WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Susitna-Watana Hydroelectric Project | Borough/City: Matanuska-Susitna Borough | Sampling Date: 23-Aug-15

Applicant/Owner: Alaska Energy Authority | Sampling Point: **SW15_T308_02**

Investigator(s): GVF | Landform (hillside, terrace, hummocks etc.): Swale

Local relief (concave, convex, none): tussocks | Slope: 5.2 % / 3.0 ° | Elevation:

Subregion : Interior Alaska Mountains | Lat.: | Long.: | Datum: WGS84

Soil Map Unit Name: | **NWI classification: PSS1/EM1B**

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: Old standing dead spruce suggests area flooded at some point in past.

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

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

50% of Total Cover: 0 | 20% of Total Cover: 0

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix pulchra	28	☑	FACW
2. Picea mariana	7	☐	FACW
3. Betula nana	5	☐	FAC
4. Rhododendron tomentosum	3	☐	FACW
5. Dasiphora fruticosa	1	☐	FAC
6. Rhododendron groenlandicum	1	☐	FAC
7. Empetrum nigrum	0.1	☐	FAC
8. Spiraea stevenii	0.1	☐	FACU
9. Vaccinium vitis-idaea	0.1	☐	FAC
10. Vaccinium uliginosum	0.1	☐	FAC
Total Cover:	45.4		

50% of Total Cover: 22.7 | 20% of Total Cover: 9.08

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Calamagrostis canadensis	20	☑	FAC
2. Petasites frigidus	7	☑	FACW
3. Rubus chamaemorus	2	☐	FACW
4. Sanguisorba canadensis	1	☐	FACW
5. Equisetum fluviatile	1	☐	OBL
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
Total Cover:	31		

50% of Total Cover: 15.5 | 20% of Total Cover: 6.2

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (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	1	x 1 =	1
FACW Species	48	x 2 =	96
FAC Species	27.3	x 3 =	81.9
FACU Species	0.1	x 4 =	0.400
UPL Species	0	x 5 =	0
Column Totals:	76.4 (A)		179.3 (B)

Prevalence Index = B/A = 2.347

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 55

Total Cover of Bryophytes 10

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

Remarks: bare ground is calcan litter. <5% tree size picmar, recorded with saplings. calcan tussocks.

SOIL

Sampling Point: SW15_T308_02

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox Features %	Type [1]	Loc [2]	Texture	Remarks
0-2			100						Mucky Peat	thin iron deposit at bottom.
2-5	2.5Y	3/2	95	5YR	4/6	5	C	PL	Silt Loam	high org cont,oxidized rhizos along liv roots +3%
5-10	2.5Y	3/2	100						Silt Loam	change to 10YR3/2 after 15 minutes exposure to air
10-11			100						Mucky Peat	
11-21	2.5Y	3/2	90	10YR	4/4	10	C	PL	Silt 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:
Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

5-10: soils became redder by 1 hue within 30 min, but didn't qualify for TA4 due to having value of 3 rather than 4 possibly due to organic content. positive reaction to alpha, alpha-dipyridol indicates presence of reduced iron.
11-21: meets Alaska Redox w 2.5Y Hue

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): 8
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

C3--see soil profile. C4--positive reaction to alpha, alpha-dipyridol. D2--swale. D4--calcan tussocks.