## WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Susitna-Watana Hydroelectric Project | Borough/City: Matanuska-Susitna Borough | Sampling Date: 20-Aug-15

Applicant/Owner: Alaska Energy Authority | Sampling Point: **SW15_T301_05**

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

Local relief (concave, convex, none): none | Slope: 9.0 % / 5.1 ° | Elevation:

Subregion : Interior Alaska 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 ○ | **Is the Sampled Area within a Wetland?** **Yes ◉ No ○** |
| Hydric Soil Present? | Yes ◉ No ○ | |
| Wetland Hydrology Present? | Yes ◉ No ○ | |

Remarks: black and white spruce woodland with low open birch-ericaceous shrub understory.

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

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| **Tree Stratum** | | | |
| 1. Picea glauca | 10 | ☑ | FACU |
| 2. Picea mariana | 5 | ☑ | FACW |
| 3. | 0 | ☐ | |
| 4. | 0 | ☐ | |
| 5. | 0 | ☐ | |
| **Total Cover:** | 15 | | |
| **Sapling/Shrub Stratum** | 50% of Total Cover: 7.5 | 20% of Total Cover: 3 | |
| 1. Betula nana | 20 | ☑ | FAC |
| 2. Vaccinium uliginosum | 20 | ☑ | FAC |
| 3. Vaccinium vitis-idaea | 10 | ☐ | FAC |
| 4. Empetrum nigrum | 10 | ☐ | FAC |
| 5. Rhododendron tomentosum | 7 | ☐ | FACW |
| 6. Picea glauca | 5 | ☐ | FACU |
| 7. Picea mariana | 2 | ☐ | FACW |
| 8. Salix pulchra | 0.1 | ☐ | FACW |
| 9. | 0 | ☐ | |
| 10. | 0 | ☐ | |
| **Total Cover:** | 74.1 | | |
| **Herb Stratum** | 50% of Total Cover: 37.05 | 20% of Total Cover: 14.82 | |
| 1. Carex bigelowii | 15 | ☑ | FAC |
| 2. Rubus chamaemorus | 3 | ☐ | FACW |
| 3. Bistorta plumosa | 2 | ☐ | FACU |
| 4. | 0 | ☐ | |
| 5. | 0 | ☐ | |
| 6. | 0 | ☐ | |
| 7. | 0 | ☐ | |
| 8. | 0 | ☐ | |
| 9. | 0 | ☐ | |
| 10. | 0 | ☐ | |
| **Total Cover:** | 20 | | |
| 50% of Total Cover: | 10 | 20% of Total Cover: | 4 |

**Dominance Test worksheet:**

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

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

**Prevalence Index worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL Species | 0 | x 1 = | 0 |
| FACW Species | 17.1 | x 2 = | 34.20 |
| FAC Species | 77 | x 3 = | 231 |
| FACU Species | 15 | x 4 = | 60 |
| UPL Species | 0 | x 5 = | 0 |
| Column Totals: | 109.1 (A) | | 325.2 (B) |

Prevalence Index = B/A = 2.981

**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: robust picgla upslope, just outside of plot.

## SOIL

**Sampling Point: SW15_T301_05**

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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 0-4 | | | | | | | | | Peat | |
| 4-6 | | | | | | | | | Mucky Peat | |
| 6-7 | 10YR | 2/2 | 100 | | | | | | Clay Loam | |
| 7-16 | 5Y | 4/2 | 85 | 10YR | 4/4 | 15 | C | PL | 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: clay loam, seasonal frost

Depth (inches): 6, 16

**Hydric Soil Present?** Yes ◉ No ○

Remarks:

Subangular gravels throughout profile. Thixotrophic soils, very difficult to get good profile. Pit continually fills with liquified soil, the bottom portion of which firms up once it's removed from pit and laid on ground.

## 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): |
| Saturation Present? (includes capillary fringe) | Yes ◉ | No ○ | Depth (inches): 4 |

**Wetland Hydrology Present?** Yes ◉ No ○

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

Remarks:

Unsure if thixotrophic soils count as water table? Pit continually fills with liquified soil. D3-clay loam, seasonal frost.