WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Susitna-Watana Hydroelectric Project		Borough/City:	Matanusk	ka-Susitna Borough Sampling Date: 23-Aug-15							
Applicant/Owner: Alaska Energy Authority											
pplicant/Owner: Alaska Energy Authority Sampling Point: SW15_T311_04 avvestigator(s): SLI, ATH Landform (hillside, terrace, hummocks etc.):											
Local relief (concave, convex, none):		Slope: 0.0	%/ 0.0								
Subregion : Cook Inlet Mountains	Lat.:			Long.: Datum: WGS84							
Soil Map Unit Name:	Lutt			NWI classification: PEM1F							
Are climatic/hydrologic conditions on the site typical for this	time of yor										
Are Vegetation, Soil, or Hydrology	significant	ime of year? Yes ● No ○ (If no, explain in Remarks.) significantly disturbed? Are "Normal Circumstances" present? Yes ④									
Are Vegetation, Soil, or Hydrology	naturally p	problematic?	(If nee	eded, explain any answers in Remarks.)							
SUMMARY OF FINDINGS - Attach site map sho	wing sar	mpling point	locations	s, transects, important features, etc.							
Hydrophytic Vegetation Present? Yes No ()										
Hydric Soil Present? Yes • No		ls	the Sam	npled Area							
Wetland Hydrology Present? Yes No (-	w	ithin a W	/etland? Yes \odot No \bigcirc							
Remarks: Fringe of small pond (see SW15-T311-05). wetla		at tooclope bot	woon horo	and SW1E T211 02 See notes for pend at							
SW15_T311_05.	inus begin	at toeslope bei	ween nere	and SW15_1311_05. See notes for poind at							
0.000_0001_000											
EGETATION lies scientific names of plants l	ist all an	acias in the	nlat								
/EGETATION - Use scientific names of plants. L	list all sp	ecles in the	piot.	· · · · · ·							
	Absolute			Dominance Test worksheet:							
Tree Stratum1.	<u>% Cover</u>	r Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)							
	0			Total Number of Dominant							
2.				Species Across All Strata: (B)							
3.				Percent of dominant Species							
4 5				That Are OBL, FACW, or FAC:(A/B)							
5 Total Cove	0			Prevalence Index worksheet:							
		– % of Total Cover:		Total % Cover of: Multiply by:							
Sapling/Shrub Stratum 50% of Total Cover:	209	% OF TOLAT COVEL	0	OBL Species <u>35.2</u> x 1 = <u>35.2</u>							
1	0			FACW Species $5 \times 2 = 10$							
2.	0			FAC Species $0 \times 3 = 0$							
3				FACU Species $0 \times 4 = 0$							
4.	- 0			UPL Species <u>0</u> x 5 = <u>0</u>							
5				Column Totals: <u>40.2</u> (A) <u>45.2</u> (B)							
6				Prevalence Index = B/A =							
7											
8.				Hydrophytic Vegetation Indicators:							
9				✓ Dominance Test is > 50%							
10	0			✓ Prevalence Index is ≤3.0							
Total Cove _Herb Stratum50% of Total Cover:		% of Total Cover	:	Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)							
1. Carex aquatilis	25		OBL	Problematic Hydrophytic Vegetation (Explain)							
2. Carex utriculata			OBL	¹ Indicators of hydric soil and wetland hydrology must							
3. Carex saxatilis	5		FACW	be present, unless disturbed or problematic.							
4. Utricularia minor			OBL	Plot size (radius, or length x width) <u>10m</u>							
5. Menyanthes trifoliata	0.1		OBL	% Cover of Wetland Bryophytes							
6.				(Where applicable)							
7				% Bare Ground _70							
	0			Total Cover of Bryophytes _25							
8	^										
9											
9. 10.	0			Hydrophytic							
9	0 r: _40.2	-	8.04	Hydrophytic Vegetation Present? Yes • No O							

Depth (inches) Color (moist) 96 Type 1 Loc.2 Texture Remarks 0-1 100 Peat	Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators) Matrix Redox Features									
0-1 100 Past 1-17 100 Mack Plast 17-21 100 Mack 17-21 Indicator of Mack Mack 17-21 Alaska Abjene Svates Mack 17-21 Alaska Abjene Svates Mack 11-10 Alaska Abjene Svates Mack 11-11 Alaska Abjene Svates Mack 11-11 Alaska Bake Abjene Svates Mack 11-11								Loc ²	Texture	Remarks
1-17 100 Muck Plant 17-21 100 Muck 11-21 1100 Muck 11-21 Assa Geyed Muck Muck 11-21 Assa Geyed K131 Muck 11-			-		IOF (IIIOISC)	70	Type	LUC		
17-21 100 Muck 17-21 Alasa Apine swales (TA5) Muck Hue 5Y or Redder 17-21 Alasa Edox (M12) Alasa Apine swales (TA5) Other (Explain in Remarks) 17-21 Alasa Edox (A14) Alasa Edox (M12) Hydric Soil Present? Yes ® No © <										
Image: Secondary Indicators: Indicators for Problematic Hydric Sols? Indicators: Indicators: Indicators: Indicators for Problematic Hydric Sols? Indicators: Indicators: Indicators: Hydric Soil Present? Yes: Depth (inches): Remark: Probed to 36in, no frost detected. Difficult to ascertain exact depth of mucky peat-muck transition due to high water table. Hybridicators: Secondary Indicators functors is sufficient) Internary Indicators: Influent to ascertain exact depth of mucky peat-muck transition due to high water table. Hybridicators:									-	
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Image: histic Epipedon (A2) Alaska Alpine swales (TA5) Underlying Layer Image: histic Epipedon (A2) Alaska Alpine swales (TA5) Other (Explain in Remarks) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Other (Explain in Remarks) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A2) Image: histic Epipedon (A14) Image: histic Epipedon (A14) Image: histic Epipedon (A2) Image: histic Epipedon (A14) Image: histic Epipedon (A14) Image: histic Epipedon (A2) Image: histic Epipedon (A14) Image: histic Epipedon (A14) Image: histic Epipedon (A2) Image: histic Epipedon (A14) Image: histic Epipedon (A14) Image: histic Epipedon (A2) Image: histic Epipedon (A14) Image: histic Epipedon (A14) Image: histic Epipedon (A2) Image: histic Epipedon (A14) Image: h	Hydric Soil I	ndicators:		In	dicators for Pr	oblemati	c Hydric S	ioils: ³		
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Image: Sulfide (A4) Alaska Redox With 2.5Y Hue Other (Explain in Remarks) Image: Sulfide (A4) Image: Sulfide (A4) Image: Sulfide (A4) Alaska Gleyed (A13) Image: Sulfide (A4) Image: Sulfide (A4) Alaska Gleyed (A13) Image: Sulfide (A4) Image: Sulfide (A4) Alaska Gleyed (A13) Image: Sulfide (A4) Image: Sulfide (A4) Alaska Gleyed (A13) Image: Sulfide (A4) Image: Sulfide (A4) Alaska Gleyed (A13) Image: Sulfide (A4) Image: Sulfide (A4) Alaska Gleyed (A13) Image: Sulfide (A4) Image: Sulfide (A4) Alaska Gleyed (A13) Image: Sulfide (A4) Image: Sulfide (A4) Alaska Gleyed (A13) Image: Sulfide (A4) Image: Sulfide (A4) Image: Sulfide (A4) Image: Sulfide (A4) Image: Sulfide (A4) Image: Sulfide (A4) Image: Sulfide (A1) Image: Sulfide (A1) Image: Sulfide (A1) Imudation Visible on Aerial Imagery (B7) Image: Sulfide (A1) Image: Sulfide (A2) Sparsely Vegetated Concave Sulface (B8) Imudation Visible on Aerial Imagery (B7) Imudation Roots (C3) Image: Sulfide (A1) Imudation Visible on Aerial Imagery (B7) Imudation Roots (C3) Imudation Roots (C3) Imu	_	. ,			Alaska Alpine s	wales (TA	5)			
Alaska Gleyed (A13) and an appropriate landscape position must be present Alaska Gleyed (A14) 4 Give details of color change in Remarks Restrictive Layer (If present): Type: Depth (inches): Hydric Soil Present? Yes ● No ○ Remarks: Probe indicator of hydrophytic vegetation, one primary indicators (two or more are required) Primary Indicators: Secondary Indicators: Primary Indicators (any one is sufficient) Inundation Visible on Aerial Imagery (87) Primary Indicators (any one is sufficient) Inundation Visible on Aerial Imagery (87) Water Table (A2) Sparsely Vegetated Concave Surface (88) Oxidized Rhizospheres along Living Roots (C3) Primary Indicator Structure (C4) Water Marks (B1) Hydrogen Suifice (B15) Presence of Reduced Iron (C4) Water Marks (B1) Hydrogen Suifice (C5) Sutration Freesent? Yes ● No ○ Dirit Deposits (B3) Other (Explain in Remarks) Geomorphic Relief (D4) Shallow Aquitard (03) Mar Table Present? Yes ● No ○ Depth (inches): 1 Shallow Aquitard (23) Microtopographic Relief (D4) Surface Veter Present? Yes ● No ○ Depth (inches): 0 Wetland Hydrology Present? Yes ● No ○ Meth (inches): 1					Alaska Redox V	Vith 2.5Y I	Hue		Other (Explain in Remark	s)
Images delege (A13) and an appropriate landscape position must be present Alaska Releved (A14) 4Give details of color change in Remarks Restrictive Layer (If present): Type: Depth (inches): Hydric Soil Present? Yes ● No ○ Remarks: Probed to 36in., no frost detected. Difficult to ascertain exact depth of mucky peat-muck transition due to high water table. HYDROLOGY	Thick Dark	< Surface (A12)		2	,					
□ Alaska Redox (A14) • Give details of color change in Remarks Restrictive Layer (if present): Type: Depth (inches): Hydric Soil Present? Yes ● No ○ Remarks: Probed to 36in., no frost detected. Difficult to ascertain exact depth of mucky peat-muck transition due to high water table. HYDROLOGY	Alaska Gle	eyed (A13)								ydrology,
□ Maska diejed Pores (M3) Restrictive Layer (if present): Type: Depth (inches): Remarks: Probed to 36in., no frost detected. Difficult to ascertain exact depth of mucky peat-muck transition due to high water table. HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient) Primary Indicators (any one is sufficient) Image Patterns (B10) ✓ Surface Water (A1) Image Patterns (B10) ✓ Surface Water (A1) Image Patterns (B10) ✓ Surface Water (A1) Image Patterns (B10) ✓ Bard Deposits (B15) Ø Saturation (A3) Ø Saturation (A3) Image Patterns (B1) Hydrogen Suffice Odor (C1) Saturation Deposits (B2) Dryr-Season Water Table (C2) Primary Indicators (B3) Other (Explain in Remarks) ✓ Geomorphic Position (D2) Alagal Mat or Crust (B4) ✓ Into Deposits (B5) Surface Water Present? Yes No Depth (inches): 1 Sutracton Present? Yes No Depth (inches): 0 Depth (inches): 0		()								
Type: Depth (inches); Remarks: Probed to 36in., no frost detected. Difficult to ascertain exact depth of mucky peat-muck transition due to high water table. HYDROLOGY Wetland Hydrology Indicators:	🗌 Alaska Gle	eyed Pores (A15)		-	Give details of co	lor chany	e in Keman	KS		
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Probed to 36in., no frost detected. Difficult to ascertain exact depth of mucky peat-muck transition due to high water table. HYDROLOGY Wetland Hydrology Indicators:	Depth (inch	nes):							-	
HYDROLOGY Wetland Hydrology Indicators: Secondary Indicators (two or more are required) Primary Indicators (anv one is sufficient) Inundation Visible on Aerial Imagery (B7) Drainage Patterns (B10) Y High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Oxidized Rhizospheres along Living Roots (C3) Y Saturation (A3) Marl Deposits (B15) Presence of Reduced Iron (C4) Water Marks (B1) Hydrogen Sulfide Odor (C1) Salt Deposits (C5) Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed Plants (D1) Drift Deposits (B3) Other (Explain in Remarks) Ø Geomorphic Position (D2) Algal Mat or Crust (B4) Surface Soil Cracks (B6) Ø FAC-neutral Test (D5) Field Observations: Surface Soil Cracks (B6) Ø pepth (inches): 2 Water Table Present? Yes Image No Depth (inches): 1 Saturation Present? Yes Image No Depth (inches): 0	Remarks:		<u> </u>							
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Primary Indicators (any one is sufficient) Water Stained Leaves (B9) ✓ Surface Water (A1) Inundation Visible on Aerial Imagery (B7) Drainage Patterns (B10) ✓ High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Oxidized Rhizospheres along Living Roots (C3) ✓ Saturation (A3) Marl Deposits (B15) Presence of Reduced Iron (C4) Saturation (A3) Hydrogen Sulfide Odor (C1) Salt Deposits (C5) Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed Plants (D1) Drift Deposits (B3) Other (Explain in Remarks) Geomorphic Position (D2) Algal Mat or Crust (B4) Shallow Aquitard (D3) Microtopographic Relief (D4) Surface Water Present? Yes No Depth (inches): 2 Depth (inches): 1 Water Table Present? Yes No Depth (inches): 0 No	HYDROLO	GY								
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□ Drift Deposits (B3) □ Other (Explain in Remarks) ✓ Geomorphic Position (D2) □ Algal Mat or Crust (B4) □ Shallow Aquitard (D3) ✓ Iron Deposits (B5) □ Microtopographic Relief (D4) □ Surface Soil Cracks (B6) ✓ FAC-neutral Test (D5) Field Observations: Surface Water Present? Yes ● No ○ Surface Water Present? Yes ● No ○ Depth (inches): 2 Water Table Present? Yes ● No ○ Depth (inches): 1 Saturation Present? Yes ● No ○ Depth (inches): 0				L	_					
Algal Mat or Crust (B4) □ Iron Deposits (B5) □ Surface Soil Cracks (B6) ✓ Field Observations: Shallow Aquitard (D3) Surface Water Present? Yes ● No ○ Yes ● No ○ Depth (inches): 2 Water Table Present? Yes ● No ○ Saturation Present? Yes ● No ○ Saturation Present? Yes ● No ○ Depth (inches): 1 Depth (inches): 0		1 ()		L						· ,
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(includes capillary fringe) Yes V NO Depth (inches): 0					Depth (inche	5): 1		Weila	па пуагоюуу гтезен	t? tes 😌 nu 🔾
Describe Recorded Data (stream gauge monitor well aerial photos, previous inspection) if available:			Yes 🔍 N	o ()	Depth (inche	s): 0				
beschber Recorded buta (stream gadge, montor weil, denar protos), previous inspection) in available.										
Remarks:										
	B5 - iron floc a	nd biogenic shee	n. D2-pond n	nargin. Sma	II, shallow pools	of standin	g water ove	er 50% of s	ite.	
B5 - iron floc and biogenic sheen. D2-pond margin. Small, shallow pools of standing water over 50% of site.	DD - IFOIT HOC d	nd biogenic snee	n. Dz-pona n	laryin. Sina	II, SHAIIOW POOIS	UI SLAHUIH	g water ove	er 50% of s	ale.	