WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Susitna-Watana Hydroelectric Project | Borough/City: Matanuska-Susitna Borough | Sampling Date: 21-Aug-15

Applicant/Owner: Alaska Energy Authority | Sampling Point: **SW15_T312_04**

Investigator(s): SLI, ATH | Landform (hillside, terrace, hummocks etc.): Hillside

Local relief (concave, convex, none): none | Slope: 7.0 % / 4.0 ° | Elevation:

Subregion : Cook Inlet Mountains | Lat.: | Long.: | Datum: WGS84

Soil Map Unit Name: | **NWI classification: PSS1B**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ (If no, explain in Remarks.)

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ◉ No ○

Are Vegetation ☐ , Soil ☐ , or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ◉ No ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? **Yes** ◉ **No** ○

Remarks: black spruce woodland with tall alder understory. many seeps, abundant dead/down trees.

VEGETATION - Use scientific names of plants. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	20	☑	FACW
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
Total Cover:	20		

50% of Total Cover: 10 | 20% of Total Cover: 4

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus viridis ssp. sinuata	30	☑	FAC
2. Picea mariana	5	☐	FACW
3. Spiraea stevenii	3	☐	FACU
4. Vaccinium vitis-idaea	3	☐	FAC
5. Ribes triste	3	☐	FAC
6. Vaccinium uliginosum	1	☐	FAC
7. Linnaea borealis	0.1	☐	FACU
8.	0	☐	
9.	0	☐	
10.	0	☐	
Total Cover:	45.1		

50% of Total Cover: 22.55 | 20% of Total Cover: 9.02

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Spinulum annotinum	20	☑	FACU
2. Equisetum sylvaticum	15	☑	FAC
3. Petasites frigidus	5	☐	FACW
4. Dryopteris expansa	5	☐	FACU
5. Sanguisorba canadensis	5	☐	FACW
6. Rubus chamaemorus	3	☐	FACW
7. Cornus canadensis	2	☐	FACU
8. Athyrium cyclosorum	0.1	☐	FAC
9.	0	☐	
10.	0	☐	
Total Cover:	55.1		

50% of Total Cover: 27.55 | 20% of Total Cover: 11.02

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species	0	x 1 =	0
FACW Species	38	x 2 =	76
FAC Species	52.1	x 3 =	156.3
FACU Species	30.1	x 4 =	120.4
UPL Species	0	x 5 =	0
Column Totals:	120.2 (A)		352.7 (B)

Prevalence Index = B/A = 2.934

Hydrophytic Vegetation Indicators:

☑ Dominance Test is > 50%

☑ Prevalence Index is ≤3.0

☐ Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 5

Total Cover of Bryophytes 90

Hydrophytic Vegetation Present? **Yes** ◉ **No** ○

Remarks: Herb Stratum continued: Rumex sp. 2%. Odd mix of species, Linbor growing in Sphagnum. Substantial microtopography. Picmar robust to scraggly, but all picmar. Abundant dead/down trees. Trace unidentified herbs.

SOIL

Sampling Point: SW15_T312_04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-2									Peat	
2-3									Mucky Peat	
3-4.5	7.5YR	2.5/2	100%						Silt Loam	
4.5-12	10YR	3/3	100%						Sandy Clay Loam	
12-18	5Y	4/3	70%	2.5Y	4/4	20%	C	PL	Sandy Clay Loam	
+mottle				7.5YR	4/6	10%	C	PL	Sandy Clay Loam	

[1] Type: C=Concentration. D=Depletion. RM=Reduced Matrix [2] Location: PL=Pore Lining. RC=Root Channel. M=Matrix

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☑ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):
Type: Sandy Clay Loam
Depth (inches): 4.5

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Marl Deposits (B15)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Other (Explain in Remarks)

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):
Water Table Present? Yes ◉ No ○ Depth (inches): 4
Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 2

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:

Remarks:
Numerous seeps within community, but no standing water.