## WETLAND DETERMINATION DATA FORM - Alaska Region

| Project/Site: Susitna-Watana Hydroelectric Project      | Borough/City: Matanuska-Susitna Borough Sampling Date: 26-Jun-12   |
|---|--|
| Applicant/Owner: Alaska Energy Authority                | Sampling Point:SW12_T20_12   |
| Investigator(s): JGK                                    | Landform (hillside, terrace, hummocks etc.): Gulch or Gully  |
| Local relief (concave, convex, none):                   | Slope: % / 1.2 ° Elevation: 558  |
| Subregion : Southcentral Alaska Lat.:                   | 62.7254181921 Long.: -148.837505788 Datum: NAD83   |
| Soil Map Unit Name:                                     | NWI classification: PSS1B  |
|   | ar? Yes ● No ○ (If no, explain in Remarks.)<br>ttly disturbed? Are "Normal Circumstances" present? Yes ● No ○<br>problematic? (If needed, explain any answers in Remarks.) |
| SUMMARY OF FINDINGS - Attach site map showing sa        | mpling point locations, transects, important features, etc.  |
| Hydrophytic Vegetation Present? Yes $ullet$ No $igodot$ | In the Sampled Area  |

|     | Hydrophytic Vegetation Present?<br>Hydric Soil Present?<br>Wetland Hydrology Present? | Yes ()<br>Yes () | Is the Sampled Area within a Wetland? | Yes $\bullet$ No $\bigcirc$ |
|-----|---|------------------|---------------------------------------|-----------------------------|
| Rer | narks:  |                  |                                       |                             |

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

| Tree Stratum       % Cover       Species?       Status       Number of Dominant Species         1       Picca glauca       7       ✓       FACU         2       0        Sectors All Strate:       5       (B)         3       0        Sectors All Strate:       5       (B)         4       0        Sectors All Strate:       5       (B)         5       0        Sectors All Strate:       5       (B)         7       V       FAC       Sectors All Strate:       5       (B)         5       0        Sectors All Strate:       5       (B)         6       0        Sectors All Strate:       5       (B)       Prevalence Index worksheet:       Total Cover:       1.4         1       Vaccinium uliginosum       20       V       FAC       FAC Species       0       1.4       FAC Species       1.2       X 4 =       48         4       Salix pulchra       35       V       FAC       FAC Species       0       2.2       70         5       0       Column Totals:       87       (A)       238       (B)         9       0  |                                       |                     | Absolute        | Dominant                     | Indicator | Dominance Test worksheet:  |  |  |
|--|---------------------------------------|---------------------|-----------------|------------------------------|-----------|--|--|--|
| 1. Picea glauca       7       Y       FACU         2.       0       0       0         3.       0       0       0         4.       0       0       0         5.       0       0       0         7       V       FACU       FACU         7       0       0       0         4.       0       0       0         5.       0       0       0         7       Vaccinium uliginosum       20       V       FAC         1. Vaccinium uliginosum       20       V       FAC       FACW Species       35       X 2 =       70         2. Empetrum nigrum       5       FAC       FACW Species       1.2       X 4 =       48         4.       35       V       FACW       VPC species       0       X 3 =       120         5.       0       15       V       FAC       FACW       VPC species       0       X 4 =       48         4.       0       0       Column Totals       87       (A)       238       (B)         7.       0       0       0       0       D       Prevalence Index is 3.0       <  |                                       |                     |                 |                              |           |  |  |  |
| 2.       0       0       0       0         3.       0       0       0       0         4.       0       0       0       0         5.       0       0       0       0       0         5.       0       0       0       0       0       0         5.       0       0       0       0       0       0       0         5.       0       0       0       0       0       0       0       0         5.       0 <td colspan="2"></td> <td>7</td> <td><math>\checkmark</math></td> <td>FACU</td> <td></td>  |                                       |                     | 7               | $\checkmark$                 | FACU      |  |  |  |
| 3.       0   | 2.                                    |                     | 0               |                              |           |  |  |  |
| 4.       0   | 2                                     |                     | •               |                              |           |  |  |  |
| 5.   | 1                                     |                     |                 |                              |           |  |  |  |
| Total Cover:   |                                       |                     |                 |                              |           |  |  |  |
| Saping/Shrub Stratum       50% of Total Cover:       3.5       20% of Total Cover:       1.4         1. Vaccinium uliginosum       20       ✓       FAC         2. Empetrum nigrum       5       FAC         3. Salix pulchra       35       ✓       FAC         4. Salix reticulata       15       ✓       FAC         5.       0       Column Totals:       87       (A)       238         6.       0       0       Column Totals:       87       (A)       238       (B)         7.       0       0       Column Totals:       87       (A)       238       (B)         9.       0       0       0       Column Totals:       87       (A)       238       (B)         9.       0       0       0       0       Column Totals:       87       (A)       238       (B)         10.       0       0       0       0       0       Column Totals:       87       (A)       238       (B)         11.       Cornus canadensis       5       ✓       FACU       Prevalence Index is 3.0       Prevalence In  |                                       | Total Cover         | 7               |                              |           |  |  |  |
| 1.       Vaccinium uliginosum       20       V       FAC       FAC       FACVS Species       35       X 2 =       70         3.       Salix pulchra       35       V       FACW       FACUS Species       35       X 4 =       48         4.       Salix reticulata       15       V       FAC       FACU Species       0       X 4 =       48         6.       0       0       0       Column Totals:       87       (A)       238       (B)         7.       0       0       0       0       VIL Species       0       2.736         8.       0       0       0       0       VIL Species       1.2       X 4 =       48         9.       0       0       0       VIL Species       0       2.736         10.       0       0       VIL Species       1.0       2.736         11.       Corrus canadensis       5       VIL FACU       Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)       1         1.       Corrus canadensis       5       VIL FACU       Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)       1         2.       0       0       0       4       0   | Sapling/Shrub Stratum                 | 50% of Total Cover: | 3.5 20%         | of Total Cover:              | 1.4       |  |  |  |
| 1. vacchnand digmodum       20       1. rec         2. Empetrum nigrum       5       FAC         3. Salix pulchra       35       V       FAC         4. Salix reticulata       115       V       FAC         5.       0       Column Totals:       87       (A)       238       (B)         6.       0       0       Column Totals:       87       (A)       238       (B)         7.       0       0       Prevalence Index = B/A =       2,736       Prevalence Index is \$3.0       Prevalen  |                                       |                     |                 |                              |           |  |  |  |
| 2       Import in myourin       3       3       Salix pulchra       35       V       FACW       FACU Species       12       x 4 =       48         3       Salix pulchra       35       V       FACW       UPL Species       0       x 5 =       0         5       0       0       0       0       Column Totals:       87       (A)       238       (B)         6       0       0       0       0       Prevalence Index = B/A =       2.736         8       0       0       0       Whorphytic Vegetation Indicators:       9       9       0       Prevalence Index is \$3.0         10       0       0       0       Whorphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)       1       Norphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)         1.       Corrus canadensis       5       V       FACU       Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)         2.       0       0       0       1       Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         4.       0       0       9       0       9       15       0         5.       0       0       9  |                                       |                     |                 |                              |           |  |  |  |
| Image: Solution parameter in the parameter |                                       |                     |                 |                              |           |  |  |  |
| 5. $0$   | · · ·                                 |                     |                 |                              |           |  |  |  |
| a.       a.       a.       b.       b.       c.       c. <t< td=""><td></td><td></td><td></td><td></td><td>FAC</td><td>0  PL Species  0  x 5 = 0</td></t<>  |                                       |                     |                 |                              | FAC       | 0  PL Species  0  x 5 = 0  |  |  |
| 0       0       0       0       Prevalence Index = B/A = 2.736         8.       0       0       0       Hydrophytic Vegetation Indicators:         9.       0       0       ✓       Dominance Test is > 50%         10.       0       ✓       Prevalence Index is ≤ 3.0         Total Cover: 75.         Herb Stratum       50% of Total Cover: 37.5       20% of Total Cover: 15         1.       Cornus canadensis       5       ✓       FACU         2.       0       1       Indicators of hydric vegetation 1       (Explain)         3.       0       0       1       Indicator of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         4.       0       0        Plot size (radius, or length x width)       10m         5.       0       0        % Cover of Wetland Bryophytes       15         6.       0        % Bare Ground       3       3         9.       0         35          10.       0          35         9.       0         35          0  | 5                                     |                     |                 |                              |           | Column Totals: <u>87</u> (A) <u>238</u> (B)                        |  |  |
| 7.       0       1   | 6                                     |                     | 0               |                              |           | Prevalence Index = $B/A = 2.736$                                   |  |  |
| 9.       0       0       Imploprive vegetation functions.         9.       0       0       Imploprive vegetation functions.         10.       0       0       Imploprive vegetation functions.         Total Cover:  | 7                                     |                     | 0               |                              |           |  |  |  |
| 10.       0       Image: Prevalence Index is $\leq 3.0$ Total Cover: 75         Herb Stratum       50% of Total Cover: 37.5       20% of Total Cover: 15       Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)         1.       Cornus canadensis       5       FACU       Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)         2.       0       1       Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         4.       0       1       Plot size (radius, or length x width)       10m         5.       0       1       9       15       15         6.       0       15       15       15         7.       0       15       15       15         9.       0       16       10       10m         9.       0       16       10       10         10.       0       16       16       15         10.       0       16       16       16         10.       0       16       16       16         10.       0       16       17       16         10.       0       16       16       15         10. <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>   |                                       |                     |                 |                              |           |  |  |  |
| 10.       0       1       Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.       0       0       1       1       Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.       0       0       1       1       10m       0 <td< td=""><td>9</td><td></td><td>0</td><td></td><td></td><td>✓ Dominance Test is &gt; 50%</td></td<>  | 9                                     |                     | 0               |                              |           | ✓ Dominance Test is > 50%  |  |  |
| Herb Stratum       50% of Total Cover:       37.5       20% of Total Cover:       15         1.       Cornus canadensis       5       Image: FACU       Problematic Hydrophytic Vegetation 1 (Explain)         2.       0       1       Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         3.       0       0       1       Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         4.       0       0       1       Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         5.       0       0       0       0       10m         6.       0       0       0       0       10m         7.       0       0       0       3       3         9.       0       0       0       0       35         9.       0       0       0       0       0       35         10.       0       0       0       0       0       0       1         10.       0       0       0       0       0       1       1         10.       0       0       0       0       0       1       1   |                                       |                     |                 |                              |           | ✓ Prevalence Index is $\leq$ 3.0                                   |  |  |
| 1.       Cornus canadensis       5       Image: FACU       Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)         2.       0       0       1       Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         3.       0       0       1       Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         4.       0       0       1       Plot size (radius, or length x width)       10m         5.       0       0       9       0       9       9       9       0       1         10.       0       0       0       1       10       10       10       10         Total Cover:       5       5       5       10       10       10       10  | Total Cover:                          |                     |                 |                              |           | Morphological Adaptations <sup>1</sup> (Provide supporting data in |  |  |
| 2.       0       1       Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.         3.       0       0       0       be present, unless disturbed or problematic.         4.       0       0       0       0         5.       0       0       0       0         6.       0       0       0       0         7.       0       0       0       0         8.       0       0       0       3         9.       0       0       0       0         10.       0       0       0       0         Total Cover:       5  | Herb Stratum 50% of Total Cover: 37.5 |                     | <u>37.5</u> 20% |                              |           |  |  |  |
| 3.       0       0       be present, unless disturbed or problematic.         4.       0       0       0         5.       0       0       0         6.       0       0       % Cover of Wetland Bryophytes       15         7.       0       0       % Bare Ground       3         8.       0       0       7.       7.         9.       0       0       0       10         10.       0       0       0       15         10.       0       0       10       10         Total Cover:       5  | 1. Cornus canadensis                  |                     | 5               | $\checkmark$                 | FACU      | Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)          |  |  |
| 3.       0       0       be present, unless disturbed or problematic.         4.       0       0       0         5.       0       0       0         6.       0       0       % Cover of Wetland Bryophytes       15         7.       0       0       % Bare Ground       3         8.       0       0       7.       7.         9.       0       0       0       10         10.       0       0       0       15         10.       0       0       10       10         Total Cover:       5  | 2.                                    |                     | 0               |                              |           | <sup>1</sup> Indicators of hydric soil and wetland hydrology must  |  |  |
| 5.       0       0       10m         5.       0       0       9.       0       0       9.         10.       10.       10       10m       10m         10.       10.       10m       10m       10m         10.       10.       10       10m       10m         10.       10.       10m       10m       10m         10.       10m       10m       10m  |                                       |                     |                 |                              |           | be present, unless disturbed or problematic.                       |  |  |
| 5.       0       0       0       0       0       0       15         6.       0       0       0       0       0       3       15         7.       0       0       0       0       3       3       15         8.       0       0       0       0       35       35       10         10.       0       0       0       0       10   | 4.                                    |                     | 0               |                              |           | Plot size (radius, or length x width)                              |  |  |
| 6.       0       0       10         7.       0       0       0         8.       0       0       0         9.       0       0       0         10.       0       0       0         Total Cover: 5  |                                       |                     |                 |                              |           |  |  |  |
| 7.       0   |                                       |                     |                 |                              |           | ,                            |  |  |
| 8.       0       Image: Constraint of the second se                  |                                       |                     | -               |                              |           | % Bare Ground 3  |  |  |
| 9 0<br>10 Total Cover: 5 Hydrophytic<br>Vegetation Vegetation  |                                       |                     |                 |                              |           |  |  |  |
| 10.     0     Hydrophytic       Total Cover:     5     Vegetation  |                                       |                     |                 |                              |           |  |  |  |
| Total Cover: <u>5</u> Vegetation   |                                       |                     | -               |                              |           | Hydrophytic  |  |  |
| 50% of Total Cover: 2.5 20% of Total Cover: 1 Present? Yes $\odot$ No $\bigcirc$   |                                       |                     |                 | 5                            |           | Vegetation   |  |  |
|  |                                       | 50% of Total Cover: | 2.5 20%         | 20% of Total Cover: <u>1</u> |           |  |  |  |
|  | tr calamagrostis ru                   | barc vacvit         |                 |                              |           |  |  |  |

-

SOIL

|                                  |                  | ne depth nee<br>I <b>atrix</b> | ded to docum  | nent the indicator or cor<br><b>Rec</b> | nfirm the ab |                   | ators)             |                             |                                     |
|----------------------------------|------------------|--------------------------------|---------------|---|--------------|-------------------|--------------------|-----------------------------|-------------------------------------|
| Depth<br>(inches)                | Color (moi       | -+)                            | %             | Color (moist)                           | %            | Type <sup>1</sup> | Loc 2              | Texture                     | Remarks                             |
| 0-7                              |                  | st)                            | -70           |   | -70          | Туре              | LUC                | Fibric Organics             |                                     |
|                                  |                  |                                |               |   |              |                   |                    | Hemic Organics              |                                     |
|                                  | ·                |                                |               |   | -            |                   |                    |                             |                                     |
|                                  |                  |                                |               |   |              |                   |                    |                             |                                     |
|                                  |                  |                                |               |   |              |                   |                    |                             |                                     |
|                                  |                  |                                |               |   |              |                   |                    |                             |                                     |
|                                  |                  |                                |               |   |              | · ·               |                    |                             |                                     |
|                                  |                  |                                |               | ,                                       |              |                   |                    |                             |                                     |
|                                  | . <u> </u>       | ,                              |               |   |              |                   |                    |                             |                                     |
|                                  |                  |                                |               |   |              |                   |                    |                             |                                     |
| <sup>1</sup> Type: C=Cor         | ncentration. D=  | Depletion.                     | RM=Reduce     | ed Matrix <sup>2</sup> Location         | : PL=Por     | e Lining. RC      | =Root Cha          | nnel. M=Matrix              |                                     |
| Hydric Soil I                    | ndicators:       |                                |               | Indicators for Pr                       | oblematio    | c Hydric So       | oils: <sup>3</sup> |                             |                                     |
| Histosol o                       | r Histel (A1)    |                                |               | Alaska Color Ch                         | nange (TA4   | 4<br>1)           |                    | Alaska Gleyed Without H     | ue 5Y or Redder                     |
| ✓ Histic Epip                    | edon (A2)        |                                |               | Alaska Alpine s                         | wales (TAS   | 5)                |                    | Underlying Layer            |                                     |
|                                  | Sulfide (A4)     |                                |               | Alaska Redox V                          | Vith 2.5Y F  | lue               |                    | Other (Explain in Remark    | is)                                 |
|                                  | Surface (A12)    |                                |               |   |              |                   |                    |                             |                                     |
| Alaska Gle                       |                  |                                |               |   |              |                   |                    | nary indicator of wetland h | ydrology,                           |
| Alaska Ree                       |                  |                                |               | and an appropriat                       | e landscap   | be position n     | nust be pre        | esent                       |                                     |
|                                  | yed Pores (A15   | )                              |               | <sup>4</sup> Give details of co         | olor change  | e in Remark       | S                  |                             |                                     |
| Restrictive Laye                 | er (if present): |                                |               |   |              |                   |                    |                             |                                     |
| ,<br>Type:                       |                  |                                |               |   |              |                   |                    | Hydric Soil Present         | ? Yes $ullet$ No $igodom$           |
| Depth (incl                      | nes):            |                                |               |   |              |                   |                    |                             |                                     |
| Remarks:                         |                  |                                |               |   |              |                   |                    |                             |                                     |
| Cobbles at 11ir                  | 1                |                                |               |   |              |                   |                    |                             |                                     |
| HYDROLO                          | GY               |                                |               |   |              |                   |                    |                             |                                     |
| Wetland Hyd                      | rology Indicat   | ors:                           |               |   |              |                   |                    | Secondary India             | cators (two or more are required)   |
| Primary Indica                   | tors (any one is | sufficient)                    |               |   |              |                   |                    | Water Stair                 | ned Leaves (B9)                     |
| Surface V                        | /ater (A1)       |                                |               | Inundation V                            | isible on A  | erial Imager      | y (B7)             | 🗌 Drainage P                | atterns (B10)                       |
| 🗌 High Wate                      | er Table (A2)    |                                |               | Sparsely Veg                            | etated Cor   | ncave Surfac      | e (B8)             | Oxidized R                  | hizospheres along Living Roots (C3) |
| Saturation                       | ו (A3)           |                                |               | Marl Deposits                           | s (B15)      |                   |                    | Presence o                  | f Reduced Iron (C4)                 |
| 🗌 Water Ma                       | rks (B1)         |                                |               | 🗌 Hydrogen Su                           | lfide Odor   | (C1)              |                    | Salt Depos                  | its (C5)                            |
| Sediment                         | Deposits (B2)    |                                |               | Dry-Season V                            | Vater Tabl   | e (C2)            |                    | Stunted or                  | Stressed Plants (D1)                |
| Drift Depe                       | osits (B3)       |                                |               | 🗌 Other (Explai                         | n in Rema    | rks)              |                    | Geomorphi                   | ic Position (D2)                    |
| 🗌 Algal Mat                      | or Crust (B4)    |                                |               |   |              |                   |                    | Shallow Aq                  | uitard (D3)                         |
| Iron Depo                        | osits (B5)       |                                |               |   |              |                   |                    | Microtopog                  | raphic Relief (D4)                  |
| Surface S                        | oil Cracks (B6)  |                                |               |   |              |                   |                    | FAC-neutra                  | l Test (D5)                         |
| Field Observa                    | ations:          | -                              | _             |   |              |                   |                    |                             |                                     |
| Surface Wate                     | r Present?       | $_{Yes}$ $\bigcirc$            | No 🖲          | Depth (inche                            | s):          |                   |                    |                             |                                     |
| Water Table F                    | Present?         | Yes 🖲                          | No $\bigcirc$ | Depth (inche                            | s): 12       |                   | Wetla              | nd Hydrology Presen         | t? Yes 🖲 No 🔿                       |
| Saturation Pre<br>(includes capi |                  | Yes 🖲                          | No $\bigcirc$ | Depth (inche                            |              |                   |                    |                             |                                     |
|                                  |                  |                                |               | l, aerial photos, prev                  | ·            | ction) if ava     | ilable:            |                             |                                     |
|                                  |                  | 5 50, 1                        |               | ,                                       |              | ,                 |                    |                             |                                     |
| Remarks:                         |                  |                                |               |   |              |                   |                    |                             |                                     |
|                                  |                  |                                |               |   |              |                   |                    |                             |                                     |
|                                  |                  |                                |               |   |              |                   |                    |                             |                                     |
|                                  |                  |                                |               |   |              |                   |                    |                             |                                     |
|                                  |                  |                                |               |   |              |                   |                    |                             |                                     |