







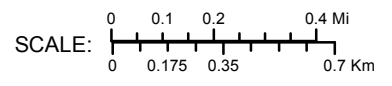


-  ADNR Active State Lease
-  Captain Cook State Recreation Area
-  Kenai National Wildlife Refuge
-  Kenai Borough Parcel
-  Wetlands
-  Existing Pipelines
-  Proposed Pad Location
-  Proposed Route / Alternative-2



Projection: State Plane Alaska Zone 4 (feet), NAD83  
Seward Meridian



<p>NORDAQ ENERGY, INC. 3000 A Street, Suite 410 Anchorage, AK 99503</p>	<p>PREPARED FOR:</p>  <p>NORDAQ ENERGY, INC. "KNOWLEDGE AND VISION FOR ALASKA"</p>	 <p>ALASKA Project Location</p>	<p>SHADURA NATURAL GAS DEVELOPMENT PROJECT</p> <p><b>GENERAL LOCATION MAP</b></p> <p>POA-2009-1228, Swanson River</p>	<p>FIGURE:</p> <p style="font-size: 2em; text-align: center;"><b>1</b></p>
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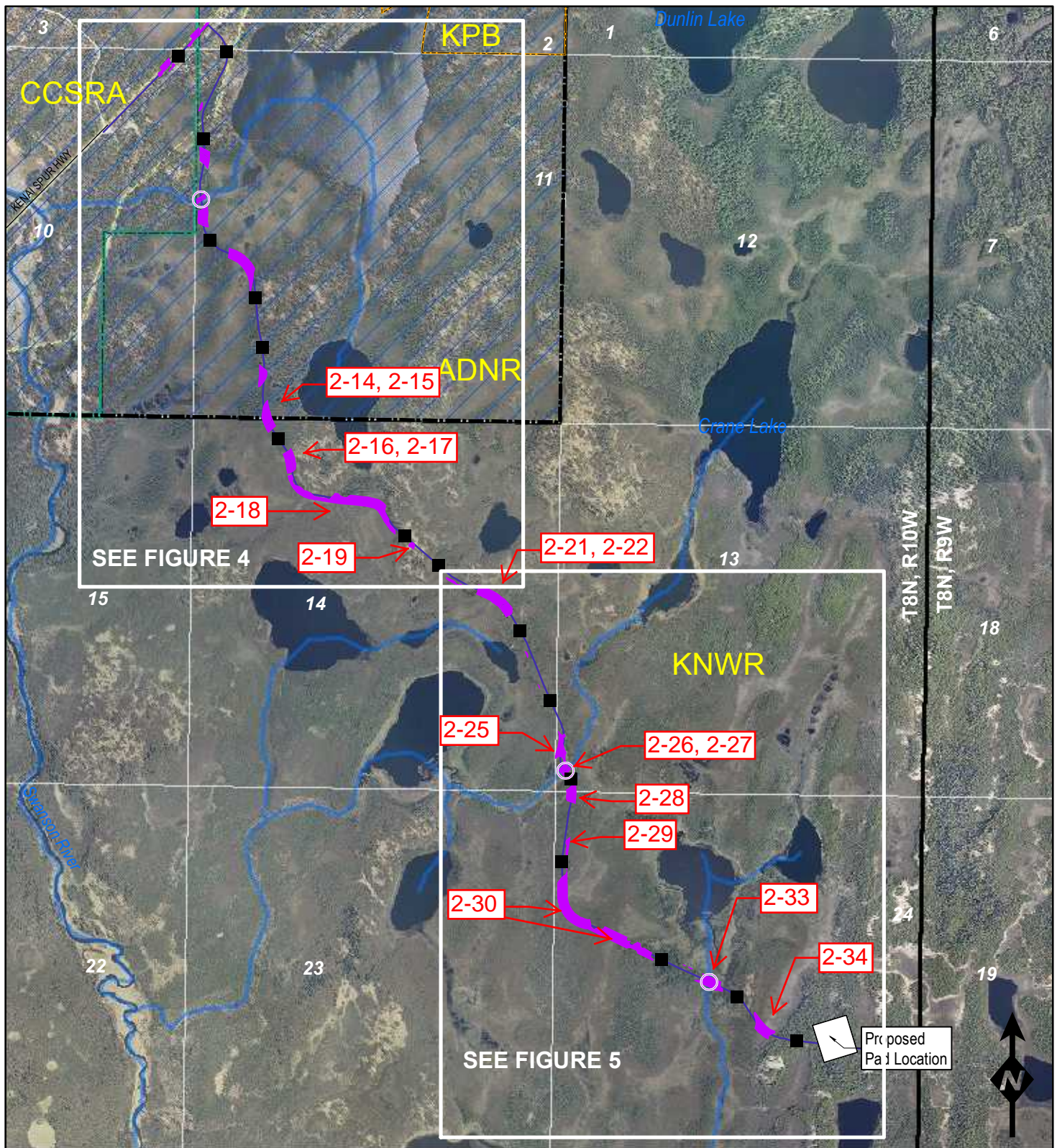
Table 1 Preferred Route - Service Road Construction - Permanent Wetland Impacts - KNWR Land\*

Wetland #	Crossing width (ft)	Linear Length (ft)	Wetland area impacted (ft <sup>2</sup> )	Wetland area impacted		Fill amount (cy)
				(Acres)	(cy)	
2-14	28	297.34	7821.52	0.18	548.61	
2-15	28	93.93	2631.44	0.06	243.65	
2-16	28	137.17	3848.75	0.09	356.37	
2-17	28	173.95	4876.28	0.11	451.51	
2-18	28	1234.86	34278.28	0.79	3173.92	
2-19	28	61.06	1536.62	0.04	142.28	
2-21	28	428.99	12047.14	0.27	1115.48	
2-22	28	185.72	5137.13	0.12	475.66	
2-25	28	328.45	9969.27	0.23	923.08	
2-26**	28	6.60	186.36	0.004	17.26	
2-27	28	43.77	1227.99	0.03	113.70	
2-28	28	235.49	6591.69	0.15	610.34	
2-29	28	0.20	0.001	Trace	0.0001	
2-30	28	1813.40	49807.03	1.14	4611.76	
2-33***	28	328.29	8895.61	0.20	823.67	
2-34	28	308.75	8686.12	0.20	804.27	
<b>Total:</b>			<b>5659.98</b>	<b>157541.24</b>	<b>3.61</b>	<b>14411.55</b>

\* Wetland 2-14 spans KNWR and ADNR administered lands.

\*\* 2-26: location of stream 1

\*\*\* 2-33: location of stream 2



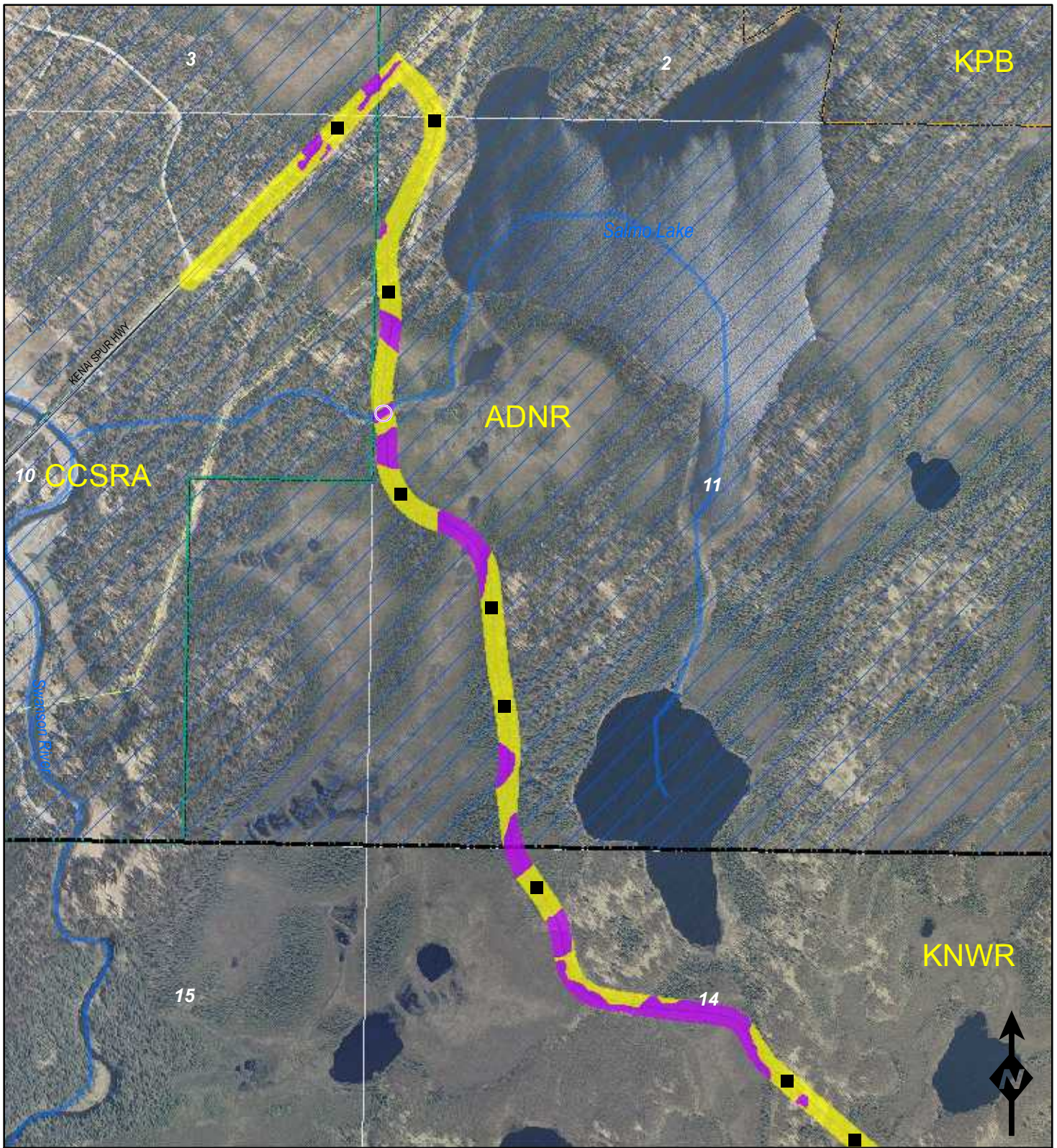
ADNR Active State Lease	Proposed Route / Alternative-2	Wetlands
Captain Cook State Recreation Area	Existing Pipelines	Proposed Pad Location
Kenai National Wildlife Refuge	Stream Crossing	Wetland # and location
Kenai Borough Parcel	Pullout	

SCALE: 0 0.1 0.2 0.4 Mi / 0 0.175 0.35 0.7 Km

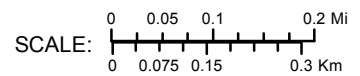
Projection: State Plane Alaska Zone 4 (feet), NAD83 Seward Meridian

NORDAQ ENERGY, INC. 3000 A Street, Suite 410 Anchorage, AK 99503	PREPARED FOR: 		SHADURA NATURAL GAS DEVELOPMENT PROJECT	
			<b>PREFERRED ROUTE PULLOUT LOCATIONS OVERVIEW</b>	

POA-2009-1228, Swanson River



- |  |                                    |  |                                |  |                       |
|--|------------------------------------|--|--------------------------------|--|-----------------------|
|  | ADNR Active State Lease            |  | Proposed Route / Alternative-2 |  | Wetland               |
|  | Captain Cook State Recreation Area |  | Existing Pipelines             |  | Upland                |
|  | Kenai National Wildlife Refuge     |  | Stream Crossing                |  | Proposed Pad Location |
|  | Kenai Borough Parcel               |  | Pullout                        |  |                       |



Projection: State Plane Alaska Zone 4 (feet), NAD83  
Seward Meridian

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Anchorage, AK 99503

PREPARED FOR:

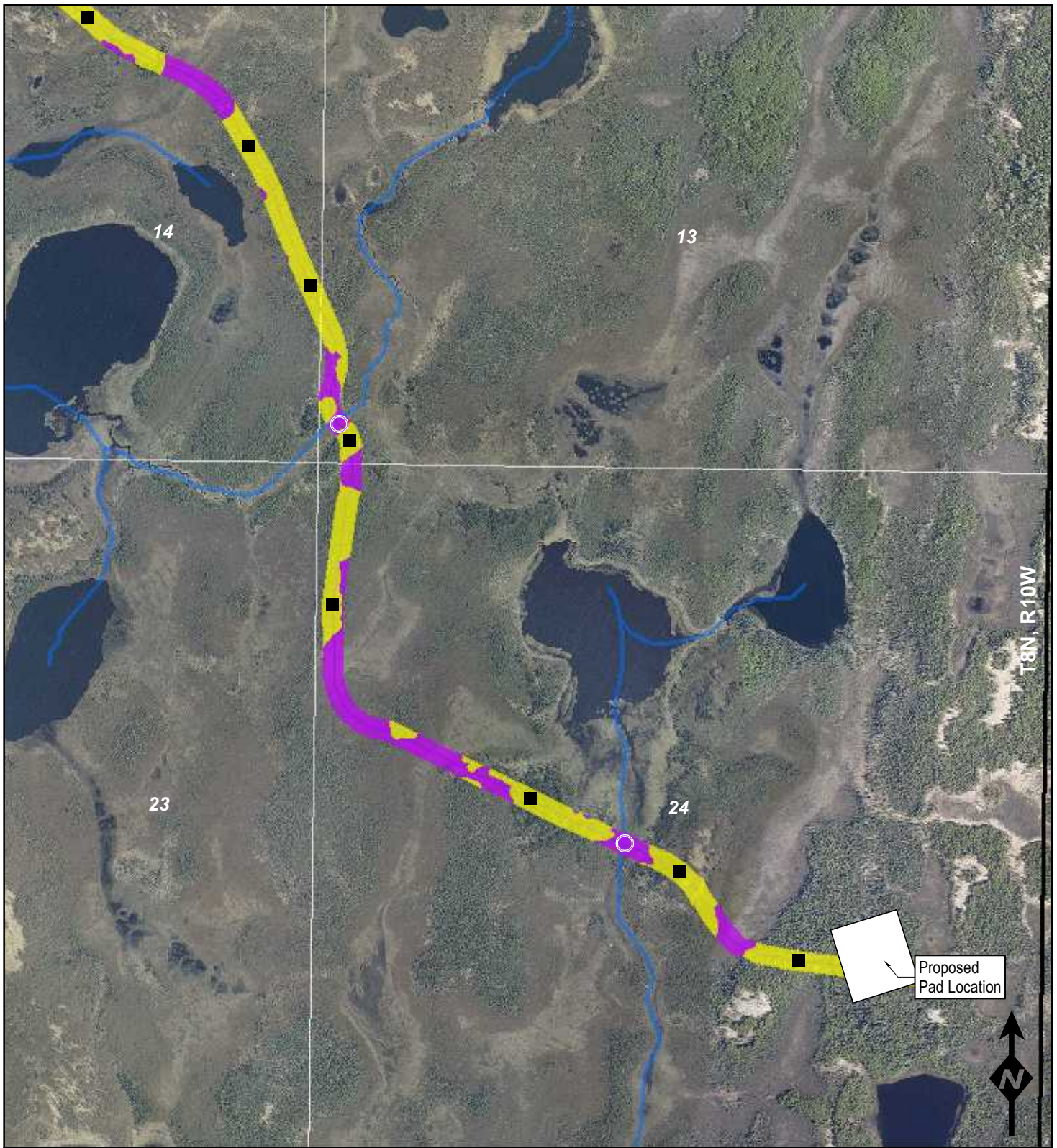
NORDAQ ENERGY, INC.  
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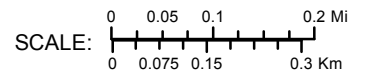
SHADURA NATURAL GAS DEVELOPMENT PROJECT

FIGURE:  
**4**

**PREFERRED ROUTE  
PULLOUT LOCATIONS**  
POA-2009-1228, Swanson River



- Proposed Route / Alternative-2
- Wetland
- Existing Pipelines
- Upland
- Stream Crossing
- Proposed Pad Location
- Pullout



Projection: State Plane Alaska Zone 4 (feet), NAD83  
Seward Meridian

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Anchorage, AK 99503

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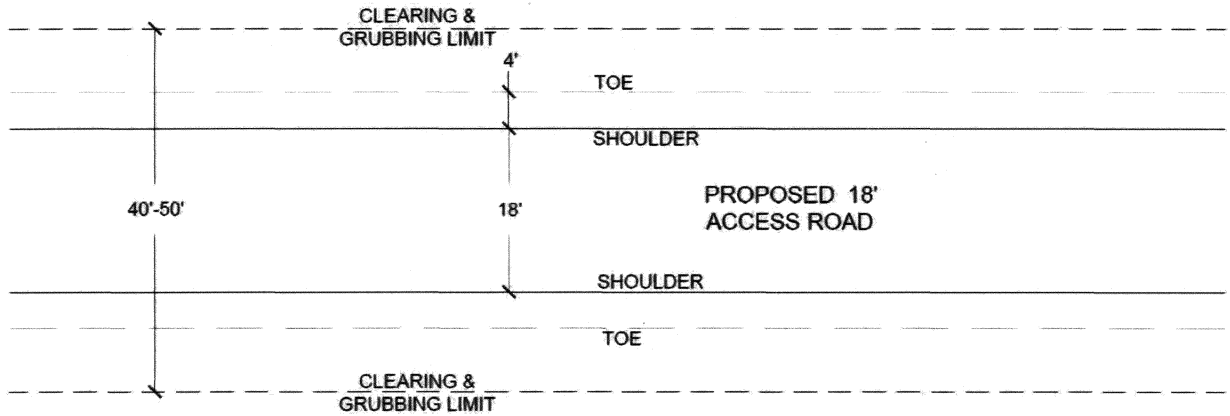
SHADURA NATURAL GAS DEVELOPMENT PROJECT

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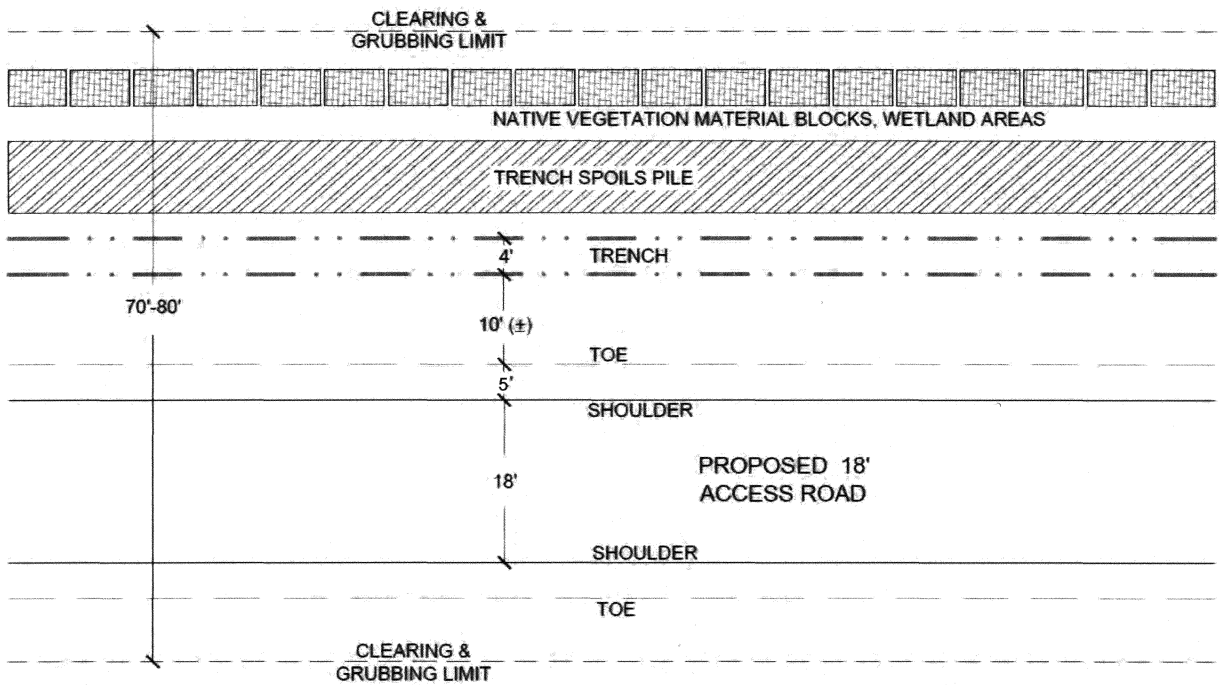
**PREFERRED ROUTE  
PULLOUT LOCATIONS**

POA-2009-1228, Swanson River

FIGURE:  
**5**




**A** TYPICAL ACCESS ROAD PLAN VIEW IN UPLANDS



**B** TYPICAL ACCESS ROAD & PIPE TRENCH PLAN VIEW IN WETLANDS

SCALE: AS SHOWN

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Anchorage, AK 99503

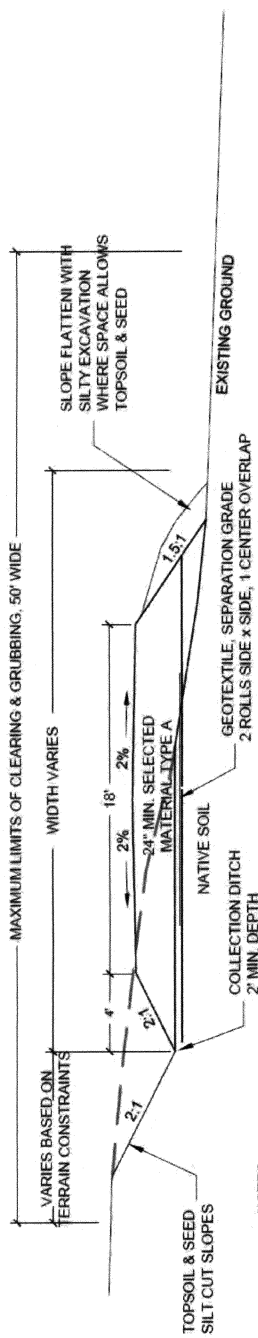
PREPARED FOR:  
  
NORDAQ ENERGY, INC.  
"KNOWLEDGE AND VISION FOR ALASKA"



SHADURA NATURAL GAS DEVELOPMENT PROJECT

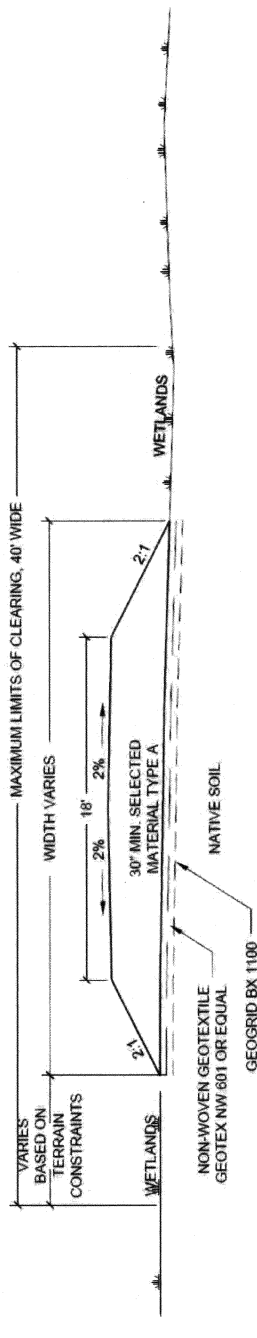
**SEVICE ROAD  
PLAN VIEW**

FIGURE:  
**7**



- NOTES:
1. MAXIMUM ROAD CLEARING WIDTH IS 50 FT. IN NEARLY LEVEL TERRAIN; REDUCE CLEARING WIDTH TO 40 FT.
  2. UTILIZE MULCHING MACHINES FOR CLEARING AND GRUBBING WHERE FEASIBLE.
  3. GRAVEL FILL SHALL BE PLACED IN NO GREATER THAN 8" LIFTS AND COMPACTED TO 95% OF MAXIMUM DENSITY.
  4. TOP 4" SELECTED MATERIAL TYPE A SHALL BE COBBLE FREE (3" MINUS).
  5. GRAVEL FILL SHALL BE UNDERLAIN WITH GEOTEXTILE, SEPARATION GRADE, WHERE SOFT UNDERLYING SOILS ARE ENCOUNTERED.
  6. RESERVE TOPSOIL FOR STABILIZATION AND SEEDING ON CUT SLOPES.



**A** TYPICAL ACCESS ROAD SECTION - UPLANDS

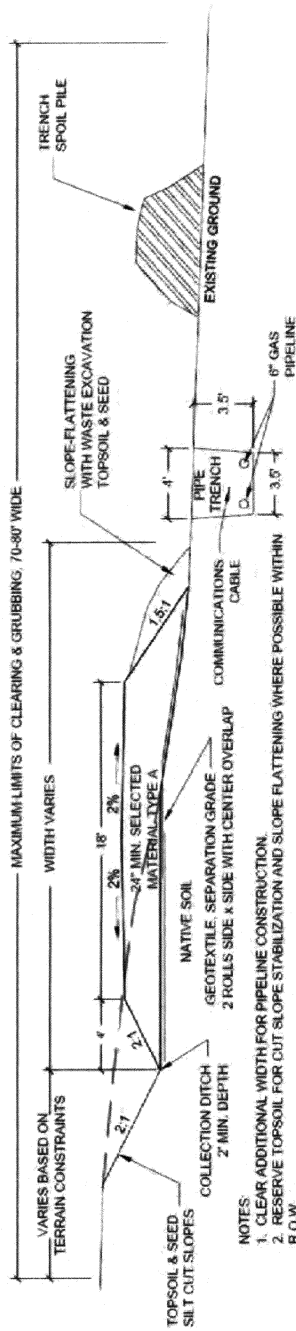


- NOTES:
1. GRAVEL FILL SHALL BE PLACED IN NO GREATER THAN 8" LIFTS AND COMPACTED TO 95% OF MAXIMUM DENSITY, AS DETERMINED BY AASHTO T 180, METHOD D.
  2. TOP 4" SELECTED MATERIAL TYPE A SHALL BE COBBLE FREE (3" MINUS).
  3. GRAVEL FILL SHALL BE UNDERLAIN WITH NON-WOVEN GEOTEXTILE, GEOTEX NW 801 OR EQUAL.
  4. IN WETLAND AREAS GEGRID, BX 1100 OR EQUAL, MAY BE USED TO HELP STABILIZE GRAVEL FILL AS DETERMINED BY THE ENGINEER.
  5. IN WETLAND AREAS CONTRACTOR MAY NOT PLACE FILL. REMOVE NATIVE MATERIAL, OR RUN EQUIPMENT OUTSIDE DESIGNATED CONSTRUCTION ZONE AS MARKED IN FIELD BY THE ENGINEER.

**B** TYPICAL ACCESS ROAD SECTION - WETLANDS

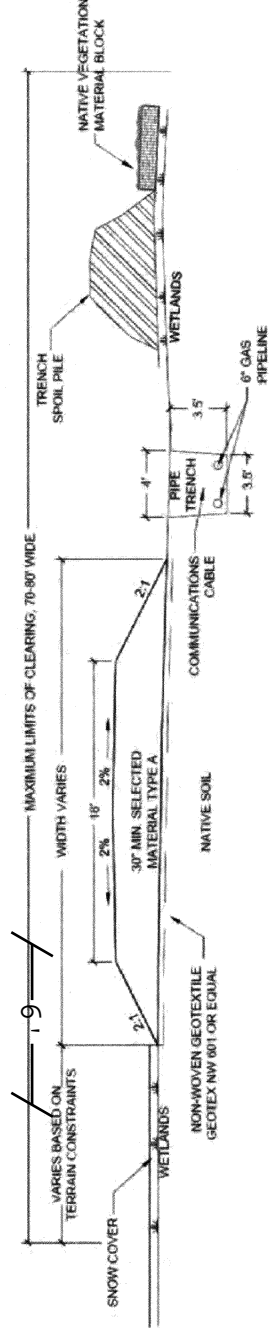
SCALE: AS SHOWN

<p>PREPARED FOR:</p>  <p>NORDAQ ENERGY, INC. 3000 A Street, Suite 410 Anchorage, AK 99503</p>	 <p>ALASKA Project Location</p>	<p>SHADURA NATURAL GAS DEVELOPMENT PROJECT</p> <p>FIGURE: <b>6</b></p> <p><b>SERVICE ROAD</b></p>
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- NOTES:**
1. CLEAR ADDITIONAL WIDTH FOR PIPELINE CONSTRUCTION.
  2. RESERVE TOPSOIL FOR CUT SLOPE STABILIZATION AND SLOPE FLATTENING WHERE POSSIBLE WITHIN R.O.W.
  3. PLACE GRAVEL FILL IN LIFTS AND COMPACT.
  4. GRAVEL FILL SHALL BE UNDERLAIN WITH GEOTEXTILE, SEPARATION GRADE, WHERE SOFT SOILS ARE ENCOUNTERED.
  5. USE SELECTED NATIVE SOIL FOR PIPE BEDDING.
  7. SANDBAGS WILL BE USED FOR BUOYANCY COMPENSATION IF SHALLOW GROUNDWATER ENCOUNTERED.

**A** TYPICAL ACCESS ROAD & PIPE TRENCH SECTION - UPLANDS



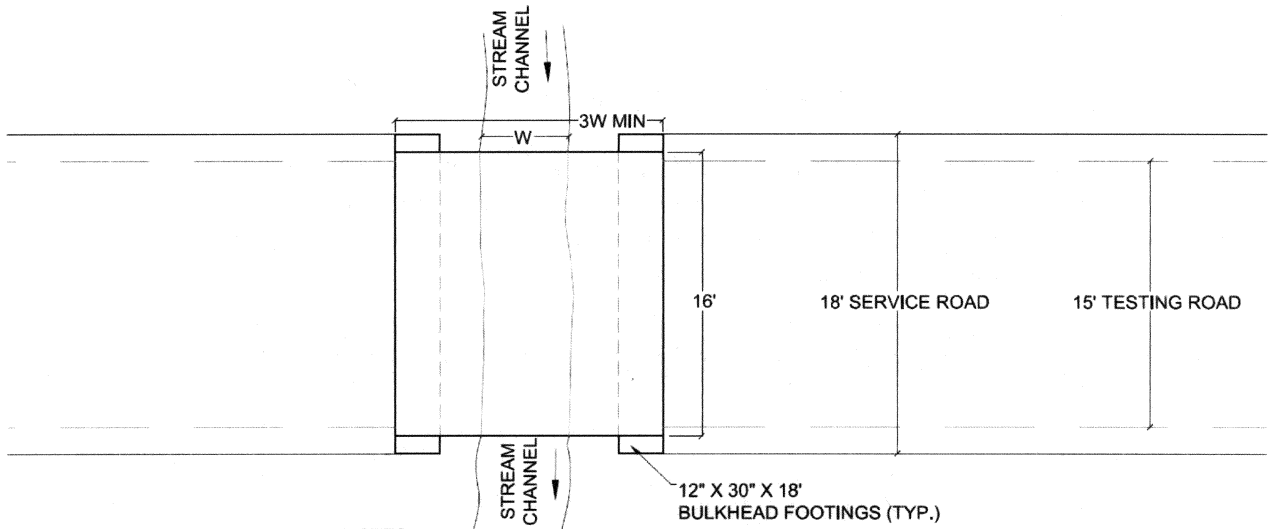
- NOTES:**
1. GRAVEL FILL SHALL BE PLACED IN NO GREATER THAN 8" LIFTS AND COMPACTED TO 95% OF MAXIMUM DENSITY, AS DETERMINED BY AASHTO T 190, METHOD D.
  2. TOP 4" SELECTED MATERIAL TYPE A SHALL BE COBBLE FREE (3" MINUS).
  3. GRAVEL FILL SHALL BE UNDERLAIN WITH NON-WOVEN GEOTEXTILE. GEOTEX NW 601 OR EQUAL.
  4. IN WETLAND AREAS GEOTRID, BX 1100 OR EQUAL, MAY BE USED TO HELP STABILIZE GRAVEL FILL AS DETERMINED BY THE ENGINEER.
  5. IN WETLAND AREAS CONTRACTOR MAY NOT PLACE FILL. REMOVE NATIVE MATERIAL, OR RUN EQUIPMENT OUTSIDE DESIGNATED CONSTRUCTION ZONE AS MARKED IN FIELD BY THE ENGINEER.
  6. USE SELECTED NATIVE SOIL FOR PIPE BEDDING.
  7. SANDBAGS WILL BE USED FOR BUOYANCY COMPENSATION.

**B** TYPICAL ACCESS ROAD & PIPE TRENCH SECTION - WETLANDS

SCALE: AS SHOWN

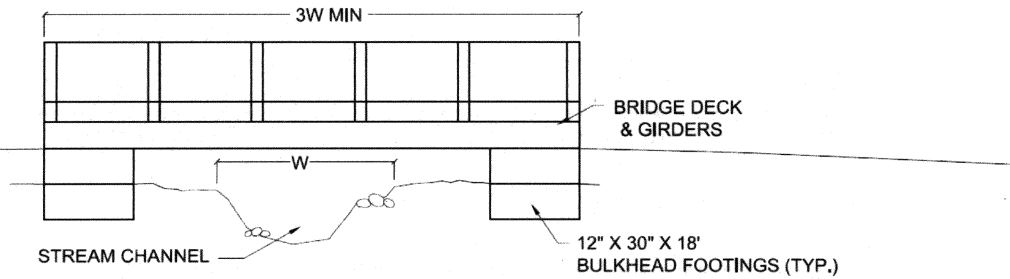
<p>SHADURA NATURAL GAS DEVELOPMENT PROJECT</p>		<p>PREPARED FOR:</p> <p>NORDAQ ENERGY INC. TERRAQUE AND VIBRO FOR ALASKA</p>	<p>NORDAQ ENERGY, INC. 3000 A Street, Suite 410 Anchorage, AK 99503</p>
<p>FIGURE:</p>		<p><b>5</b></p>	





- NOTES:  
 1. USE MATERIALS APPROVED BY ADFG FOR OVER STREAM CONSTRUCTION.  
 2. MAINTAIN CLEARANCE ABOVE STREAM SIDE VEGETATION.

**A** CLEAR SPAN BRIDGE  
 SCALE: 1" = 10'



- NOTE:  
 1. NO IN-WATER WORK OR FLOW RESTRICTION DURING CONSTRUCTION

**B** CLEAR SPAN BRIDGE  
 Scale 1" = 5'



**SINGLE LANE CLEAR SPAN  
 BRIDGE PLAN VIEW**

PLAN OF DEVELOPMENT

FIGURE:

**6**