WETLAND DETERMINATION DATA FORM - Alaska Region

Projec	t/Site: Susitna-Watana Hydroelectric Project		Borough/City:	Matanusk	xa-Susitna Borough Sampling Date: 02-Jul-13			
Applica	ant/Owner: Alaska Energy Authority				Sampling Point: SW13_T139_02			
	gator(s): WAD. BAB		Landform (hi	llside, terrac	ce, hummocks etc.): Hillside			
Local i	relief (concave, convex, none): flat		Slope:		° Elevation: 456			
Subred	gion : Southcentral Alaska	l at ·	62.82365548		Long.: -149.595953702 Datum: NAD83			
		Lut	02.02303340	<u> </u>				
	ap Unit Name:		0 V	● No ○	NWI classification: Upland			
Are \	matic/hydrologic conditions on the site typical for the fregetation , Soil , or Hydrology (egetation , Soil , or Hydrology) MARY OF FINDINGS - Attach site map site of the frequency of the	significant naturally p nowing sai	tly disturbed? problematic?	Are "N (If nee	(If no, explain in Remarks.) Iormal Circumstances" present? Yes No Oeded, explain any answers in Remarks.) Iormal Circumstances" present? Yes No Oeded, explain any answers in Remarks.)			
	.,,,	•	Is	the Sam	pled Area			
	.,,	•	within a Wetland? Yes O No •					
_	Wetland Hydrology Present? Yes No arks: open mixed forest on hillside	<u>, </u>	VV	itiiiii a vv	etialia: 135 H5			
	ETATION - Use scientific names of plants	. List all sp Absolute % Cove	e Dominant	•	Dominance Test worksheet: Number of Dominant Species			
	Betula kenaica	20		FACU	That are OBL, FACW, or FAC: (A)			
	D'annula an		_ =	FACU	Total Number of Dominant			
3.			- 🖺	FACU	Species Across All Strata:5 (B)			
4.		$ \frac{0}{0}$	- <u> </u>		Percent of dominant Species That Are OBL, FACW, or FAC: 40,0% (A/B)			
5.		$ \frac{\circ}{0}$	-					
	Total Co		-		Prevalence Index worksheet: Total % Cover of: Multiply by:			
San	oling/Shrub Stratum 50% of Total Cover:		_	:7	0.00			
	Alnus viridis			FAC	FACW Species 0 x 2 = 0 FAC Species 72 x 3 = 216			
	Spiraea stevenii		-	FACU	FACU Species 126 x 4 = 504			
3.	Vaccinium alaskaense Sorbus scopulina		-	FACU	UPL Species 0 x 5 = 0			
4. 5.			- H	FACU				
6.		•	-	-	Column Totals: <u>198</u> (A) <u>720</u> (B)			
7.		0	-		Prevalence Index = B/A = 3.636			
0			- <u>П</u>		Hydrophytic Vegetation Indicators:			
9.		_	- <u> </u>		Dominance Test is > 50%			
10.			- <u>П</u>		☐ Prevalence Index is ≤3.0			
	Total Co b Stratum 50% of Total Cover:			Morphological Adaptations ¹ (Provide su				
1.	Dryopteris expansa	75	✓	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)			
	Cornus suecica			FAC	¹ Indicators of hydric soil and wetland hydrology must			
3.	Spinulum annotinum	10		FACU	be present, unless disturbed or problematic.			
4.	Rubus arcticus			FAC	Plot size (radius, or length y width)			
5.	Calamagrostis canadensis	5		FAC	Plot size (radius, or length x width) 10m % Cover of Wetland Bryophytes 0			
6.	Equisetum sylvaticum			FAC	(Where applicable)			
			- =		% Bare Ground25			
8.		0	- 📙		Total Cover of Bryophytes			
9.			- 📙					
1			- 🗆		Hydrophytic			
10.	Tatal Car	ver: 137	_		Vegetation			
10.	Total Co 50% of Total Cover:		/ of Tot-1 C-	: 27.4	Present? Yes No •			

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SOIL Sampling Point: SW13_T139_02

Color (moist) Ye Color (moist) Ye Color (moist) Ye Type Loc Fibric Organics	Profile Description: (Descri	ribe to the dept	h needed to docum		onfirm the abs		cators)		
Port Processing Processi	: .	or (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
9-10 10 10 10 10 3 3 3 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Learn few out ins 10-16 7.5 YR 3/4 100 Silt Micropen Sulfide (A4) Alaska Redox With 2.5 Y tue Underlying Layer Present? Yes Depth (inches): Wetland Hydrology Indicators: Wetland Hydrology Indicators (two Silt Learn Marks Sell Peposits (C5) Sell Sell Deposits (C5) Sell Sell Deposits (C5) Sell Sell Deposits (C5) Sell Sell Sell Sell Sell Sell Sell Sel	0-2		100					Fibric Organics	
9-10 10 10 10 10 10 10 10 10 10 10 10 10 1	2-5		100					Hemic Organics	
9-10 10 10 17 3/3 100 Silt Loam few owl ro 10-16 7.5 YR 3/4 100 Silt Loam 1 Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2 Location: PL=Pore Lining, RC=Root Channel. M=Matrix Hydric Soil Indicators: Histos Epipedon (A2)	5-9 7.5Yľ	R 2.5/2	100					Loamy Sand	with lots of organics
10-16 7.5YR 3/4 100 Sitt.Dem 1Type: C=Concentration. D=Depletion. RM=Reduced Matrix 2 Location: PL=Pare Lining. RC=Root Channel. M=Matrix Hydric Soil Indicators: Indicators for Problematic Hydric Soils? Alaska Gleyed Without Hue 5Y or R Underlying Layer Histosol or Histel (A1) Alaska Alpine swales (TA5) Alaska Gleyed Without Hue 5Y or R Underlying Layer Other (Explain in Remarks) Alaska Gleyed (A13) Alaska Redow With 2.5Y Hue Other (Explain in Remarks) Alaska Gleyed (A13) Alaska Redow (M14) Alaska Gleyed Pores (A15) Type: Depth (inches): Restrictive Layer (if present): Type: Depth (inches): Remarks: no restrictive layer, no hydric soil indicators. HYDROLOGY Wetland Hydrology Indicators: Secondary Indicators (two Water Marks (B1) Sparsely Vegetated Concave Surface (B8) Alaska Redow Mater Marks (B1) Presence of Reduced Water Marks (B1) Presence of Reduced Water Marks (B1) Presence of Reduced Water Marks (B1) Prosesson Water Table (C2) Stunted or Stressed I Hydrogen Sulfide Odor (C1) Salt Deposits (B2) Presence of Reduced Water Marks (B1) Prosesson Water Table (C2) Stunted or Stressed I Hydrogen Sulfide Odor (C1) Salt Deposits (B2) Presence of Reduced Mater Marks (B1) Prosence (B6) Microtopographic Rel Fact Presence (B6) Microtopographic Rel Fact Presence (B6) Prosesson Water Table (C2) Salt Deposits (B2) Presence of Reduced Microtopographic Rel Fact Presence (B6) Microtopographic Rel Fact Presence (B6) Fact-neutral Test (D5	9-10 10YF		100					Silt Loam	few oxi root channels
¹Type: C~Concentration. D=Depletion. RM=Reduced Matrix ² Location: PL=Pore Lining, RC=Root Channel. M=Matrix Hydric Soil Indicators: Hydric Soil Indicators: Histos Histo H									TON ON TOOK CHAININGS
Hydric Soil Indicators: Histosol or Histel (A1)		N 3/T			_			Sile Eddin	-
Hydric Soil Indicators: Histosol or Histel (A1)								-	
Hydric Soil Indicators: Histosol or Histel (A1)									
Histosol or Histel (A1)	Type: C=Concentratio	on. D=Deplet	ion. RM=Reduce	d Matrix ² Locatio	on: PL=Pore	e Lining. RO	C=Root Cha	nnel. M=Matrix	•
Histic Epipedon (A2)	lydric Soil Indicator	s:		Indicators for P	roblematio	C Hydric S	oils: ³		
Hydrogen Sulfide (A4)	Histosol or Histel (A	A1)		Alaska Color (Change (TA4	4 1)		Alaska Gleyed Without H	ue 5Y or Redder
Thick Dark Surface (A12) Alaska Gleyed (A13) Alaska Gleyed Pores (A15) Alaska Gleyed Pores (A15) Restrictive Layer (if present): Type: Depth (inches): Remarks: no restrictive layer, no hydric soil indicators. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient) Hydric Soil Present? Yes Secondary Indicators (two Water Table (A2) Sparsely Vegetated Concave Surface (B8) Marl Deposits (B1) Marl Poeposits (B3) Algal Mat or Crust (B4) Tron Deposits (B3) Marl Deposits (B5) Surface Soil Cracks (B6) Feld Observations: Surface Water Present? Yes No ● Depth (inches): Wetland Hydrology Present? Yes No ● Depth (inches):	Histic Epipedon (A2	2)		Alaska Alpine	swales (TA5	5)		Underlying Layer	
Alaska Gleyed (A13) 3 One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present	Hydrogen Sulfide (A	A4)		Alaska Redox	With 2.5Y F	lue		Other (Explain in Remark	S)
Alaska Redox (A14) Alaska Redox (A15) Alaska Redox (A14) Alaska Redox (A15) Alaska Redox (A15) Alaska Redox (A15) Alaska Redox (A14) Alaska Redox (A15) Alaska Redox	Thick Dark Surface	(A12)		•					
Alaska Gleyed Pores (A15) Restrictive Layer (if present): Type: Depth (inches): Remarks: no restrictive layer, no hydric soil indicators. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (anv one is sufficient) Sufface Water (A1) High Water Table (A2) Saturation (A3) Marl Deposits (B15) Water Marks (B1) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) Drift Deposits (B3) Alagal Mat or Crust (B4) Iron Deposits (B3) Sufface Water (R4) Drift Deposits (B3) Sufface Soil Cracks (B6) Field Observations: Surface Water Present? Yes No Depth (inches): Wetland Hydrology Present? Yes Saturation (Passent) Wetland Hydrology Present? Yes No Depth (inches): Wetland Hydrology Present? Yes Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes Saturation Present? Yes Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes Saturation Present? Yes Saturation Present? Yes Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes Saturation Present? Yes Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes Saturation Present? Yes Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes Saturation Present? Yes Saturation Present? Yes Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes Saturation Present? Yes Satura	Alaska Gleyed (A13	3)							ydrology,
Restrictive Layer (if present): Type: Depth (inches): Remarks: no restrictive layer, no hydric soil indicators. HYDROLOGY Wetland Hydrology Indicators: Surface Water (A1)	☐ Alaska Redox (A14))			·	•		23CH	
Type: Depth (inches): Remarks: no restrictive layer, no hydric soil indicators. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient) High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Sediment Deposits (B1) Drift Deposits (B2) Drift Deposits (B3) Drift Deposits (B5) Drift Deposi		. ,		4 Give details of	color change	e in Remarl	ks		
Depth (inches): Remarks: no restrictive layer, no hydric soil indicators. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient)		sent):						Under Call Bosses	? Yes ○ No •
Remarks: no restrictive layer, no hydric soil indicators. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient) Surface Water (A1) High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Suturation (A3) Marl Deposits (B15) Presence of Reduced Water Marks (B1) Hydrogen Sulfide Odor (C1) Salt Deposits (C5) Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed in Microtopographic (B3) Other (Explain in Remarks) Geomorphic Position Algal Mat or Crust (B4) Surface Soil Cracks (B6) FAC-neutral Test (D5) Field Observations: Surface Water Present? Water Table Present? Yes No Depth (inches): Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:	* *							Hydric Soil Present	? Yes ○ No •
Wetland Hydrology Indicators: Secondary Indicators (two Primary Indicators (any one is sufficient) Water Stained Leaves (any one is sufficient) Primary Indicators (any one is sufficient) Inundation Visible on Aerial Imagery (B7) Drainage Patterns (B Surface Water (A1) Inundation Visible on Aerial Imagery (B7) Drainage Patterns (B High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Oxidized Rhizosphere Saturation (A3) Marl Deposits (B15) Presence of Reduced Water Marks (B1) Hydrogen Sulfide Odor (C1) Salt Deposits (C5) Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed if Drift Deposits (B3) Other (Explain in Remarks) Geomorphic Position Algal Mat or Crust (B4) Shallow Aquitard (D3 Iron Deposits (B5) Microtopographic Rel Surface Soil Cracks (B6) FAC-neutral Test (D5) Feld Observations: Surface Water Present? Yes No Depth (inches): Depth (inches): Wetland Hydrology Present? Yes No Depth (inches): De									
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Surface Water (A1)	etland Hydrology Ir	ndicators:						Secondary Indi	cators (two or more are required)
High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Oxidized Rhizosphere Saturation (A3) Marl Deposits (B15) Presence of Reduced Water Marks (B1) Hydrogen Sulfide Odor (C1) Salt Deposits (C5) Stunted or Stressed File (C2) Stunted Over Stressed File (rimary Indicators (any	one is suffici	ient)					Water Stai	ned Leaves (B9)
Saturation (A3)	Surface Water (A1)		Inundation	Visible on A	erial Image	ery (B7)	Drainage F	atterns (B10)	
Water Marks (B1)	_		Sparsely Ve	getated Con	ncave Surfa	ce (B8)	Oxidized R	hizospheres along Living Roots (C3)	
Sediment Deposits (B2) □ Dry-Season Water Table (C2) □ Stunted or Stressed For Drift Deposits (B3) □ Other (Explain in Remarks) □ Geomorphic Position □ Algal Mat or Crust (B4) □ Iron Deposits (B5) □ Microtopographic Rel □ Surface Soil Cracks (B6) □ FAC-neutral Test (D5) □ Field Observations: Surface Water Present? Yes □ No □ Depth (inches): Water Table Present? Yes □ No □ Depth (inches): Saturation Present? Yes □ No □ Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:	, ,		Marl Deposi	ts (B15)				. ,	
□ Drift Deposits (B3) □ Other (Explain in Remarks) □ Geomorphic Position □ Algal Mat or Crust (B4) □ Iron Deposits (B5) □ Microtopographic Rel □ Surface Soil Cracks (B6) □ FAC-neutral Test (D5) □ Factor Test (D5) □ Surface Water Present? Yes □ No □ Depth (inches): Water Table Present? Yes □ No □ Depth (inches): Saturation Present? Yes □ No □ Depth (inches): Saturation Present? Yes □ No □ Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:									
Algal Mat or Crust (B4) ☐ Iron Deposits (B5) ☐ Surface Soil Cracks (B6) FAC-neutral Test (D5) Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:	_								` '
☐ Iron Deposits (B5) ☐ Microtopographic Rel ☐ Surface Soil Cracks (B6) ☐ FAC-neutral Test (D5) Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Cincludes capillary fringe) Yes No Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:	_ ' ' '			U Other (Expl	ain in Rema	rks)			` '
Surface Soil Cracks (B6) Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:		` '							
Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:	_ ' ' '								
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Water Table Present? Yes No Depth (inches): Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:		.,	O O						
Saturation Present? (includes capillary fringe) Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:	Surface Water Present?			Depth (inch	es):				
(includes capillary fringe) Pescribe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Remarks:	Nater Table Present?	Yes	○ No •	Depth (inch	es):		Wetla	nd Hydrology Presen	t? Yes O No 💿
Remarks:		_{ge)} Yes	○ No ●	Depth (inch	es):				
	escribe Recorded Data	(stream gau	ge, monitor well	, aerial photos, pre	evious inspe	ection) if av	ailable:		
	emarks:								
no nydrology maladora obaci ved		ohserved							
	Trydrology indicators	obsei veu							

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