

**RFI 093
Pebble Project EIS**

Request for Information

Title/Subject:	Dimensions of proposed project and area of proposed impacts to Navigable WOUS
Requestor:	USACE
Date Transmitted:	10/10/2018
Recipient:	Pebble Limited Partnership
Response Requested by:	10/19/2018
Rationale:	It is necessary to describe the activities that are proposed by the applicant, and to identify those within USACE authority under Section 10 of the Rivers and Harbors Act. Under Section 10, the USACE has authority over work and structures that would impact the course, condition, location or capacity of a navigable water of the US.
Describe the Information Requested and Level of Detail:	<p>We request the following: For the following questions, provide the answer for each area: 1) below/ waterward of the mean high water mark of the Cook Inlet, and 2) below/waterward of the ordinary high water mark of Lake Iliamna.</p> <p>A. The October 2018 project description indicates that there would be dredging at the port. What would be the total amount of material that would be dredged, in acres and cubic yards, as part of construction?</p> <p>B. What would be the number and total size (length x width x height, feet) of each fill area and structure (pile, mooring buoy, etc) that would be wholly or partially installed in Areas 1 and 2? For each pile, include pile diameter, and type of pile. For sheetpile indicate the total linear feet of sheetpile, in addition to the height and width of each sheetpile. Heights should be measured from mean lower low water mark elevation of 0 feet in tidal waters, and from ordinary high water mark in Lake Iliamna.</p> <p>C. How would the pipeline be installed beyond the area of the horizontal directional drill? What vessels or other equipment would be used?</p> <p>Would the pile driving equipment used at the port facility operate from the causeway? Describe how each type/size of pile would be installed.</p> <p>Describe all structures that would be constructed on the port causeway, including their use. Include any permanent cranes or fuel stations.</p> <p>Revise Figure 1-5 of the October 2018 project description to indicate the location of the high tide line and mean high water mark, the mean lower low water mark (0-foot elevation), the bathymetric data in the vicinity of the port and the pipeline, and the location of any dredge area.</p>

Recipient Response Form

Date Received from USACE:	Click here to enter text.
Response from Recipient (Describe	A. No dredging is proposed for the port site. The reference to dredging in the construction section of the Project Description has been deleted from the

<p>Information Requested to the Level of Detail Requested; Provide Attachments as Needed):</p>	<p>revised version sent to USACE on 10/10/18.</p> <p>B. Amakdedori Port (Figures 1 & 2) No support piles are proposed for the port. Sheetpile will be utilized for the dock construction and the location is shown in the attached plan view and section. A total of 1520 linear foot of sheetpile would be installed. All sheetpile would extend to the dock surface, a height of 40 feet above MLLW. Sheetpile width would be 4.6 feet, for a total of approximately 331 sheetpiles. The sheetpile will be installed using two vibratory hammers (APE 200 or similar) operating from a construction barge alongside the dock. If bedrock or hard soil is encountered, a small diesel impact hammer (Delmag D36-32 or similar) may be necessary to anchor the last one of two feet of piling into the ground. The requested dimensions for the construction below the MHW mark are: Causeway average width – 250 feet Wharf width (past causeway) – 120 feet Combined length below the MHW mark – 1900 feet (wharf is 700 feet) Causeway/wharf height – 40 feet above MLLW Permanent structures mounted on the causeway and or dock would include a fuel pipeline for unloading barges, a powerline for vessel shore power, a water supply line for firefighting, and illumination and navigation lights. No permanent cranes or fuel storage would be located on the dock.</p> <p>South Ferry Terminal (Figures 3 & 4) No pilings or sheetpile would be used in construction of the South Ferry Terminal. No permanent infrastructure structure would be mounted on the ramp below the OHW mark. The requested dimensions for the ramp construction below the OHW mark are: Ramp width terminal – 115 feet wide (widest point) x 155 feet long Ramp fill thickness – 5 to 10 feet Ramp width construction pad – 40 feet long x 600 feet wide Construction ramp fill thickness - ~2 feet Additional activity below the OHW mark will include the placement of two anchors attached to the mooring buoys as shown in the attached plan view. Anchors would be 2-foot diameter screw anchors, or drilled anchors, dependent on lake bed conditions.</p> <p>North Ferry Terminal (Figures 5 & 6) No pilings or sheetpile would be used in construction of the North Ferry Terminal. No permanent infrastructure would be mounted on the ramp below the OHW mark. The requested dimensions for the construction below the OHW mark are: Ramp width terminal – 85 feet wide (widest point) x 105 feet long Ramp fill thickness – 5 to 10 feet Additional activity below the OHW mark will include the placement of two anchors attached to the mooring buoys as shown in the attached plan view. Anchors would be 2-foot diameter screw anchors, or drilled anchors, dependent on lake bed conditions.</p> <p>C. The submarine and sub-lake portions of the pipeline would be constructed using heavy wall pipe. In shallower waters located close to shores the pipe would be buried flush with, or below, the ocean surface if required to prevent it being a hazard to navigation and/or to protect it from ice scouring. If required trenching would be completed using an extended reach backhoe or suction dredge. In limited areas placement of rockfill may be required to mitigate pipe span crossing. These areas will be identified following the detailed surveys planned for next year.</p> <p>In marine waters the pipe would be placed using an anchored lay</p>
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	<p>barge with an 8-12-point mooring system. All anchors would be temporary in nature. A variety of support vessels may be required for this activity as outlined in RFI030 (Marine Mammal Acoustic).</p> <p>Pipe laying for the Iliamna Lake pipe crossing will be done utilizing a combination of shore pulls and lay-barge construction. A locally assembled pull/lay barge or a barge that is moved to site from Cook Inlet using a module transporter would be utilized for the work. Barge dimensions would be approximately 240x60 feet. Extended sections of pipe (up to several miles in length) would be welded on shore and pulled out into Iliamna Lake along the bottom, utilizing floats, or by some combination thereof. Longer segments would be joined utilizing divers and underwater welding. Areas crossing rough lake bed topography and requiring extensive pipeline bends would be welded and laid from the lay barge using conventional lay barge techniques.</p> <p>As noted above, to protect from ice gouging shallower portions of the pipeline may be trenched. Trenching methods will include an extended reach backhoe working from a small barge with spuds (up to 30-foot water depth) or a jet sled operated from the lay barge. A clam shell crane working from a barge would be used for any excavation/fill required to limit pipeline spanning. Tugs and workboats would be required to move the barges and support operations.</p>
List Number and Type of Response Attachments:	Click here to enter text.
Date Returned to USACE:	RFI093 Figures.pdf

AECOM Intake Form

Date Response was Received:	10/11/2018
Received by:	AECOM
Describe any Follow-up Related to this RFI:	None at this time.

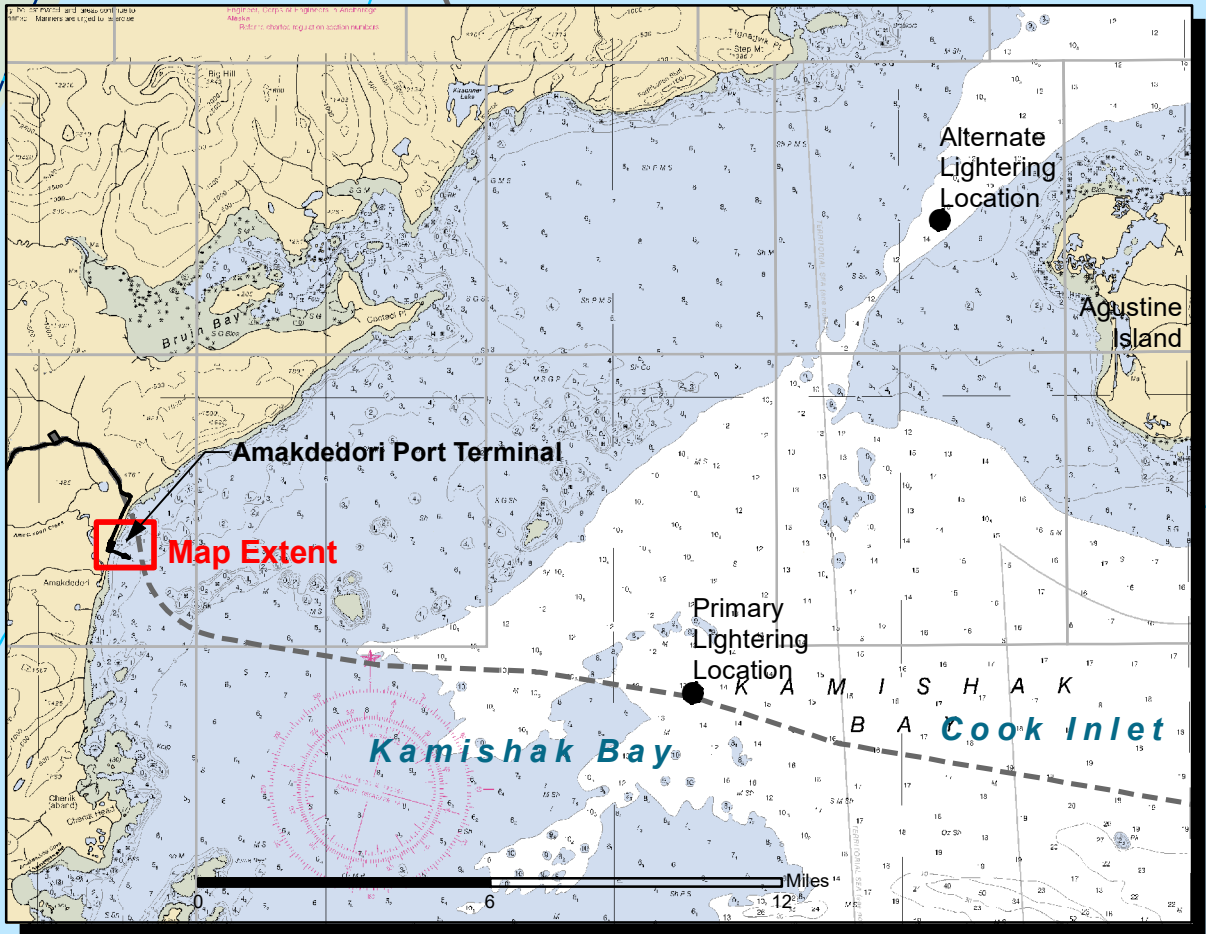
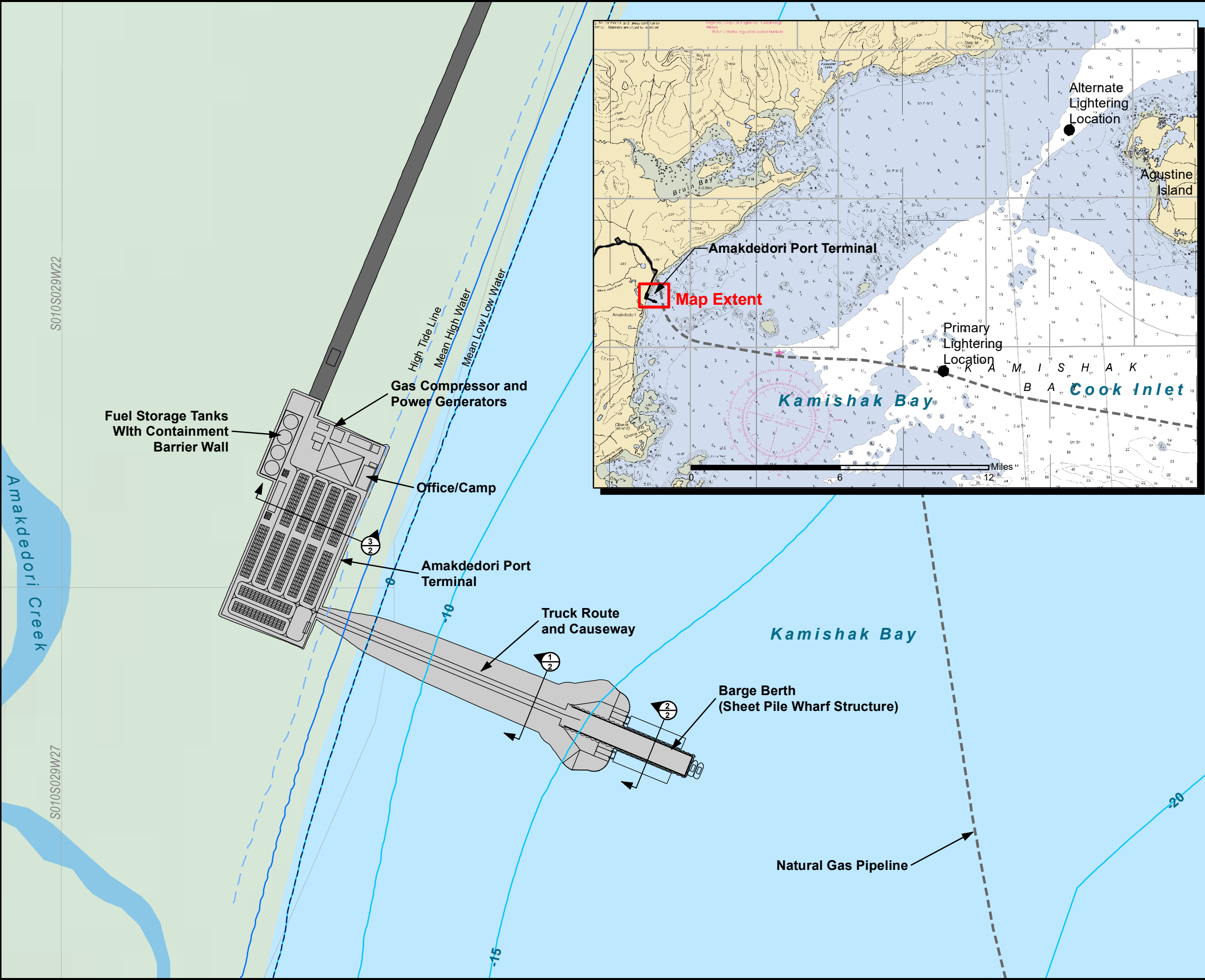
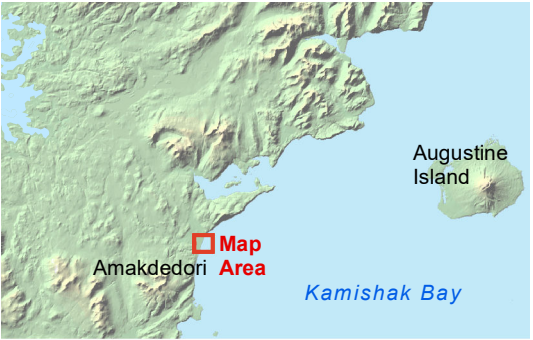


FIGURE 1
Amakdedori Port and
Lightering Locations

- Amakdedori Port Site Footprint
- Port Site Features
- Sheet Pile
- Primary / Alternate Lightering Locations
- Transportation Corridor
- Natural Gas Pipeline
- High Tide Line
- Mean High Water
- Mean Low Low Water (MLLW)
- Bathymetric Contours (Feet from MLLW)*

*Offshore contours developed from Terrasond bathymetric survey dated August 20 to 27, 2017. Elevations surveyed to geodetic datum (GEOID 99) and are shifted to mean lower low water (MLLW) level based on limited field measured tidal data. Preliminary shift between geodetic and MLLW is +8.37' (0' geodetic = 8.37' MLLW)



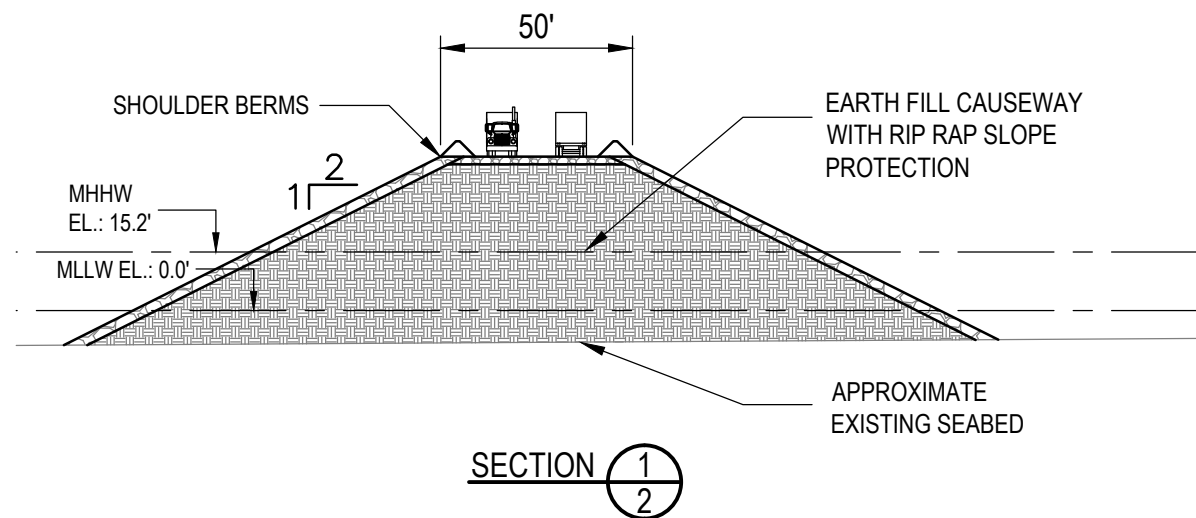
0 500 1,000 Feet

Scale 1:6,000
Alaska State Plane Zone 5 (units feet)
1983 North American Datum



File: PLP_AmakdedoriPort_Lightinging.mxd	Date: 10/10/2018
Version: x	Author: HDR

FIGURE 2
Amakdedori Port Cross Sections



NOTES:

1. DIMENSIONS IN FEET
3. HORIZONTAL DATUM TO UTM NAD83, ALASKA STATE PLANE ZONE 5, US SURVEY FEET
4. ELEVATIONS ARE IN FEET TO MEAN LOWER LOW WATER (MLLW)
5. MEAN LOWER LOW WATER (MLLW), HIGH TIDE LINE (HTL), AND MEAN HIGH WATER (MHW) ARE BASED ON USACE ALASKA DISTRICT TIDE DATA AT SELDOVIA

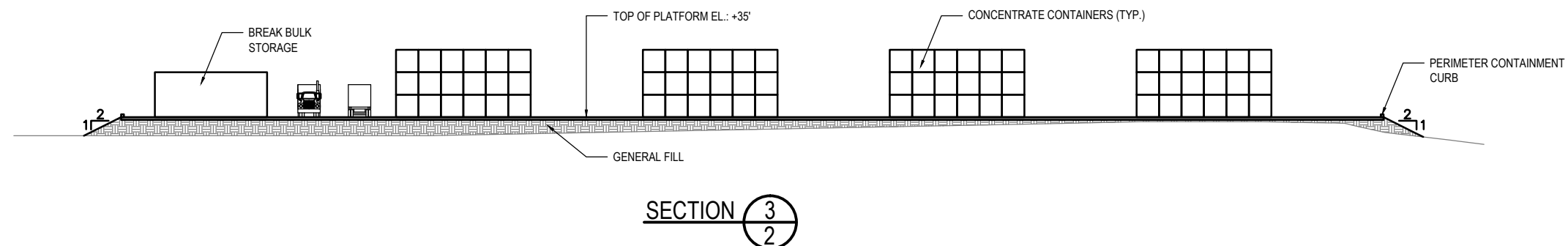
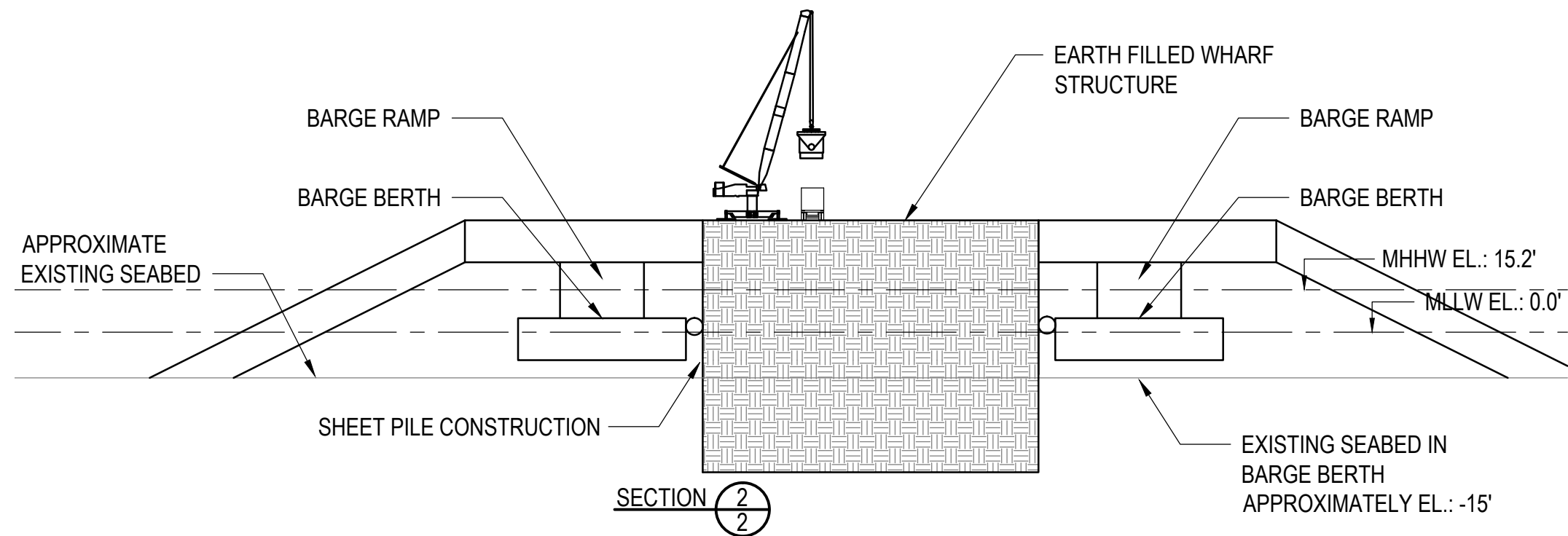





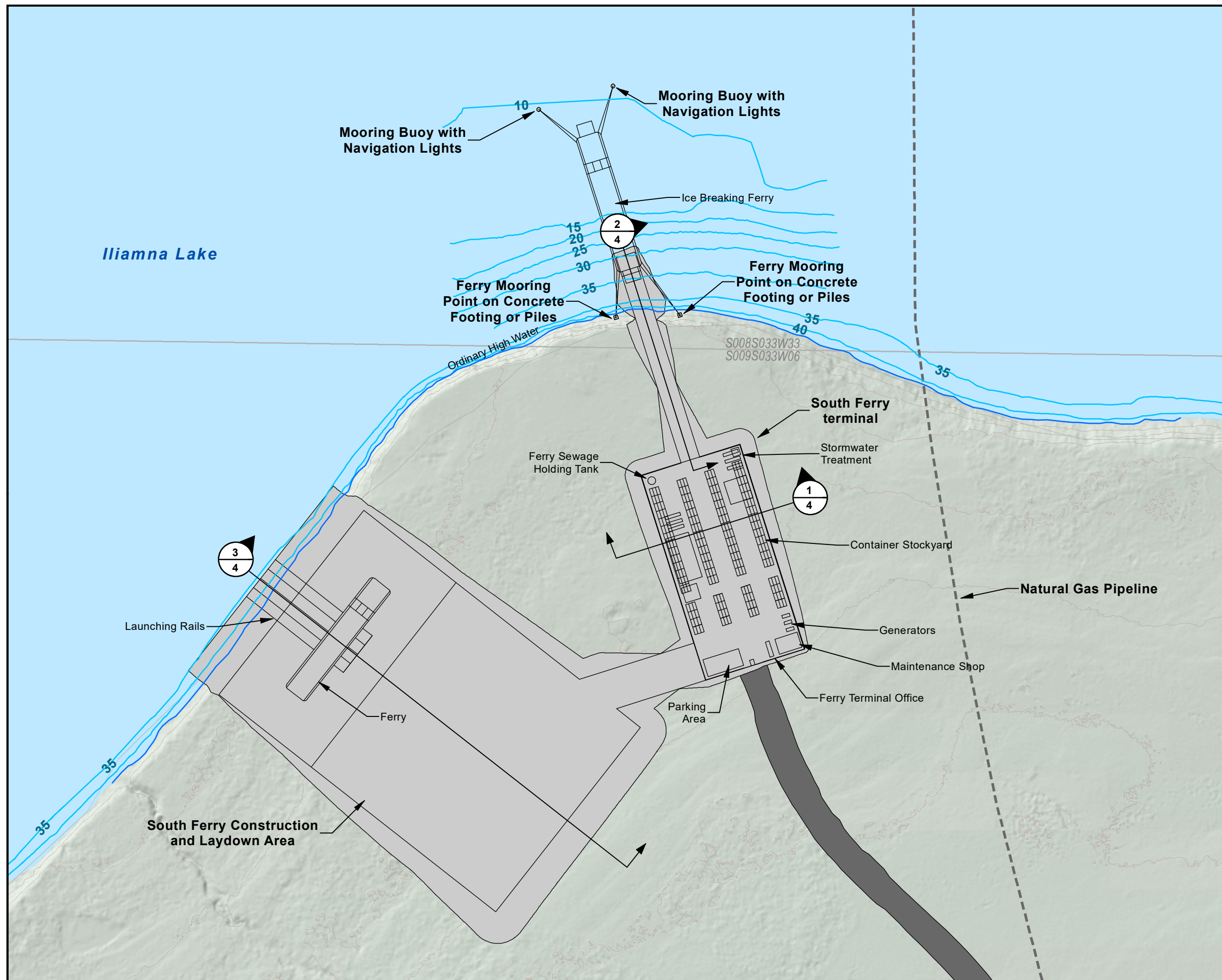


FIGURE 3
South Ferry Terminal

-  South Ferry Terminal Footprint
-  Transportation Corridor
-  Natural Gas Pipeline
-  Ordinary High Water
-  Bathymetric Contours



0 250 500 Feet

Scale 1:3,000

Alaska State Plane Zone 5 (units feet)
1983 North American Datum



File: PLP_SouthFerry.mxd	Date: 10/11/2018
Version: x	Author: HDR

FIGURE 4
South Ferry Terminal Cross Sections

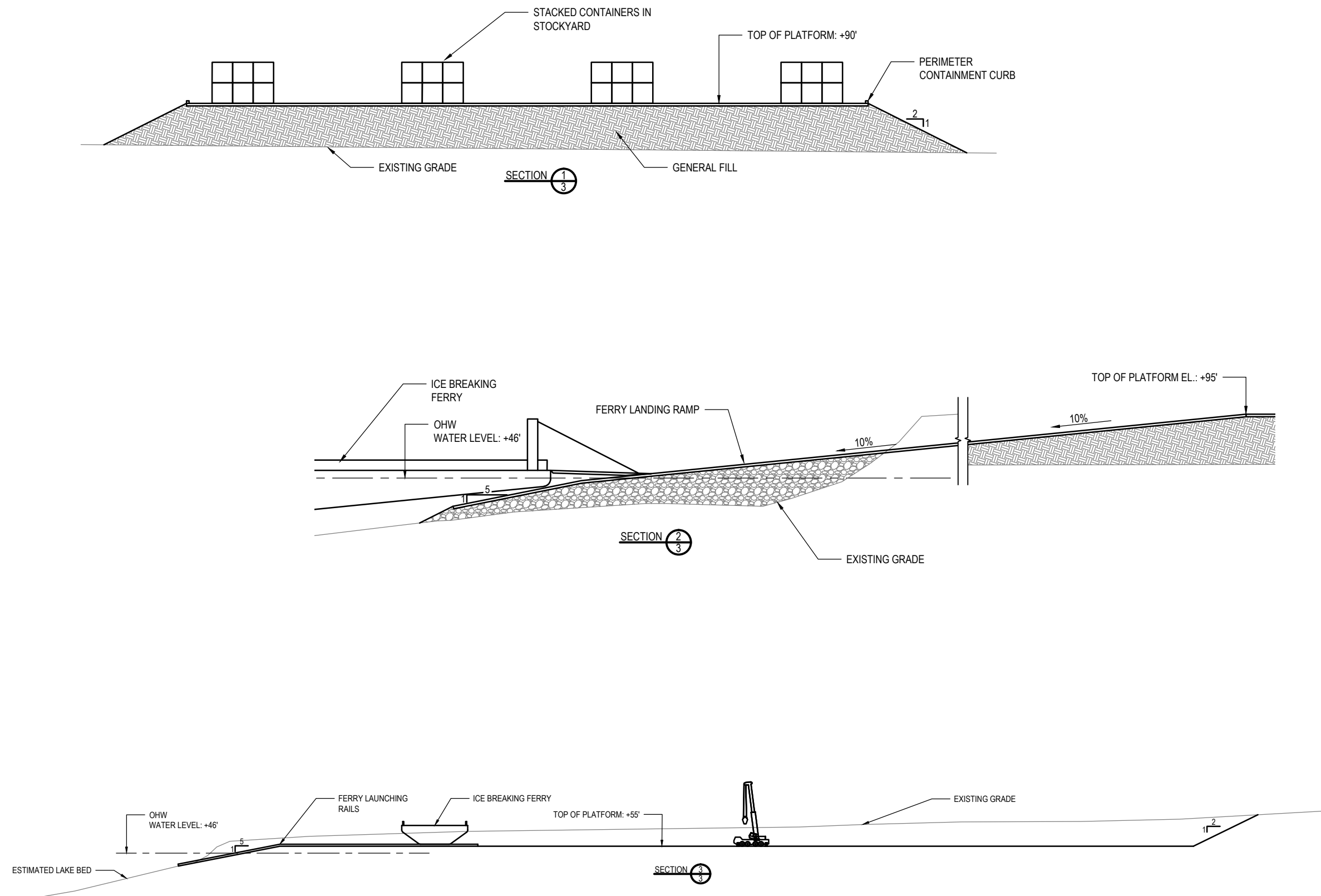





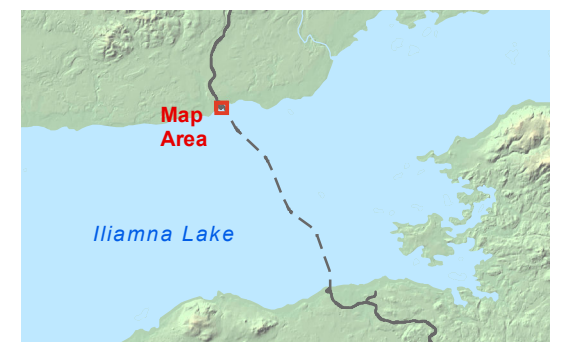
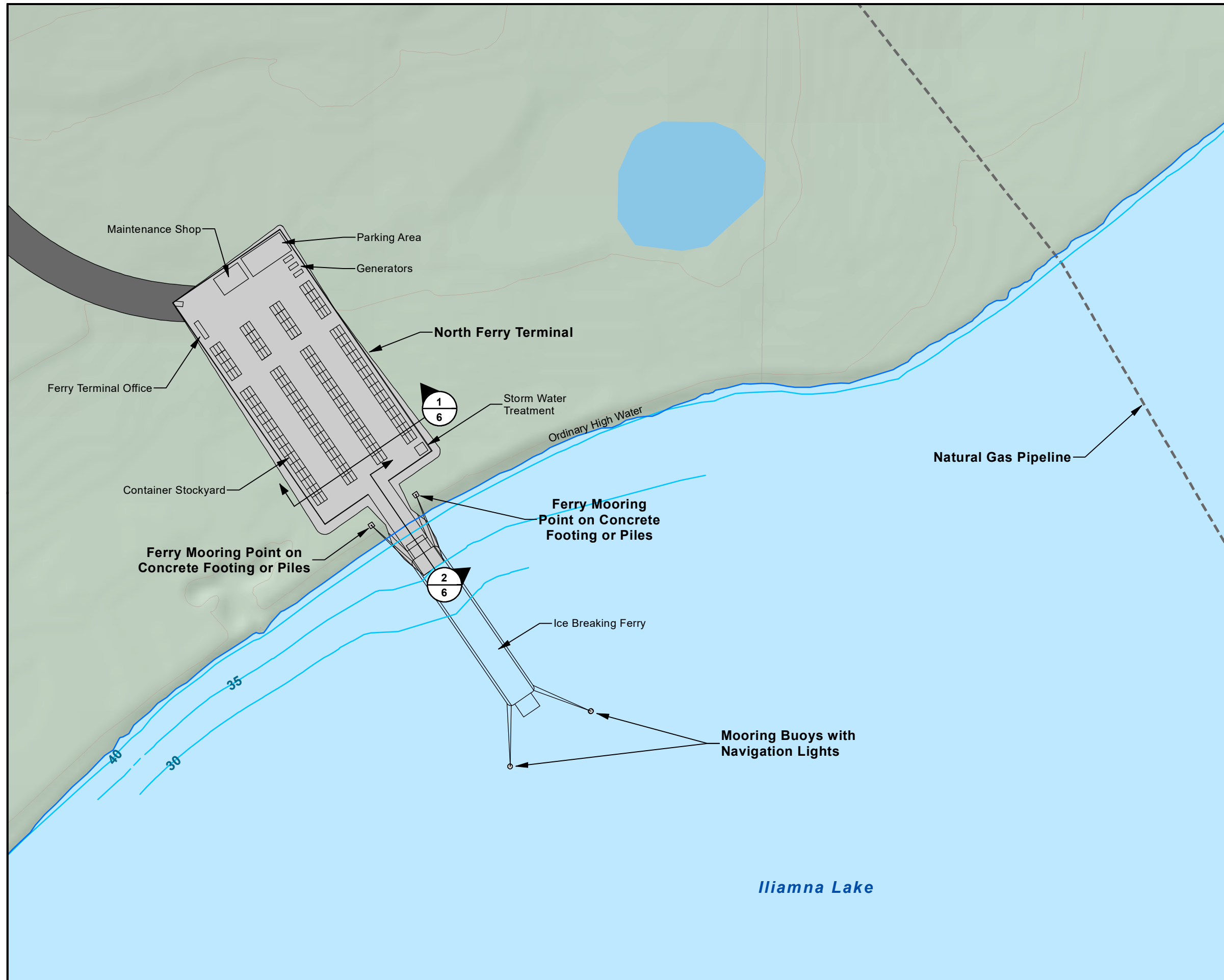




FIGURE 5
North Ferry Terminal

-  North Ferry Terminal Footprint
-  Transportation Corridor
-  Natural Gas Pipeline
-  Ordinary High Water
-  Bathymetric Contours



0 200 400 Feet

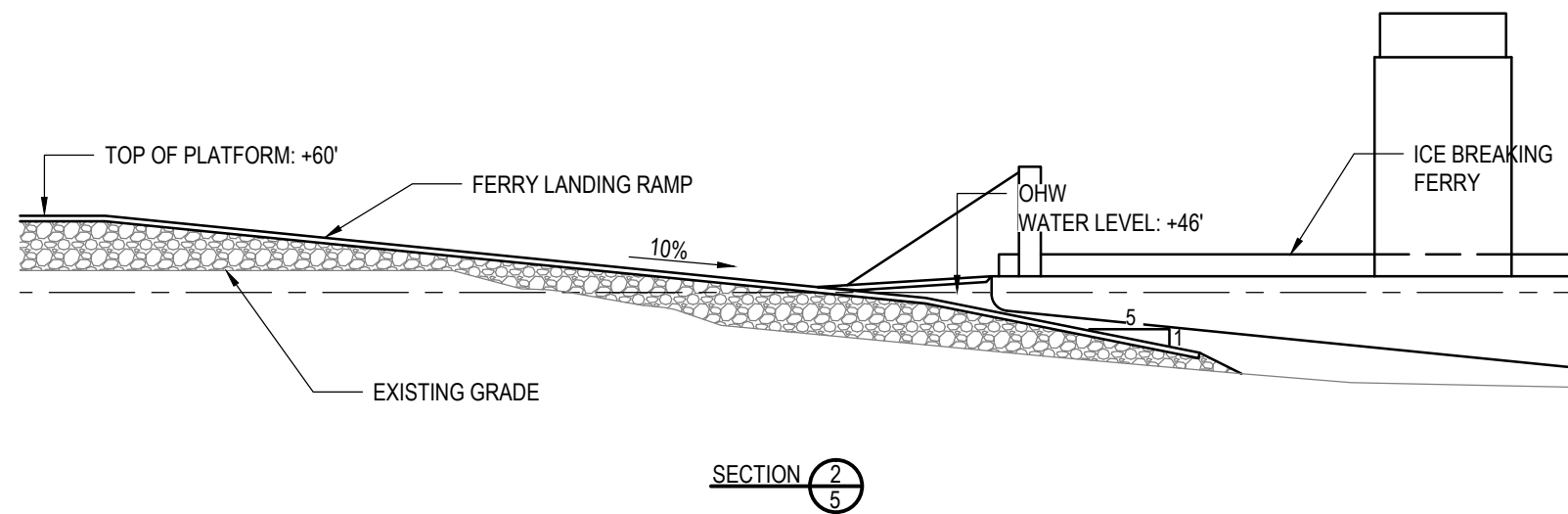
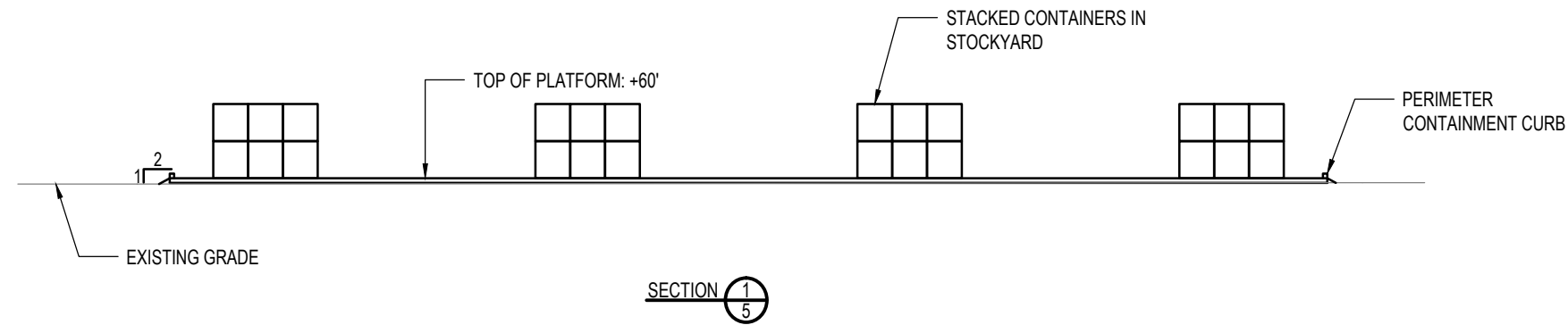
Scale 1:2,400

Alaska State Plane Zone 5 (units feet)
1983 North American Datum



File: PLP_NorthFerry.mxd	Date: 10/11/2018
Version: x	Author: HDR

FIGURE 6
North Ferry Terminal Cross Sections



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Pebble Project EIS**

Request for Information

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Requestor:	USACE
Date Transmitted:	10/10/2018
Recipient:	Pebble Limited Partnership
Response Requested by:	10/19/2018
Rationale:	It is necessary to describe the activities that are proposed by the applicant, and to identify those within USACE authority under Section 10 of the Rivers and Harbors Act. Under Section 10, the USACE has authority over work and structures that would impact the course, condition, location or capacity of a navigable water of the US.
Describe the Information Requested and Level of Detail:	<p>We request the following: For the following questions, provide the answer for each area: 1) below/ waterward of the mean high water mark of the Cook Inlet, and 2) below/waterward of the ordinary high water mark of Lake Iliamna.</p> <p>A. The October 2018 project description indicates that there would be dredging at the port. What would be the total amount of material that would be dredged, in acres and cubic yards, as part of construction?</p> <p>B. What would be the number and total size (length x width x height, feet) of each fill area and structure (pile, mooring buoy, etc) that would be wholly or partially installed in Areas 1 and 2? For each pile, include pile diameter, and type of pile. For sheetpile indicate the total linear feet of sheetpile, in addition to the height and width of each sheetpile. Heights should be measured from mean lower low water mark elevation of 0 feet in tidal waters, and from ordinary high water mark in Lake Iliamna.</p> <p>C. How would the pipeline be installed beyond the area of the horizontal directional drill? What vessels or other equipment would be used?</p> <p>Would the pile driving equipment used at the port facility operate from the causeway? Describe how each type/size of pile would be installed.</p> <p>Describe all structures that would be constructed on the port causeway, including their use. Include any permanent cranes or fuel stations.</p> <p>Revise Figure 1-5 of the October 2018 project description to indicate the location of the high tide line and mean high water mark, the mean lower low water mark (0-foot elevation), the bathymetric data in the vicinity of the port and the pipeline, and the location of any dredge area.</p>

Recipient Response Form

Date Received from USACE:	Click here to enter text.
Response from Recipient (Describe	A. No dredging is proposed for the port site. The reference to dredging in the construction section of the Project Description has been deleted from the

<p>Information Requested to the Level of Detail Requested; Provide Attachments as Needed):</p>	<p>revised version sent to USACE on 10/10/18.</p> <p>B. Amakdedori Port (Figures 1 & 2) No support piles are proposed for the port. Sheetpile will be utilized for the dock construction and the location is shown in the attached plan view and section. A total of 1520 linear foot of sheetpile would be installed. All sheetpile would extend to the dock surface, a height of 40 feet above MLLW. Sheetpile width would be 4.6 feet, for a total of approximately 331 sheetpiles. The sheetpile will be installed using two vibratory hammers (APE 200 or similar) operating from a construction barge alongside the dock. If bedrock or hard soil is encountered, a small diesel impact hammer (Delmag D36-32 or similar) may be necessary to anchor the last one of two feet of piling into the ground. The requested dimensions for the construction below the MHW mark are: Causeway maximum width – 500 feet Causeway average width – 250 feet Wharf width (past causeway) – 120 feet Combined length below the MHW mark – 1900 feet (wharf is 700 feet) Causeway/wharf height – 40 feet above MLLW Permanent structures mounted on the causeway and or dock would include a fuel pipeline for unloading barges, a powerline for vessel shore power, a water supply line for firefighting, and illumination and navigation lights. No permanent cranes or fuel storage would be located on the dock.</p> <p>Additional structures associated with the port operations include the lightering locations (information provided in RFI081) and two lighted navigation buoys located on the reefs framing the entrance to the Amakdedori port (Figure 1). The location of these navigation buoys is shown in Figure 1. The 3-foot diameter buoys will be anchored to the reef using screw anchors or 3-foot cubed concrete block anchors, with an anchoring design that prevents excessive anchor chain drag or swinging.</p> <p>South Ferry Terminal (Figures 3 & 4) No pilings or sheetpile would be used in construction of the South Ferry Terminal. No permanent infrastructure structure would be mounted on the ramp below the OHW mark. The requested dimensions for the ramp construction below the OHW mark are: Ramp width terminal – 115 feet wide (widest point) x 155 feet long Ramp fill thickness – 5 to 10 feet Ramp width construction pad – 200 feet wide x 160 feet long Construction ramp fill thickness – ~2 feet Additional activity below the OHW mark for the terminal ramp will include the placement of two anchors attached to the mooring buoys (3-feet in diameter) as shown in the attached plan view. Anchors would be 2-foot diameter screw anchors, or drilled anchors, dependent on lake bed conditions. Additional activity below the OHW mark for the construction ramp will include the placement of 5 launching rails to move the cradle used to launch and retrieve the ferry. The rails would extend out to a depth of 36 feet below the OHW mark. The 5 rails would be steel crane rail material mounted on concrete sleepers placed every 2 feet. The sleepers are 9-inch high and the rails are 6-inch high, so they will protrude 15 inches above the surface of the ramp, or a depth of 34 feet and 9 inches below the OHW mark at the deepest point. The cradle would be kept onshore when not used for launching or retrieving.</p> <p>North Ferry Terminal (Figures 5 & 6) No pilings or sheetpile would be used in construction of the North Ferry Terminal. No permanent infrastructure would be mounted on the ramp below the OHW mark. The requested dimensions for the construction below the OHW mark are: Ramp width terminal – 85 feet wide (widest point) x 105 feet long</p>
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	<p>Ramp fill thickness – 5 to 10 feet</p> <p>Additional activity below the OHW mark will include the placement of two anchors attached to the mooring buoys (3-feet in diameter) as shown in the attached plan view. Anchors would be 2-foot diameter screw anchors, or drilled anchors, dependent on lake bed conditions.</p> <p>C. The submarine and sub-lake portions of the pipeline would be constructed using heavy wall pipe. In shallower waters located close to shores the pipe would be buried flush with, or below, the ocean surface if required to prevent it being a hazard to navigation and/or to protect it from ice scouring. If required trenching would be completed using an extended reach backhoe or suction dredge. In limited areas placement of rockfill may be required to mitigate pipe span crossing. These areas will be identified following the detailed surveys planned for next year.</p> <p>In marine waters the pipe would be placed using an anchored lay barge with an 8-12-point mooring system. All anchors would be temporary in nature. A variety of support vessels may be required for this activity as outlined in RFI030 (Marine Mammal Acoustic).</p> <p>Pipe laying for the Iliamna Lake pipe crossing will be done utilizing a combination of shore pulls and lay-barge construction. A locally assembled pull/lay barge or a barge that is moved to site from Cook Inlet using a module transporter would be utilized for the work. Barge dimensions would be approximately 240x60 feet. Extended sections of pipe (up to several miles in length) would be welded on shore and pulled out into Iliamna Lake along the bottom, utilizing floats, or by some combination thereof. Longer segments would be joined utilizing divers and underwater welding. Areas crossing rough lake bed topography and requiring extensive pipeline bends would be welded and laid from the lay barge using conventional lay barge techniques.</p> <p>As noted above, to protect from ice gouging shallower portions of the pipeline may be trenched. Trenching methods will include an extended reach backhoe working from a small barge with spuds (up to 30-foot water depth) or a jet sled operated from the lay barge. A clam shell crane working from a barge would be used for any excavation/fill required to limit pipeline spanning. Tugs and workboats would be required to move the barges and support operations.</p>
List Number and Type of Response Attachments:	RFI093 Figures Update.pdf ProjectDesign.gdb.zip
Date Returned to USACE:	

AECOM Intake Form

Date Response was Received:	10/16/2018
Received by:	AECOM
Describe any Follow-up Related to this RFI:	None at this time.

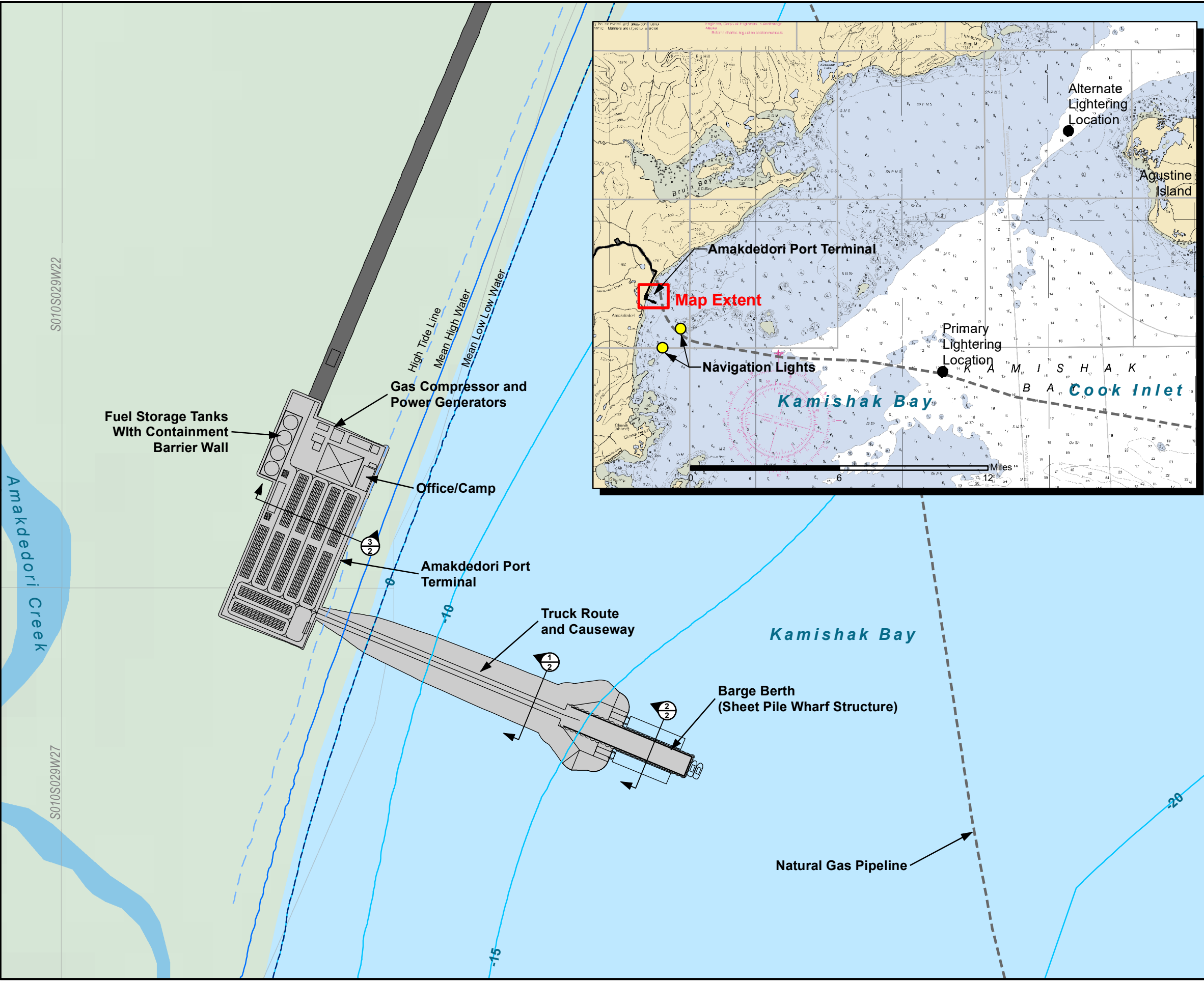
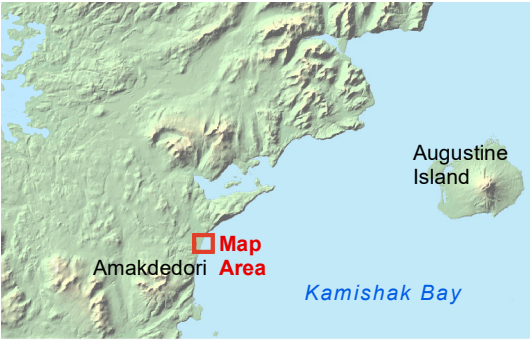


FIGURE 1
Amakdedori Port and
Lightering Locations

- Amakdedori Port Site Footprint
- Port Site Features
- Sheet Pile
- Primary / Alternate Lightering Locations
- Navigation Lights
- Transportation Corridor
- Natural Gas Pipeline
- High Tide Line
- Mean High Water
- Mean Low Low Water (MLLW)
- Bathymetric Contours (Feet from MLLW)*

*Offshore contours developed from Terrasond bathymetric survey dated August 20 to 27, 2017. Elevations surveyed to geodetic datum (GEOID 99) and are shifted to mean lower low water (MLLW) level based on limited field measured tidal data. Preliminary shift between geodetic and MLLW is +8.37' (0' geodetic = 8.37' MLLW)



0 500 1,000 Feet

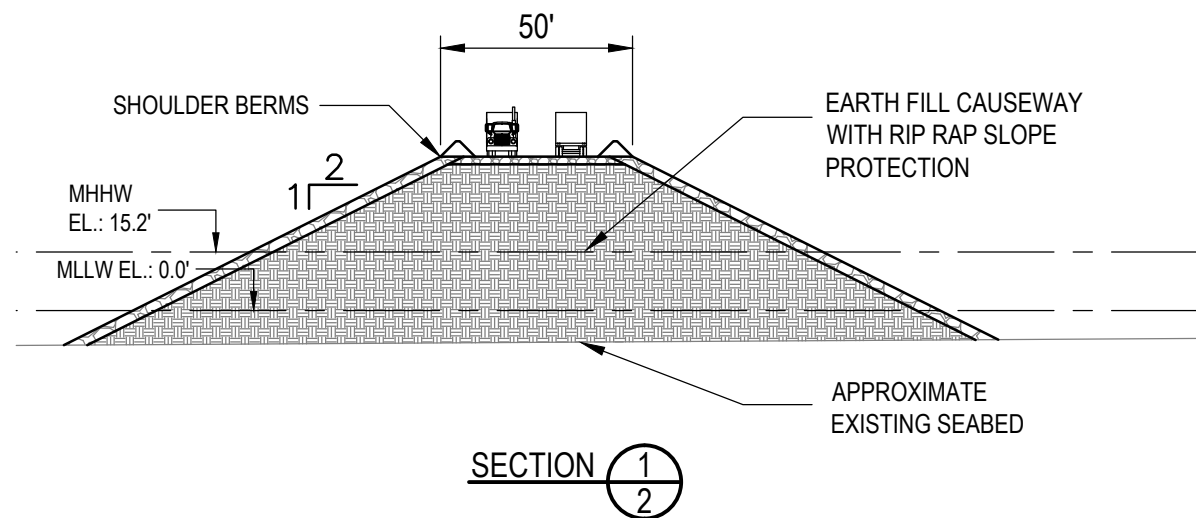
Scale 1:6,000

Alaska State Plane Zone 5 (units feet)
1983 North American Datum



File: PLP_AmakdedoriPort_Lightinging.mxd	Date: 10/15/2018
Version: x	Author: HDR

FIGURE 2
Amakdedori Port Cross Sections



NOTES:

1. DIMENSIONS IN FEET
2. HORIZONTAL DATUM TO UTM NAD83, ALASKA STATE PLANE ZONE 5, US SURVEY FEET
3. ELEVATIONS ARE IN FEET TO MEAN LOWER LOW WATER (MLLW)
4. MEAN LOWER LOW WATER (MLLW), HIGH TIDE LINE (HTL), AND MEAN HIGH WATER (MHW) ARE BASED ON USACE ALASKA DISTRICT TIDE DATA AT SELDOVIA

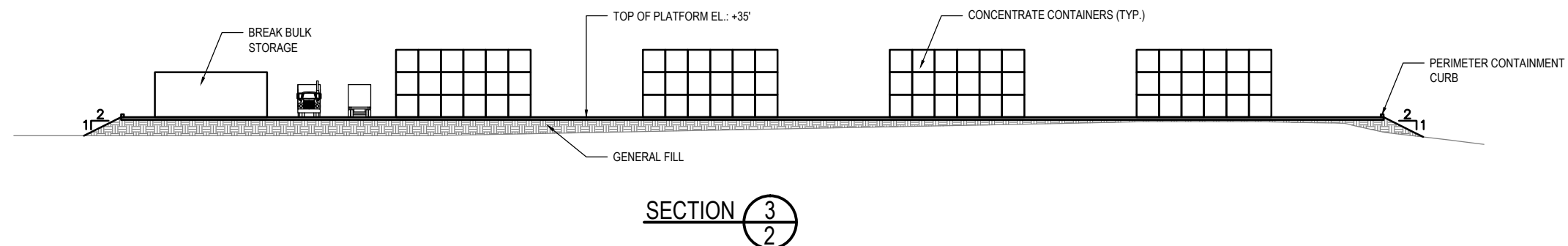
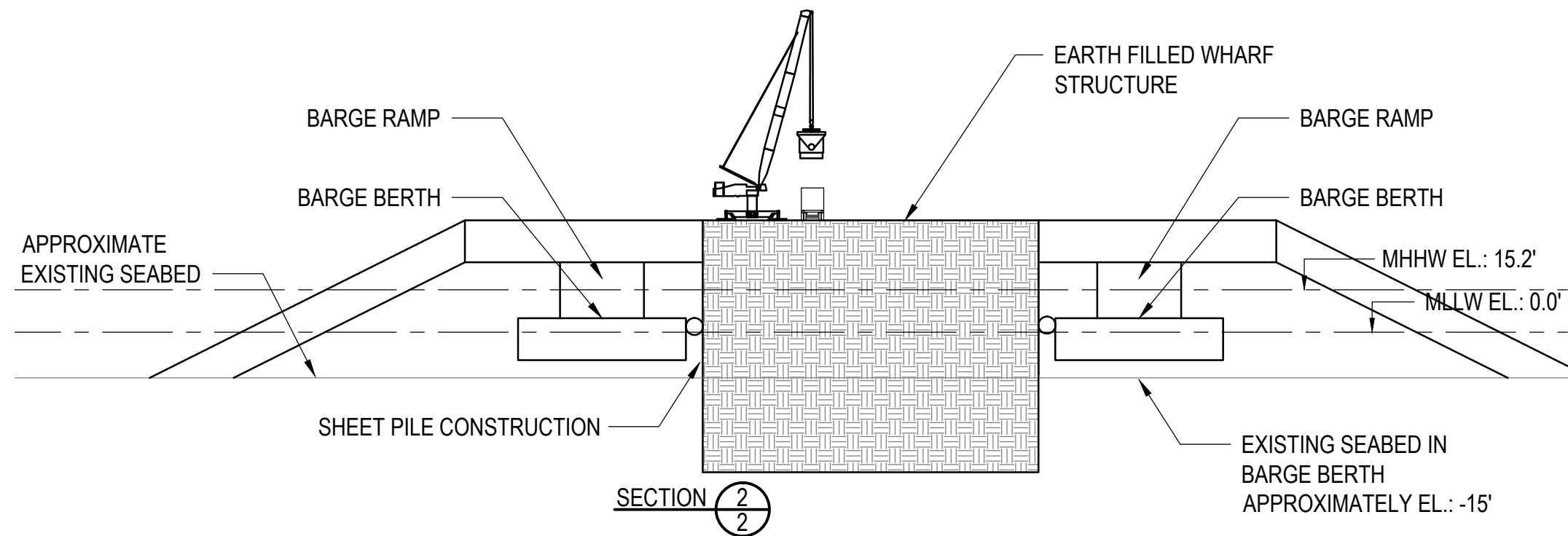





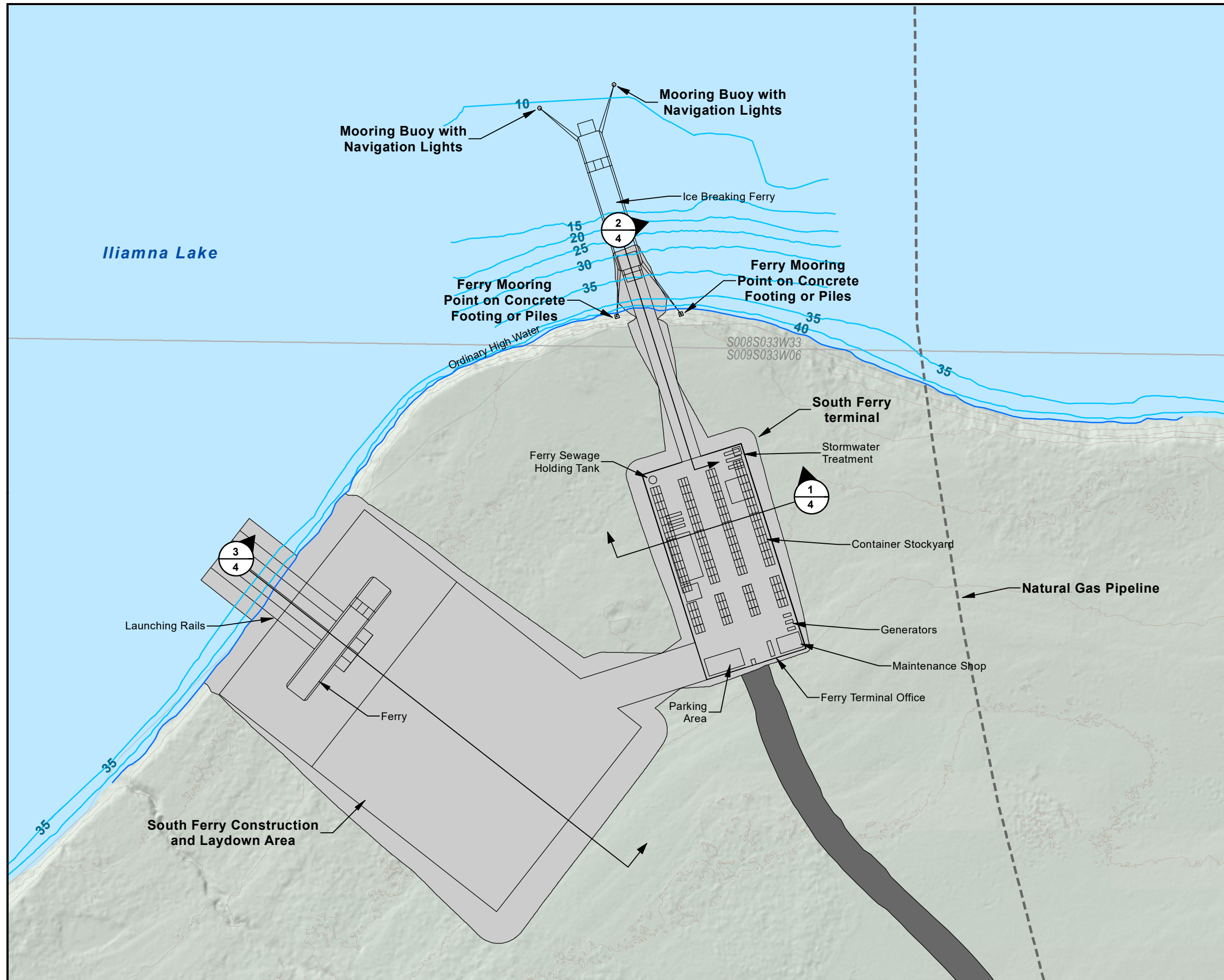


FIGURE 3
South Ferry Terminal

-  South Ferry Terminal Footprint
-  Transportation Corridor
-  Natural Gas Pipeline
-  Ordinary High Water
-  Bathymetric Contours



0 250 500 Feet

Scale 1:3,000

Alaska State Plane Zone 5 (units feet)
1983 North American Datum



File: PLP_SouthFerry.mxd	Date: 10/15/2018
Version: x	Author: HDR

FIGURE 4
South Ferry Terminal Cross Sections

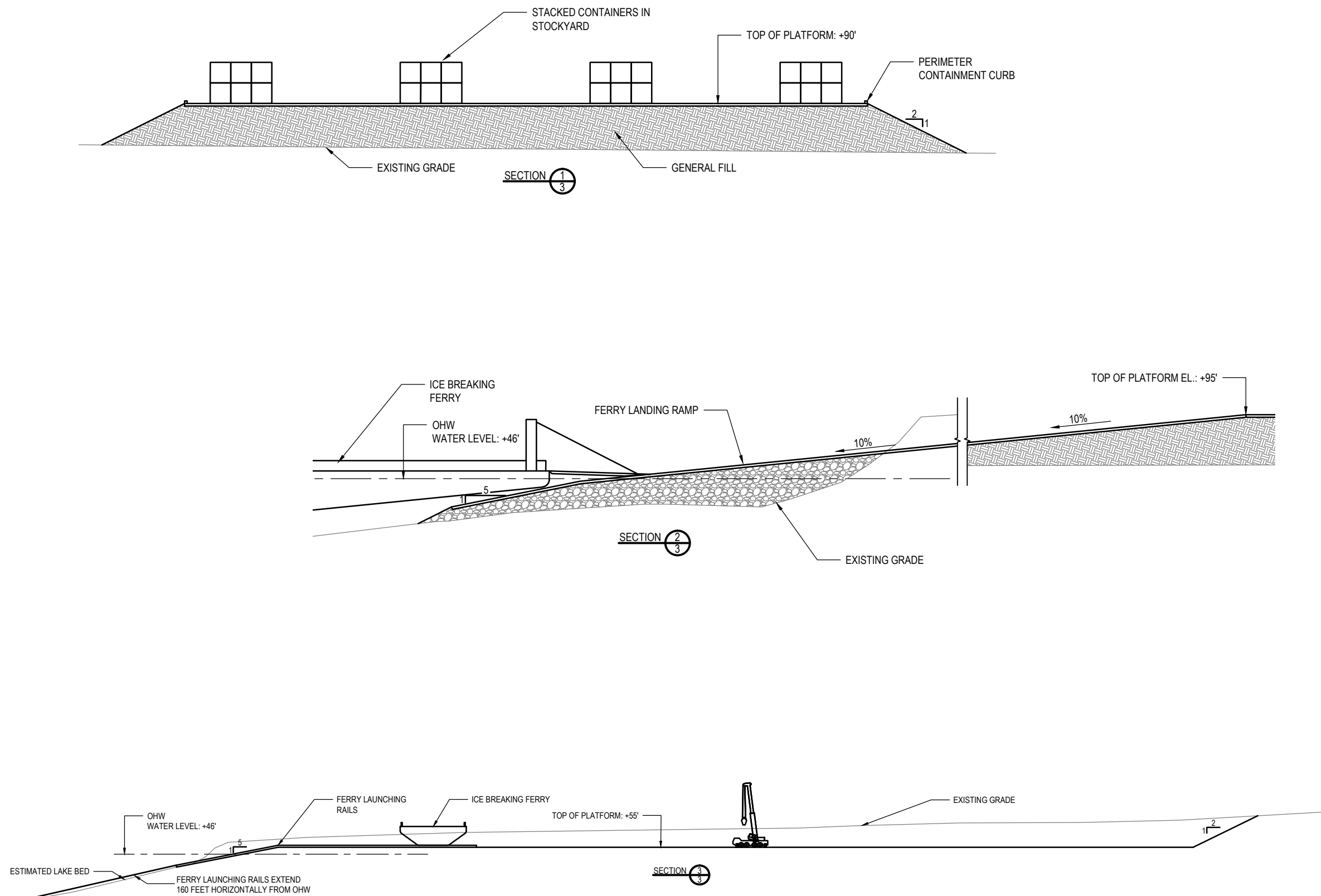





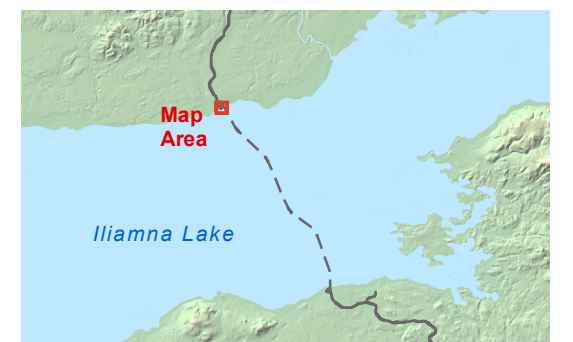
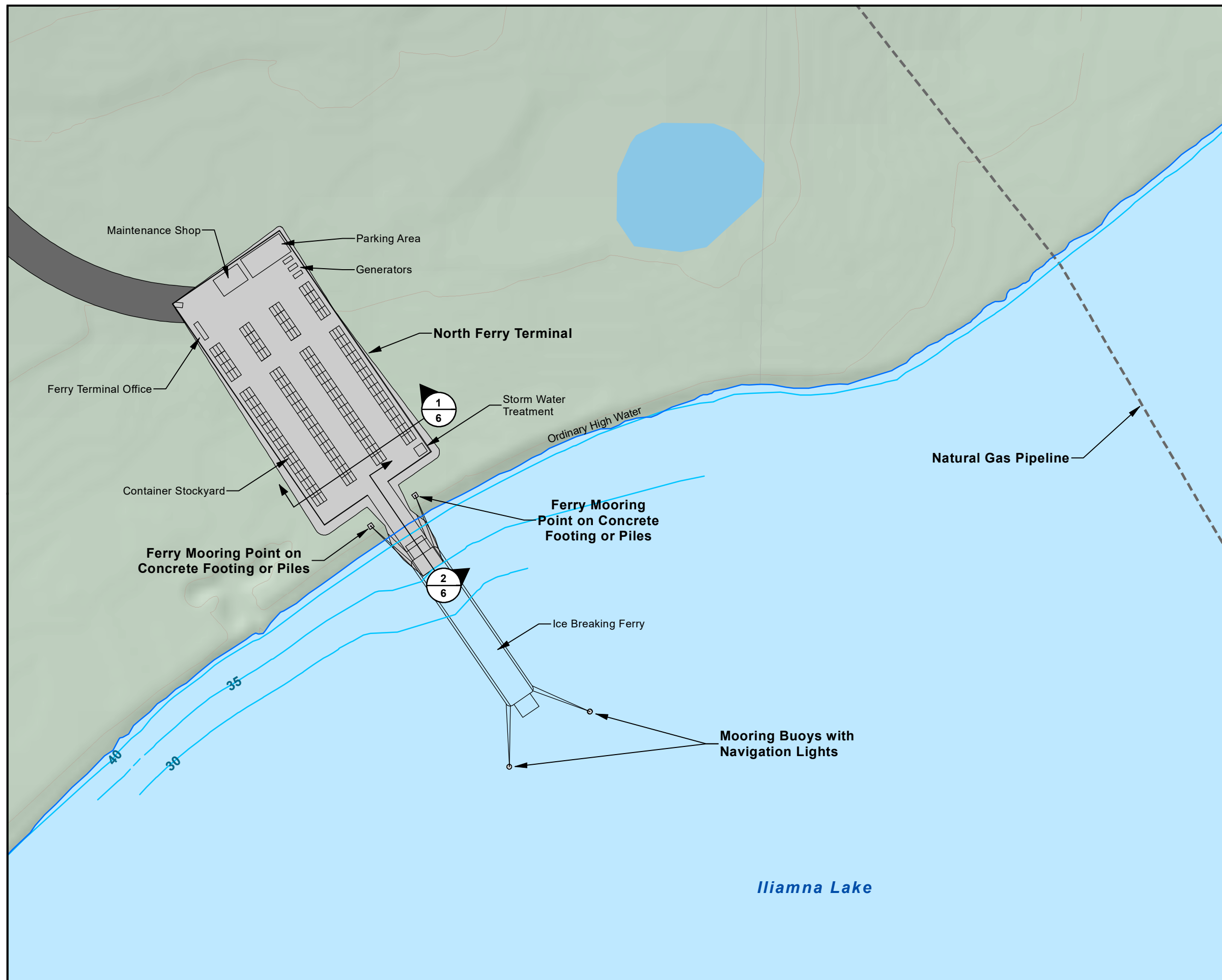


FIGURE 5

North Ferry Terminal

-  North Ferry Terminal Footprint
-  Transportation Corridor
-  Natural Gas Pipeline
-  Ordinary High Water
-  Bathymetric Contours



0 200 400 Feet

Scale 1:2,400

Alaska State Plane Zone 5 (units feet)
1983 North American Datum



File: PLP_NorthFerry.mxd

Date: 10/11/2018

Version: x

Author: HDR

FIGURE 6
North Ferry Terminal Cross Sections

