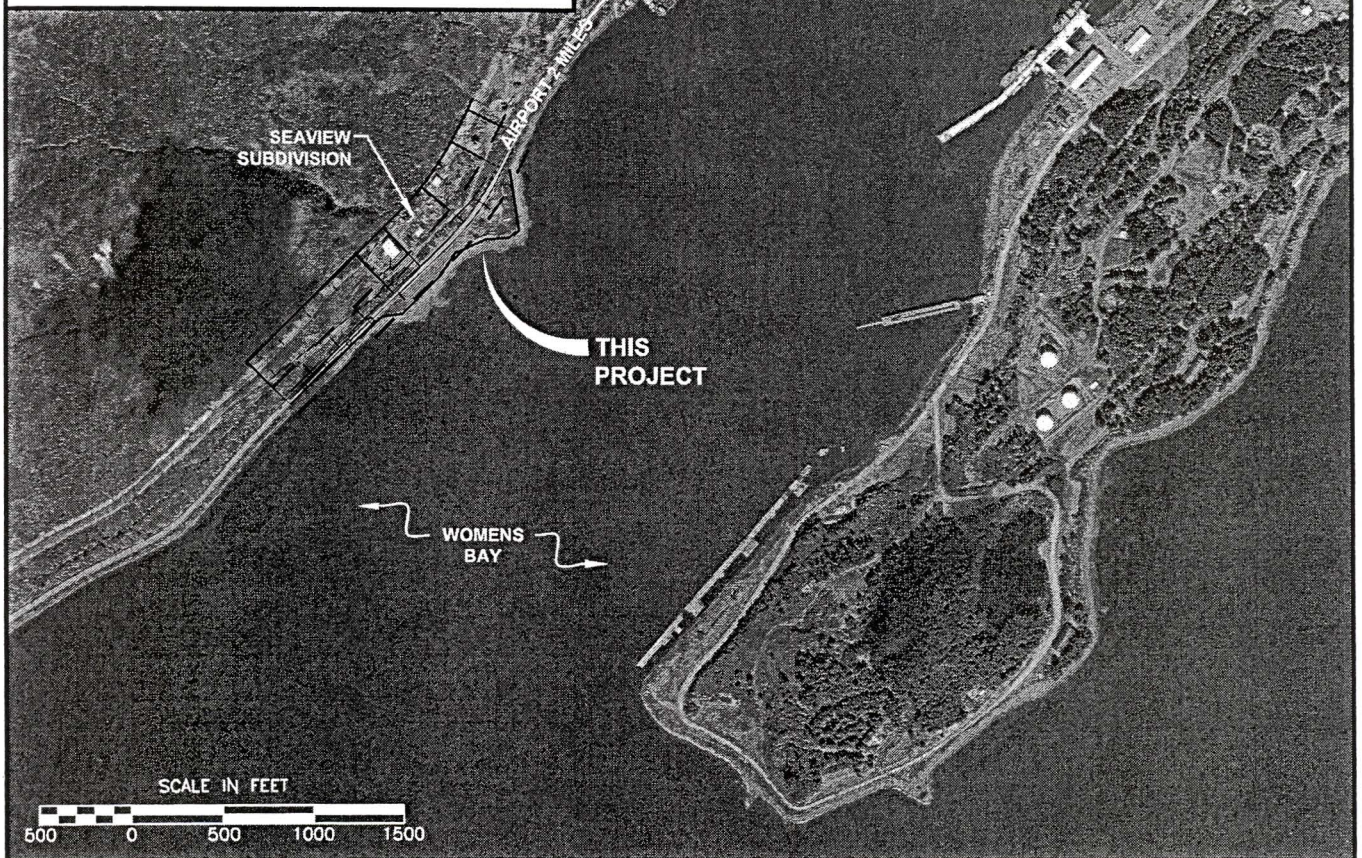




### ALASKA VICINITY MAP



PROPOSED ACTIVITY:  
TO CONSTRUCT A FILL,  
RAMPS & DOLPHINS  
TIDAL DATUM: MLLW= 0.0'  
ADJACENT OWNERS:  
SEE SITE PLAN  
LAT/LON: 57.7274/-152.5308

### VICINITY AND LOCATION

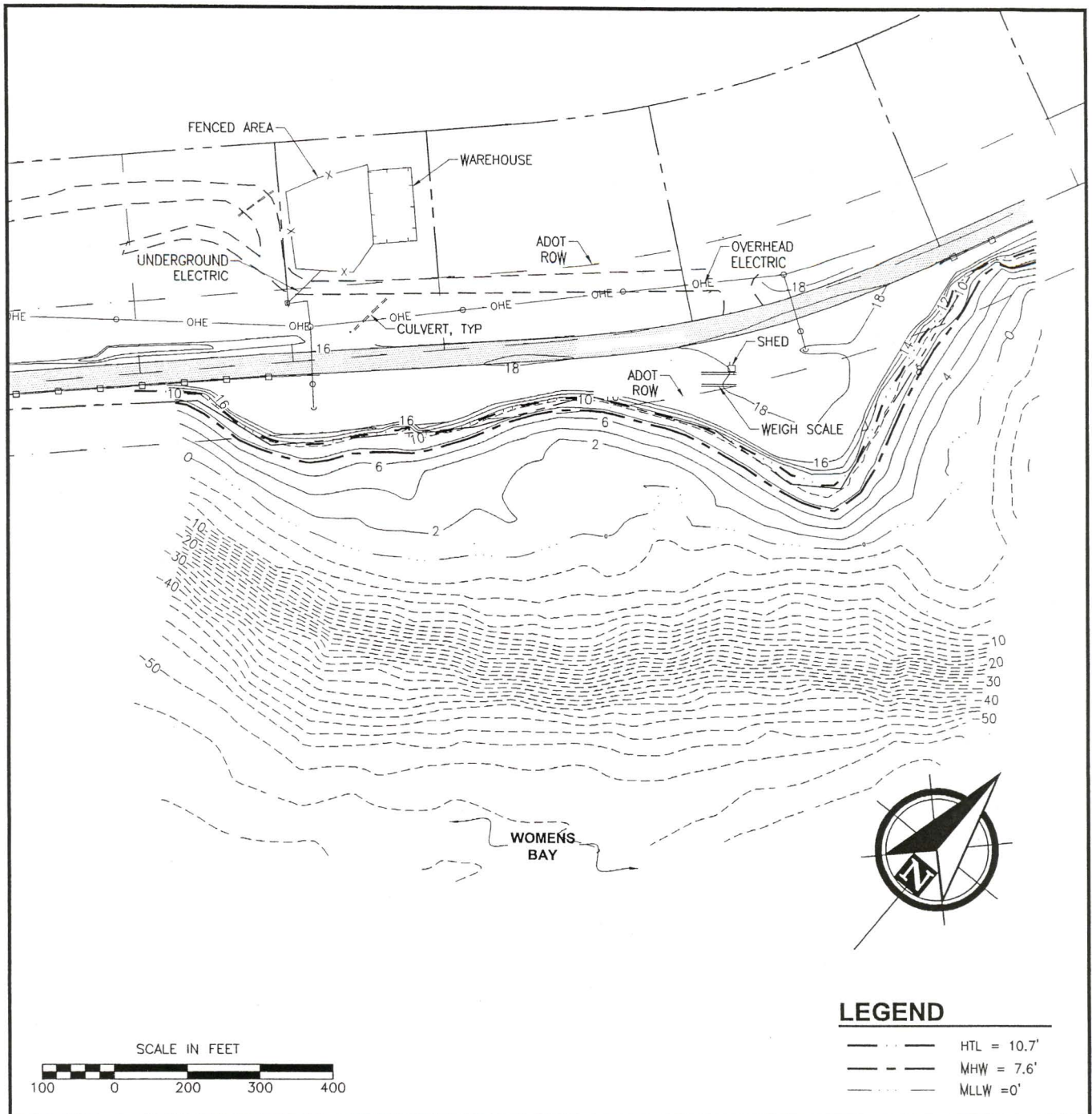
NORTHLAND SERVICES, INC.  
P.O. Box 24527  
SEATTLE, WA 98124

### NORTHLAND KODIAK TERMINAL

Northland Services, Inc.  
POA-2012-920  
Womens Bay  
November 16, 2012  
Sheet 1 of 9

NC





PROPOSED ACTIVITY:  
TO CONSTRUCT A FILL,  
RAMPS & DOLPHINS

TIDAL DATUM: MLLW= 0.0'

ADJACENT OWNERS:  
SEE SITE PLAN

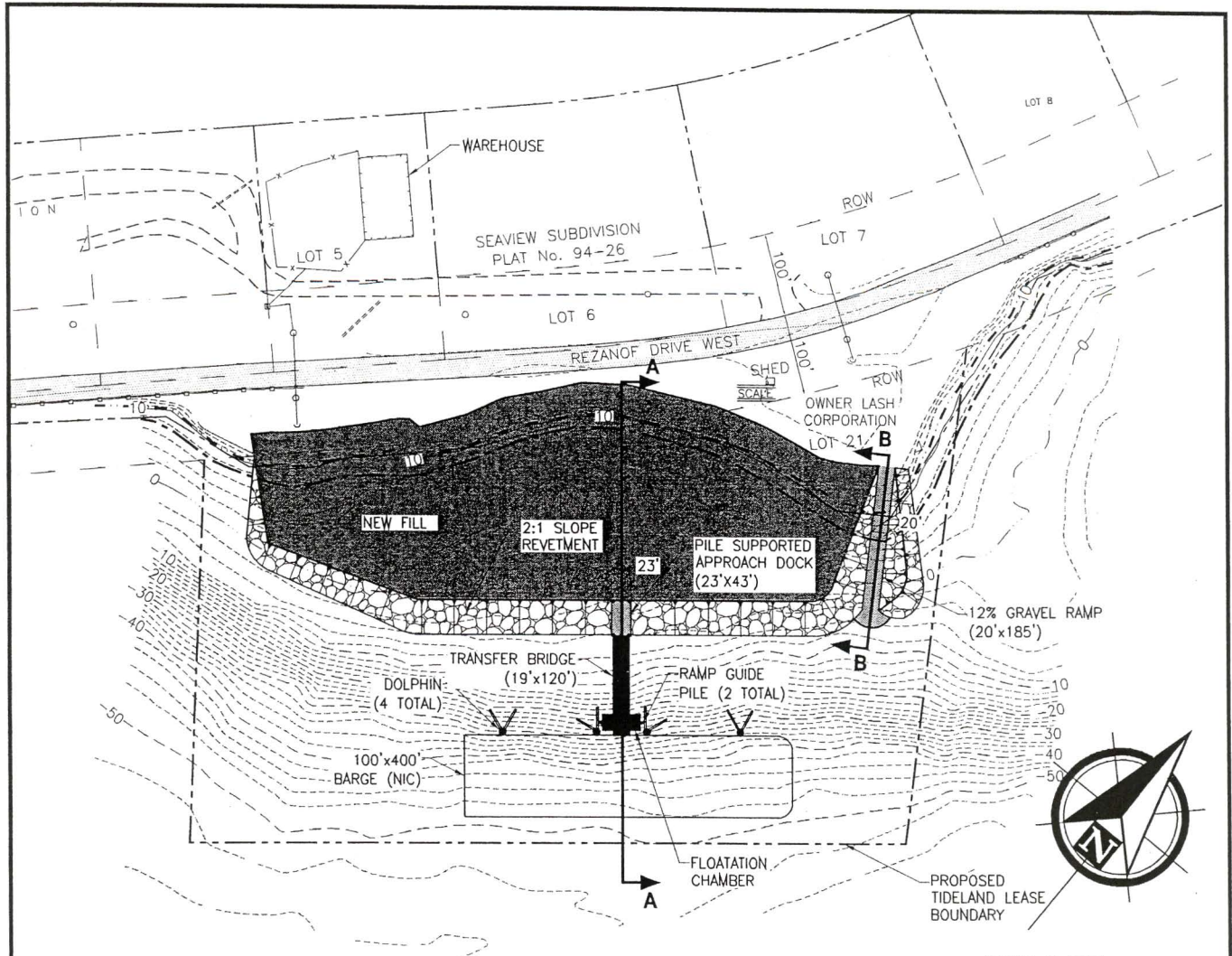
LAT/LON: 57.7274/-152.5308

## EXISTING CONDITIONS

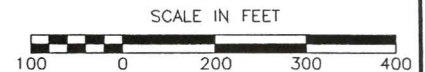
NORTHLAND SERVICES, INC.  
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## NORTHLAND KODIAK TERMINAL

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STEEL QUANTITIES			FILL QUANTITIES		
ITEM	#	DIM	PROJECT TOTAL	BELOW MHW	BELOW HTL
APPROACH SLAB	1	23'x43'		AREA (ACRES)	
TRANSFER BRIDGE	1	19'x120'	3.6	3.1	3.2
FLOATATION CHAMBER	1	19'x45'		VOLUME (CUBIC YDS)	
PILES	-		70,000	35,000	60,000
DOLPHIN VERTICAL	4	48"ø			
DOLPHIN BATTER	8	24"ø			
GUIDE PILE	2	30"ø			
ABUTMENT PILE	3	12"ø			
APPROACH PILE	3	12"ø			



### LEGEND

- FILL AREA
- ARMOR SLOPE
- HTL = 10.7'
- MHW = 7.6'
- MLLW = 0'

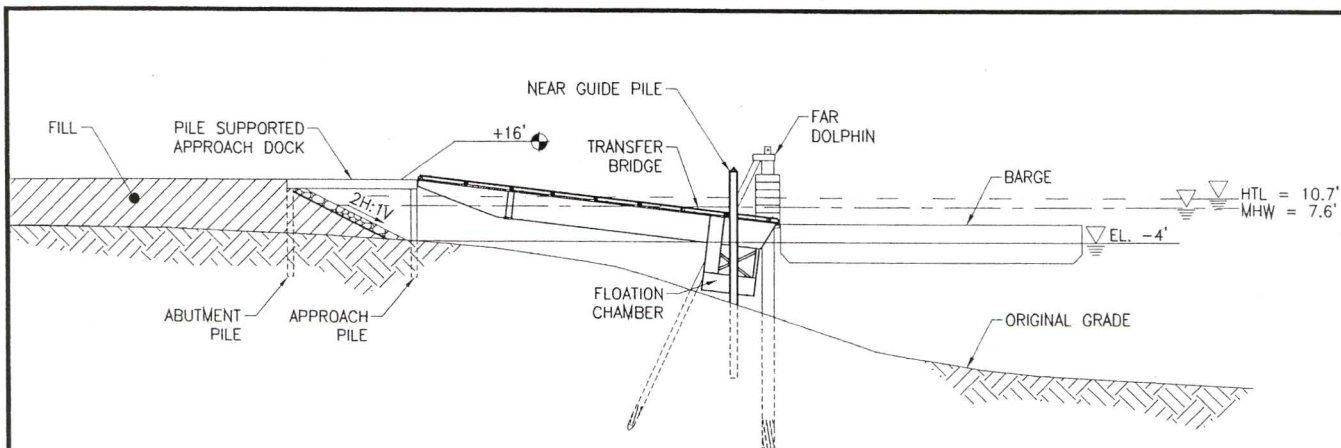
PROPOSED ACTIVITY:  
TO CONSTRUCT A FILL,  
RAMPS & DOLPHINS  
TIDAL DATUM: MLLW= 0.0'  
ADJACENT OWNERS:  
SEE SITE PLAN  
LAT/LON: 57.7274/-152.5308

### SITE PLAN

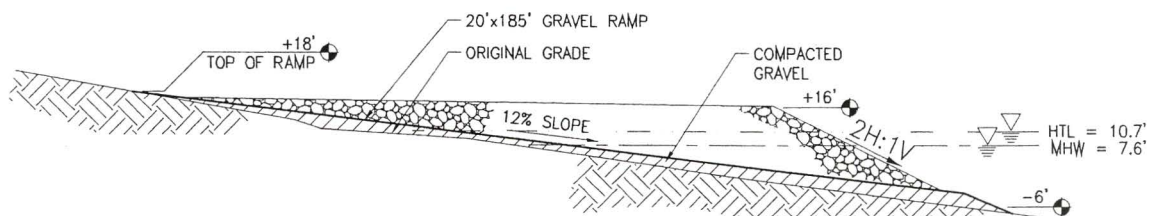
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### NORTHLAND KODIAK TERMINAL

Northland Services, Inc.  
POA-2012-920  
Womens Bay  
November 16, 2012  
Sheet 3 of 9



**SECTION A-A**



**LEGEND**

——— HTL = 10.7'  
 - - - MHW = 7.6'  
 - · - · - MLLW = 0.0'

**SECTION B-B**

PROPOSED ACTIVITY:  
 TO CONSTRUCT A FILL,  
 RAMPS & DOLPHINS  
 TIDAL DATUM: MLLW= 0.0'  
 ADJACENT OWNERS:  
 SEE SITE PLAN  
 LAT/LON: 57.7274/-152.5308

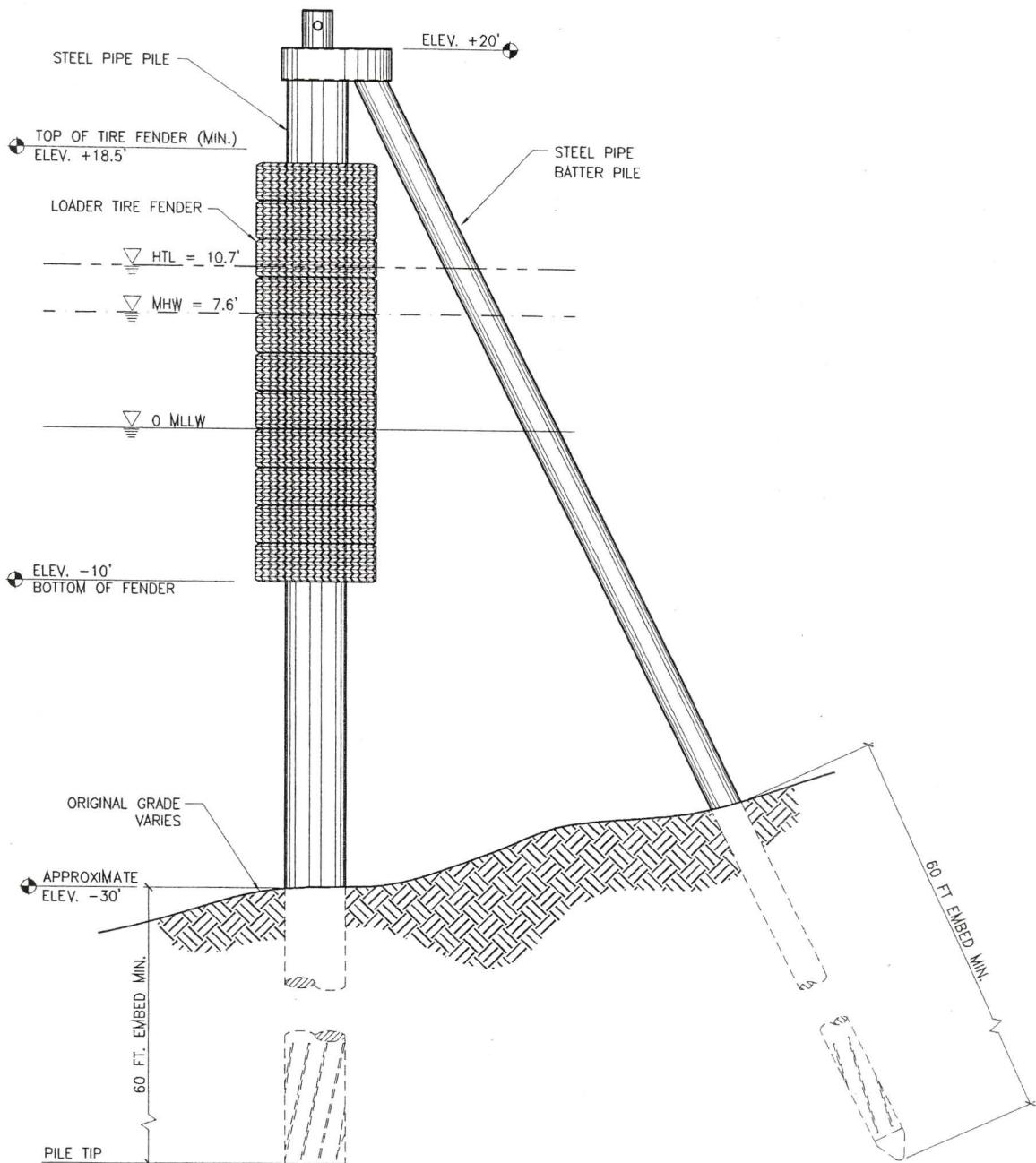
**SECTIONS**

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**NORTHLAND KODIAK  
TERMINAL**

Northland Services, Inc.  
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PROPOSED ACTIVITY:  
TO CONSTRUCT A FILL,  
RAMPS & DOLPHINS  
TIDAL DATUM: MLLW= 0.0'  
ADJACENT OWNERS:  
SEE SITE PLAN  
LAT/LON: 57.7274/-152.5308

## DOLPHIN ELEVATION

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## NORTHLAND KODIAK TERMINAL

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POA-2012-920  
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## NORTHLAND KODIAK TERMINAL Project Summary

Location: Shannon Point, Kodiak, Alaska  
Prepared: November 2012  
For: Northland Services, Inc., Seattle, Washington  
By: PND Engineers, Inc.

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Northland Services leases the upland properties between Shannon Point and Rezanof Drive West on Women's Bay. Northland desires to construct a freight handling operation at this location. The project consists of filling approximately 3.0 acres below Mean High Water (MHW), installing four multi-pile dolphins for mooring and breasting barges, a transfer bridge for roll on/roll off (Ro-Ro) cargo operations, and a gravel landing craft ramp. The total project area encompasses both uplands and tidelands. Details of the project are described below.

**Project Location:** The project is located at Shannon Point on the north shore of Women's Bay on Kodiak Island within Township 28 S, Range 20 W, Sections 21 and 28, Seward Meridian, USGS Quad Map Kodiak C-2. The project is at approximate Latitude N. 57.7274, Longitude W. 152.5308. The project area includes area for a proposed state of Alaska tidelands lease extending approximately 450 feet off shore and approximately 850 feet long.

**Existing Conditions:** The site features a gently sloping shoreline consisting of coarse gravel, with some cobbles and silty sand up to approximately +10 feet elevation (MLLW). Portions of the site have previously been filled as indicated by the steep, unnatural slope between +10 feet and +18 feet elevation (MLLW). Most of the slope is armored with rock estimated to have been installed during the 1940s or 1950s. A site visit at a +1 foot tide on November 15, 2012 revealed limited aquatic vegetation on the exposed shoreline and below water to a depth of -1 foot. The relatively flat upland area is currently used for storage of semi trailers and other equipment, a truck scale and one shed structure on blocks. The entire upland area between the rock slope and Rezanof Drive West is graveled parking and drive area with small patches of grasses. The topography on the north side of Rezanof Drive West quickly transitions into steep rolling hills.

**Purpose and Need:** In anticipation of supporting the fast growing industries in northern Alaska, the applicant proposes to provide a strategically placed cargo terminal. Approximately 3.0 acres of flat operating area is needed to accommodate the anticipated cargo volumes. Expansion of the site into the uplands is limited due to the Rezanof Drive West Right-of-Way and the steep terrain on the north side of the road. Therefore, the necessary area must be gained on the waterward portion of the site. In order to avoid dredging and accommodate a minimum vessel draft of 20 feet (at all tides) the moorage must be located at approximately -35.0 feet elev. (MLLW). Several options for waterward expansion were considered and are described in the Alternatives Analysis below. The landing craft ramp is for transshipment of cargo to service smaller communities in area

**Project Description:** The work is intended to be constructed in one season. There is no dredging proposed for this project.

1. **Demolition:** Demolition of some upland structures will occur, but there is no in-water demolition. Existing armor will be left in place and incorporated into the proposed fill area.

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2. **Fill Area Including Gravel Landing Craft Ramp:** Fill of approximately 3.2 acres below the High Tide Line (HTL) is proposed (equates to 3.1 acres below Mean High Water (MHW)) to create the upland cargo working space. The fill area will be surrounded by and protected from wave and ice forces by approximately 1,085 lf of armored revetment at a 2:1 slope starting from the apex of Shannon Point, extending 185 lf feet southeast into Women's Bay, then 800 lf southwest, and back to shore for another 100 lf. A gravel ramp for landing craft will be incorporated into the armored revetment on the north side of the project. The proposed fill area will require approximately 60,000 CY of fill below HTL (equates to 35,000 CY below MHW). It is anticipated that fill material will consist of shot rock material excavated from adjacent upland properties. Additional borrow material will be supplemented as needed and be procured by the contractor from an approved source, likely an upland quarry. Armor rock will come from the same locations.
3. **Transfer Bridge and Approach Pier:** A pile supported approach pier (23 feet by 43 feet) will be installed at the mid-point of the east side of the armored revetment. This pier will be supported by six 12-inch diameter steel piles. The piles will be installed using a barge mounted vibratory hammer with an impact hammer used for proofing. The approach pier connects to the transfer bridge (19 feet by 120 feet). The floating end of the transfer bridge is supported on a floatation chamber (19 feet by 45 feet) that is situated beneath and perpendicular to the transfer bridge. Therefore, portions of the floatation chamber extend beyond the overhead footprint of the transfer bridge (see drawing sheet 3. The transfer bridge is stabilized by two 30-inch diameter steel guide piles.
4. **Dolphins:** Four mooring/breasting dolphins will be installed parallel to the east facing revetment. Each dolphin consists of one vertical 48-inch diameter steel pile and two 24-inch diameter batter piles. The piles will be installed using a barge mounted vibratory hammer with and impact hammer used for proofing. Each dolphin features a loader tire fender on the vertical pile.

**Project Schedule:** The project will be completed by January 2015 pending permit and tideland lease approvals. Best Management Practices (BMPs) will be implemented to reduce potential erosion impacts during winter months.

**Analysis of Project Alternatives:** Multiple designs were considered for this project to determine the best engineering design capable of meeting the needs of a cargo dock facility while minimizing both financial and environmental costs. Environmental impacts, no required dredging, the types and sizes of vessels calling, the weight, volume and size of the materials to be handled, vessel draft requirements, the necessary cargo handling equipment, upland storage facilities, and costs were all measured.

Design options considered included:

1. Fill area surrounded by sheet pile bulkhead. This option involved considerable cost to construct a bulkhead in water deep enough to accommodate anticipated vessels and avoid dredging while providing an area large enough to create an upland area large enough to accommodate the cargo handling facility. The time necessary for fabrication of materials would also add to the total duration of the project schedule. Sheet pile driving duration and resulting noise impacts would be significantly longer than the chosen option.
2. Pile supported dock. This option involved the highest cost to construct a concrete, heavy duty, pile supported dock large enough to accommodate the cargo handling facility. The time necessary for fabrication of materials would also add to the total duration of the project schedule. Pile driving duration and resulting noise impacts would be significantly longer than the chosen option.
3. Fill area surrounded by an armored revetment (chosen design). This option allows the owner to take advantage of available materials and lower costs while achieving the required upland space, berthing



depths, and gravel landing craft area necessary for the project while minimizing pile driving noise impacts.

The armored revetment shown in the chosen design was deemed most flexible in allowing Northland to respond to various users' needs. This choice will eliminate the need for dredging at the site. Providing an operating area that is on fill instead of overwater allows for better direction of drainage and less opportunity for stray materials or contaminants to enter the waterway during operations. This armored revetment design is structurally, economically, and operationally the most efficient structure for this location and use. Following are some of the reasons for this, in addition to the points already made:

- 1) Very high load capacity for variety of uses
- 2) Creates upland area for cargo storage and maneuvering
- 3) Easier to protect from homeland security risks – difficult target for terrorism
- 4) Low maintenance costs compared to platform dock structures
- 5) Ease of construction allows shorter construction window for lower cost, environmental impacts, etc.
- 6) Environmentally responsible use of natural resources – construction method uses less energy and resources to create a usable surface area compared to other common types of structure (i.e. platform dock)

All options above would require a DNR lease or conveyance. This process will be started following this application, and will continue with the chosen revised layout.

**Biological Consultation:** A query was run through NOAA's Essential Fish Habitat (EFH) Mapper and no Habitat Areas of Particular Concern (HAPC) nor Essential Fish Habitat (EFH) were identified at the project location. Work will be scheduled to adhere to allowable windows of work as prescribed by state and federal agencies.

Minor, temporary impacts to water quality may occur during construction, but will adhere to tolerances set forth under the Section 401 Water Quality Certification requirements. The project is not within a FEMA regulated floodplain. There are no endangered, threatened, or sensitive species found on the site. Temporary construction impacts may include minor, direct, short term effects on air quality from construction equipment, turbidity during fill operations, and noise impacts during pile driving.

**Mitigation Statement:** The project results in loss of fairly low quality habitat. The existing shore protection and gravel beach is not high value aquatic ecosystem. As such, no compensatory mitigation is proposed. The following describes the measures taken by Northland to avoid and minimize impacts to waters of the United States relative to the proposed construction of the project.

1. Area of fill required has been minimized by identifying a site with two natural points extending into Women's Bay that can be incorporated into the workable upland area.
2. Area of fill has been further minimized by extending the transfer bridge to reach deeper water required to meet the vessel draft instead of expanding the fill area footprint. This will decrease the potential environmental impact of the project to fish and other wildlife as well as decrease the amount of affected navigable waters of the United States.
3. Fill limits were set at elevation -6-feet MLLW which are capable of being clearly viewed at low water. Low water viewing did not identify any significant habitat that could be affected by fill placement.
4. The minimum number and size of pile have been used in the design to reduce noise impacts to aquatic organisms during construction.



5. In order to minimize the unavoidable impacts, Best Management Practices (BMPs) will be employed to minimize impacts on water quality, fish life, and the environment during construction. Such practices include:
- a. Impact driving will be required on all bearing piles. Vibratory methods may be used for initial setting and driving of all of the piles. Fender pin piles may be installed using a vibratory hammer exclusively, if possible.
  - b. Shot rock fill be clean with relatively few fines that would cause turbidity.
  - c. Agency imposed timing restrictions would be strictly observed.
  - d. The contractor will be required to capture any falling debris associated with project construction; such methods will not allow any debris to enter the Womens Bay.
  - e. Excess or waste materials will not be allowed to enter waters of the state. All such materials will be collected and recycled or disposed of at an approved facility.
  - f. The contractor will comply with water quality restrictions as required by law and implement corrective measures if temporary water quality standards are exceeded.
  - g. Care will be taken to prevent any petroleum products or other toxic or deleterious materials from entering the waters of the state. Fuel hoses, oil drums, oil or fuel transfer valves and fittings, etc., will be checked regularly for drips or leaks, and shall be maintained and stored properly on secondary containment pallets to prevent spills.
  - h. The contractor will have a spill kit with oil-absorbent materials on site to be used in the event of a spill or if any oil product is observed in the water.
  - i. The contractor is responsible for the preparation of a Spill Prevention, Control, and Countermeasures (SPCC) plan to be used for the duration of the project as required by permitting agencies.