WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Susitna-Watana Hydroelectric Project | Borough/City: Denali Borough | Sampling Date: 30-Jul-13

Applicant/Owner: Alaska Energy Authority | Sampling Point: **SW13_T212_03**

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

Local relief (concave, convex, none): hummocky | Slope: % / 2.0 ° | Elevation: 677

Subregion : Interior Alaska Mountains | Lat.: 63.3797103168 | Long.: -148.910041332 | Datum: NAD83

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 ○	**Is the Sampled Area within a Wetland?** **Yes ◉ No ○**
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	Yes ◉ No ○	

Remarks: lichen-rich dwarf shrub hummocks w carex and standing water inter-hummocks. overall a saturated system.

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

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
Total Cover:	0		
Sapling/Shrub Stratum	50% of Total Cover: 0	20% of Total Cover: 0	
1. Betula nana	3	☐	FAC
2. Vaccinium uliginosum	10	☑	FAC
3. Arctous ruber	5	☑	FAC
4. Salix reticulata	1	☐	FAC
5. Rhododendron tomentosum	2	☐	FACW
6. Vaccinium vitis-idaea	1	☐	FAC
7. Empetrum nigrum	3	☐	FAC
8. Andromeda polifolia (IAM)	5	☑	OBL
9. Loiseleuria procumbens	3	☐	FACU
10. Picea glauca	3	☐	FACU
Total Cover:	36		
Herb Stratum	50% of Total Cover: 18	20% of Total Cover: 7.2	
1. Tofieldia pusilla	1	☐	FAC
2. Carex bigelowii	7	☑	FAC
3. Saussurea angustifolia	0.1	☐	FAC
4. Petasites frigidus	1	☐	FACW
5. Pedicularis capitata	0.1	☐	FACU
6. Bistorta plumosa	1	☐	FACU
7. Eriophorum vaginatum	0.1	☐	FACW
8. Carex glacialis	0.1	☐	UPL
9.	0	☐	
10.	0	☐	
Total Cover:	10.4		
50% of Total Cover: 5.2	20% of Total Cover: 2.08		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL Species	5	x 1 =	5
FACW Species	3.1	x 2 =	6.2
FAC Species	31.1	x 3 =	93.30
FACU Species	7.1	x 4 =	28.4
UPL Species	0.1	x 5 =	0.500
Column Totals:	46.4 (A)		133.4 (B)

Prevalence Index = B/A = 2.875

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 30

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

Remarks: trace saxifraga sp, juncus sp, salix pulchra, salix richardsonii. 60% lichen cover, primarily on hummocks.cladina rangiferina, cladina spp, flavocetraria, stereocaulon.

SOIL

Sampling Point: SW13_T212_03

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
0-1.5	7.5YR	3/2	100						Fibric Organics	
1.5-4	7.5YR	2.5/1	100						Sapric Organics	
4-8	7.5YR	3/2	70	2.5Y	4/2	30		M	Sandy Loam	2 matrix colors
8-14	5PB	4/1	80	10YR	4/4	20	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: active layer, sa cl lo

Depth (inches): 38, 8

Hydric Soil Present? Yes ◉ No ○

Remarks:

thixotropic soils at 8in. active layer depth determined via thaw probe. coarse fragments throughout mineral soils - 5% gravels 10% cobbles.

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): 6
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 7

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

small scattered pools of surface water in inter-hummock troughs. appear relatively permanent - unvegetated fine substrates, aquatic moss. don't think these meet the intent of A1 (surf water). rainfall from previous night perched above sa cl lo. water filling pit from top of sa cl lo layer.