US Army Corps of Engineers
Alaska District

Public Notice of Application for Permit

ANCHORAGE
Regulatory Division (1145)
CEPOA-RD
Post Office Box 6898
JBER, Alaska 99506-0898

PUBLIC NOTICE DATE: **March 6, 2023**

EXPIRATION DATE: **April 5, 2023**

REFERENCE NUMBER: **POA-2003-00502-M2**

WATERWAY: **Knik Arm**

*****PUBLIC NOTICE REVISION*****

On March 6, 2023, the Alaska District U.S. Army Corps of Engineers published a public notice for Department of the Army (DA) permit number POA-2003-00502-M2, Knik Arm for a DA permit application from Municipality of Anchorage, Port of Alaska (Port). to remove approximately 900 feet of unstable bulkhead and fill at the north end of the Port referred to as the North Extension Stabilization Step 1 (NES1) project. The project site is in Knik Arm, at the Port of Alaska, within Section 7, T. 13 N., R. 3 W., Seward Meridian; USGS Quad Map Anchorage A-8; Latitude 61.233499º N., Longitude 149.985068º W.; in Anchorage, Alaska.

The public notice showed an expiration date of March 21, 2023.

The expiration date of this public notice has been extended to April 5, 2023.

All other information contained in the previous notice remains the same. Please bring this announcement to the attention of anyone you know who is or may be interested. Please contact Heather Markway at (907) 753-2797, toll free from within Alaska at (800) 478-2712, or by email at Heather.N.Markway @usace.army.mil if further information is desired concerning this notice.

District Engineer
U.S. Army, Corps of Engineers

Enclosures

US Army Corps of Engineers
Alaska District

Regulatory Division (1145)
CEPOA-RD
Post Office Box 6898
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Public Notice of Application for Permit

PUBLIC NOTICE DATE:	**March 6, 2023**
EXPIRATION DATE:	**March 21, 2023**
REFERENCE NUMBER:	**POA-2003-00502-M20**
WATERWAY:	**Knik Arm**

*****PUBLIC NOTICE REVISION*****

On September 6, 2022, the U.S. Army Corps of Engineers, Alaska District published a public notice for Department of the Army (DA) permit number POA-2003-00502-M20, Knik Arm for a DA permit application from the Municipality of Anchorage, Port of Alaska (Port), to remove approximately 900 feet of unstable bulkhead and fill at the north end of the Port referred to as the North Extension Stabilization Step 1 (NES1) project. The project site is in Knik Arm, at the Port of Alaska, within Section 7, T. 13 N., R. 3 W., Seward Meridian; USGS Quad Map Anchorage A-8; Latitude 61.233499º N., Longitude 149.985068º W.; in Anchorage, Alaska.

The proposed work as detailed in the original notice:

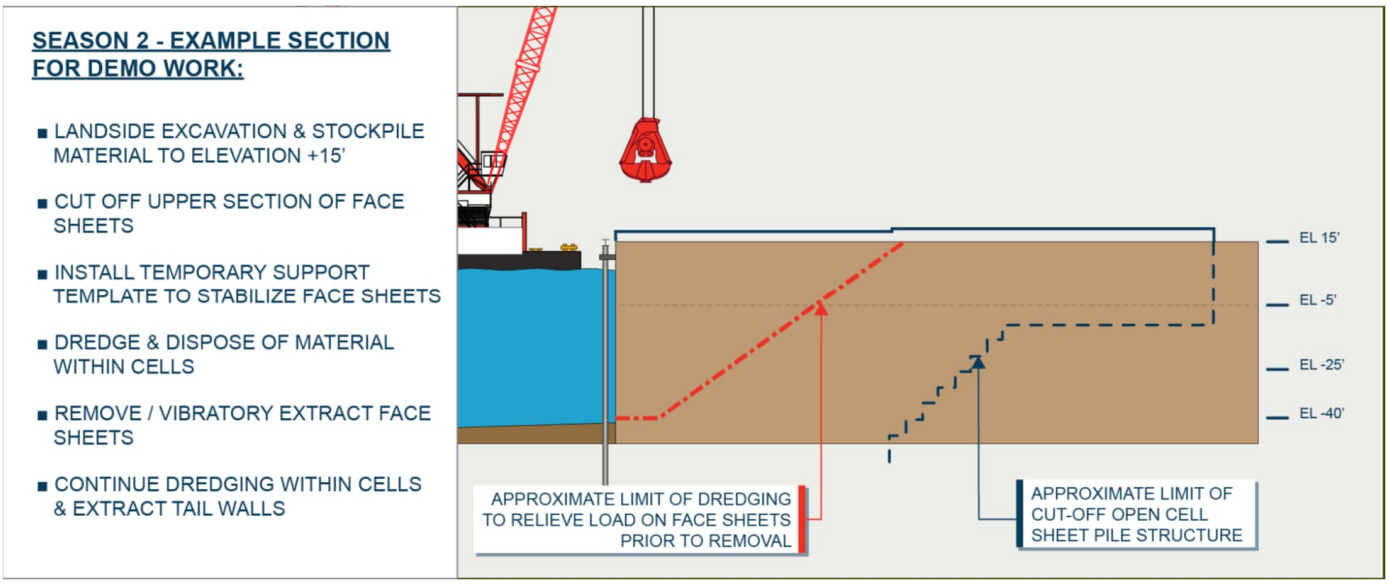
> PROPOSED WORK: The Port proposes to remove approximately 900 feet of unstable bulkhead and fill at the north end of the Port. The area, known as the North Extension, was constructed in 2009-2010 as part of the Port Intermodal Expansion Project (PIEP). The North Extension was never constructed to completion and is seismically unstable. This new proposed project, referred to as the North Extension Stabilization Step 1 (NES1) project, would remove the most seismically unstable portion (approximately half) of the North Extension. For the first stage of project, the Port will install soil improvements (deep soil mixing) along the proposed realignment of the shoreline to provide geotechnical stability to the embankment. The Port then proposes to construct an armor rock retaining wall inland of the current bulkhead; remove the fill between the existing bulkhead and new rock retaining wall to create an engineered laid-back slope with a top elevation of 38.0 feet mean lower low water (MLLW) and sloping to a toe elevation of approximately -40.0 feet MLLW; and then remove the open cell PIEP sheet pile wall that forms the current bulkhead through incrementally shearing and removing the sheet pile material and the impounded soils (PIEP fill material). The removal of fill behind the current bulkhead would require removal of approximately 1.33 million cubic yards of material, of which

approximately 1.2 million cubic yards is below the waterline. The material above the waterline (approximately 130,000 cubic yards) would be excavated and separated into stockpiles of useable material and unusable material to be disposed of at a later time. The Port proposes to dredge the 1.2 million cubic yards below the waterline and place in the Anchorage Harbor in-water disposal site.

The proposed project involves discharge of fill material below the high tide line of Knik Arm and construction of structures below the Knik Arm's mean high water mark requiring require permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. The project also proposes an alteration of the federal dredge limits of Anchorage Harbor, requiring review under Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C 408), hereafter referred to as Section 408.

Since the September 6, 2022, public notice, the Port has procured a contractor who identified two necessary changes to the proposed project:

1) The existing sheet pile bulkhead would likely become unstable as the impounded soil material is removed, so the contractor has proposed installing temporary support piles along the front of the bulkhead to safely stabilize the existing sheet pile wall during material removal (see below figure). Working on one-third of the bulkhead at a time, the contractor would start by using a vibratory hammer to install 27 temporary support piles, 24-inches to 36-inches in diameter, evenly spaced along the southernmost third of the sheet pile bulkhead. With the support in place, the contractor would begin excavation and demolition at the southernmost cell using a combination of land-side and sea-side mechanical excavation. After excavating enough material to be able to safely remove the bulkhead, the contractor would remove the sheet piles and the temporary support piles with the vibratory hammer, utilizing a work barge to haul off the removed sheet piles. The contractor would then move the 27 temporary piles northward to the next one-third of the bulkhead to repeat the process. These actions would be repeated three times in total.



2) The contractor proposes to increase the potential volume of dredged material below the waterline from 1.2 million cubic yards to 1.35 million cubic yards, as a contingency in case it is necessary to dredge deeper than originally anticipated to remove or cut-off the sheet-pile below the mudline. This would increase the potential total volume of material to be disposed of in the Anchorage Harbor in-water disposal site by 150,000 cubic yards. Also, it is now estimated that the material to be removed above the waterline would approximate 115,000 cubic yards, as opposed to the 130,000 cubic yards originally estimated, for a total of approximately 1.465 million cubic yards of material to be removed in association with the project.

Additional Project Details of Interest: A total of approximately 1.465 million cubic yards of material would be excavated/dredged to form the foreshore slope for the NES1 project.

Above the waterline: Approximately 115,000 cubic yards above the waterline would be excavated and stockpiled. Of the 115,000 cubic yards of the fill to be removed above the waterline, it is estimated that there would be three types of material salvaged: 1,500 cubic yards of armor rock, 9,100 cubic yards of rip-rap, and 80,000 cubic yards of material meeting specifications for Type II Classified Fill. These materials would be stockpiled in uplands on Port property, likely on the half of the North Extension not proposed to be removed under this project. The salvaged Type II Classified Fill would be used to bring the grade of the area landward of the new rock retaining wall to a final elevation of + 38 feet MLLW. The other salvaged materials would likely be used to support other infill/bank stabilization efforts for future projects. Unsalvageable excavated materials from above the waterline would be disposed of at the Anchorage Harbor in-water disposal site. This material would be tested, as necessary, to verify suitability for offshore disposal.

Below the waterline: Approximately 1,350,000 (1.35 million) cubic yards would be dredged from the site and disposed of in the Anchorage Harbor in-water disposal site.

The lower portion of the embankment slope, from -40.0-feet MLLW to approximately -8.0-feet MLLW on the northern portion of the project and approximately -14.0 feet MLLW on the southern portion, would be shaped to a 6 feet horizontal to 1 foot vertical (6H:1V) slope and unarmored. A grade-break would occur above these elevations as the slope transitioned to a 2H:1V slope armored with approximately 69,000 tons of primary armor stone (median sized at 4,600-pounds), filter rock, and granular fill. The Port estimates that the volume of fill material placed below the high tide line for the NES1 project would total 38,000 cubic yards of armor rock, 19,000 cubic yards of filter rock and 12,500 cubic yards of granular fill. Estimated volume of fill material placed below mean high water would total 33,000 cubic yards of armor rock, 16,500 cubic yards of filter rock and 11,000 cubic yards of granular fill. All new armor rock, filter rock and fill would come from existing material sites/quarries.

All other information contained in the previous notice remains the same. Please bring this announcement to the attention of anyone you know who is or may be interested. All comments regarding this public notice should be sent to the address noted above. If you desire to submit your comments by email, you should send it to the Project Manager's email as listed below or to regpagemaster@usace.army.mil. All comments should include the public notice reference number listed above.

All comments should reach this office no later than the expiration date of this public notice to become part of the record and be considered in the decision. Please contact Heather Markway at (907) 753-2797, toll free from within Alaska at (800) 478-2712, or by email at Heather.N.Markway@usace.army.mil if further information is desired concerning this notice.

District Commander
U.S. Army, Corps of Engineers

Enclosure

US Army Corps
of Engineers
Alaska District

Regulatory Division (1145)
CEPOA-RD
Post Office Box 6898
JBER, Alaska 99506-0898

Public Notice of Application for Permit

PUBLIC NOTICE DATE:	**September 6, 2022**
EXPIRATION DATE:	**October 6, 2022**
REFERENCE NUMBER:	**POA-2003-00502-M20**
WATERWAY:	**Knik Arm**

Interested parties are hereby notified that a Department of the Army permit application has been received for work in waters of the United States as described below and shown on the enclosed project drawings.

All comments regarding this public notice should be sent to the address noted above. If you desire to submit your comments by email, you should send it to the Project Manager's email as listed below or to regpagemaster@usace.army.mil. All comments should include the public notice reference number listed above.

All comments should reach this office no later than the expiration date of this public notice to become part of the record and be considered in the decision. Please contact Heather Markway at (907) 753-2797, toll free from within Alaska at (800) 478-2712, or by email at Heather.N.Markway@usace.army.mil if further information is desired concerning this notice.

APPLICANT: Municipality of Anchorage, Port of Alaska, 2000 Anchorage Port Road, Anchorage, Alaska 99501; Contact: Mr. Steve Ribuffo, 907-343-6201, steve.ribuffo@anchorageak.gov

AGENT: HDR, Incorporated, 2525 C Street, Suite 500, Anchorage, Alaska, 99503; Contact: Mr. Michiel Holley, 907-644-2096, Michiel.Holley@hdrinc.com

LOCATION: The project site is in Knik Arm, at the Port of Alaska, within Section 7, T. 13 N., R. 3 W., Seward Meridian; USGS Quad Map Anchorage A-8; Latitude 61.233499º N., Longitude 149.985068º W.; in Anchorage, Alaska.

SPECIAL AREA DESIGNATION: The project is located within the Port of Alaska and Anchorage Harbor. Anchorage Harbor is a federally maintained harbor in the Municipality of Anchorage, Alaska, near the confluence of the Knik Arm and Turnagain Arm of Cook Inlet, and is home to the Port of Alaska (Port), the state of Alaska's primary commercial port. Anchorage Harbor was authorized in 1958 and the U.S. Army Corps of Engineers (USACE) has dredged Anchorage Harbor annually since 1965 to maintain adequate depths for shipping. Dredging typically begins in April and ends in October. The harbor's main Federal feature is an authorized harbor depth of -45 feet mean lower low water (MLLW) along 10,860 feet of the Port. The project is currently maintained at -35 feet MLLW; as the funding for dredging to -45 feet mean lower low water has not been appropriated by Congress. Dredged materials are transported to the Anchorage Harbor in-water disposal site located 3,000 feet abeam the dock face. Annual maintenance dredging volumes vary substantially and have approached 2 million cubic yards.

PURPOSE: The applicant states the purpose is to create a new shoreline that is structurally and seismically stable and useable for port activities, while maximizing the retention of salvageable lands that were created under the Port Intermodal Expansion Project (PIEP) and supporting the improvement of hydrodynamic conditions of the USACE Anchorage Harbor project.

PROPOSED WORK: The Port proposes to remove approximately 900 feet of unstable bulkhead and fill at the north end of the Port. The area, known as the North Extension, was constructed in 2009-2010 as part of the PIEP. The North Extension was never constructed to completion and is seismically unstable. This new proposed project, referred to as the North Extension Stabilization Step 1 (NES1) project, would remove the most seismically unstable portion (approximately half) of the North Extension. For the first stage of project, the Port will install soil improvements (deep soil mixing) along the proposed realignment of the shoreline to provide geotechnical stability to the embankment. The Port then proposes to construct an armor rock retaining wall inland of the current bulkhead; remove the fill between the existing bulkhead and new rock retaining wall to create an engineered laid-back slope with a top elevation of 38.0 feet MLLW and sloping to a toe elevation of approximately -40.0 feet MLLW; and then remove the open cell PIEP sheet pile wall that forms the current bulkhead through incrementally shearing and removing the sheet pile material and the impounded soils (PIEP fill material). The removal of fill behind the current bulkhead would require removal of approximately 1.33 million cubic yards of material, of which approximately 1.2 million cubic yards is below the waterline. The material above the waterline (approximately 130,000 cubic yards) would be excavated and separated into stockpiles of useable material and unusable material to be disposed of at a later time. The Port proposes to dredge the 1.2 million cubic yards below the waterline and place in the Anchorage Harbor in-water disposal site.

The proposed project involves discharge of fill material below the high tide line of Knik Arm and construction of structures below the Knik Arm's mean high water mark requiring require permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. The project also proposes an alteration of the federal dredge limits of Anchorage Harbor, requiring review under Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C 408), hereafter referred to as Section 408.

All work would be performed in accordance with the enclosed plan (sheets 1-21), dated June 2022.

ADDITIONAL INFORMATION: Other authorizations needed as identified by the applicant include an Incidental Take Authorization from National Marine Fisheries Service and a Flood Hazard Permit from the Municipality of Anchorage.

The applicant states that they plan to pursue the North Extension Stabilization Step 2 (NES2) project, a separate and complete project from the proposed NES1 project, in 2030 or later. The NES2 project would remove the northern half of the remaining land mass installed under the PIEP. NES2 is lower in priority for the Port because portions of it are more stable than the area in NES1 and further from the navigation channel.

ALTERATION OR OCCUPATION OF A FEDERAL CIVIL WORKS PROJECT: Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. 408), referred to as Section 408, authorizes the USACE to grant permission for the alteration, occupation or use of a USACE Civil Works Project provided it is determined that the activity will not be injurious to the public interest and will not impair the usefulness of the Federal project. The requester's proposed project will alter the federal dredge limits in Anchorage Harbor and at the Port. The requester proposes to remove a portion of the North Extension structure that was constructed under a prior Port expansion project which was not completed. The federal dredge limits which were expanded for the prior Port expansion project have already been reduced as dredging north of the current terminals is no longer required. Step 1 of the North Extension Stabilization project will add an area of approximately 3 acres, which is currently within the footprint of the North Extension structure, to the federal dredge limits. Comments received as a result of this public notice will help inform the determinations required under Section 408.

APPLICANT PROPOSED MITIGATION: The applicant proposes the following mitigation measures to avoid, minimize, and compensate for impacts to waters of the United States from activities involving discharges of dredged or fill material.

a. Avoidance: "The Port is unable to completely avoid waters of the U.S. because of the location of the fill to be removed. The NES1 Project is located on what was formerly intertidal mudflats and subtidal sediment. The proposed project will remove approximately 1.2 million cubic yards of fill material from below HTL and re-create approximately 13 acres of intertidal and sub-tidal habitat. The Port also considered onshore disposal of the excavated material and dredged material. However, it would require tens of thousands of truck loads to move that much material which would greatly increase traffic noise and air pollution in the area. Trucks would have to travel through downtown Anchorage while enroute to and from the disposal site. This proved to be impracticable from a cost and logistical standpoint. This would also increase environmental impacts due to the burning of fossil fuels by the trucks hauling the material. Therefore, the Port proposes to use the existing Anchorage Harbor Offshore Disposal Site which helps to avoid disposing of salt-contaminated material in uplands (or wetlands) onshore. Use of the Anchorage Harbor Open Water Disposal Site would also avoid placing it in more sensitive coastal areas (i.e., wetlands or mudflats)."

b. Minimization: “The Port considered other alternatives to the proposed project. Initially, the Port proposed the use of Closed Cell Sheet Pile; Shallow Slope; Transitioned Slope with Armor Rock; and variations on these three themes. In 2017, the Port received Section 408 Authorization to proceed with a Closed Cell Sheet Pile proposal. A re-evaluation of this alternative after taking into account the potential for failure due to corrosion and seismic stresses, as well as the construction cost, resulted in a redesign of the project and switching to the Transitioned Slope with Armor Rock Alternative as the applicant’s preferred alternative. Suitable material will be stockpiled at upland sites for future use (approximately 133,000 cubic yards), minimizing the amount of fill material disposed of in Waters of the U.S. The Port is planning to stockpile and re-use this material on NES1 and future authorized projects.”

c. Compensation: “Construction of NES1 will result in the removal of approximately 1.33 million cubic yards of fill from the intertidal area of Knik Arm. Due to the fact that no wetlands or other special aquatic sites will be impacted and 13 acres of intertidal and sub-tidal waters of the U.S. will be restored, no compensatory mitigation is proposed. If USACE determines that compensatory mitigation is necessary, the Port will use an approved mitigation bank or in-lieu fee sponsor.”

WATER QUALITY CERTIFICATION: A permit for the described work will not be issued until a certification or waiver of certification, as required under Section 401 of the Clean Water Act (Public Law 95-217), has been received from the Alaska Department of Environmental Conservation.

CULTURAL RESOURCES: The latest published version of the Alaska Heritage Resources Survey (AHRS) has been consulted for the presence or absence of historic properties, including those listed in or eligible for inclusion in the National Register of Historic Places. There are cultural resources in the permit area or within the vicinity of the permit area. The permit area has been determined to be the same as the proposed project area, consisting of those areas comprising of waters of the United States that will be directly affected by the proposed work, as well as the adjacent areas of directly associated work. Consultation of the AHRS constitutes the extent of cultural resource investigations by the USACE at this time, and we are otherwise unaware of the presence of such resources. The USACE has made a No Historic Properties Affected (No Effect) determination for the proposed project. This application is being coordinated with the State Historic Preservation Office (SHPO), federally recognized tribes, and other consulting parties. Any comments SHPO, federally recognized tribes, and other consulting parties may have concerning presently unknown archeological or historic data that may be lost or destroyed by work under the requested permit will be considered in our final assessment of the described work. The USACE is requesting the SHPO’s concurrence with this determination.

ENDANGERED SPECIES: The project area is within the known or historic range of the Cook Inlet beluga whales (*Delphinapterus leucas*) and the Steller sea lions (*Eumetopias jubatus*) from the western distinct population segment.

We are currently gathering information regarding these species and have yet to make a determination of effect. Should we find that the described activity may affect the species listed above, and/or their designated critical habitat, we will follow the appropriate consultation procedures under section 7 of the Endangered Species Act of 1973 (87 Stat. 844). Any comments the U.S. Fish and Wildlife Service or the National Marine Fisheries Service (NMFS) may have concerning endangered or threatened wildlife or plants or their critical habitat will be considered in our final assessment of the described work.

ESSENTIAL FISH HABITAT: The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with the NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH).

The project area is within the known range of the Chinook (*Oncorhynchus tshawytscha*), chum (*Oncorhynchus keta*), coho (*Oncorhynchus kisutch*), sockeye (*Oncorhynchus nerka*), and pink salmon (*Oncorhynchus gorbuscha*). Groundfish species with designated EFH within 1 mile of project include walleye pollock (*Theragra chalcogramma*), Pacific cod (*Gadus macrocephalus*), sablefish (*Anoplopoma fimbria*), yellowfin sole (*Limanda aspera*), Northern rock sole (*Lepidopsetta polyxystra*), Southern rock sole (*Lepidopsetta billineta*), Alaska plaice (*Pleuronectes quadrituberculatus*), Dover sole (*Microstomus pacificus*), rex sole (*Glyptocephalus zachirus*), flathead sole (*Hippoglossoides elassodon*), and Kamchatka flounder (*Atheresthes evermanni*).

We are currently gathering information regarding these species and have yet to make a determination of effect. Should we find that the described activity may affect the species listed above, we will follow the appropriate course of action under Section 305(b)(2) of the Magnuson-Stevens Act. Any comments the National Marine Fisheries Service may have concerning essential fish habitat will be considered in our final assessment of the described work.

TRIBAL CONSULTATION: The USACE fully supports tribal self-governance and government-to-government relations between Federally recognized Tribes and the Federal government. Tribes with protected rights or resources that could be significantly affected by a proposed Federal action (e.g., a permit decision) have the right to consult with the Alaska District on a government-to-government basis. Views of each Tribe regarding protected rights and resources will be accorded due consideration in this process. This public notice serves as notification to the Tribes within the area potentially affected by the proposed work and invites their participation in the Federal decision-making process regarding the protected Tribal right or resource. Consultation may be initiated by the affected Tribe upon written request to the District Commander during the public comment period.

PUBLIC HEARING: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, reasons for holding a public hearing.

EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts of the proposed activity and its intended use on the public interest. Evaluation of the probable impacts, which the proposed activity may have on the public interest, requires a careful weighing of all the factors that become relevant in each particular case. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. The outcome of the general balancing process would determine whether to authorize a proposal, and if so, the conditions under which it will be allowed to occur. The decision should reflect the national concern for both protection and utilization of important resources. All factors, which may be relevant to the proposal, must be considered including the cumulative effects thereof. Among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving 404 discharges, a permit will be denied if the discharge that would be authorized by such permit would not comply with the Environmental Protection Agency's 404(b)(1) guidelines. Subject to the preceding sentence and any other applicable guidelines or criteria (see Sections 320.2 and 320.3), a permit will be granted unless the District Commander determines that it would be contrary to the public interest.

The USACE is soliciting comments from the public; Federal, State, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the USACE to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

AUTHORITY: This permit will be issued or denied under the following authorities:
(X) Perform work in or affecting navigable waters of the United States – Section 10 Rivers and Harbors Act 1899 (33 U.S.C. 403).

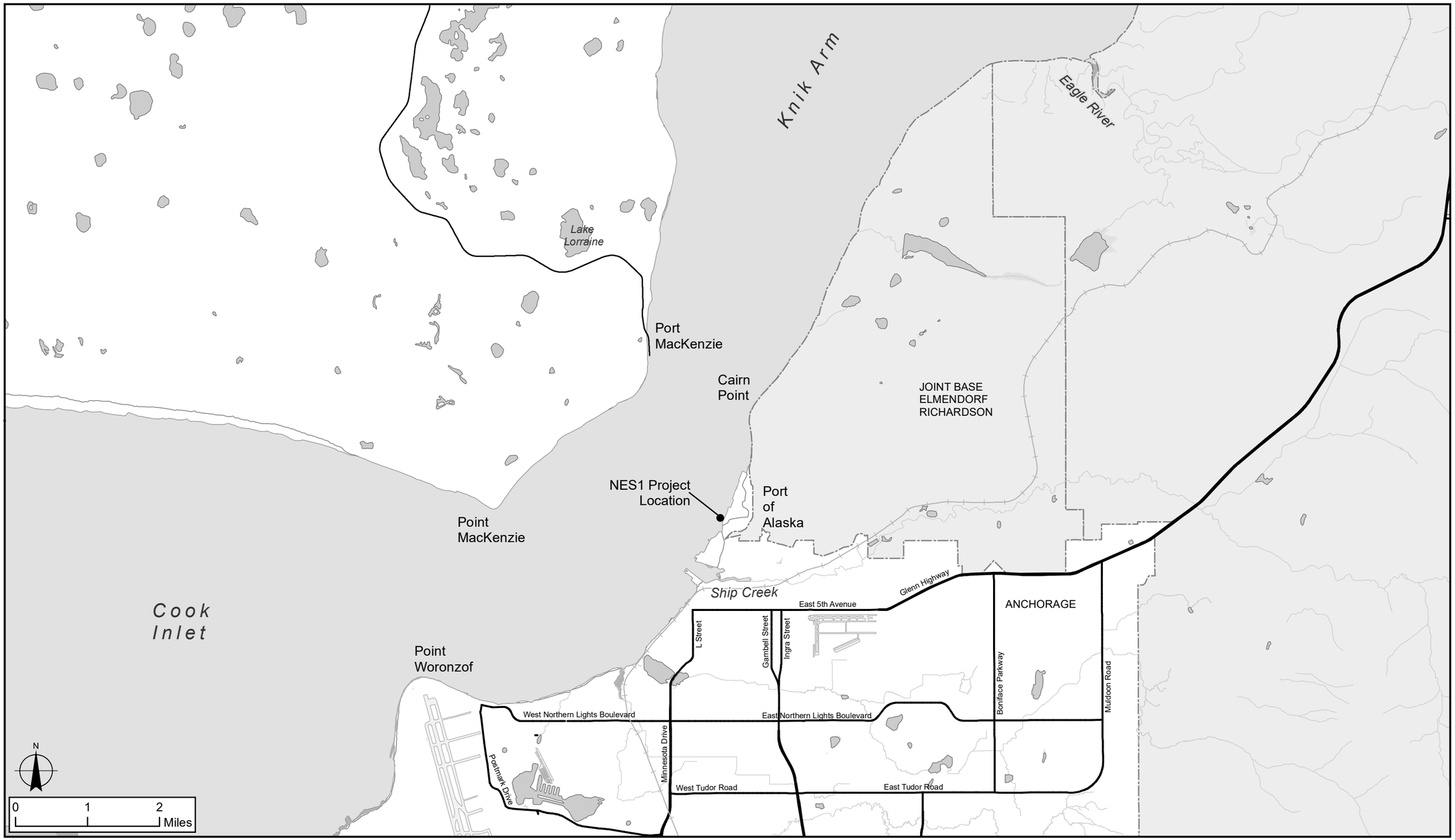
(X) Discharge dredged or fill material into waters of the United States – Section 404 Clean Water Act (33 U.S.C. 1344). Therefore, our public interest review will consider the guidelines set forth under Section 404(b) of the Clean Water Act (40 CFR 230).

(X) Request to Alter or Occupy a Federal Civil Works Project – Section 14 Rivers and Harbors Act 1899 (33 U.S.C. 408)

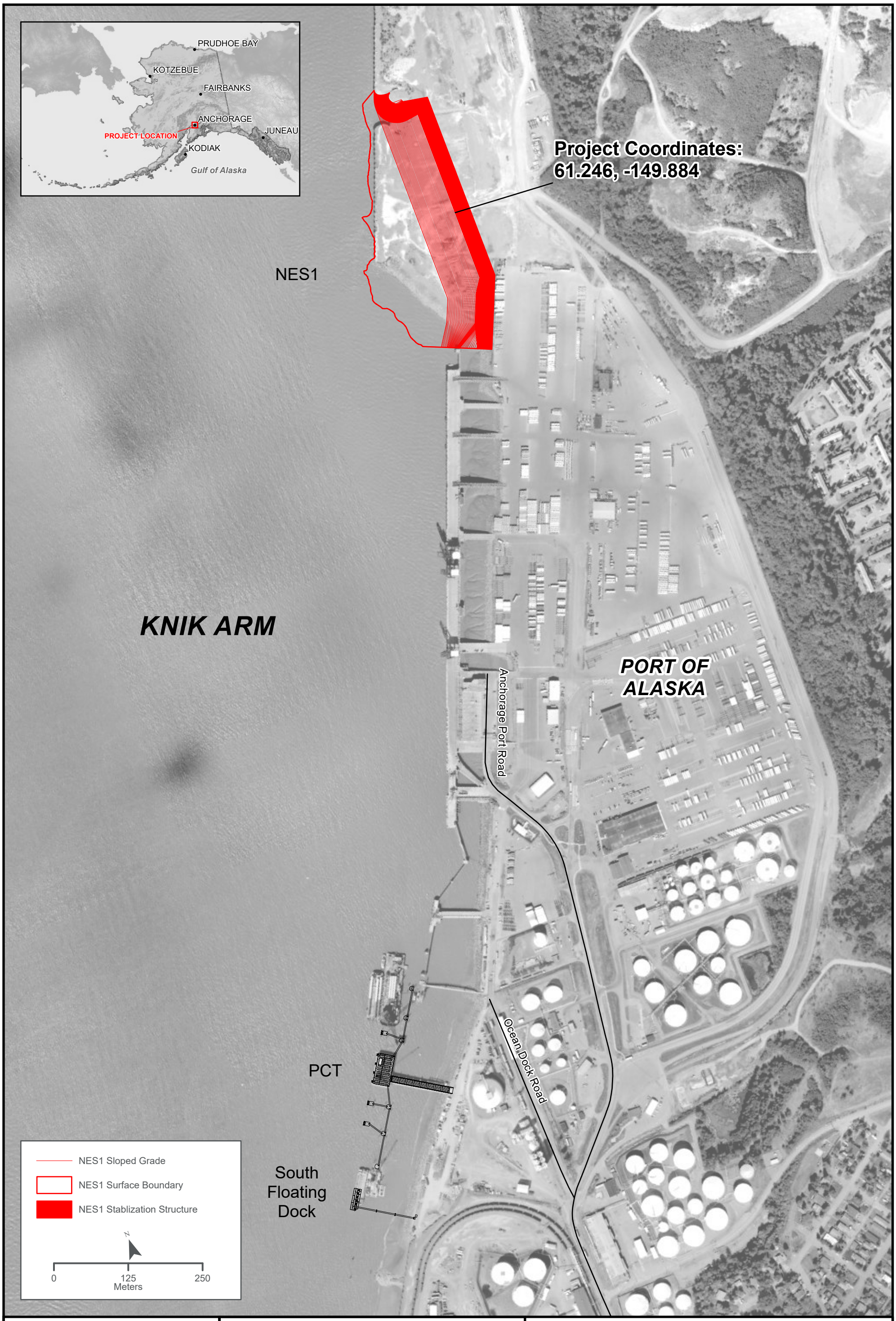
Project drawings are enclosed with this public notice.

District Commander
U.S. Army, Corps of Engineers

Enclosures



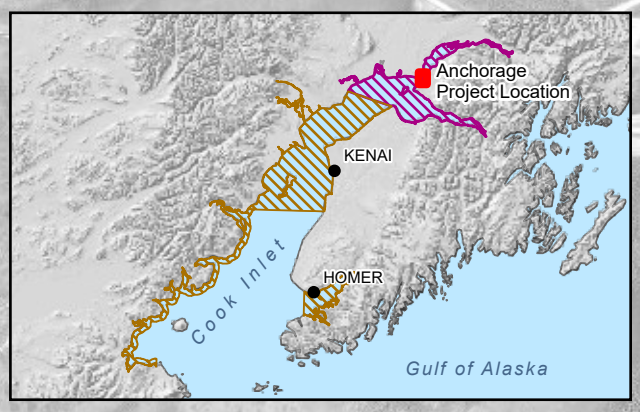
	APPLICANT: Municipality of Anchorage, Port of Alaska Modernization Program Northern Extension Stabilization, Step 1 FILE NO: POA-2003-00502-M20	WATERWAY: Knik Arm LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian DATE: June, 2022 FIGURE 1 of 21: Project Location



PORT OF ALASKA MODERNIZATION PROGRAM	APPLICANT: Municipality of Anchorage, Port of Alaska Modernization Program Northern Extension Stabilization, Step 1 FILE NO: POA-2003-00502-M20	WATERWAY: Knik Arm LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian DATE: June, 2022 FIGURE 2 of 21, Site Vicinity

APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 3 of 21, NES1 Action Area



Port
MacKenzie

Cairn
Point

PORT OF
ALASKA

Point
MacKenzie

NES1

Beluga Critical Habitat
Exclusion Area

Beluga Critical Habitat Area
1

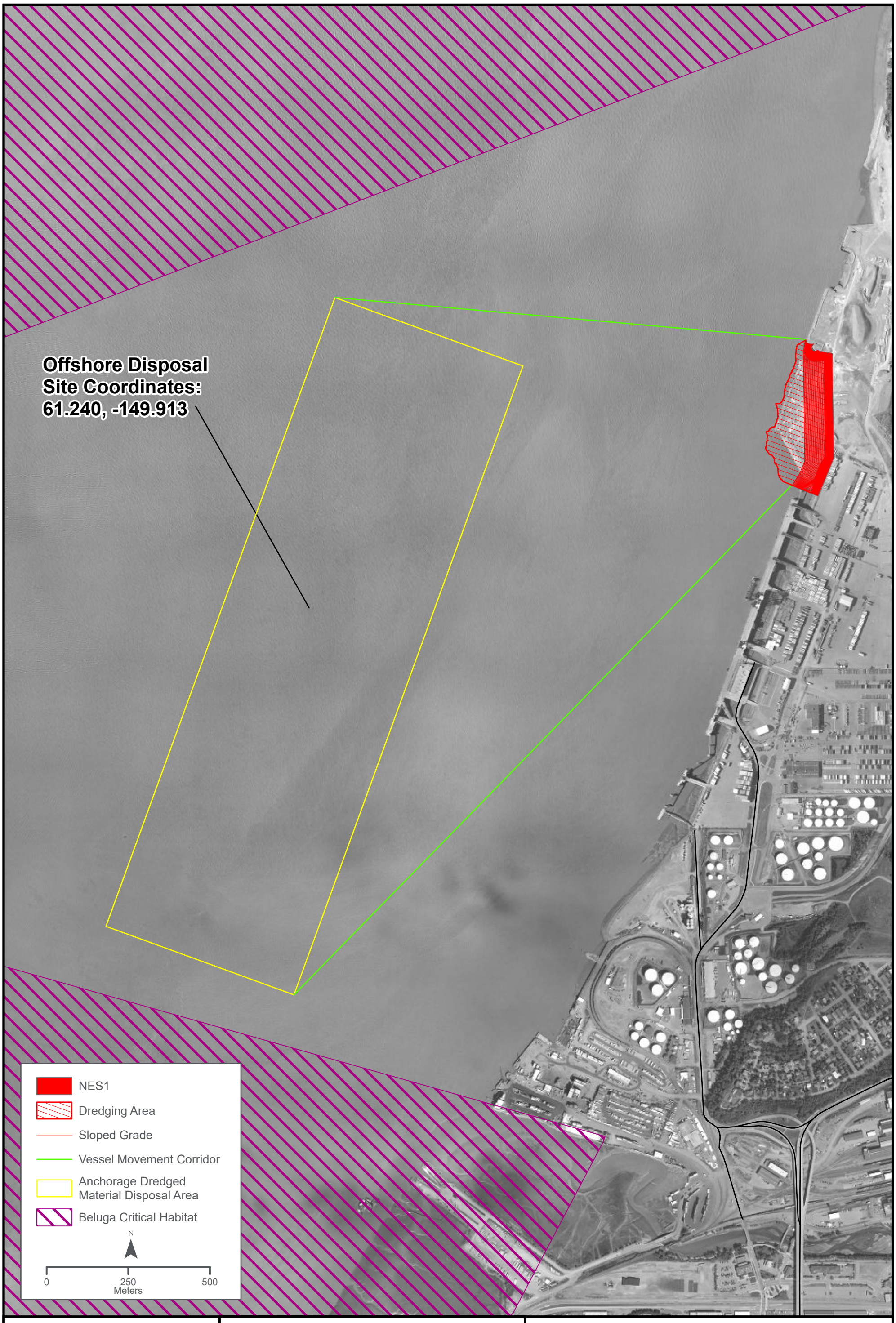
Beluga Critical Habitat Area
2

N

0 500 1,000
Meters

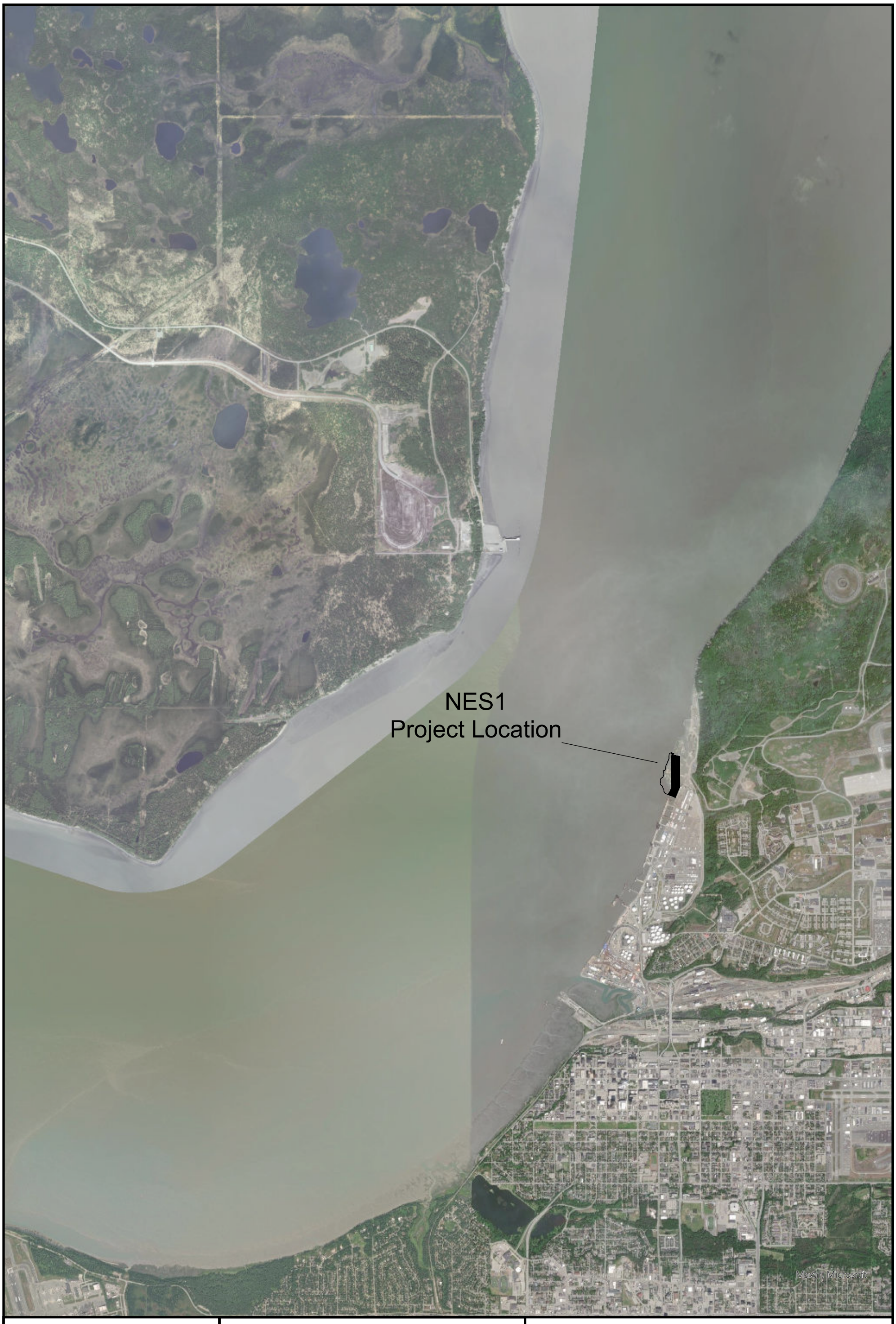
APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 4 of 21, Beluga Whale Critical Habitat Areas



APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 5 of 21, Dredging and Disposal Area



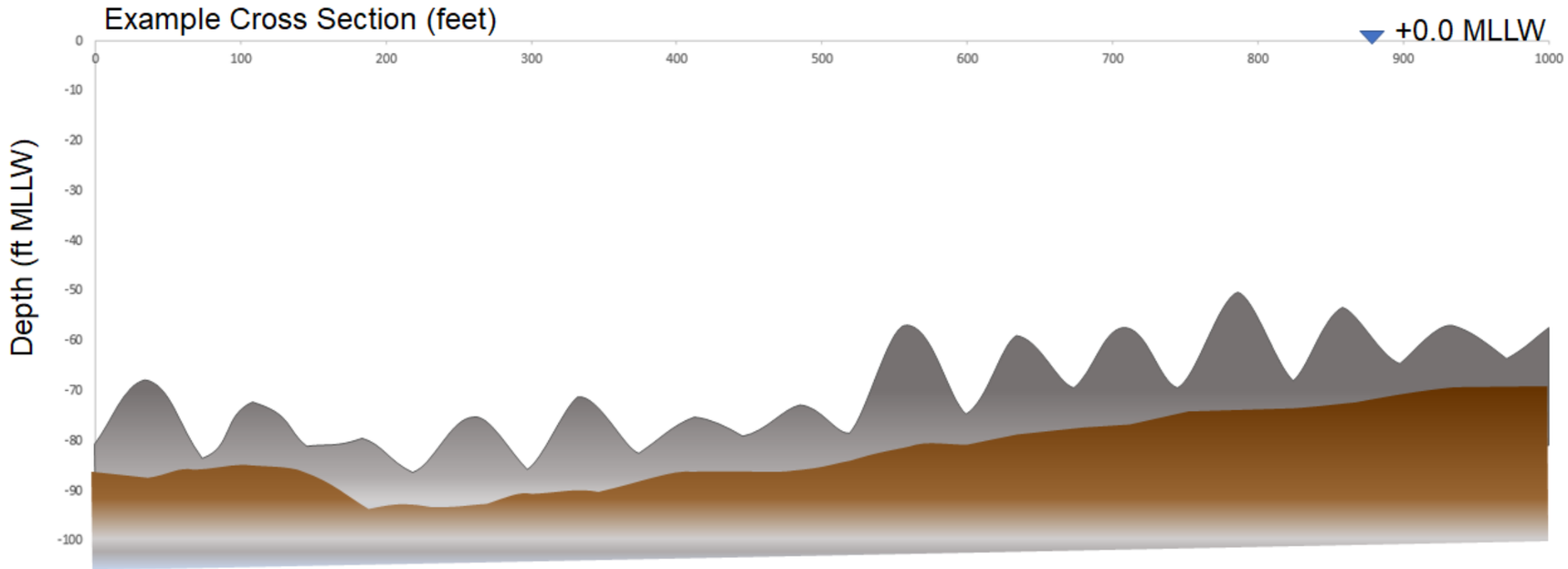
PORT OF ALASKA MODERNIZATION PROGRAM	APPLICANT: Municipality of Anchorage, Port of Alaska Modernization Program Northern Extension Stabilization, Step 1 FILE NO: POA-2003-00502-M20	WATERWAY: Knik Arm LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian DATE: June, 2022 FIGURE 6 of 21, NES1 Location & Project Features (Aerial Imagery)

APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

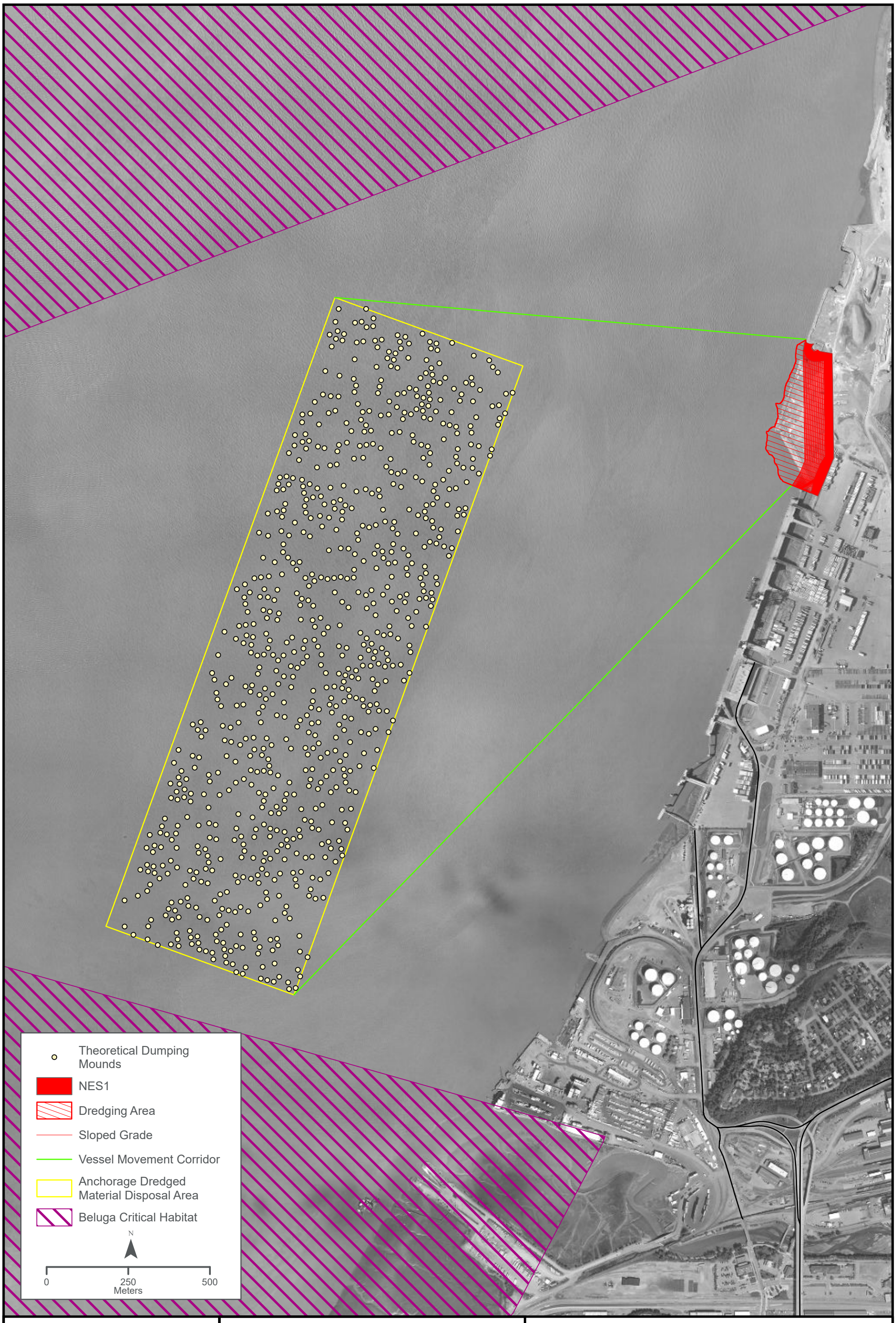
WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 7 of 21, NES1 Location & Project Features (Aerial Imagery)

PORT OF ALASKA MODERNIZATION PROGRAM	APPLICANT: Municipality of Anchorage, Port of Alaska Modernization Program Northern Extension Stabilization, Step 1 FILE NO: POA-2003-00502-M20	WATERWAY: Knik Arm LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian DATE: June, 2022 FIGURE 8 of 21, NES1 Location & Project Features (Aerial Imagery)

Segment Cross Section Example of Disposal Site

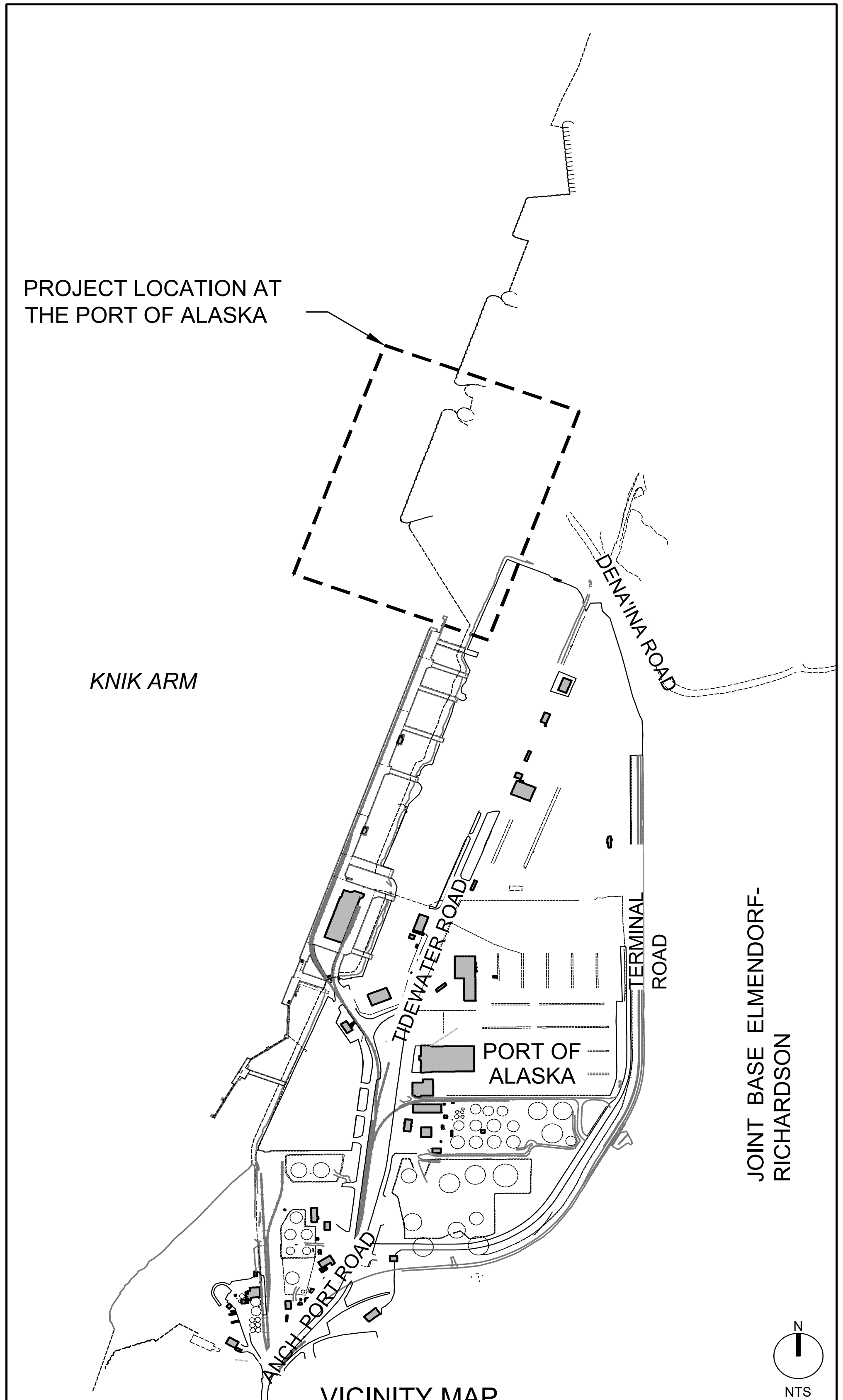


	APPLICANT: Municipality of Anchorage, Port of Alaska Modernization Program Northern Extension Stabilization, Step 1 FILE NO: POA-2003-00502-M20	WATERWAY: Knik Arm LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian DATE: June, 2022 FIGURE 9 of 21: Anticipated Impact to Disposal Site



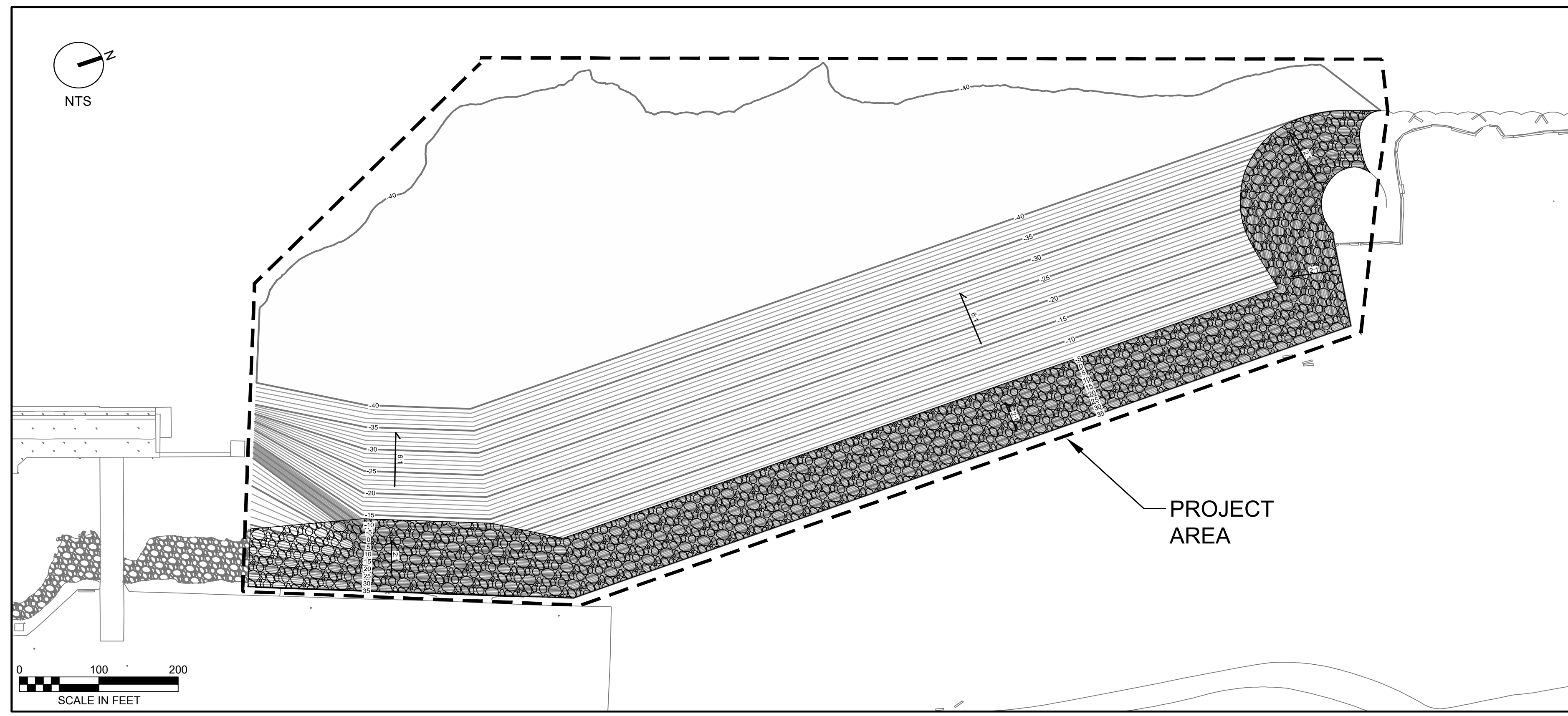
APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 10 of 21, Anticipated Impact to Disposal Site



VICINITY MAP

PORT OF ALASKA MODERNIZATION PROGRAM
NORTHERN EXTENSION STABILIZATION, STEP 1



LOCATION MAP

CONCEPTUAL

FILE NO.

APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 11 of 21: Permit Drawing Location Map

Drawing: NES-G-0001.DWG Date: Jun 07, 2022 - 10:07am

STANDARD ABBREVIATIONS

APPROX	APPROXIMATE
BOT	BOTTOM
CB	CATCH BASIN
CMP	CORRUGATED METAL PIPE
CPP	CORRUGATED POLYETHYLENE PIPE
CONT	CONTINUOUS
DIA	DIAMETER
(E)	EXISTING
E	EAST
EL	ELEVATION
ELEV	ELEVATION
FT	FOOT
H	HORIZONTAL
HORIZ	HORIZONTAL
HTL	HIGH TIDE LINE
MAX	MAXIMUM
MH	MANHOLE
MHW	MEAN HIGH WATER
MLLW	MEAN LOWER LOW WATER
N/A	NOT APPLICABLE
NES	NORTHERN EXTENSION STABILIZATION
NO	NUMBER
NTS	NOT TO SCALE
(N)	NEW
N	NORTH
PC	POINT OF CURVATURE
PI	POINT OF INTERSECTION
PT	POINT OF TANGENCY
R ROW	RADIUS
S SBS	RIGHT OF WAY
SD	SOUTH
SDMH	SOUTH BACKLANDS STABILIZATION
SWPPP	STORM DRAIN
TYP	STORM DRAIN MANHOLE
USACE	STORM WATER POLLUTION PREVENTION PLAN
V VERT	TYPICAL
W	UNITED STATES ARMY CORPS OF ENGINEERS
	VERTICAL
	VERTICAL
	WEST

UTILITIES LEGEND

STORM DRAIN MANHOLE

CULVERT PIPE

E — UNDERGROUND ELECTRIC LINE

SD — STORM DRAIN LINE

GENERAL NOTES

1. IN GENERAL, EXISTING STRUCTURES AND FACILITIES ARE NOTED AS "EXISTING" AND ARE SHOWN IN LIGHT LINE WEIGHTS, DASHED LINE TYPE OR FADED SCREENED BACKGROUND. PROPOSED OR TO BE CONSTRUCTED FEATURES ARE SHOWN IN HEAVY LINE WEIGHTS.
2. THE PRIMARY HORIZONTAL COORDINATE SYSTEM IS ALASKA STATE PLANE ZONE 4.
3. THE VERTICAL DATUM FOR THE PROJECT IS MEAN LOWER LOW WATER (MLLW=0.00'), BASED ON THE NOAA TIDAL BENCHMARK #9455920 LOCATED AT THE PORT OF ANCHORAGE. VERTICAL CONTROL IS PROVIDED IN THE SURVEY CONTROL DRAWINGS.

TIDAL DATUM		
Anchorage Port		
HTL	34.7	High Tide Line
MHW	28.4	Mean High Water
MSL	16.5	Mean Sea Level
MLLW	0.0	Mean Lower Low Water

4. UPLAND TOPOGRAPHY (ABOVE 0.0' MLLW AND OUTSIDE PROJECT LIMITS): SUMMER 2015 AERIAL LiDAR AND TERRESTRIAL TOPOGRAPHIC SURVEYS.
5. BATHYMETRIC CONTOURS (BELOW 0.0' MLLW) AND OUTSIDE THE PROJECT BOUNDARIES: SEPTEMBER 2014 USACE SURVEY.
6. THE CONTRACTOR SHALL HAVE AN APPROVED SWPPP PLAN IN PLACE PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.
7. CONTRACTOR SHALL COMPLETE BATHYMETRIC AND TERRESTRIAL SURVEY PRIOR TO CONSTRUCTION TO CONFIRM QUANTITIES. SURVEY DATA SHALL BE PROVIDED TO THE OWNER'S REPRESENTATIVE 7 DAYS PRIOR TO CONSTRUCTION.
8. RIPRAP DESIGN PARAMETERS:
   -WAVE HEIGHT = 6.6 FEET WITH A PERIOD OF 5.7 SECONDS, BASED ON WIND SPEED OF 29.3 MPH FROM THE SOUTHWEST.
   -ICE THICKNESS = 3 FEET
9. APPLICABLE DESIGN STANDARDS AND CODES:
   - MUNICIPALITY OF ANCHORAGE STANDARD SPECIFICATIONS (M.A.S.S.)
   - MUNICIPALITY OF ANCHORAGE DRAINAGE DESIGN GUIDELINES
   - STATE OF ALASKA, ALASKA POLLUTANT DISCHARGE ELIMINATION (APDES) PROGRAM
   - PORT OF ANCHORAGE - MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) PERMIT

GENERAL CIVIL NOTES

1. MANY OF THE SYMBOLS ON THIS LEGEND ARE USED ONLY WHERE THEY PROVIDE CLARITY AND ARE NOT NECESSARILY USED AT ALL APPLICATIONS SOME DRAWINGS IN THE CONTRACT DOCUMENTS HAVE ADDITIONAL LEGENDS APPLICABLE TO THOSE SPECIFIC DRAWINGS.

INDEX OF DRAWINGS

CIVIL LEGEND

MONITOR WELL

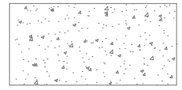
BH — GEOTECHNICAL BOREHOLE

SIGN

PROPERTY LINE

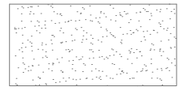
LEASE LINE

x x x — CHAINLINK FENCE

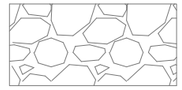


CONCRETE

ASPHALT



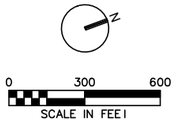
GRAVEL



ARMOR ROCK

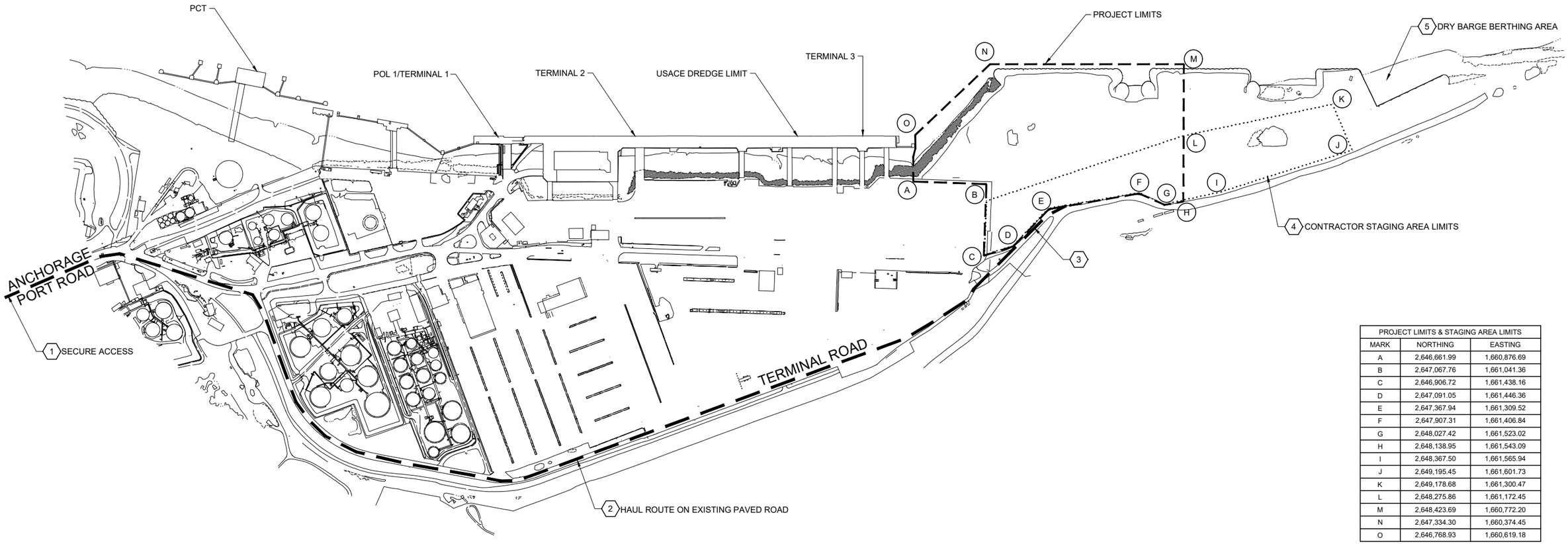
APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 12 of 21: Abbreviations, General Notes, and Index of Drawings



SHEET KEYNOTES

1. THE PORT OF ALASKA IS A RESTRICTED FACILITY AND SECURITY CLEARANCE IS REQUIRED FOR PROJECT ACCESS. PORT ACCESS MAY BE LIMITED OR RESTRICTED AT ANY TIME. COORDINATE AND COMPLY WITH CONTRACTOR ACCESS AND SECURITY PROTOCOLS THROUGHOUT CONSTRUCTION.
2. MUNICIPAL AND STATE LOAD RESTRICTIONS APPLY. ALL LOADS ARE TO BE SECURED TO PREVENT DEBRIS FROM SCATTERING ON ROADWAYS.
3. MANAGE FUGITIVE DUST FROM EARTH MOVING OPERATIONS ACCORDING TO THE PROJECT STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
4. AREA SHOWN IS APPROXIMATE. LIMITED CONTRACTOR STAGING WILL BE AVAILABLE WITHIN THE PROJECT LIMITS. COORDINATE FINAL STAGING AREA LAYOUT WITH THE OWNER'S REPRESENTATIVE PRIOR TO MOBILIZATION. DO NOT STAGE EQUIPMENT OR MATERIALS OUTSIDE OF THE DESIGNATED STAGING AREA WITHOUT OBTAINING PERMISSION FROM THE OWNER'S REPRESENTATIVE SO AS NOT TO INTERRUPT EXISTING OPERATIONS.
5. MAINTAIN ACCESS TO THE DRY BARGE BERTH THROUGHOUT THE PROJECT DURATION. COORDINATE ACCESS IMPACTS WITH THE OWNER'S REPRESENTATIVE IN ADVANCE OF DISRUPTION.
6. CONTRACTOR SHALL COORDINATE WITH ROADWAY CONTRACTORS FOR ACCESS TO THE PROJECT SITE.



PROJECT LIMITS & STAGING AREA LIMITS		
MARK	NORTHING	EASTING
A	2,646,661.99	1,660,876.69
B	2,647,067.76	1,661,041.36
C	2,646,906.72	1,661,438.16
D	2,647,091.05	1,661,446.36
E	2,647,367.94	1,661,309.52
F	2,647,907.31	1,661,406.84
G	2,648,027.42	1,661,523.02
H	2,648,138.95	1,661,543.09
I	2,648,367.50	1,661,565.94
J	2,649,195.45	1,661,601.73
K	2,649,178.68	1,661,300.47
L	2,648,275.86	1,661,172.45
M	2,648,423.69	1,660,772.20
N	2,647,334.30	1,660,374.45
O	2,646,768.93	1,660,619.18

APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

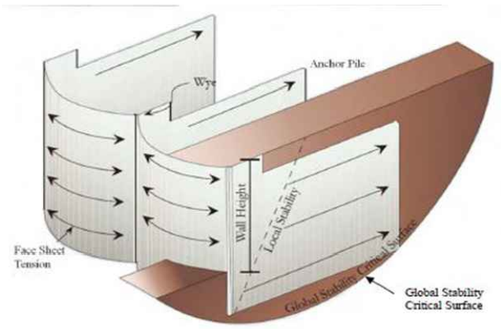
WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 13 of 21: Project Limits, Contractor Staging Areas, & Road Access Routes

WATERSIDE VIEW OF THE NORTH EXTENSION OCSP
CONTAINMENT WITH ORIGINAL DESIGN MUDLINE DEPTH

WATERSIDE VIEW OF THE NORTH EXTENSION OCSP
CONTAINMENT WITH ORIGINAL DESIGN MUDLINE DEPTH

SUBSIDENCE OF IMPOUNDED MATERIALS AT THE FACE WALL
OF OCSP CELL 66 ILLUSTRATING MATERIAL LOSSES
THROUGH THE FACE SHEET INTERLOCKS (ICRC 2010)

SUBSIDENCE OF IMPOUNDED MATERIALS AT THE FACE WALL
OF OCSP CELL 66 ILLUSTRATING MATERIAL LOSSES
THROUGH THE FACE SHEET INTERLOCKS (ICRC 2010)



OPEN CELL SHEET PILE (OCSP) SYSTEM MECHANICS
(PND, PILEDRIVER MAGAZINE, 2012)

APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 14 of 21: Existing Images

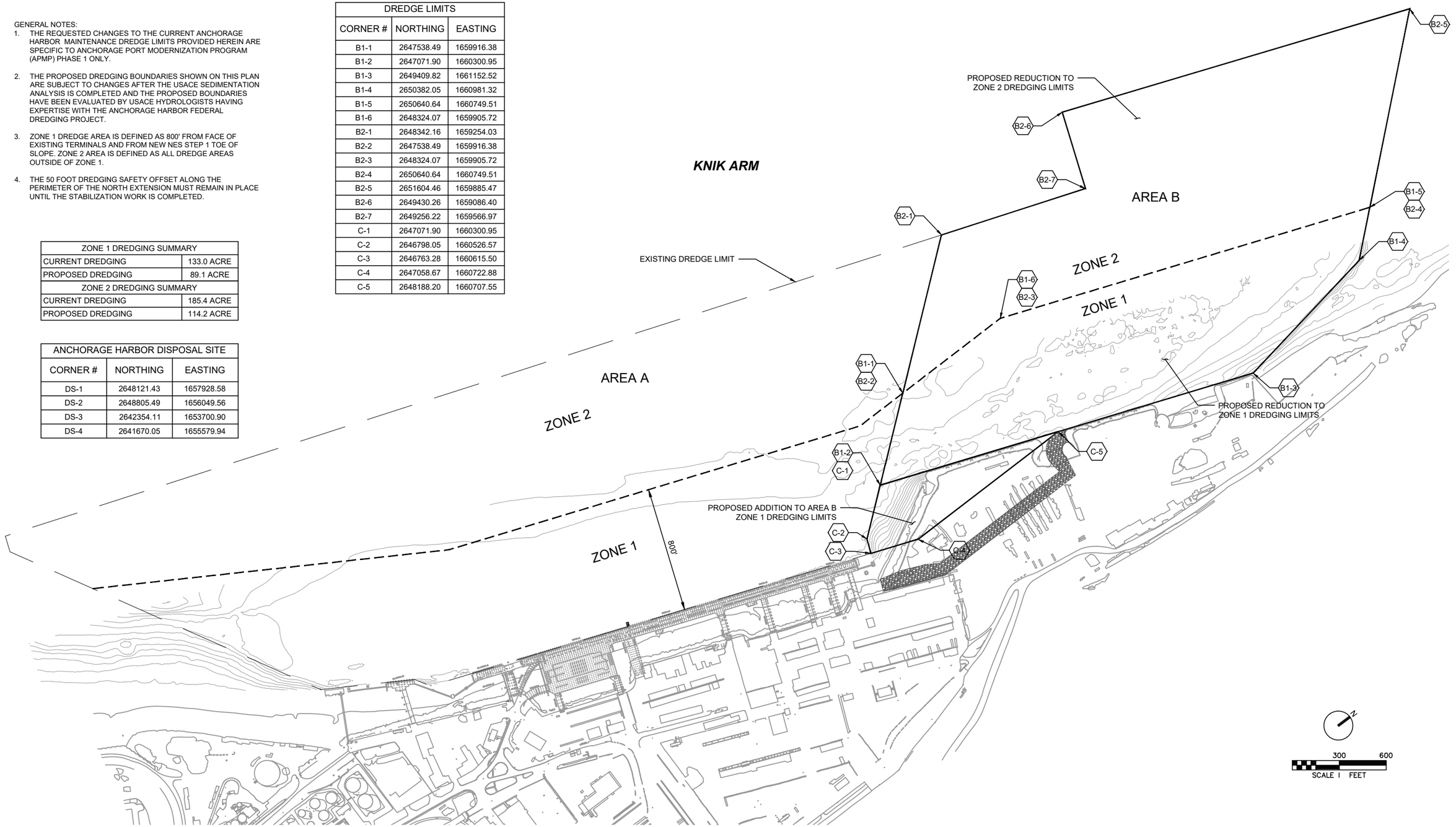
GENERAL NOTES:

1. THE REQUESTED CHANGES TO THE CURRENT ANCHORAGE HARBOR MAINTENANCE DREDGE LIMITS PROVIDED HEREIN ARE SPECIFIC TO ANCHORAGE PORT MODERNIZATION PROGRAM (APMP) PHASE 1 ONLY.
2. THE PROPOSED DREDGING BOUNDARIES SHOWN ON THIS PLAN ARE SUBJECT TO CHANGES AFTER THE USACE SEDIMENTATION ANALYSIS IS COMPLETED AND THE PROPOSED BOUNDARIES HAVE BEEN EVALUATED BY USACE HYDROLOGISTS HAVING EXPERTISE WITH THE ANCHORAGE HARBOR FEDERAL DREDGING PROJECT.
3. ZONE 1 DREDGE AREA IS DEFINED AS 800' FROM FACE OF EXISTING TERMINALS AND FROM NEW NES STEP 1 TOE OF SLOPE. ZONE 2 AREA IS DEFINED AS ALL DREDGE AREAS OUTSIDE OF ZONE 1.
4. THE 50 FOOT DREDGING SAFETY OFFSET ALONG THE PERIMETER OF THE NORTH EXTENSION MUST REMAIN IN PLACE UNTIL THE STABILIZATION WORK IS COMPLETED.

ZONE 1 DREDGING SUMMARY	
CURRENT DREDGING	133.0 ACRE
PROPOSED DREDGING	89.1 ACRE
ZONE 2 DREDGING SUMMARY	
CURRENT DREDGING	185.4 ACRE
PROPOSED DREDGING	114.2 ACRE

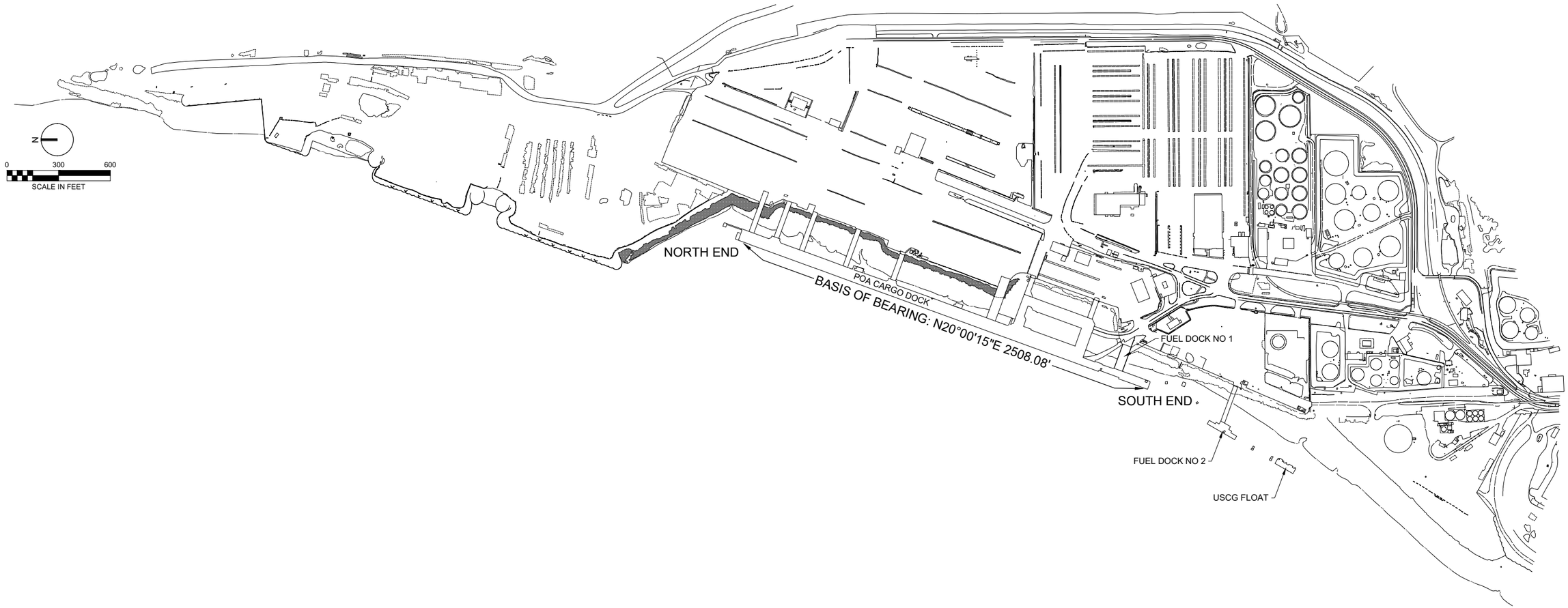
ANCHORAGE HARBOR DISPOSAL SITE		
CORNER #	NORTHING	EASTING
DS-1	2648121.43	1657928.58
DS-2	2648805.49	1656049.56
DS-3	2642354.11	1653700.90
DS-4	2641670.05	1655579.94

DREDGE LIMITS		
CORNER #	NORTHING	EASTING
B1-1	2647538.49	1659916.38
B1-2	2647071.90	1660300.95
B1-3	2649409.82	1661152.52
B1-4	2650382.05	1660981.32
B1-5	2650640.64	1660749.51
B1-6	2648324.07	1659905.72
B2-1	2648342.16	1659254.03
B2-2	2647538.49	1659916.38
B2-3	2648324.07	1659905.72
B2-4	2650640.64	1660749.51
B2-5	2651604.46	1659885.47
B2-6	2649430.26	1659086.40
B2-7	2649256.22	1659566.97
C-1	2647071.90	1660300.95
C-2	2646798.05	1660526.57
C-3	2646763.28	1660615.50
C-4	2647058.67	1660722.88
C-5	2648188.20	1660707.55



APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 15 of 21: Dredging Plan NES Step 1

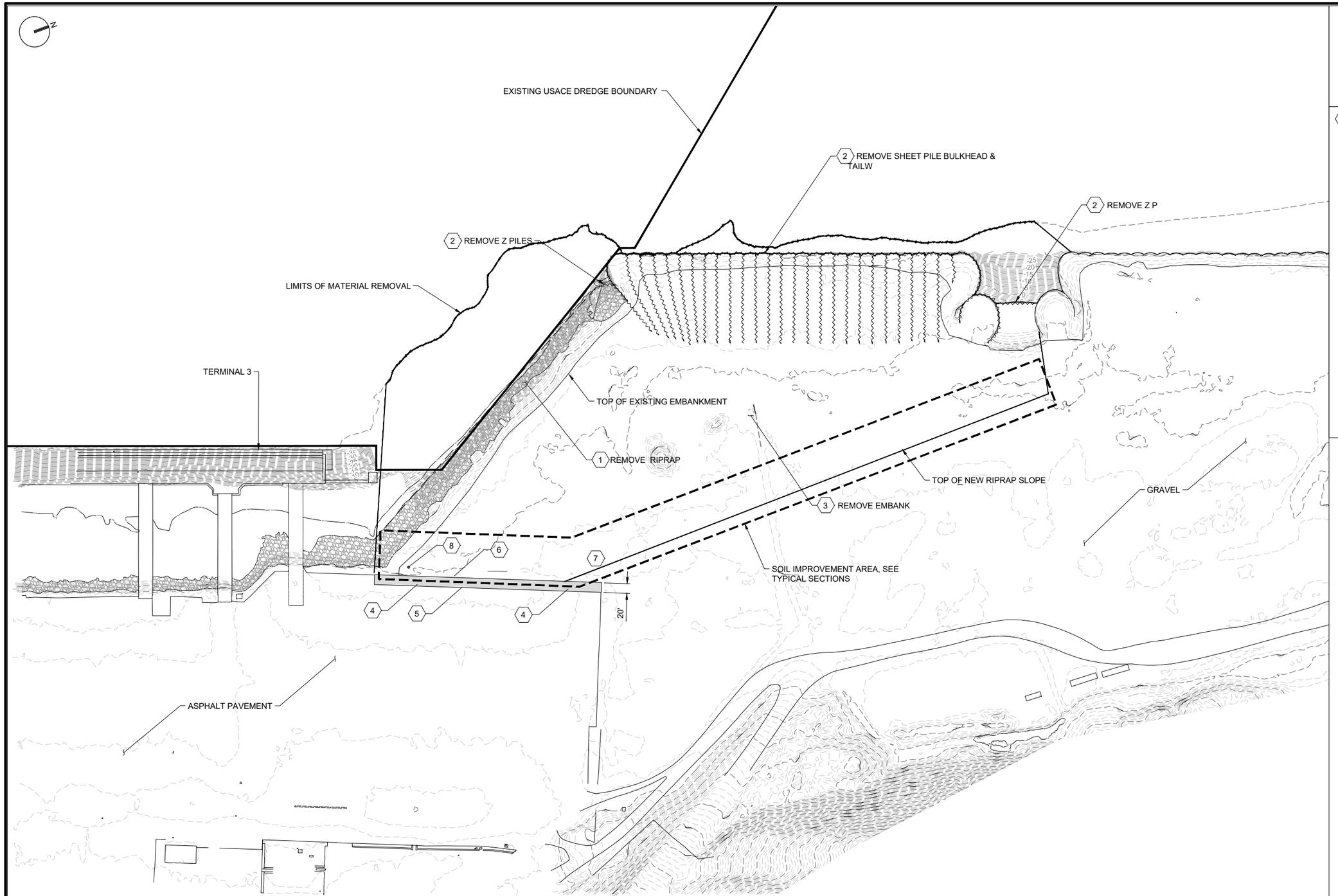


SURVEY CONTROL DATA				
STATION	NORTHING	EASTING	MLLW	DESCRIPTION
ANC2 ARP	2,621,462.11	1,643,344.06		ARP
AWWU 1984	2,629,311.02	1,635,837.37		ALMON
BM 12 1974	2,620,563.82	1,604,566.35	27.63	BRASS CAP
BM 5934 F	2,655,203.73	1,655,049.51	36.48	BRASS CAP
CRAIG	2,642,635.95	1,661,029.47	44.95	BRASS CAP
ETRAC-1	2,646,395.57	1,660,814.72	38.34	BRASS CAP
ETRAC-2	2,644,443.04	1,660,120.66	36.38	BRASS CAP
JHZ-1 ARP	2,629,233.88	1,636,558.78		ARP
LOOP 2 RM 3	2,649,985.32	1,667,186.91		BRASS CAP
MIKE	2,645,987.73	1,661,875.48	48.67	BRASS CAP

SURVEY CONTROL DATA				
STATION	NORTHING	EASTING	MLLW	DESCRIPTION
NORTH END	2,646,649.84	1,660,584.80	41.56	BRASS CAP
PMAC ARP	2,713,356.44	1,626,542.67		ARP
PORT 1989	2,639,934.29	1,656,925.43	39.55	ALMON
PORT MAC	2,655,563.46	1,654,968.22	41.51	BRASS CAP
RIFE 1960	2,620,502.19	1,604,162.70	29.99	BRASS CAP
SOUTH END	2,644,296.27	1,659,728.03	40.58	BRASS CAP
TBON ARP	2,623,165.72	1,678,342.84		ARP
TERRA 11 ARP	2,644,969.84	1,660,159.24	80.48	ARP
TERRA 12 ARP	2,644,990.65	1,660,166.56	81.21	ARP
THERMO	2,642,784.70	1,660,183.87	37.32	ALMON

APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 16 of 21: Survey Control



GENERAL NOTES

1 DISPOSAL OF SHEET PILES, DREDGED MATERIAL, NON-STOCKPILED MATERIAL, CONCRETE, ASPHALT, AND OTHER CONSTRUCTION DEBRIS IS THE RESPONSIBILITY OF THE CONTRATOR. THERE IS NO ON-SITE DISPOSAL AVAILABLE. DISPOSE OF NON-HAZARDOUS DEBRIS AT THE ANCHORAGE LANDFILL OR OTHER APPROVED DISPOSAL SITE.

SHEET KEYNOTES

1. SALVAGE ARMOR ROCK FOR RE-USE. STOCKPILE ON SITE AT A LOCATION DETERMINED BY OWNER.
2. REMOVE THE OPEN CELL SHEET PILE STRUCTURE, ASSOCIATED TAIL WALLS, AND Z-PILE WALLS. SHEET PILES SHALL BE CUT OFF AT -46' WITHIN THE DREDGE PRISM AND WITHIN 25-FT OF THE DREDGE PRISM IF THEY CANNOT BE REMOVED.
3. EXCAVATE AND REMOVE THE EMBANKMENT BETWEEN THE FACE OF THE OPEN SHEET PILE WALLS AND THE NEW RIPRAP SLOPES. STOCKPILE MATERIAL MEETING TYPE II CLASSIFIED FILL SPECIFICATIONS ON-SITE AT A LOCATION APPROVED BY THE OWNER. THE REMAINDER OF THE EXCAVATED MATERIAL IS THE RESPONSIBILITY OF THE CONTRACTOR
4. PROTECT LIGHT POLES (2) DURING SOIL IMPROVEMENTS
5. PAVEMENT CUT LINE
6. REMOVE AND REPLACE ELECTRICAL LINE OUTSIDE OF SOIL IMPROVEMENTS.
7. CUT & REMOVE ASPHALT PAVEMENT, 20' WIDE TYP.
8. STORM DRAIN SYSTEM TO BE RELOCATED OUTSIDE OF DSM AREA. TO BE COMPLETED BY OTHERS. CONTRACTORS SHALL COORDINATE AS NECESSARY.

LEGEND

PAVEMENT REMOVAL

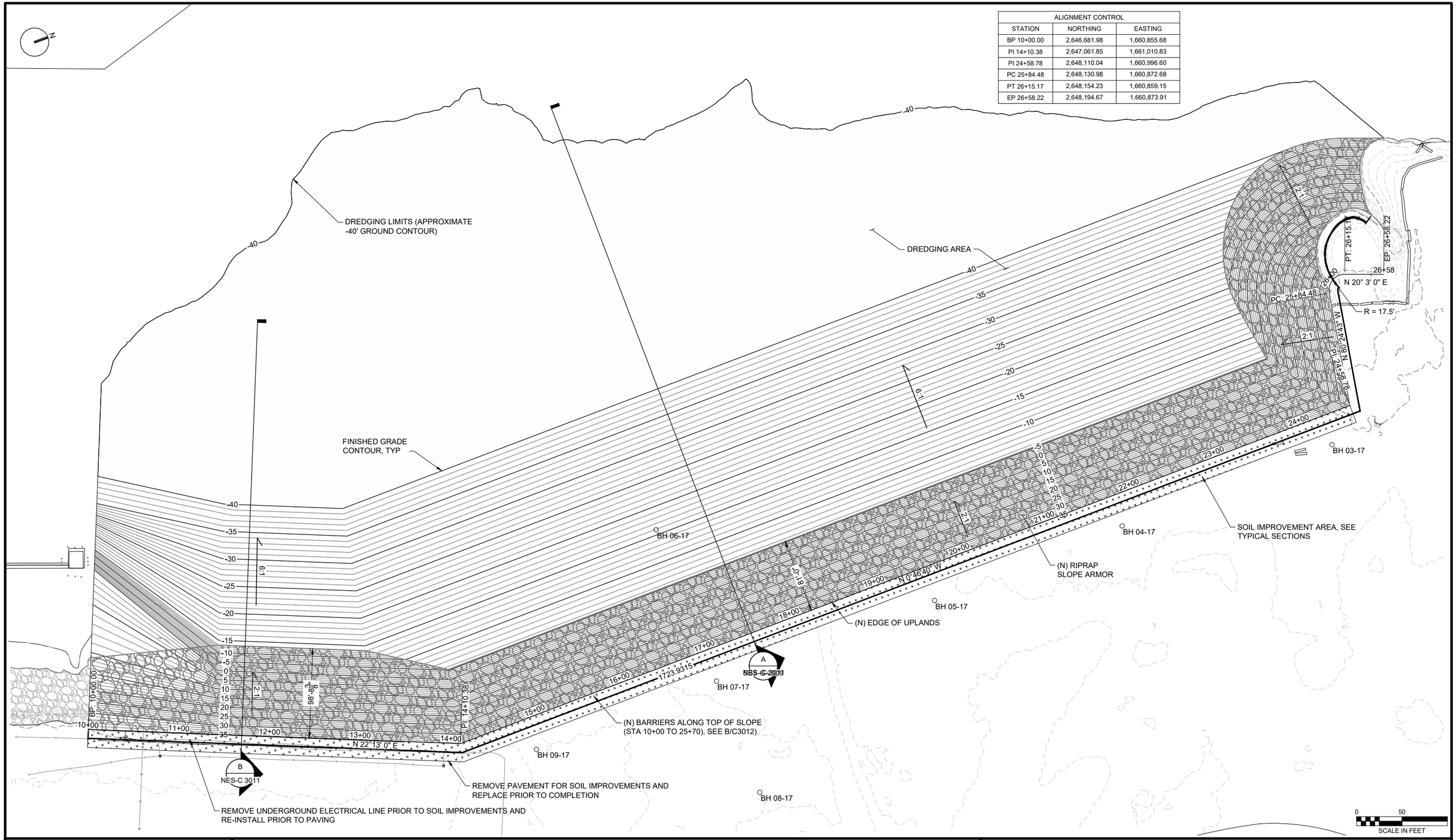
SHEET PILE WALL REMOVAL

0 100 200
SCALE IN FEET

APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

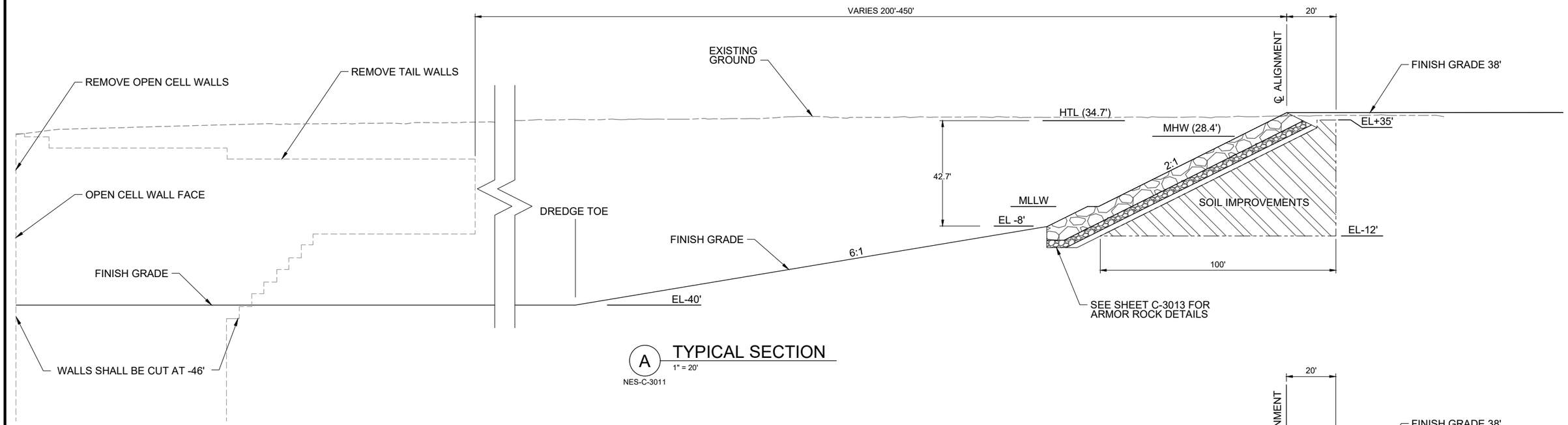
WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 17 of 21: Existing Conditions & Demolition Plan

ALIGNMENT CONTROL		
STATION	NORTHING	EASTING
BP 10+00.00	2,646,681.98	1,660,855.68
PI 14+10.38	2,647,061.85	1,661,010.83
PI 24+58.78	2,648,110.04	1,660,996.60
PC 25+84.48	2,648,130.98	1,660,872.68
PT 26+15.17	2,648,154.23	1,660,859.15
EP 26+58.22	2,648,194.67	1,660,873.91

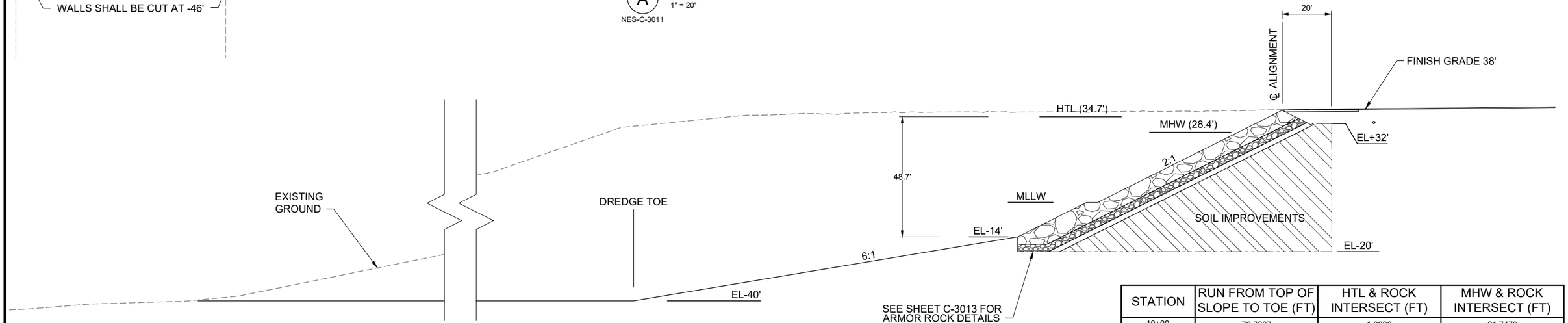


APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 18 of 21: General Site Plan



A TYPICAL SECTION
1" = 20'
NES-C-3011

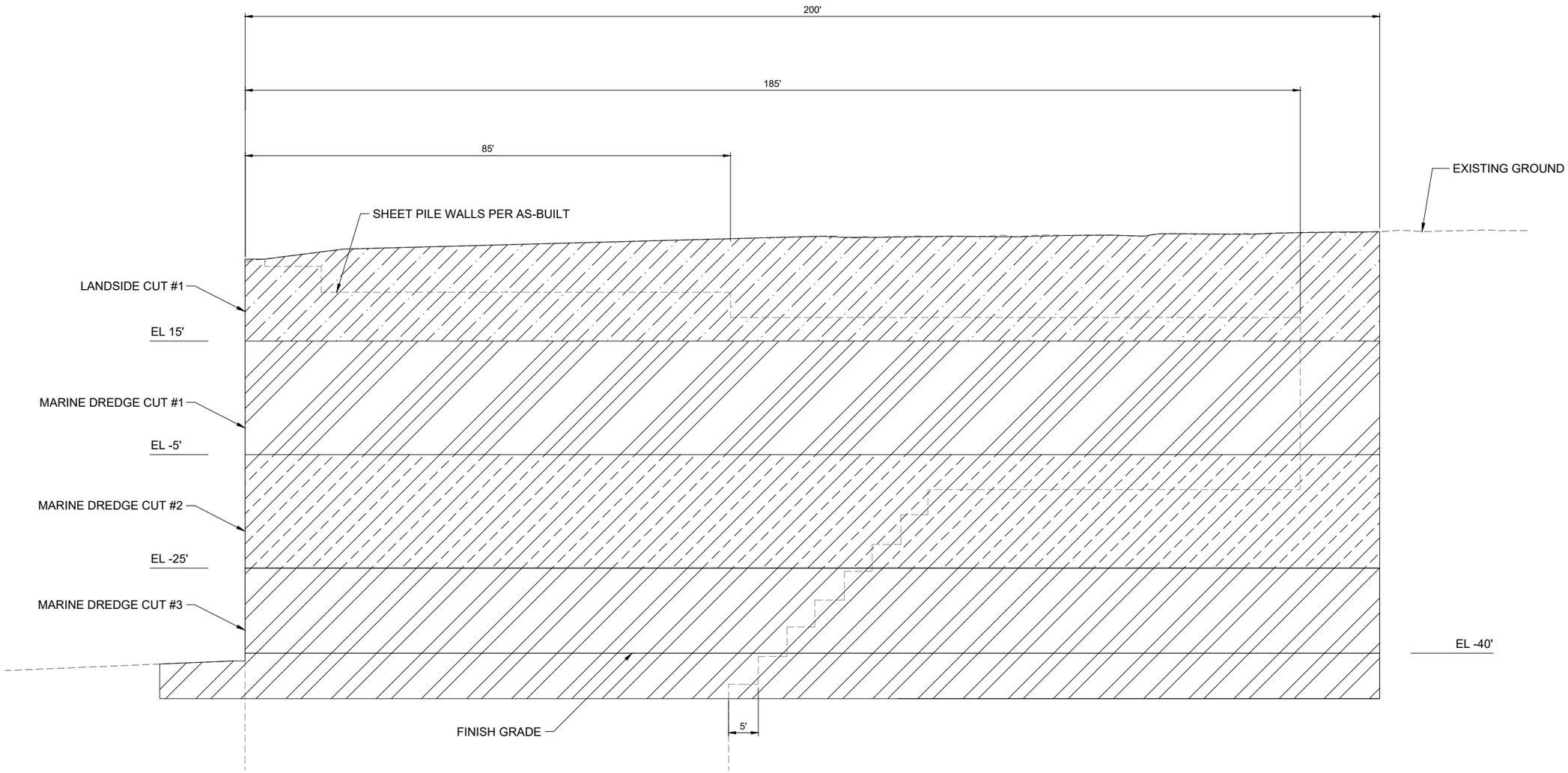


B TYPICAL SECTION
1" = 20'
NES-C-3011

STATION	RUN FROM TOP OF SLOPE TO TOE (FT)	HTL & ROCK INTERSECT (FT)	MHW & ROCK INTERSECT (FT)
10+00	79.7607	1.0868	21.7479
11+00	116.4896	0.6000	15.4390
12+00	98.1844	0.6000	13.0000
13+00	98.1844	0.6000	13.0000
14+00	83.5870	0.6000	13.0000
15+00	81.0000	0.6000	13.0000
16+00	81.0000	0.6000	13.0000
17+00	81.0000	0.6000	13.0000
18+00	81.0000	0.6000	13.0000
19+00	81.0000	0.6000	13.0000
20+00	81.0000	0.6000	13.0000
21+00	81.0000	0.6000	13.0000
22+00	81.0000	0.6000	13.0000
23+00	81.0000	0.6000	13.0000

APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 19 of 21: Typical Sections



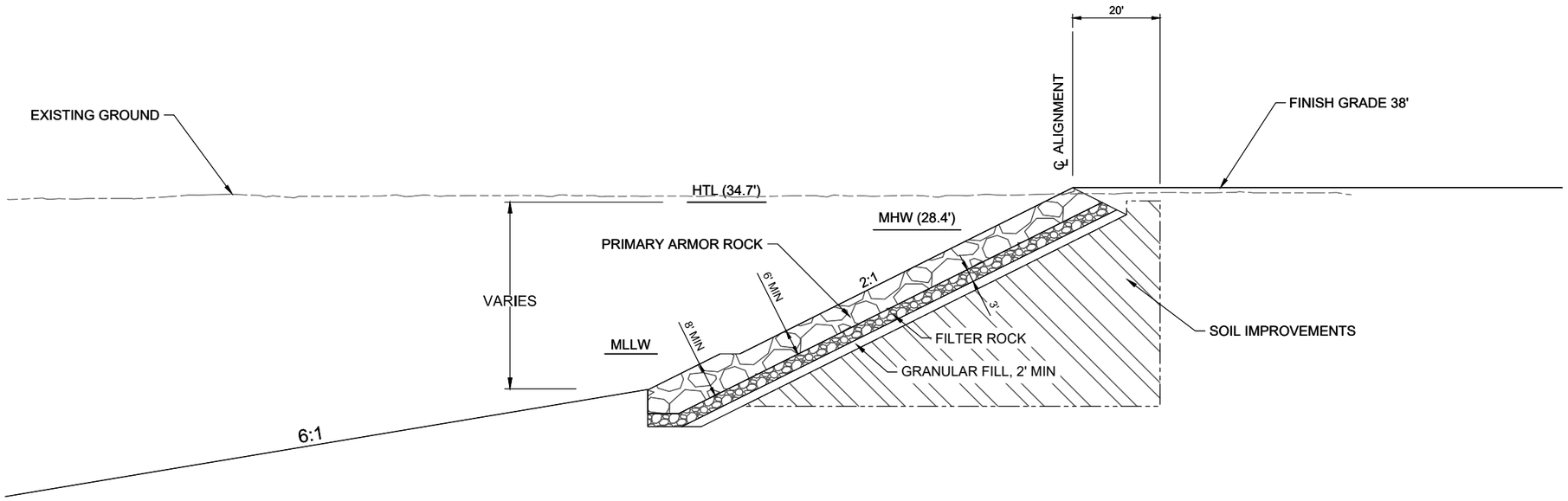
C SHEET PILE REMOVAL
1" = 10'
NES-C-3012

APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 20 of 21: Typical Sections

GENERAL NOTES

1. ESTIMATED QUANTITIES BELOW MHW:
   ARMOR ROCK = 33,000 CY
   FILTER ROCK = 16,500 CY
   GRANULAR FILL = 11,000 CY
2. ESTIMATED QUANTITIES BELOW HTL:
   ARMOR ROCK = 38,000 CY
   FILTER ROCK = 19,000 CY
   GRANULAR FILL = 12,500 CY
3. ESTIMATED EARTHWORK QUANTITIES FOR ENTIRE NES, STEP 1:
   EXCAVATION (ASSUMED BELOW MLLW) = 600,000 CY
   DREDGING (ASSUMED BELOW MLLW) = 700,000 CY
   ESTIMATED USEABLE MATERIAL = 100,000 CY



D ARMOR ROCK DETAIL
1" = 15'
NES-C-3013

APPLICANT: Municipality of Anchorage,
Port of Alaska Modernization Program
Northern Extension Stabilization, Step 1
FILE NO: POA-2003-00502-M20

WATERWAY: Knik Arm
LOCATION: Section 7, Township 13N, Range 3W, Seward Meridian
DATE: June, 2022
FIGURE 21 of 21: Typical Sections