- [Wavy Line] MEAN HIGH WATER (MHW) +0.00 FT LIMITS
- [Wavy Line] MEAN LOW WATER (MLW) -4.70 FT LIMITS

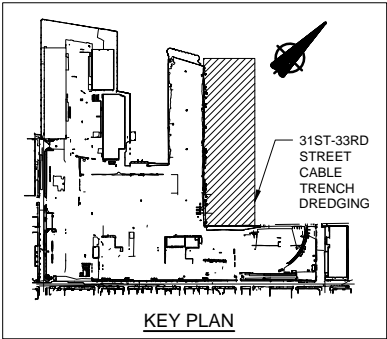
NOTES:

- EXISTING FEATURES ARE BASED ON AS-BUILTS.
- DRAWING IS FOR PERMITTING PURPOSES ONLY, NOT FOR CONSTRUCTION.
- AN ESTIMATED TOTAL VOLUME OF 103,000 CU.YDS OF SEDIMENT WILL BE REMOVED VIA MECHANICAL DREDGING. ALL DREDGED MATERIAL WILL BE MOVED OFFSITE VIA BARGE AND DISPOSED OFFSITE, IN AN UPLAND LOCATION IN ACCORDANCE WITH ALL REGULATIONS AND PERMIT REQUIREMENTS. BARGE POSITIONING METHOD TO BE DETERMINED. ESTIMATED SEDIMENT VOLUMES BASED ON EXISTING BATHYMETRIC CONTOURS AND MAY VARY AT TIME OF CONSTRUCTION.
- EXISTING BATHYMETRIC CONTOURS SHOWN WITHIN TERMINAL BOUNDARIES REPRESENTS MEASUREMENTS AND SOUNDINGS TAKEN BY MARINE INFRASTRUCTURE ENGINEERING SOLUTIONS, P.C. ON 05/14/2019. FEDERAL CHANNEL LIMITS SHOWN ARE APPROXIMATE AND OBTAINED FROM NOAA CHART NO. 123334 UNLESS WHERE OTHERWISE NOTED.

DREDGING QUANTITIES (BELOW SHW)		
CABLE TRENCH AND PITS		
DREDGE TO DESIGN DEPTH (VARIES)	OVER DREDGE ALLOWANCE (2.0 FT)	TOTAL DREDGE VOLUME
94,000 CY	9,000 CY	103,000 CY

DREDGING AREAS (BELOW SHW)		
CABLE TRENCH AND PITS		
DREDGE TO DESIGN DEPTH (VARIES)	AREA FOR BOTTOM OUTLINE OF TRENCH	AREA FOR TOP OUTLINE OF TRENCH
	121,500 SQ.FT	300,000 SQ.FT
	2.79 ACRES	6.89 ACRES

DREDGING COORDINATES TABLE - CABLE TRENCH			
NO.	EASTING	NORTHING	ELEVATION
5.1	982100.483	179842.925	-8.640
5.2	982001.817	179922.254	-34.500
5.3	981950.346	179858.227	-34.500
5.4	982010.806	179809.809	-19.000
5.5	982061.016	179793.838	-8.640



TITLE: LANDFALL SITE PLAN CONCEPT
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
ISSUED FOR USACE PERMIT APPLICATION

LOCATION: 2ND AVE
BROOKLYN, NY 11232
LEASE AREA: OCS-A 0512
LAT/LONG: 40.660, -74.008
WATERBODY: GOWANUS BAY
SHEET 2 OF 13 DATE: 12/15/23

Jacobs
ONE PENN PLAZA
54TH FLOOR, SUITE 5420
NEW YORK, NY 10119
Certificate
of Authorization #: 00115863

NO	REVISION	DATE
1	ISSUE TO USACE	10/03/22
2	ISSUE TO USACE	11/03/22
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4	ISSUE TO USACE	12/15/23

EMPIRE OFFSHORE WIND LLC
EMPIRE WIND 1
DREDGING PLAN AT CABLE
LANDFALL



WWW.TETRATTECH.COM
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

DESIN: CK

Scale at ANSI A 1" = 200'

Vertical (feet)

Date	Drawn	Checked	Approved
12/15/2023	MA	CK	TK

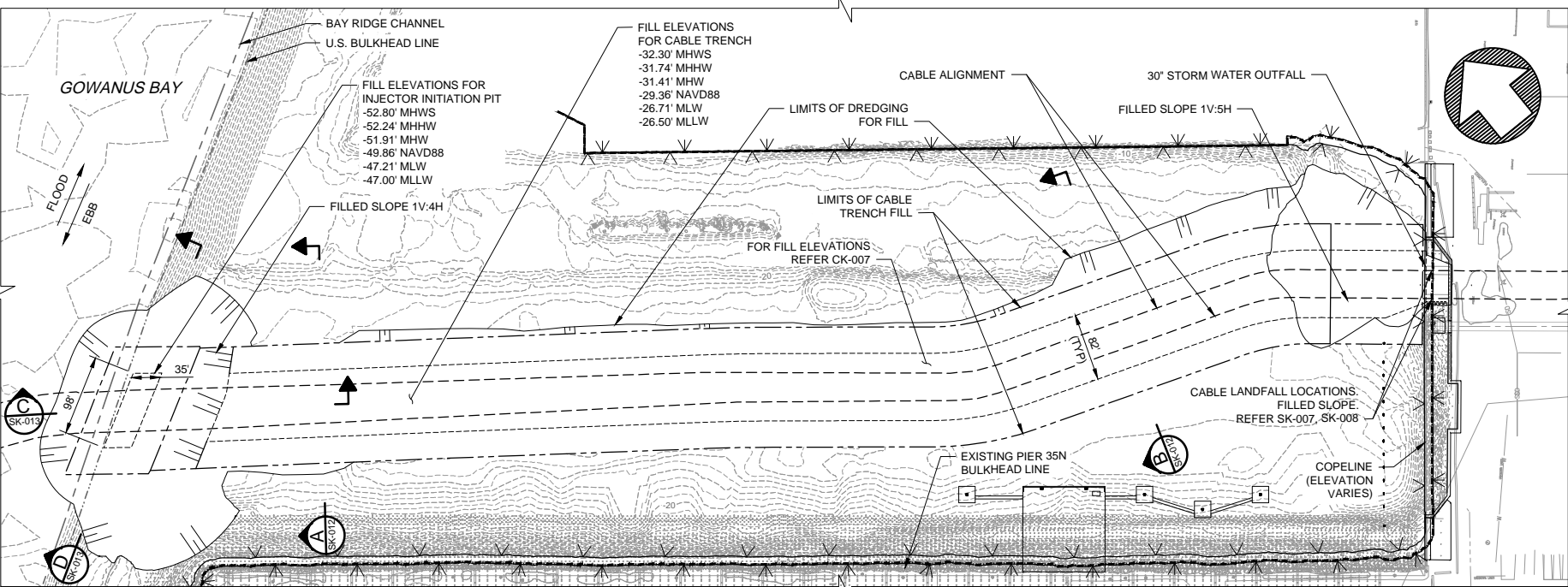
Drawing Number
SK-002

File Number
NAN-2022-00901-EMI

Status
PRE

Rev
4

BAR MEASURES 1 INCH



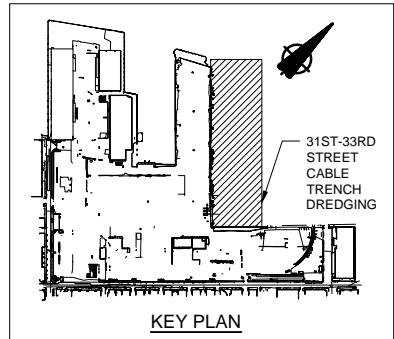
FILLING PLAN
SCALE 1"=200'

LEGEND:

- 10--- EXISTING WATER DEPTH RELATIVE TO MLLW (10 FT INTERVAL)
- 2--- EXISTING WATER DEPTH RELATIVE TO MLLW (2 FT INTERVAL)
- DREDGING SLOPE (TYPICAL SLOPE 1V:4H UNO)
- BASE OF DREDGED TRENCH AT EL -34.5' MLLW
- U.S. BULKHEAD LINE
- BAY RIDGE CHANNEL
- MEAN HIGH WATER SPRING (MHWS) +0.89 FT LIMITS
- MEAN HIGH WATER (MHW) +0.00 FT LIMITS
- MEAN LOW WATER (MLW) -4.70 FT LIMITS

NOTES:

- EXISTING FEATURES ARE BASED ON AS-BUILTS.
- DRAWING IS FOR PERMITTING PURPOSES ONLY, NOT FOR CONSTRUCTION.
- FILL MATERIAL SHALL BE CLEAN QUARRIED GRANULAR MATERIAL TYPE E D50 = 3"-4" $D_{MAX} = 150mm$ (UON).



KEY PLAN

FILL QUANTITIES		
CABLE TRENCH AND PITS		
FILL FROM BOTTOM OF DESIGN DREDGE TO 8FT ABOVE	FILL FOR OVER DREDGE ALLOWANCE (2.0 FT)	TOTAL FILL VOLUME
53,650 CY	9,000 CY	62,650 CY

FILL AREAS		
CABLE TRENCH AND PITS		
FILL AREAS	AREA FOR BOTTOM TRENCH OUTLINE	AREA FOR TOP FILL OUTLINE
	121,500 SQ.FT	240,450 SQ.FT
	2.79 ACRES	5.52 ACRES



TITLE: LANDFALL SITE PLAN CONCEPT
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
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LOCATION: 2ND AVE
BROOKLYN, NY 11232
LEASE AREA: OCS-A 0512
LAT/LONG: 40.660, -74.008
WATERBODY: GOWANUS BAY
SHEET 11 OF 13 DATE: 12/15/23

Jacobs
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54TH FLOOR, SUITE 5420
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EMPIRE OFFSHORE WIND LLC
EMPIRE WIND 1
DREDGING PLAN AT CABLE
LANDFALL

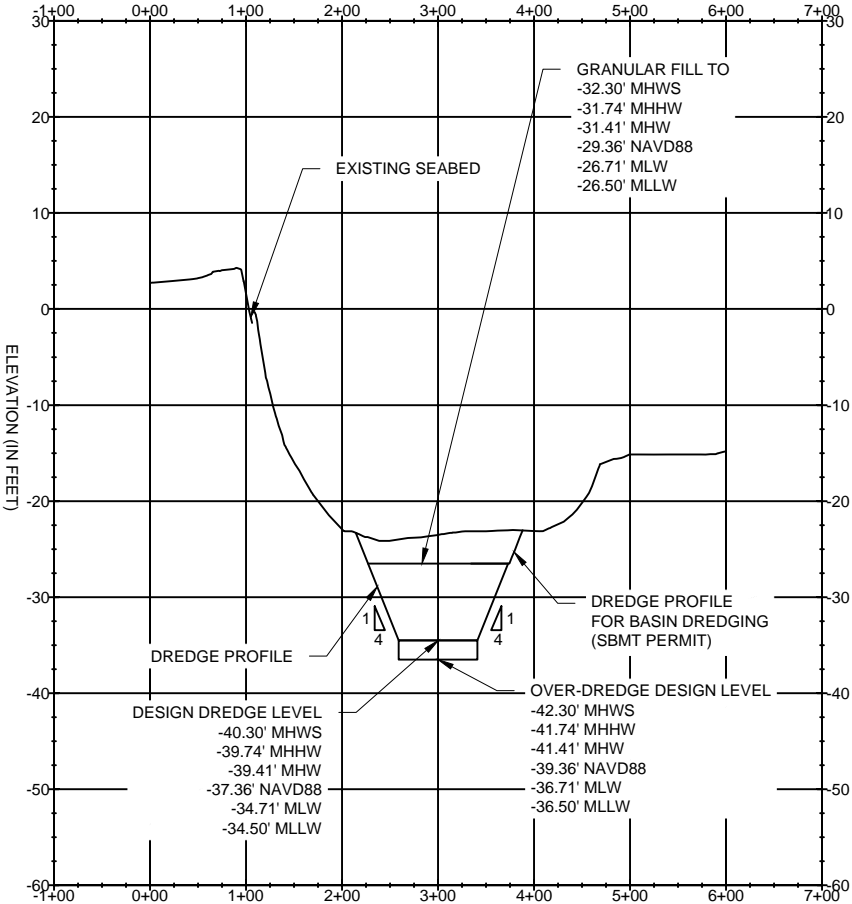


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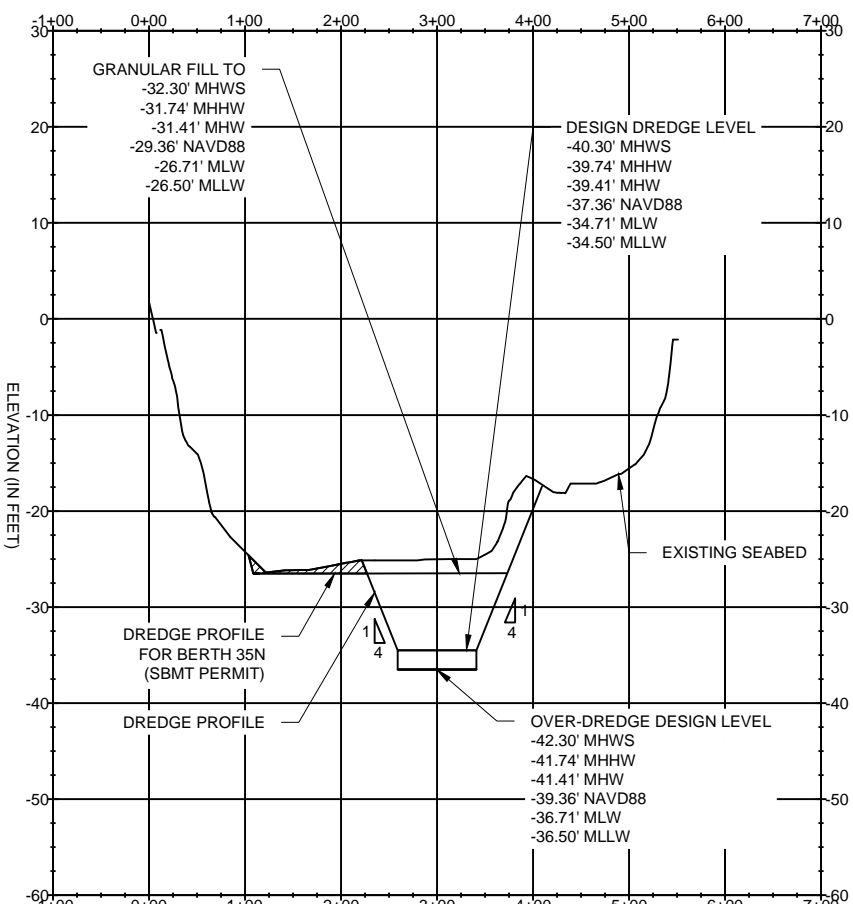
DESIGN: CK
Scale at ANSI A 1" = 200'

Vertical (feet)

BAR MEASURES 1 INCH



A SECTION
SK-002 SCALE 1/16"=1'-0"
SK-011

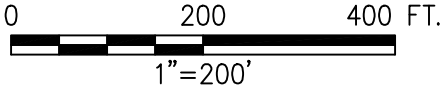


B
SK-002
SK-011

DREDGE AND FILL PROFILE AT CABLE TRENCH

NOTES:

1. DRAWING IS FOR PERMITTING PURPOSES ONLY, NOT FOR CONSTRUCTION.
2. SEA BED ELEVATIONS ARE IN FEET AND REFERENCE TO MLLW.
3. OVERDREDGE MAY BE PERFORMED ON SIDE SLOPES AS REQUIRED TO ATTAIN DESIGN DREDGE LEVEL IN TRENCH.



TITLE: LANDFALL SITE PLAN CONCEPT
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
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LOCATION: 2ND AVE
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2	ISSUE TO USACE	11/03/22
3	ISSUE TO USACE	05/23/23
4	ISSUE TO USACE	12/15/23

EMPIRE OFFSHORE WIND LLC
EMPIRE WIND 1 - LANDFALL
CABLE TRENCH PROFILE
SHEET 1 OF 2

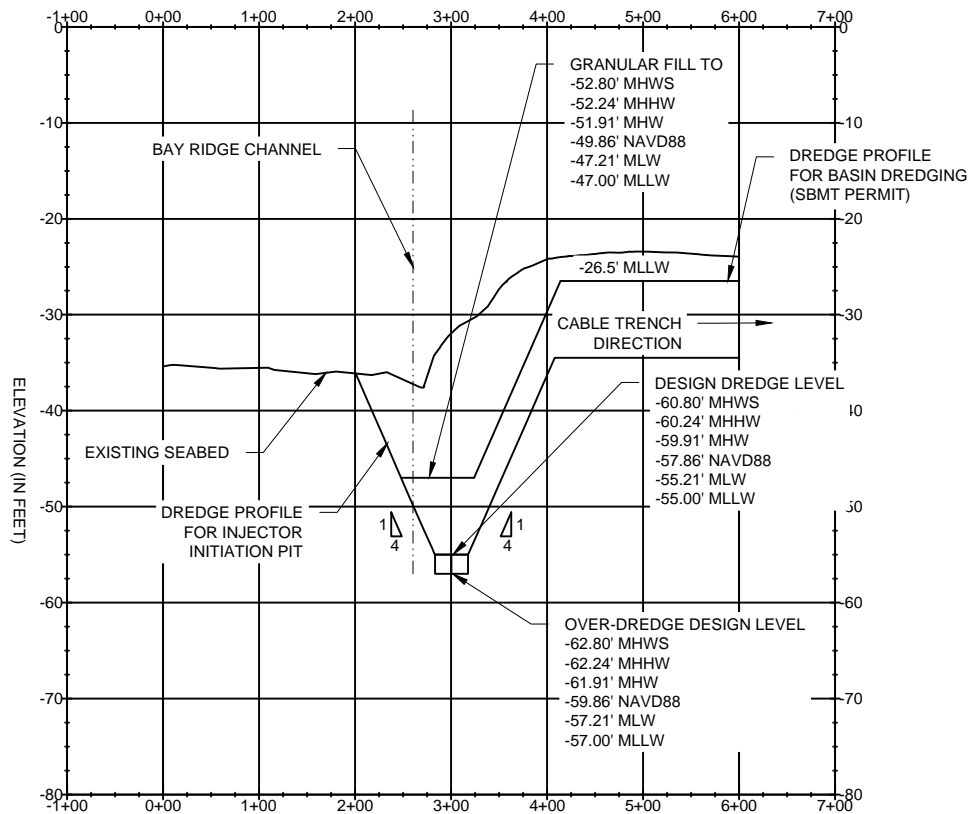
DESIGN: CK
Scale at ANSI A 1" = 200'-0"



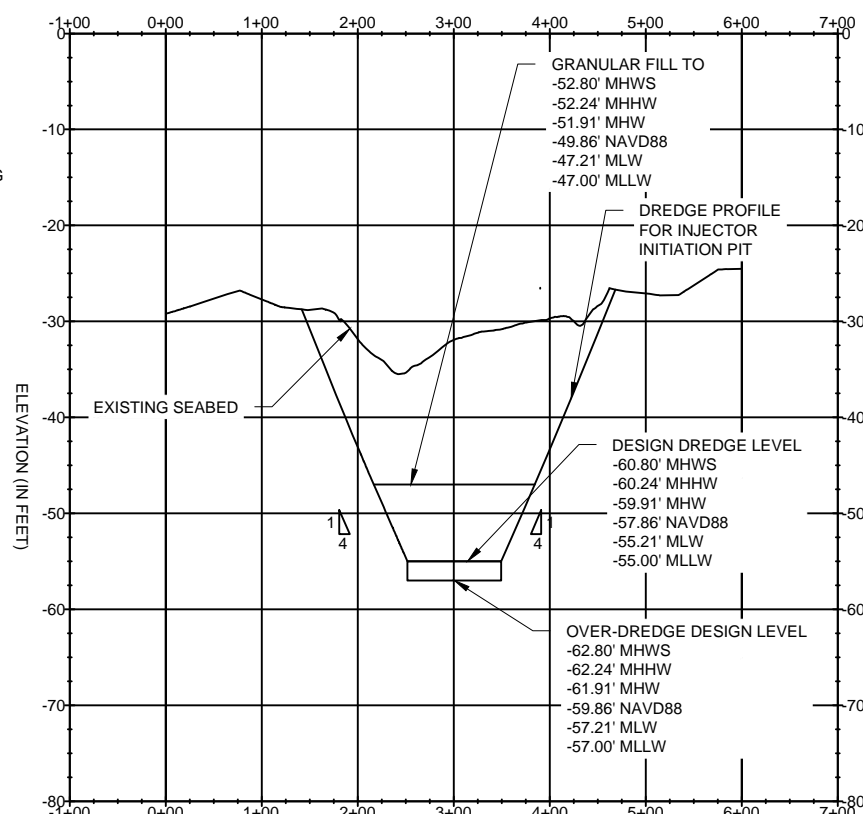
WWW.TETRATTECH.COM
10 POST OFFICE SQUARE, 11TH FLOOR
BOSTON, MA 02109
Phone: (617) 443-7500 Fax: (617) 737-3480

Vertical (feet)

BAR MEASURES 1 INCH



C SECTION
SK-002 SCALE 1/16"=1'-0"
SK-011

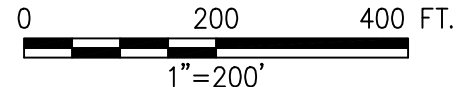


D SECTION
SK-002 SCALE 1/16"=1'-0"
SK-011

DREDGE AND FILL PROFILE AT INJECTOR INITIATION PIT

NOTES:

1. DRAWING IS FOR PERMITTING PURPOSES ONLY, NOT FOR CONSTRUCTION.
2. SEA BED ELEVATIONS ARE IN FEET AND REFERENCE TO MLLW.
3. OVERDREDGE MAY BE PERFORMED ON SIDE SLOPES AS REQUIRED TO ATTAIN DESIGN DREDGE LEVEL IN TRENCH.



TITLE: LANDFALL SITE PLAN CONCEPT
APPLICANT NAME: EMPIRE OFFSHORE WIND LLC
PROPOSED PROJECT: EMPIRE WIND 1 PROJECT
ISSUED FOR USACE PERMIT APPLICATION

LOCATION: 2ND AVE
BROOKLYN, NY 11232
LEASE AREA: OCS-A 0512
LAT/LONG: 40.660, -74.008
WATERBODY: GOWANUS BAY
SHEET 13 OF 13 DATE: 12/15/23

Jacobs
ONE PENN PLAZA
54TH FLOOR, SUITE 5420
NEW YORK, NY 10119
Certificate
of Authorization #: 00115863

NO	REVISION	DATE
1	ISSUE TO USACE	10/03/22
2	ISSUE TO USACE	11/03/22
3	ISSUE TO USACE	05/23/23
4	ISSUE TO USACE	12/15/23

EMPIRE OFFSHORE WIND LLC
EMPIRE WIND 1 - LANDFALL
CABLE TRENCH PROFILE
SHEET 2 OF 2



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DESN: CK
Scale at ANSI A 1" = 200'-0"

Vertical (feet)

BAR MEASURES 1 INCH

**NEW YORK STATE PUBLIC SERVICE COMMISSION
WATER QUALITY CERTIFICATION**

Pursuant to: **Section 401 of the Federal Water Pollution Control Act,
33 U.S.C. Section 1341 and Article VII of the
New York Public Service Law 6 NYCRR Section 608.9**

Certification Issued to: **Empire Offshore Wind, LLC
New York Project Office
34 35th Street, Suite A415
Brooklyn, New York 11232**

Project Description and Location

The Empire Wind 1 Project (“EW 1 Project”) is one of two separate offshore wind projects to be located within the Bureau of Ocean Energy Management (“BOEM”) designated Renewable Energy Lease Area OCS-A 0512. The proposed transmission system for the EW 1 Project will connect the offshore wind farm to the point of interconnection (“POI”) in Brooklyn, New York, and will include 230-kilovolt (“kV”) export and 345-kV interconnection lines traversing a total of approximately 17.5 miles (“mi”) (15.2 nautical miles [“nm”], 28.2 kilometers [“km”]) within the State of New York. The components of the EW 1 Project within the State of New York include:

1) Two, three-core 230-kV high-voltage alternating-current (“HVAC”) submarine export cables located within an approximately 15.1-nm (27.9-km)-long, submarine export cable corridor from the boundary of New York State waters 3 nm (5.6 km) offshore to the cable landfall in Brooklyn, New York; 2) a 0.2-mi (0.3-km)-long onshore cable route consisting of two, three-core 230-kV HVAC EW 1 onshore export cables buried underground from the cable landfall either directly to the cable terminations or to a vault within the onshore substation; an onshore substation located at the South Brooklyn Marine Terminal (“SBMT”); and two 345-kV cable circuits, each with three single-core HVAC onshore interconnection cables, buried underground from the onshore substation to the POI. The submarine export cables within New York State territorial waters, the terrestrial underground export and interconnection cables (“onshore cables”), and a new onshore substation will hereafter be referred to collectively as “the Project.”

The submarine export cables will be buried beneath the seabed within State territorial waters from the boundary of New York State waters (3 nm offshore), approximately 3.9 mi (6.2 km) southeast of Rockaway Point at the southwestern corner of Long Island, New York, and 5.5 mi (8.8 km) east of the tip of Sandy Hook, New Jersey. The Project’s submarine export cable route makes landfall at SBMT in Sunset Park in Brooklyn, New York, directly to the west of the planned onshore substation. The submarine export cable corridor, containing the two submarine export cables, is approximately 15.1 nm (17.3 mi, 28 km) long from the boundary of New York State territorial waters to the cable landfall. The onshore cable route from the cable landfall to the POI at the Gowanus 345-kV Substation, where the Project will interconnect to the New York State Transmission System operated by the New York Independent System Operator, Inc. (“NYISO”), is approximately 0.2 mi (0.3 km) long. The onshore cable route includes the onshore portion of the two submarine export cables, which will be pulled either directly to the cable terminations or to vaults, the onshore substation, and the onshore interconnection cables between the onshore substation and the POI. The onshore export cables and onshore substation are located within SBMT. The onshore interconnection cables will traverse public road rights-of-way (“ROW”) within 2nd Avenue, Brooklyn. The Project’s onshore facilities, including the onshore cable route, onshore

substation, interconnection cable route, and the POI, are located entirely within Brooklyn, Kings County, New York.

Certification

The New York State Public Service Commission (“PSC” or “Commission”) hereby certifies pursuant to Section 401 of the Federal Water Pollution Control Act, 33 U.S.C. Section 1341(a)(1) and Article VII of the New York State Public Service Law (“PSL”) that the Project, as conditioned herein, complies with applicable requirements of Sections 301, 302, 303, 306 and 307 of the Federal Water Pollution Control Act, as amended, and applicable New York State water quality standards, limitations, criteria and other requirements set forth in Parts 608.9(a), and 701 through 704 of Title 6 of New York Codes, Rules and Regulations (“NYCRR”), provided that all of the conditions listed herein are met.

Conditions

1. A Certificate of Environmental Compatibility and Public Need (“CECPN”) issued by the Commission pursuant to Article VII of the NYS PSL to Empire Offshore Wind, LLC (“Empire”) in, and based on the record of, Case 21-T-0366 is required before any in-water work shall commence.
2. No in-water work shall commence until the necessary Conditions relating to such work contained in the CECPN and any Order in Case 21-T-0366 have been met to the satisfaction of the New York State Department of Public Service (“NYSDPS”).
3. Construction, operation, maintenance, repair and decommissioning of the Project shall at all times be in conformance with the Application in Case 21-T-0366 (as amended and supplemented), to the degree not superseded by the CECPN; all conditions of approval contained in the CECPN; the Environmental Management and Construction Plan (“EM&CP”); the Municipal Separate Storm Sewer System-approved Stormwater Water Pollution Prevention Plan; and all conditions incorporated in any order approving any revisions to the EM&CP required by the CECPN, to the extent the documents referenced above pertain to compliance with New York State water quality standards necessary and appropriate for issuance of, and compliance with, this Water Quality Certification.
4. Empire shall provide a copy of this Water Quality Certification (“WQC”) to the U.S. Army Corps of Engineers (“USACE”) along with a copy of the Application, CECPN, and the approved EM&CP(s) so that the USACE will have a complete record of the conditions that apply hereto.
5. Empire shall provide to all construction contractors performing work on the Project complete copies of this WQC, the CECPN, and the approved EM&CP(s).
6. Empire shall provide notification to the NYSDPS, concurrently with USACE, if any updates, proposed changes, alterations, or modifications are requested to the §404 Clean Water Act permit or permit application, so that the NYSDPS will have a complete record of impacts to water resources, including mitigation, that may affect State water quality standards.

7. Species Related Work Restrictions

- a. No in-water seabed disturbing work, except as identified in II(a)(i) (1)-(4) below, shall occur during the following seasonal windows:
 - i. between March 1 and June 30 and between October 1 to November 30 in any year to avoid the risk for incidental take of Atlantic and shortnose sturgeon, except as follows:
 1. From kilometer post (KP) 0 to KP 0.6, as shown in mapping in Appendix B of the Joint Proposal, Empire may conduct Project activities in June, October and/or November, if conducted in accordance with an Atlantic and Shortnose Sturgeon Avoidance, Monitoring and Impact Minimization Plan, including mechanical dredging; backfill; rock protection installation; relieving platform removal; relieving platform pile removal; cable landfall trenching; installation of piles and cable landfall ducts; pre-installation debris clearance; boulder removal/relocation; cable lay and backfill; cable landfall pull-in; installation of sheet piles; work activities associated with the new bulkhead installation and new concrete deck; pre-lay mattress installation and post-lay mattress installation.
 2. From KP 0.6 to the New York State boundary, as shown in mapping in Appendix B of the Joint Proposal, Empire may conduct the following activities, if conducted in accordance with an Atlantic and Shortnose Sturgeon Avoidance, Monitoring and Impact Minimization Plan: pre-lay mattress installation at existing submarine asset crossings in June, and post-lay mattress and rock protection installation in October and November.
 3. From KP 0.6 to the New York State boundary, as shown in mapping in Appendix B of the Joint Proposal, Empire may conduct the following activities in June, if conducted in accordance with an Atlantic and Shortnose Sturgeon Avoidance, Monitoring and Impact Minimization Plan and a Net Conservation Benefit Plan (“NCBP”) that meets the substantive requirements of 6 NYCRR Part 182 that has been developed in consultation with and accepted by the New York State Department of Environmental Conservation (“NYSDEC”) and NYSDPS Staff: pre-installation trials for the submarine export cables, pre-lay grapnel runs, debris clearance, and boulder removal/relocation.
 - ii. within water depths of 20 ft or less, NAVD88, between December 15 and May 31 of any year, to avoid winter flounder spawning and overwintering, unless the NYSDEC, NYSDPS Staff and the New York State Department of State (“NYDOS”) agree to waive this timing window on the basis of project-specific habitat surveys or mitigation measures.
 - b. The Atlantic and Shortnose Sturgeon Avoidance, Monitoring and Impact Minimization Plan and the NCBP shall be included as part of the EM&CP for the applicable Segment. Empire shall provide the Atlantic and Shortnose Sturgeon Avoidance, Monitoring and Impact Minimization Plan to NYSDEC forty-five (45) days prior to filing of the EM&CP for the applicable Segment for NYSDEC’s review and acceptance.
8. After consultation with the NYSDEC, NYSDOS and NYSDPS Staff, Empire may petition the Commission for a modification of any construction window limitation by filing such petition with the Secretary. Such petition shall describe the consultation efforts and results of Empire and shall include a request for a thirty (30) day public comment period. Empire shall notify the New York City Department of Transportation Office of Construction Mitigation and Coordination of

any approved modifications of the construction window.

9. Water quality standards set forth in 6 NYCRR Parts 701, 702, 703 and 704, and sections 301, 302, 303, 306, and 307 of the federal Clean Water Act (see 33 USC §§ 1311, 1312, 1313, 1313a, and 1317) shall not be contravened. Issuance of a WQC also implies compliance with standards if conditions placed in the certification are complied with.
10. Target Burial Depth refers to the depth of burial below the seabed (measured from top of cable) that Empire will achieve during the installation of the submarine export cables.
11. Exclusive of the portion of the cable approaching the cable landfall, Empire shall install the submarine export cables a minimum Target Burial Depth of six (6) ft below the existing seabed, except as described in Condition E10. Except as described in Condition E10, should the Target Burial Depth not be achieved during the initial pass of the cable installation tool that is best suited to achieve Target Burial Depth, Empire shall perform up to two (2) additional passes with the installation tool, or other burial tool that complies with the requirements of the Certificate, unless (a) additional passes risk causing damage to the submarine export cables or the installation tool; or (b) due to geologic obstructions, additional passes would not increase the burial depth or risk causing cable exposure. Empire shall use best efforts to micro-route the cable within the cable corridor to achieve Target Burial Depth during installation.
12. Empire shall comply with burial depth requirements of USACE issued permits for the Project and as shown in the EM&CP. Empire shall install the submarine export cables to a minimum Target Burial Depth of fifteen (15) ft below the existing seabed or below the authorized depth in federally authorized channels, and anchorages, whichever is deeper, and were determined by the Cable Burial Risk Assessment ("CBRA"). Empire shall make at least two (2) attempts to pre-trench the submarine export cable route, before abandoning the attempt and seeking out an alternate route. Empire shall use best efforts to micro-route the cable within the submarine export cable siting corridor and conduct offshore site preparation described in Condition E10 to achieve Target Burial Depth during installation.
13. Empire shall install the submarine export cables using either simultaneous lay and burial or pre-lay and post-burial processes. Empire shall be permitted to conduct pre-installation activities described in Condition J10 prior to submarine export cable lay, where necessary to install the submarine export cables and achieve Target Burial Depth.
 - a. The following processes may be used, individually or in combination, for pre-sweeping, pre-trenching and to install the submarine export cables: mechanical cutter, mechanical plow, jet sled, jet trencher, vertical injector, hydraulic/suction hopper dredging, mechanical dredging and/or mass flow excavator.
14. Limits for total suspended solids ("TSS"), turbidity and water quality standards for other chemical parameters must be achieved at the defined mixing zone distance, down current (based on tide direction) of sediment disturbing activities. The mixing zone distances shall be defined as follows:

- a. For TSS and turbidity, the mixing zone shall be 1,500 ft for the portion of the submarine export cable route from approximately KP 15 south to the limits of New York State waters;
- b. For TSS and turbidity, the mixing zone shall be 500 ft for the portion of the submarine export cable route from approximately KP 15 north to the cable landfall;
- c. For dissolved arsenic, dissolved lead, dissolved copper, dissolved cadmium, total mercury, benzo(a)pyrene, DDT, DDE, DDD and Total PCBs the mixing zone shall be 500 ft. Monitoring for these constituents shall be conducted from approximately KP 15 north to the cable landfall.

15. The following conditions apply to TSS during sediment disturbing activities:

- a. None from sewage, industrial waste or other wastes that will cause deposition or impair the waters for their best usages;
- b. A TSS limit of 100 mg/L above ambient will be achieved at the mixing zone distance down current (based on tide direction) of sediment disturbing activities, wherever practicable operational controls can be implemented without compromising health and safety, the integrity of the cable, or the achievement of the Target Burial Depth. If, during Monitored Construction Activities, TSS concentrations estimated in the field at the edge of the mixing zone distance defined in Condition U6 exceed the up current background station by the TSS limit (100 mg/L), the Aquatic Environmental Monitor shall be notified, and Empire's contractor shall be alerted to employ practicable operational controls to bring TSS levels back into compliance. Operational controls implemented to minimize exceedances of the TSS limit will not be implemented in such a manner that it will result in the material delay of the progress of work to complete the in-water installation during one construction season. Empire shall not be required to reduce hydraulic jetting pressures to levels which would not allow burial to the Target Burial Depth specified in the EM&CP or other permits.

16. Visual observations of turbidity caused by Monitored Construction Activities must be conducted to ensure compliance with the narrative water quality standard in 6 NYCRR § 703.2, which states, "No increase that will cause a substantial visible contrast to natural conditions."

17. The concentrations of the constituents listed in the table below measured in the samples collected down current of the sediment disturbance activities, at the edge of the applicable mixing zone, shall not exceed the greater of: (A) the levels set forth in the table below or (B) 1.3 times the highest ambient background level measured during the same sampling day at the up-current background station at the same depth as the down-current sample.

Parameter	Water Quality Standard	Type	Units	Method	Detection Limit*
Dissolved Arsenic	63	A(C)	ug/L	EPA 200.7	25
Dissolved Cadmium	7.7	A(C)	ug/L	EPA 200.7	5
Dissolved Copper	5.6	A(C)	ug/L	EPA 200.8	2
Dissolved Lead	8	A(C)	ug/L	EPA 200.8	2
Total Mercury	7×10^{-4} (0.05**)	H(FC)	ug/L	EPA 1631E	0.0005
Total PCBs	1×10^{-6}	H(FC)	ug/L	EPA 608.3	0.095
p,p'-DDD	8×10^{-5}	H(FC)	ug/L	EPA 608.3	0.033
p,p'-DDE	7×10^{-6}	H(FC)	ug/L	EPA 608.3	0.012
p,p'-DDT	1×10^{-5}	H(FC)	ug/L	EPA 608.3	0.036
Benzo(a)pyrene	6×10^{-4} ***	H(FC)	ug/L	EPA 610	0.1
Using EPA analytical method with the lowest possible detection limit as promulgated under 40 CFR Part 136.					
* The detection limits listed in the table above represent the Minimum Level (ML) for the specified analytical methodology.					
** Limit based on General Level Currently Achievable described in TOGS 1.3.10.					
*** Benzo(a) pyrene will be used as an indicator for the total concentration of Polycyclic Aromatic Hydrocarbons (PAHs)					

- a. When a detection limit listed above is greater than the water quality standard, the water quality standard will be presumed to be met when analytical results demonstrate compliance with the detection limit.

18. A pre-activity water quality calibration will be conducted to ensure that TSS may be accurately estimated in the field during water quality monitoring activities. The pre-activity water quality calibration will be described in detail in the SSWQP.

19. Water quality monitoring shall be conducted during dredging, dewatering of dredged material,

barge decanting, pre-sweeping, pre-trenching, jet trenching activities, cable installation and maintenance and decommissioning activities (together, “Monitored Construction Activities”) that involve disturbance of sediments in accordance with the Suspended Sediment and Water Quality Monitoring Plan. Monitoring shall also be conducted during pre-installation trials. Cable installation, maintenance and decommissioning activities that result in only minor disturbance of sediments, including:

(i) anchor sweep; (ii) anchoring; (iii) placement of jack-up barge; (iv) hand jetting; (v) temporary cable lay without simultaneous burial; (vi) other activities as determined by NYSDPS Staff, in consultation with NYSDEC, shall not require water quality monitoring.

20. Empire shall implement the Suspended Sediment and Water Quality Monitoring Plan (“SSWQP”) as required in the CECPN. Suspended sediment plume monitoring and water quality monitoring shall be conducted at the locations and frequency set forth in SSWQP.
21. Empire shall use commercially reasonable efforts to request the most expedited turnaround time available for laboratory samples for locations along the submarine export cable route. Analytical results must be sent electronically to NYSDPS Staff and NYSDEC within forty-eight (48) hours of receipt from the laboratory. Exceedances must be highlighted.
22. A pre-installation trial will be conducted for any proposed jetting tools (jet sled, jet trencher, vertical injector) and mass flow excavation tools. If alternative jetting tools are proposed in the EM&CP, pre-installation trials for those tools will be included in the Pre- Installation Trial Plan. Pre-installation trials in accordance with the Pre-Installation Trial Plan must be conducted within representative sections or areas proximate to the proposed underwater cable route in NYS waters or during pre-installation activities prior to cable installation to evaluate compliance with TSS threshold limit, turbidity, and water quality standards as defined in Conditions J14, U1 and U2. The goal of the pre-installation trial is to establish operating conditions that will minimize the suspension of in-situ sediments and contaminants during the jetting and mass flow excavation activities, consistent with the objectives of Conditions J14, U1 and U2. The trial will include approximately one thousand (1,000) ft of operations within an area to be specified in the Pre-Installation Trial Plan that will be submitted as part of the EM&CP for the applicable Segment. The following conditions apply to pre-installation trials:
 - a. Appropriate instruments will be specified in the SSWQP and used to measure water column TSS and turbidity on selected transects in the field. Companion water samples will be collected and analyzed by a New York State Department of Health Environmental Laboratory Approval Program (“ELAP”) certified laboratory for TSS;
 - b. Samples of TSS and constituents listed in Condition J14 will be collected up- current (for baseline) and at the edge of the mixing zone down-current of the pre- installation trial, at three-interval depths (near surface, mid-depth, and near bottom); the mixing zone shall be as defined in Condition U6 and the SSWQP;
 - c. Empire must work cooperatively with the Aquatic Environmental Monitor, NYSDPS Staff and NYSDEC, to review the results of the TSS field measurements during the pre-

installation trials to evaluate whether the operating conditions result in TSS concentrations that exceed the TSS threshold limit;

- d. If the pre-installation trials demonstrate that the operating conditions result in TSS concentrations that exceed the TSS limit (100 mg/L above background concentration) established in this Certificate, Empire must work with the Aquatic Environmental Monitor, NYSDPS Staff and NYSDEC to evaluate and implement practicable operational modifications to the jetting or mass flow excavation tools to further reduce in-situ sediment re-suspension associated with the equipment operations. Operational controls implemented to minimize exceedances of the TSS limit will not result in the material delay of the progress of work to complete in- water installation during one construction season; and
- e. Jetting and mass flow excavation operations may proceed after the pre-installation trial field results of the applicable equipment are submitted by Empire to NYSDPS Staff and NYSDEC and reviewed in real-time. Review of this information by DPS Staff and NYSDEC shall not unreasonably delay the commencement of installation of the underwater cable system. Laboratory results from the pre-installation trial shall be submitted electronically to NYSDPS Staff and NYSDEC as soon as possible, but no later than the 48 hours following receipt from the laboratory.

23. The following conditions apply if jetting or mass flow excavation technologies are used:

- a. Empire must operate the jetting and mass flow excavation tools in accordance with the operating conditions determined through Pre-Installation Trial Plan;
- b. If, during water quality monitoring, TSS measurements exceed the limit established in this Certificate, NYSDPS Staff, NYSDEC, and the Aquatic Environmental Monitor shall be immediately notified. Empire shall employ one or more of the following operational modifications as soon as possible after consultation with the Aquatic Environmental Monitor, NYSDPS Staff and NYSDEC: changing the rate of advancement of the equipment, modifying hydraulic pressures, or implementing other reasonable operational controls that may reduce suspension of in situ sediments but not in a manner that would materially delay the progress of work to complete the in-water installation procedures. Empire shall not be required to reduce hydraulic jetting pressures to levels which would not allow burial to the Target Burial Depth specified in the EM&CP or other permits. TSS will be measured after the operational modifications, in accordance with the procedures outlined in the Suspended Sediment and Water Quality Monitoring Plan and communicated to the Aquatic Environmental Monitor. Measurements will include laboratory analyses of TSS, and if north of KP 15, the constituents listed in Condition J14, the results of which will be provided to NYSDPS Staff, NYSDEC and the Aquatic Environmental Monitor; and
- c. During implementation of feasible operational modifications, NYSDPS Staff and NYSDEC may specify additional monitoring until compliance with the TSS limit and

water quality standards is demonstrated. Samples shall be collected until resumption of routine monitoring is authorized by NYSDPS Staff in consultation with NYSDEC.

24. During Monitored Construction Activities, if the TSS limit or any water quality standards are exceeded at the edge of the mixing zone, Empire will notify NYSDPS Staff and NYSDEC. Empire will implement practicable operational modifications to reduce in-situ sediment re-suspension as described in Condition J14 and J15 when the TSS limit is exceeded. If modifications do not restore compliance with the TSS limit and/or any water quality standard, Empire shall consult with NYSDPS staff and NYSDEC regarding an acceptable solution; nothing in this Condition shall result in a material delay of progress of work to complete the in-water installation during one construction season.
25. The Environmental Monitor(s) shall have stop work authority over aspects of the Project that could violate the terms of the WQC, CECPN, or the EM&CP(s).
26. Empire shall submit, after prior consultation with NYSDPS Staff, NYSDEC, and NYSDOS, a Cable Monitoring and Management Plan in the Operations and Maintenance Plan (“O&M Plan”) as part of the EM&CP for the applicable Segment. Empire will comply with the measures described in the Cable Monitoring and Management Plan to maintain burial or protection of the submarine export cables. The Cable Monitoring and Management Plan shall include, at a minimum:
 - a. the method for determining the actual cable location and burial depth of the submarine export cables and the timing for undertaking such efforts, including, for example, the use of distributed temperature sensing (DTS) technology;
 - b. a requirement that the Certificate Holder establish depth of burial relative to seabed and the accurate level of the seabed relative to vertical datum during post-construction survey operations. Following this, the Certificate Holder will conduct multibeam echo sounder (MBES) surveys to inspect sections of the export cables in higher risk locations as defined in the CBRA, and areas where Target Burial Depth could not be achieved and other protection measures are utilized, in Commercial Operation in: year 1, between years 2 and 3, and between years 5 and 8. Any findings from these MBES surveys will trigger a full survey of the cable system. Throughout the operational life of the Project additional MBES surveys will be conducted after storm events resulting in 1-in-100-year wave heights as will be defined in the EM&CP based on wave height, and associated temporal descriptions, and after any cable repair activity. Timing/frequency of inspections following year 8 and additional to these will be determined through application of a risk-based assessment to ensure required cable burial. This risk-based assessment will be described and detailed further in the EM&CP.
 - i. The risk-based assessment shall identify a risk to exist if the submarine export cable reaches a burial depth less than 4 ft (measured from top of cable) below the seabed for greater than 25 linear feet, in areas where the actual burial depth at the time of installation was greater than 4 ft. If this risk is

identified, the Certificate Holder shall follow the process outlined in Condition N2 and N3.

- c. a plan for remedying cable exposures within time-of-year restrictions described in Condition N2;
- d. a plan for remedying exposures that pose a hazard to public safety, navigation, or marine resources outside of time-of-year restrictions, including avoidance and minimization techniques for T&E species;
- e. a description of methods to maintain burial depth;
- f. a plan for marking the location of any cable exposures; and
- g. a plan for notifying NYSDPS Staff and providing incident details and anticipated next steps to the Secretary in the event that a third-party anchor strikes the submarine export cables during Project operations.

27. For all dredging operations (mechanical dredging and hydraulic/suction hopper dredging), the Empire shall:

- a. only use vessels or barges in good operating condition;
- b. use vessels, barges, or scows of solid hull construction or which are sealed;
- c. avoid washing the gunwales of the scow except to the extent necessary to ensure the safety of workers;
- d. conduct required water quality monitoring as described in condition J14 and U3;
- e. not side cast excavated dredged material;
- f. not use a dragline for excavation; and
- g. develop and provide a Dredge Management Plan in the EM&CP for all applicable Segments.

28. For mechanical dredging operations, the Empire shall:

- a. use a closed (i.e., sealed) environmental (e.g., clamshell) bucket with sealing gaskets or an overlapping sealed design at the jaws and seals or flaps positioned at locations of vent openings to minimize sediment suspension. Drawings and specifications of the environmental bucket must be provided to the NYSDEC Staff and NYSDPS Staff prior to the anticipated start of dredging;
- b. ensure that seals or flaps designed or installed at the jaws and locations of vent openings tightly cover these openings while the bucket is lifted through the water column and into the barge;
- c. equip the closed environmental bucket with sensors to ensure complete closure of the bucket before lifting through the water;

- d. excessive loss of water from the environmental bucket will be investigated and resolved;
- e. operate the bucket so as to control the rate of the descent and to maximize the depth of penetration without overfilling the bucket;
- f. control bucket retrieval rates to minimize turbidity;
- g. lower the bucket to the level of the barge gunwales prior to release of the load and place the excavated material deliberately and in a controlled manner;
- h. bucket hoist speed shall be limited to approximately two (2) ft per second and the bucket shall be lifted in a continuous motion through the water column and into the barge;
- i. suspend operations until any necessary repairs or replacements are made when a significant loss of water and visible sediments from the bucket is observed;
- j. not use deck barges, unless modified to allow no barge overflow and approved by the Environmental Monitor and NYSDPS Staff in consultation with NYSDEC;
- k. allow no barge overflow during dredging operations;
- l. not commence decanting of barges until approved by NYSDPS Staff, in consultation with NYSDEC. If decanting is proposed, a plan for decanting must be included in the Dredge Management Plan in the EM&CP for the applicable segment for NYSDPS and NYSDEC staff to review. If decanting is permitted, allow a minimum twenty-four (24) hours of settlement prior to decanting barges and ensure that decanting does not violate water quality standards or guidance values for TSS, turbidity, and contaminants;

29. For hydraulic/suction hopper dredging, Empire shall:

- a. use a closed (i.e., sealed) environmental (e.g., clamshell) bucket with sealing gaskets or an overlapping sealed design at the jaws and seals or flaps positioned at locations of vent openings to minimize sediment suspension. Drawings and specifications of the environmental bucket must be provided to the NYSDEC Staff and NYSDPS Staff prior to the anticipated start of dredging;
- b. ensure that seals or flaps designed or installed at the jaws and locations of vent openings tightly cover these openings while the bucket is lifted through the water column and into the barge;
- c. equip the closed environmental bucket with sensors to ensure complete closure of the bucket before lifting through the water;
- d. excessive loss of water from the environmental bucket will be investigated and resolved;
- e. operate the bucket so as to control the rate of the descent and to maximize the depth of penetration without overfilling the bucket;
- f. control bucket retrieval rates to minimize turbidity;
- g. lower the bucket to the level of the barge gunwales prior to release of the load and place the excavated material deliberately and in a controlled manner;
- h. bucket hoist speed shall be limited to approximately two (2) ft per second and the bucket

shall be lifted in a continuous motion through the water column and into the barge;

- i. suspend operations until any necessary repairs or replacements are made when a significant loss of water and visible sediments from the bucket is observed;
- j. not use deck barges, unless modified to allow no barge overflow and approved by the Environmental Monitor and NYSDPS Staff in consultation with NYSDEC;
- k. allow no barge overflow during dredging operations;
- l. not commence decanting of barges until approved by NYSDPS Staff, in consultation with NYSDEC. If decanting is proposed, a plan for decanting must be included in the Dredge Management Plan in the EM&CP for the applicable segment for NYSDPS and NYSDEC staff to review. If decanting is permitted, allow a minimum twenty-four (24) hours of settlement prior to decanting barges and ensure that decanting does not violate water quality standards or guidance values for TSS, turbidity, and contaminants;

30. For hydraulic/suction hopper dredging, the Empire shall:

- a. remove displaced dredged material to a barge or trailing suction hopper dredger. The dredged material will be transported for beneficial reuse or disposal at a permitted disposal facility;
- b. Empire shall operate the equipment so as to minimize sediment transport.

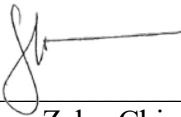
31. Management of contaminated dredged material shall be as follows:

- a. if the material is not eligible for a Beneficial Use Determination, prior to dredging, Empire shall identify the final dredged material disposal location, including a letter from the permitted disposal facility verifying that they will accept the material. All contaminated material shall be handled in accordance with the Hazardous Waste and Petroleum Work Plan and Materials Management Plan submitted as part of the EM&CP for the applicable Segment.
- b. the final material disposal location shall be submitted to NYSDPS Staff, and NYSDEC at least fourteen (14) days prior to disposal. Disposal of all material must comply with 6 NYCRR Part 360 et seq.

Certified by:

10/04/2023

Date



Jason Zehr, Chief
Environmental Certification and Compliance
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