

Appendix A

Wetland Determination Data Forms and Photographs

September 29-30, 2016

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WETLAND DETERMINATION DATA FORM - Alaska Region

Project: ARPC Portage Reserve Borough/City: MOH Date: 9/29/16
 Applicant/Owner: ARPC Sampling Point #: 001
 Investigator(s): Mar S. Andrew D. Firm: HDR Alaska, Inc.
 Lat. (dec.): 60.80002 Long. -148.97211 ± NAD 83 Recorded on GPS #: Marked on map? 407 Field Map #: 11
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Flat Slope (%): 0 Aspect:
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSS1/EMIF
 Photo nos./descriptions: 50:1 27879 veg 280-281 Camera #: Veg Type (Viereck Level 4 or other):
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: If no, explain. HGM type: Flat
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the sampled area within a wetland? Yes <u>X</u> No <u> </u> Remarks (e.g., marginal?): <u> </u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:	
Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:	
1. <u> </u>				5. <u> </u>				<u>5</u>	(A)
2. <u> </u>				6. <u> </u>				Total Number of Dominant Species Across All Strata:	<u>5</u> (B)
3. <u> </u>				7. <u> </u>				Percent of Dominant Species That are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. <u> </u>				8. <u> </u>				Prevalence Index worksheet:	
Total Tree Cover: <u> </u>								Total % Cover of:	
50% of total cover: <u> </u> 20% of total cover: <u> </u>								Multiply by:	
Sapling/Shrub Stratum (woody plants < 3" dbh)								OBL species <u>79</u> X1= <u>79</u>	
1. <u>Myr gal</u>	<u>45</u>	<u>X</u>	<u>OBL</u>	7. <u> </u>				FACW species <u>1</u> X2= <u>2</u>	
2. <u>Sal bar</u>	<u>40</u>	<u>X</u>	<u>FAC</u>	8. <u> </u>				FAC species <u>80</u> X3= <u>240</u>	
3. <u> </u>				9. <u> </u>				FACU species <u> </u> X4= <u> </u>	
4. <u> </u>				10. <u> </u>				UPL + NL species <u> </u> X5= <u> </u>	
5. <u> </u>				11. <u> </u>				Column Totals: <u>160</u> (A) <u>321</u> (B)	
6. <u> </u>				12. <u> </u>				Prevalence Index = B/A = <u>2.01</u>	
Total Sapling/Shrub Cover: <u>85</u>									
50% of total cover: <u>42.5</u> 20% of total cover: <u>17</u>									
Herb Stratum								Hydrophytic Vegetation Indicators:	
Species	Abs. Cov.%	Dom?	Ind.	Species	Abs. Cov.%	Dom?	Ind.	<u>X</u> Dominance Test is >50% <u>X</u> Prevalence Index is ≤3.0	
1. <u>Egg fln</u>	<u>20</u>	<u>X</u>	<u>OBL</u>	12. <u> </u>				<u> </u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
2. <u>Call cap</u>	<u>15</u>	<u>X</u>	<u>FAC</u>	13. <u> </u>				<u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)	
3. <u>Lot pal</u>	<u>5</u>		<u>OBL</u>	14. <u> </u>				¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.	
4. <u>Car agn</u>	<u>5</u>		<u>OBL</u>	15. <u> </u>					
5. <u>Car wtr</u>	<u>3</u>		<u>OBL</u>	16. <u> </u>					
6. <u>Ang gen</u>	<u>1</u>		<u>FACW</u>	17. <u> </u>					
7. <u>Egg arv</u>	<u>25</u>	<u>X</u>	<u>FAC</u>	18. <u> </u>					
8. <u>Ment ri</u>	<u>1</u>		<u>OBL</u>	19. <u> </u>					
9. <u> </u>				20. <u> </u>					
10. <u> </u>				21. <u> </u>					
11. <u> </u>				22. <u> </u>					
Total Herb Cover: <u>75</u>								Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	
50% of total cover: <u>37.5</u> 20% of total cover: <u>15</u>									
Circular 1/10-ac plot <u>X</u> or other plot dimension: <u> </u> % of bare ground: <u> </u>									
% Cover of Wetland Bryophytes <u> </u> % Total Cover of Bryophytes <u> </u> % (where applicable)									
Remarks: <u>Frost the night before - leaves still covered w/ ice</u> <u>Willows missing many of their leaves</u> <u>15% standing water</u>									

[illegible]

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Indicators for Problematic Hydric Soils³:

- ___ Alaska Color Change⁴ (TA4)
- ___ Alaska Alpine Swales (TA5)
- ___ Alaska Redox with 2.5Y Hue
- ___ Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- ___ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

⁴Give details of color change in Remarks.

Restrictive Layer (if present)

Type: _____

Depth (inches) _____

Drainage Class: *vpc*
Soil Map Unit Name:

Hydric Soil Present? Yes X No

- 1.
- 2.
- 3.

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Secondary Indicators (at least 2 are required)

- ☐ Water-Stained Leaves (B9)
- ☐ Drainage Patterns (B10) _____
- ☐ Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- ☐ Presence of Reduced Iron (C4)
(pos. α, α or soil color change w/in 12")
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
(w/in 24", can perch H₂O w/in 12")
- ☐ Microtopographic Relief (D4) (caused by water)
- ☒ FAC Neutral Test (D5)
(# OBL+FACW dominants > # FACU+UPL dominants)

Surface Water Present? Yes ☒ No ☐ Depth of water (in.) 6

Water Table Present? Yes ☒ No ☐ Depth to water (in.) 0

Seeping in at that depth but not yet filled?: ☐

Saturation Present? Yes ☒ No ☐ Depth to sat. (in.) 0

(includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes ~~X~~ No

Remarks:



Site 1: Soil. Photo taken September 29, 2016



Site 1: Soil. Photo taken September 29, 2016



Site 1: Vegetation. Photo taken September 29, 2016



Site 1: Vegetation. Photo taken September 29, 2016

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: ARRC Portage Reserve Borough/City: MOOT Date: 9/29/16
 Applicant/Owner: ARRC Sampling Point #: 2
 Investigator(s): Mac S., Andrew D. Firm: HDR Alaska, Inc.
 Lat. (dec.) 60.79992 Long. 148.97139 NAD 83 Recorded on GPS #: 402 Marked on map? ☒ Field Map #: 11
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: flat Slope (%): - Aspect: -
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSS1/EM1H
 Photo nos./descriptions: Soil 282 283 284-5 Camera #: - Veg Type (Viereck Level 4 or other): -
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ☒ No: - If no, explain. HGM type: flat
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No -
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes ☒	No <u>-</u>	Is the sampled area within a wetland? Yes ☒ No <u>-</u> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes ☒	No <u>-</u>	
Wetland Hydrology Present?	Yes ☒	No <u>-</u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")

Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.
1. <u>-</u>				5. <u>-</u>			
2. <u>-</u>				6. <u>-</u>			
3. <u>-</u>				7. <u>-</u>			
4. <u>-</u>				8. <u>-</u>			

Total Tree Cover: -50% of total cover: -20% of total cover: -

Sapling/Shrub Stratum (woody plants < 3" dbh)

Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.
1. <u>Myr gal</u>	<u>65</u>	☒	<u>OBL</u>	7. <u>-</u>			
2. <u>-</u>				8. <u>-</u>			
3. <u>-</u>				9. <u>-</u>			
4. <u>-</u>				10. <u>-</u>			
5. <u>-</u>				11. <u>-</u>			
6. <u>-</u>				12. <u>-</u>			

Total Sapling/Shrub Cover: 6550% of total cover: 32.520% of total cover: 13

Herb Stratum

Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.
1. <u>Pot pal</u>	<u>15</u>		<u>OBL</u>	12. <u>-</u>			
2. <u>Egn fln</u>	<u>17</u>	☒	<u>OBL</u>	13. <u>-</u>			
3. <u>Mon tri</u>	<u>12</u>		<u>OBL</u>	14. <u>-</u>			
4. <u>Egn arv</u>	<u>13</u>		<u>FAC</u>	15. <u>-</u>			
5. <u>Eri ang</u>	<u>30</u>	☒	<u>OBL</u>	16. <u>-</u>			
6. <u>Red labr</u>	<u>1</u>		<u>FACW</u>	17. <u>-</u>			
7. <u>Agro sca</u>	<u>5</u>		<u>FAC</u>	18. <u>-</u>			
8. <u>-</u>				19. <u>-</u>			
9. <u>-</u>				20. <u>-</u>			
10. <u>-</u>				21. <u>-</u>			
11. <u>-</u>				22. <u>-</u>			

Total Herb Cover: 9350% of total cover: 46.520% of total cover: 18.6Circular 1/10-ac plot ☒ or other plot dimension: - % of bare ground: -% Cover of Wetland Bryophytes 60 % Total Cover of Bryophytes - %
(where applicable)

Remarks:

Sphagnum 60%Most plants dead - Mon tri heavily degraded. Very few leaves on myr gal

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>139</u>	X1= <u>139</u>
FACW species <u>1</u>	X2= <u>2</u>
FAC species <u>18</u>	X3= <u>54</u>
FACU species <u>-</u>	X4= <u>-</u>
UPL + NL species <u>-</u>	X5= <u>-</u>
Column Totals: <u>158</u> (A)	<u>195</u> (B)

Prevalence Index = B/A = 1.23

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%
☒ Prevalence Index is ≤3.0- Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)- Problematic Hydrophytic Vegetation¹ (Explain)¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes ☒ No -



Site 2: Soil. Photo taken September 29, 2016



Site 2: Soil. Photo taken September 29, 2016



Site 2: Vegetation. Photo taken September 29, 2016



Site 2: Vegetation. Photo taken September 29, 2016

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: AKK Portage Reserve Borough/City: MOH Date: 7/29/16
 Applicant/Owner: AKK Sampling Point #: 3
 Investigator(s): Max S. Andrew D Firm: HDR Alaska, Inc.
 Lat. (dec.): 66.80016 Long: 148.97055 NAD 83 Recorded on GPS #: X Marked on map? X Field Map #: 11
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Flat Slope (%): — Aspect: —
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSS1/EMIF
 Photo nos./descriptions: 520-21 286-7 north-s 288-89 Camera #: — Veg Type (Vioreck Level 4 or other): —
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: — If no, explain. HGM type: Flat
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No —
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>—</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u>—</u>	Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <u>X</u>	No <u>—</u>		
Wetland Hydrology Present?	Yes <u>X</u>	No <u>—</u>		

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")

Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.
1. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	5. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
2. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	6. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
3. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	7. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
4. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	8. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

Total Tree Cover: —50% of total cover: —20% of total cover: —

Sapling/Shrub Stratum (woody plants < 3" dbh)

	Abs.Cov.%	Dom?	Ind.		Abs.Cov.%	Dom?	Ind.
1. <u>Myr gal</u>	<u>30</u>	<u>X</u>	<u>OBL</u>	7. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
2. <u>Sal frax</u>	<u>15</u>	<u>X</u>	<u>FACW</u>	8. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
3. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	9. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
4. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	10. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
5. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	11. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
6. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	12. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

Total Sapling/Shrub Cover: 4550% of total cover: 22.520% of total cover: 9

Herb Stratum

	Abs.Cov.%	Dom?	Ind.		Abs.Cov.%	Dom?	Ind.
1. <u>Pot pal</u>	<u>10</u>	<u>X</u>	<u>OBL</u>	12. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
2. <u>Car lim</u>	<u>15</u>	<u>X</u>	<u>OBL</u>	13. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
3. <u>Red lab</u>	<u>10</u>	<u>X</u>	<u>FACW</u>	14. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
4. <u>Grass sp</u>	<u>3</u>	<u>—</u>	<u>—</u>	15. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
5. <u>Men tri</u>	<u>5</u>	<u>—</u>	<u>OBL</u>	16. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
6. <u>Sal frax</u>	<u>12</u>	<u>—</u>	<u>—</u>	17. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
7. <u>Egn arv</u>	<u>2</u>	<u>—</u>	<u>FAC</u>	18. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
8. <u>Peri alb</u>	<u>1</u>	<u>—</u>	<u>FACW</u>	19. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
9. <u>Cal can</u>	<u>3</u>	<u>—</u>	<u>FACW</u>	20. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
10. <u>Egn flu</u>	<u>5</u>	<u>—</u>	<u>OBL</u>	21. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
11. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	22. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

Total Herb Cover: 5450% of total cover: 2720% of total cover: 10.8Circular 1/10-ac plot X or other plot dimension: — % of bare ground: —% Cover of Wetland Bryophytes 95 % Total Cover of Bryophytes 95 %
(where applicable) Sphagnum

Remarks:

Myr gal 26" highArea covered in moss. Moss is saturated permanently

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)Total Number of Dominant Species Across All Strata: 5 (B)Percent of Dominant Species That are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>65</u>	X1= <u>65</u>
FACW species <u>29</u>	X2= <u>58</u>
FAC species <u>2</u>	X3= <u>6</u>
FACU species <u>—</u>	X4= <u>—</u>
UPL + NL species <u>—</u>	X5= <u>—</u>
Column Totals: <u>96</u> (A)	<u>129</u> (B)

Prevalence Index = B/A = 1.34

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
X Prevalence Index is ≤3.0— Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)— Problematic Hydrophytic Vegetation¹ (Explain)¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes X No —

Sampling Point #: 3

[illegible]

B46



Site 3: Soil. Photo taken September 29, 2016



Site 3: Soil. Photo taken September 29, 2016



Site 3: Vegetation. Photo taken September 29, 2016



Site 3: Vegetation. Photo taken September 29, 2016

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: ARC Portage Reserve Borough/City: MOT Date: 9/21/16
 Applicant/Owner: ARC Sampling Point #: 6
 Investigator(s): Mac S. Andrew D. Firm: HDR Alaska, Inc.
 Lat. (dec.) 60.70072 Long. 147.97211 ± ' NAD 83 Recorded on GPS #: ✓ Marked on map? ✓ Field Map #: 11
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Flat Slope (%): — Aspect: —
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: 1
 Photo nos./descriptions: 295-6 soils n-3 217-8 Camera #: — Veg Type (Viereck Level 4 or other): Tall closed willow
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ✓ No: — If no, explain. HGM type: —
 Are Vegetation ✓, Soil ✓, or Hydrology ✓ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No —
 Are Vegetation ✓, Soil ✓, or Hydrology ✓ naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u>✓</u>	No <u>—</u>	Is the sampled area within a wetland? Yes <u>—</u> No <u>✓</u> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <u>—</u>	No <u>✓</u>	
Wetland Hydrology Present?	Yes <u>✓</u>	No <u>—</u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:			
1. <u>—</u>				5. <u>—</u>				<u>3</u>	(A)		
2. <u>—</u>				6. <u>—</u>				Total Number of Dominant Species Across All Strata:	<u>3</u> (B)		
3. <u>—</u>				7. <u>—</u>				Percent of Dominant Species That are OBL, FACW, or FAC:	<u>100</u> (A/B)		
4. <u>—</u>				8. <u>—</u>				Prevalence Index worksheet:			
Total Tree Cover: <u>—</u>								Total % Cover of: <u>—</u> Multiply by: <u>—</u>			
50% of total cover: <u>—</u> 20% of total cover: <u>—</u>								OBL species <u>6</u> X1= <u>6</u>			
Sapling/Shrub Stratum (woody plants < 3" dbh)								FACW species <u>4</u> X2= <u>8</u>			
Abs. Cov. %	Dom?	Ind.	Abs. Cov. %	Dom?	Ind.	FAC species <u>107</u> X3= <u>321</u>					
1. <u>Sal. sco</u>	<u>70</u>	<u>✓</u>	<u>FAC</u>	7. <u>—</u>		FACU species <u>3</u> X4= <u>12</u>					
2. <u>M. gal</u>	<u>5</u>	<u>—</u>	<u>OBL</u>	8. <u>—</u>		UPL + NL species <u>—</u> X5= <u>—</u>					
3. <u>Sal. bar</u>	<u>20</u>	<u>✓</u>	<u>FAC</u>	9. <u>—</u>		Column Totals: <u>120</u> (A) <u>347</u> (B)					
4. <u>—</u>				10. <u>—</u>		Prevalence Index = B/A = <u>2.89</u>					
5. <u>—</u>				11. <u>—</u>							
6. <u>—</u>				12. <u>—</u>							
Total Sapling/Shrub Cover: <u>95</u>											
50% of total cover: <u>47.5</u> 20% of total cover: <u>19</u>											
Herb Stratum								Hydrophytic Vegetation Indicators:			
Abs. Cov. %	Dom?	Ind.	Abs. Cov. %	Dom?	Ind.	☒ Dominance Test is >50% ☒ Prevalence Index is ≤3.0					
1. <u>Pyr. qsa</u>	<u>2</u>	<u>—</u>	<u>FACW</u>	12. <u>—</u>		☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)					
2. <u>Ech. arv</u>	<u>15</u>	<u>✓</u>	<u>FAC</u>	13. <u>—</u>		☐ Problematic Hydrophytic Vegetation ¹ (Explain)					
3. <u>Poa. sp.</u>	<u>1</u>	<u>—</u>	<u>—</u>	14. <u>—</u>		¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.					
4. <u>Sag. stip</u>	<u>2</u>	<u>—</u>	<u>FACW</u>	15. <u>—</u>							
5. <u>Cal. can</u>	<u>1</u>	<u>—</u>	<u>FAC</u>	16. <u>—</u>							
6. <u>Ang. gen</u>	<u>1</u>	<u>—</u>	<u>FACW</u>	17. <u>—</u>							
7. <u>M. uni</u>	<u>1</u>	<u>—</u>	<u>FACW</u>	18. <u>—</u>							
8. <u>Pyr. grup</u>	<u>1</u>	<u>—</u>	<u>FAC</u>	19. <u>—</u>							
9. <u>Gal. trif</u>	<u>1</u>	<u>—</u>	<u>FACW</u>	20. <u>—</u>							
10. <u>Egn. fln</u>	<u>1</u>	<u>—</u>	<u>OBL</u>	21. <u>—</u>							
11. <u>—</u>				22. <u>—</u>							
Total Herb Cover: <u>26</u>								Hydrophytic Vegetation Present? Yes <u>✓</u> No <u>—</u>			
50% of total cover: <u>13</u> 20% of total cover: <u>5.2</u>											
Circular 1/10-ac plot <u>✓</u> or other plot dimension: <u>—</u> % of bare ground: <u>50</u>											
% Cover of Wetland Bryophytes <u>none</u> % Total Cover of Bryophytes <u>—</u> % (where applicable)											
Remarks: <u>Mr. gale L'has on edge of plot. plot is small. Lots of bare ground</u>											

SOIL

Sampling Point #: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)										
Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				α, α dip. (pos/ neg)	Remarks (or use comment number)	
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			Texture
0-1	O _i									
1-4	A	2.5Y2.5/1						sil		
4-9	B ₁	2.5Y3/1						sil		
9-16	B ₂	2.5Y3/1	25	10YR4/4	25	C	M	sil		
16-26	B ₃	10YR3/1	90	5YR3/4	10	C	M	sil		

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- ☒ Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- ☐ Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- ☐ Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____" in this pit)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☒ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- ☒ Alaska Color Change⁴ (TA4)
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox with 2.5Y Hue
- ☐ Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- ☒ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

⁴Give details of color change in Remarks.

Restrictive Layer (if present)

Type: none

Depth (inches) _____

Drainage Class: W0

Soil Map Unit Name: _____

Hydric Soil Present? Yes _____ No ☒

Comments:

1. Does not make AK Redox w/ 2.5Y Hue because there is no primary indicator of wetland hydro
2. _____
3. _____

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2) (w/in 12")
- ☐ Saturation (A3) (w/in 12")
- ☐ 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) (w/in 12")
- ☐ Dry-Season Water Table (C2) (w/in 24")
- ☒ Other (explain) _____

Secondary Indicators (at least 2 are required)

- ☐ Water-Stained Leaves (B9)
- ☒ Drainage Patterns (B10)
- ☒ Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ (w/in 24", can perch H₂O w/in 12")
- ☐ Microtopographic Relief (D4) (caused by water)
- ☐ FAC Neutral Test (D5)
- ☐ (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes _____ No ☒ Depth of water (in.) _____

Water Table Present? Yes _____ No ☒ Depth to water (in.) _____

Seeping in at that depth but not yet filled?: _____

Saturation Present? Yes _____ No ☒ Depth to sat. (in.) _____

(includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes ☒ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Dry to 20". Likely gets some overland flow at some point during the year
Base ground and silt prevalent. On banks of incised stream
small pocket of upland



Site 6: Soil. Photo taken September 29, 2016



Site 6: Soil. Photo taken September 29, 2016



Site 6: Vegetation. Photo taken September 29, 2016



Site 6: Vegetation. Photo taken September 29, 2016

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: APRC Portage Reserve Borough/City: MOA Date: 9/29/16
 Applicant/Owner: APRC Sampling Point #: 13
 Investigator(s): Mac S., Andrew D. Firm: HDR Alaska, Inc.
 Lat. (dec.) 60.80437 Long. 148.96994 ± ' NAD 83 Recorded on GPS #: 401 Marked on map? X Field Map #: 10
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Flat Slope (%): — Aspect: —
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: U
 Photo nos./descriptions: 553554 soils N 556 Camera #: — Veg Type (Viereck Level 4 or other): Tall closed alder
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: — If no, explain. HGM type: —
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No —
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>—</u>	Is the sampled area within a wetland? Yes <u>—</u> No <u>X</u> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <u>—</u>	No <u>X</u>	
Wetland Hydrology Present?	Yes <u>—</u>	No <u>X</u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3") <table border="1"> <thead> <tr> <th>Species</th> <th>Cov.%</th> <th>Dom?</th> <th>Ind.</th> <th>Species</th> <th>Cov.%</th> <th>Dom?</th> <th>Ind.</th> </tr> </thead> <tbody> <tr><td>1. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td><td>5. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> <tr><td>2. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td><td>6. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> <tr><td>3. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td><td>7. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> <tr><td>4. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td><td>8. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> </tbody> </table> Total Tree Cover: <u>—</u> 50% of total cover: <u>—</u> 20% of total cover: <u>—</u>								Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	1. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	5. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	2. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	6. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	3. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	7. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	4. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	8. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>67</u> (A/B)																																																									
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Herb Stratum <table border="1"> <thead> <tr> <th>Species</th> <th>Abs.Cov.%</th> <th>Dom?</th> <th>Ind.</th> <th>Species</th> <th>Abs.Cov.%</th> <th>Dom?</th> <th>Ind.</th> </tr> </thead> <tbody> <tr><td>1. <u>Des dil</u></td><td><u>20</u></td><td><u>X</u></td><td><u>FACW</u></td><td>12. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> <tr><td>2. <u>Cal can</u></td><td><u>5</u></td><td><u>—</u></td><td><u>FAC</u></td><td>13. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> <tr><td>3. <u>Egn arv</u></td><td><u>4</u></td><td><u>—</u></td><td><u>FAC</u></td><td>14. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> <tr><td>4. <u>Ath fel</u></td><td><u>10</u></td><td><u>X</u></td><td><u>FAC</u></td><td>15. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> <tr><td>5. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td><td>16. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> <tr><td>6. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td><td>17. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> <tr><td>7. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td><td>18. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> <tr><td>8. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td><td>19. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> <tr><td>9. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td><td>20. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> <tr><td>10. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td><td>21. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> <tr><td>11. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td><td>22. <u>—</u></td><td><u>—</u></td><td><u>—</u></td><td><u>—</u></td></tr> </tbody> </table> Total Herb Cover: <u>39</u> 50% of total cover: <u>19.5</u> 20% of total cover: <u>7.9</u>								Species	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.	1. <u>Des dil</u>	<u>20</u>	<u>X</u>	<u>FACW</u>	12. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	2. <u>Cal can</u>	<u>5</u>	<u>—</u>	<u>FAC</u>	13. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	3. <u>Egn arv</u>	<u>4</u>	<u>—</u>	<u>FAC</u>	14. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	4. <u>Ath fel</u>	<u>10</u>	<u>X</u>	<u>FAC</u>	15. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	5. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	16. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	6. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	17. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	7. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	18. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	8. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	19. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	9. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	20. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	10. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	21. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	11. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	22. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	Hydrophytic Vegetation Indicators: <u>X</u> Dominance Test is >50% <u>—</u> Prevalence Index is ≤3.0 <u>✓</u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>—</u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.	
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Circular 1/10-ac plot <u>X</u> or other plot dimension: <u>—</u> % of bare ground: <u>—</u> % Cover of Wetland Bryophytes <u>—</u> % Total Cover of Bryophytes <u>—</u> % (where applicable)								Hydrophytic Vegetation Present? Yes <u>X</u> No <u>—</u>																																																																																																	
Remarks:																																																																																																									

SOIL

Sampling Point #: 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators)										
Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α, α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-1	O _i									
1-3	A	10YR2/1						sil		
3-18	B ₁ /L	5Y2.5/1						10amp sand		
18-20	B ₁ /L	2.5Y2.5/1	85	5YR3/4	15	C	M	10amp sand		

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- ☒ Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- ☒ Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- ☒ Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____ " in this pit)
- ☒ Thick Dark Surface (A12)
- ☒ Alaska Gleyed (A13)
- ☒ Alaska Redox (A14)
- ☒ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- ☒ Alaska Color Change⁴ (TA4)
- ☒ Alaska Alpine Swales (TA5)
- ☒ Alaska Redox with 2.5Y Hue
- ☒ Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- ____ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

⁴Give details of color change in Remarks.

Restrictive Layer (if present)

Type: none

Depth (inches) _____

Drainage Class: und

Soil Map Unit Name: _____

Hydric Soil Present?

Yes _____

No ☒

Comments:

1. sandy soil drains quickly
2. _____
3. _____

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2) (w/in 12")
- ☒ Saturation (A3) (w/in 12")
- ☒ 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) (w/in 12")
- ☒ Dry-Season Water Table (C2) (w/in 24")
- ____ Other (explain)

Secondary Indicators (at least 2 are required)

- ☒ Water-Stained Leaves (B9)
- ☒ Drainage Patterns (B10)
- ☒ Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- ☒ Presence of Reduced Iron (C4) (pos. α, α or soil color change w/in 12")
- ☒ Salt Deposits (C5)
- ☒ Stunted or Stressed Plants (D1)
- ☒ Geomorphic Position (D2)
- ☒ Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
- ☒ Microtopographic Relief (D4) (caused by water)
- ☒ FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes _____ No ☒ Depth of water (in.) _____

Water Table Present? Yes ☒ No _____ Depth to water (in.) 21

Seeping in at that depth but not yet filled?: _____

Saturation Present? Yes ☒ No _____ Depth to sat. (in.) 20

(includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present?

Yes _____

No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



Site 13: Soil. Photo taken September 29, 2016



Site 13: Soil. Photo taken September 29, 2016



Site 13: Vegetation. Photo taken September 29, 2016



Site 13: Vegetation. Photo taken September 29, 2016

WETLAND DETERMINATION DATA FORM – Alaska Region

Project: ARRC Portage Reserve Borough/City: MDA Date: 9/29/16
 Applicant/Owner: ARRC Sampling Point #: 19
 Investigator(s): Mar S. Anderson Firm: HDR Alaska, Inc.
 Lat. (dec.) 60.60505 Long. 148.96815 ± ' NAD 83 Recorded on GPS #: 462 Marked on map? X Field Map #: 10
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Flat Slope (%): — Aspect: —
 Local relief: Shape across slope: linear convex concave Shape up/downslope: linear convex concave NWI classification: PEM1/SS1C
 Photo nos./descriptions: Sat 1.568 569 570 N 575 Camera #: — Veg Type (Vioreck Level 4 or other): Open alder / birch
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: — If no, explain. HGM type: Flat meadow
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No —
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>—</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u>—</u> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <u>X</u>	No <u>—</u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u>—</u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.				
1. <u>—</u>				5. <u>—</u>				Number of Dominant Species That are OBL, FACW, or FAC:	<u>3</u> (A)		
2. <u>—</u>				6. <u>—</u>				Total Number of Dominant Species Across All Strata:	<u>3</u> (B)		
3. <u>—</u>				7. <u>—</u>				Percent of Dominant Species That are OBL, FACW, or FAC:	<u>100</u> (A/B)		
4. <u>—</u>				8. <u>—</u>				Prevalence Index worksheet:			
Total Tree Cover: <u>—</u>								Total % Cover of:		Multiply by:	
50% of total cover: <u>—</u>								OBL species		<u>13</u> X1= <u>13</u>	
20% of total cover: <u>—</u>								FACW species		<u>7</u> X2= <u>14</u>	
Sapling/Shrub Stratum (woody plants < 3" dbh)								FAC species		<u>117</u> X3= <u>351</u>	
Abs. Cov. %	Dom?	Ind.	Abs. Cov. %	Dom?	Ind.	FACU species		<u>2</u> X4= <u>8</u>			
1. <u>Ala sin</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	7. <u>—</u>		UPL + NL species		<u>—</u> X5= <u>—</u>			
2. <u>Vib edn</u>	<u>2</u>		<u>FACU</u>	8. <u>—</u>		Column Totals:		<u>139</u> (A) <u>386</u> (B)			
3. <u>Sal glau</u>	<u>7</u>	<u>X</u>	<u>FAC</u>	9. <u>—</u>		Prevalence Index = B/A =		<u>2.78</u>			
4. <u>—</u>				10. <u>—</u>							
5. <u>—</u>				11. <u>—</u>							
6. <u>—</u>				12. <u>—</u>							
Total Sapling/Shrub Cover: <u>29</u>											
50% of total cover: <u>14.5</u>								20% of total cover: <u>5.8</u>			
Herb Stratum											
Abs. Cov. %	Dom?	Ind.	Abs. Cov. %	Dom?	Ind.						
1. <u>Arg gen</u>	<u>5</u>		<u>FACW</u>	12. <u>—</u>							
2. <u>Cal can</u>	<u>80</u>	<u>X</u>	<u>FAC</u>	13. <u>—</u>							
3. <u>Urt fel</u>	<u>10</u>		<u>FAC</u>	14. <u>—</u>							
4. <u>Sang stip</u>	<u>2</u>		<u>FACU</u>	15. <u>—</u>							
5. <u>Pot pal</u>	<u>1</u>		<u>OBL</u>	16. <u>—</u>							
6. <u>Eup flu</u>	<u>2</u>		<u>OBL</u>	17. <u>—</u>							
7. <u>Cor aqu</u>	<u>10</u>		<u>OBL</u>	18. <u>—</u>							
8. <u>—</u>				19. <u>—</u>							
9. <u>—</u>				20. <u>—</u>							
10. <u>—</u>				21. <u>—</u>							
11. <u>—</u>				22. <u>—</u>							
Total Herb Cover: <u>110</u>											
50% of total cover: <u>55</u>								20% of total cover: <u>22</u>			
Circular 1/10-ac plot <u>X</u> or other plot dimension: <u>—</u> % of bare ground: <u>—</u>											
% Cover of Wetland Bryophytes <u>—</u> % Total Cover of Bryophytes <u>—</u> % (where applicable)											
Remarks:											

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%
X Prevalence Index is ≤3.0

— Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

— Problematic Hydrophytic Vegetation¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes X No —

SOIL

Sampling Point #: 19

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α, α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-1	O _i									
1-2	A	5Y3/1						sil		lots of organic
2-20	B	10Y4/1	20	10YR 4/6	30	L	RC, PL	sil		

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- ☐ Histosol or Histel (A1) (≥ 16 " organic surface, sat'd during wet period of growing season)
☐ Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤ 2)
☒ Hydrogen Sulfide (A4) (within 12" of ground surface; @ 12" in this pit)
☐ Thick Dark Surface (A12)
☐ Alaska Gleyed (A13)
☒ Alaska Redox (A14)
☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- ☐ Alaska Color Change⁴ (TA4)
☐ Alaska Alpine Swales (TA5)
☐ Alaska Redox with 2.5Y Hue
☐ Alaska Gleyed without Hue 5Y or Redder Underlying Layer
☐ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
⁴Give details of color change in Remarks.

Restrictive Layer (if present)

Type: none
 Depth (inches) _____

Drainage Class: P

Soil Map Unit Name: _____

Hydric Soil Present?

Yes ☒ No _____

Comments:

-
-
-

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1) ☐ Surface Soil Cracks (B6)
☐ High Water Table (A2) (w/in 12") ☐ Inundation Visible on Aerial Imagery (B7)
☒ Saturation (A3) (w/in 12") ☐ Sparsely Vegetated Concave Surface (B8)
☐ Water Marks (B1) ☐ Marl Deposits (B15)
☐ Sediment Deposits (B2) ☒ Hydrogen Sulfide Odor (C1) (w/in 12")
☐ Drift Deposits (B3) ☐ Dry-Season Water Table (C2) (w/in 24")
☐ Algal Mat or Crust (B4) ☐ Other (explain)
☐ Iron Deposits (B5)

Secondary Indicators (at least 2 are required)

- ☐ Water-Stained Leaves (B9)
☒ Drainage Patterns (B10)
☐ Oxid'd Rhizospheres on Living Roots (C3) (within 12")
☐ Presence of Reduced Iron (C4) (pos. α, α or soil color change w/in 12")
☐ Salt Deposits (C5)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
☐ Microtopographic Relief (D4) (caused by water)
☐ FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes _____ No ☒ Depth of water (in.) 0
 Water Table Present? Yes ☒ No _____ Depth to water (in.) 14
 Seeping in at that depth but not yet filled? B
 Saturation Present? Yes ☒ No _____ Depth to sat. (in.) 11
 (includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes ☒ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Lots of small drainages through area that are currently dry.



Site 19: Soil. Photo taken September 29, 2016



Site 19: Soil. Photo taken September 29, 2016



Site 19: Vegetation. Photo taken September 29, 2016



Site 19: Vegetation. Photo taken September 29, 2016

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: APRC Portage Reserve Borough/City: MOA Date: 9/29/16
 Applicant/Owner: Alaska Railroad Sampling Point #: 31
 Investigator(s): Ma S., Andrew D Firm: HDR Alaska, Inc. FT65
 Lat. (dec.) 60.90739 Long. 148.97006 ± ' NAD 83 Recorded on GPS #: 402 Marked on map? ☒ Field Map #: 10
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: stream bank Slope (%): — Aspect: —
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: U
 Photo nos./descriptions: SA 609 619 N 610 611 Camera #: — Veg Type (Viereck Level 4 or other): Closed tall glde
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ☒ No: — If no, explain. HGM type: —
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No —
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes ☒	No <u>—</u>	Is the sampled area within a wetland? Yes <u>—</u> No ☒ Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <u>—</u>	No ☒	
Wetland Hydrology Present?	Yes ☒	No <u>—</u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A)			
1. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	5. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	Total Number of Dominant Species Across All Strata: <u>3</u> (B)			
2. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	6. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	Percent of Dominant Species That are OBL, FACW, or FAC: <u>100</u> (A/B)			
3. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	7. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	Prevalence Index worksheet:			
4. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	8. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	Total % Cover of: <u>—</u> Multiply by: <u>—</u>			
Total Tree Cover: <u>—</u>								OBL species <u>—</u> X1= <u>—</u>			
50% of total cover: <u>—</u> 20% of total cover: <u>—</u>								FACW species <u>10</u> X2= <u>20</u>			
Sapling/Shrub Stratum (woody plants < 3" dbh)								FAC species <u>152</u> X3= <u>456</u>			
Abs. Cov. % Dom? Ind.								FACU species <u>10</u> X4= <u>40</u>			
1. <u>Aln sin</u>	<u>80</u>	☒	<u>FAC</u>	7. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	UPL + NL species <u>—</u> X5= <u>—</u>			
2. <u>Sal sca</u>	<u>10</u>	<u>—</u>	<u>FAC</u>	8. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	Column Totals: <u>172</u> (A) <u>516</u> (B)			
3. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	9. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	Prevalence Index = B/A = <u>3.00</u>			
4. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	10. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	Hydrophytic Vegetation Indicators:			
5. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	11. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	☒ Dominance Test is >50%			
6. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	12. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	☒ Prevalence Index is ≤3.0			
Total Sapling/Shrub Cover: <u>90</u>								<u>—</u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
50% of total cover: <u>45</u> 20% of total cover: <u>18</u>								<u>—</u> Problematic Hydrophytic Vegetation ¹ (Explain)			
Herb Stratum								¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.			
Abs. Cov. % Dom? Ind.								Hydrophytic Vegetation Present? Yes ☒ No <u>—</u>			
1. <u>Ang luc</u>	<u>3</u>	<u>—</u>	<u>FACW</u>	12. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>				
2. <u>Gal can</u>	<u>40</u>	☒	<u>FAC</u>	13. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>				
3. <u>Egn arr</u>	<u>5</u>	<u>—</u>	<u>FAC</u>	14. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>				
4. <u>Dry dil</u>	<u>7</u>	<u>—</u>	<u>FACU</u>	15. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>				
5. <u>Sasa stip</u>	<u>4</u>	<u>—</u>	<u>FACW</u>	16. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>				
6. <u>Athy fol</u>	<u>15</u>	☒	<u>FAC</u>	17. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>				
7. <u>Kuh acc</u>	<u>2</u>	<u>—</u>	<u>FAC</u>	18. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>				
8. <u>Gal trifid</u>	<u>1</u>	<u>—</u>	<u>FACW</u>	19. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>				
9. <u>Ang gen</u>	<u>5</u>	<u>—</u>	<u>FACW</u>	20. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>				
10. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	21. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>				
11. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	22. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>				
Total Herb Cover: <u>72</u>											
50% of total cover: <u>41</u> 20% of total cover: <u>16.4</u>											
Circular 1/10-ac plot ☒ or other plot dimension: <u>—</u> % of bare ground: <u>40</u>											
% Cover of Wetland Bryophytes <u>—</u> % Total Cover of Bryophytes <u>—</u>											
(where applicable)											
Remarks: <u>Adj to large dead cotton woods</u> <u>lots of bare ground</u>											

SOIL

Sampling Point #: 31

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α, α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-2	A	2.5YR3/1	—	—	—	—	—	sil	—	
2-11	B1	10YR3/1	95	5YR3/3	5	L	RCPL	vfnsa	—	
11-20	B2	5YR4/1	85	2.5YR3/4	15	L	RC, PL	vfsa	—	

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- ☒ Histosol or Histel (A1) (≥ 16 " organic surface, sat'd during wet period of growing season)
- ☒ Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤ 2)
- ☒ Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____" in this pit)
- ☒ Thick Dark Surface (A12)
- ☒ Alaska Gleyed (A13)
- ☒ Alaska Redox (A14)
- ☒ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- ☒ Alaska Color Change⁴ (TA4)
- ☒ Alaska Alpine Swales (TA5)
- ☒ Alaska Redox with 2.5Y Hue
- ☒ Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- ☐ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

⁴Give details of color change in Remarks.

Restrictive Layer (if present)

Type: _____

Depth (inches) _____

Drainage Class: nd

Soil Map Unit Name: _____

Hydric Soil Present?

Yes _____

No ☒

Comments:

-
-
-

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1) ☐ Surface Soil Cracks (B6)
- ☐ High Water Table (A2) (w/in 12") ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Saturation (A3) (w/in 12") ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water Marks (B1) ☐ Marl Deposits (B15)
- ☐ Sediment Deposits (B2) ☐ Hydrogen Sulfide Odor (C1) (w/in 12")
- ☐ Drift Deposits (B3) ☐ Dry-Season Water Table (C2) (w/in 24")
- ☐ Algal Mat or Crust (B4) ☐ Other (explain) _____
- ☐ Iron Deposits (B5)

Secondary Indicators (at least 2 are required)

- ☐ Water-Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☒ Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- ☐ Presence of Reduced Iron (C4) (pos. α, α or soil color change w/in 12")
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☒ Geomorphic Position (D2) Aj. to stream
- ☐ Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
- ☐ Microtopographic Relief (D4) (caused by water)
- ☐ FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes _____ No ☒ Depth of water (in.) _____Water Table Present? Yes _____ No ☒ Depth to water (in.) _____

Seeping in at that depth but not yet filled?: _____

Saturation Present? Yes _____ No ☒ Depth to sat. (in.) _____

(includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes ☒ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



Site 31: Soil. Photo taken September 29, 2016



Site 31: Soil. Photo taken September 29, 2016



Site 31: Vegetation. Photo taken September 29, 2016



Site 31: Vegetation. Photo taken September 29, 2016

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: APRC Portage Reserve Borough/City: MOA Date: 9/29/16
 Applicant/Owner: APRC Sampling Point #: 036
 Investigator(s): Mac S., Andrew D Firm: HDR Alaska, Inc.
 Lat. (dec.): 60.80770 Long. 149.96154 ± ' NAD 83 Recorded on GPS #: 401 Marked on map? 9 Field Map #: 9
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Flat Slope (%): - Aspect: -
 Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PEMIC
 Photo nos./descriptions: Soil 620-1 N 22 S23 Camera #: - Veg Type (Vioreck Level 4 or other): Bluejoint meadow
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: - HGM type: Flat
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No -
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the sampled area within a wetland?	Yes <u>X</u>	No <u> </u>
Hydric Soil Present?	Yes <u>X</u>	No <u> </u>		Remarks (e.g., marginal?):	
Wetland Hydrology Present?	Yes <u>X</u>	No <u> </u>			

VEGETATION (Use scientific names.)

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:	
Sp.	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:	
1. <u>-</u>				5. <u>-</u>				<u>1</u>	(A)
2. <u>-</u>				6. <u>-</u>				<u>1</u>	(B)
3. <u>-</u>				7. <u>-</u>					
4. <u>-</u>				8. <u>-</u>					
Total Tree Cover: <u>-</u>								Percent of Dominant Species That are OBL, FACW, or FAC:	<u>100</u> (A/B)
50% of total cover: <u>-</u>								Prevalence Index worksheet:	
20% of total cover: <u>-</u>								Total % Cover of:	Multiply by:
Sapling/Shrub Stratum (woody plants < 3" dbh)								OBL species	<u>19</u> X1= <u>19</u>
	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.	FACW species	<u>-</u> X2= <u>-</u>
1. <u>Sal bar</u>	<u>1</u>		<u>FAC</u>	7. <u>-</u>				FAC species	<u>86</u> X3= <u>258</u>
2. <u>-</u>				8. <u>-</u>				FACU species	<u>-</u> X4= <u>-</u>
3. <u>-</u>				9. <u>-</u>				UPL + NL species	<u>-</u> X5= <u>-</u>
4. <u>-</u>				10. <u>-</u>				Column Totals:	<u>105</u> (A) <u>277</u> (B)
5. <u>-</u>				11. <u>-</u>				Prevalence Index = B/A = <u>2.64</u>	
6. <u>-</u>				12. <u>-</u>					
Total Sapling/Shrub Cover: <u>-</u>									
50% of total cover: <u>-</u>									
20% of total cover: <u>-</u>									
Herb Stratum								Hydrophytic Vegetation Indicators:	
	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.	<u>X</u> Dominance Test is >50%	
1. <u>Cal can</u>	<u>85</u>	<u>X</u>	<u>FAC</u>	12. <u>-</u>				<u>X</u> Prevalence Index is ≤3.0	
2. <u>Cor aqu</u>	<u>5</u>		<u>OBL</u>	13. <u>-</u>				<u>-</u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
3. <u>Fern flia</u>	<u>10</u>		<u>OBL</u>	14. <u>-</u>				<u>-</u> Problematic Hydrophytic Vegetation ¹ (Explain)	
4. <u>Pot pal</u>	<u>3</u>		<u>OBL</u>	15. <u>-</u>				¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.	
5. <u>Lymex fen</u>	<u>1</u>		<u>OBL</u>	16. <u>-</u>					
6. <u>-</u>				17. <u>-</u>					
7. <u>-</u>				18. <u>-</u>					
8. <u>-</u>				19. <u>-</u>					
9. <u>-</u>				20. <u>-</u>					
10. <u>-</u>				21. <u>-</u>					
11. <u>-</u>				22. <u>-</u>					
Total Herb Cover: <u>105</u> (includes 1% Sal bar)								Hydrophytic Vegetation Present?	
50% of total cover: <u>52.5</u>								Yes <u>X</u> No <u>-</u>	
20% of total cover: <u>21</u>									
Circular 1/10-ac plot <u>X</u> or other plot dimension: <u>-</u> % of bare ground: <u>25%</u>									
% Cover of Wetland Bryophytes <u>-</u> % Total Cover of Bryophytes <u>-</u>									
(where applicable)									
Remarks: <u>Lots of bare silt ground water 5%</u> <u>Sal bar grouped into herbs for 50/20 Rule</u>									

SOIL

Sampling Point #: 36

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

Depth (in.)	Horizon Name	Soil Matrix		Redox Features				Texture	α, α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-6	B1	N 3/1						sil	+	
6-20	B2	N 4/1						vf sa	+	

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, msr from top of mineral layers unless otherwise noted):

Indicators for Problematic Hydric Soils³:☐ Histosol or Histel (A1) (≥16", sat'd during wet period of growing season)☐ Histic Epipedon (A2)(8-16", sat'd, underlain by mineral soil with chroma ≤2)☒ Hydrogen Sulfide (A4) (w/in 12" of ground surface; @ 5" in this pit)☐ Thick Dark Surface (A12)☐ Alaska Gleyed (A13)☐ Alaska Redox (A14)☐ Alaska Gleyed Pores (A15)☐ Alaska Color Change⁴ (TA4)☐ Alaska Alpine Swales (TA5)☐ Alaska Redox with 2.5Y Hue☐ Alaska Gleyed without Hue 5Y or Redder Underlying Layer ** - It meets this, but already has 1st indicator*☐ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.⁴Give details of color change in Remarks.

Restrictive Layer (if present)

Type: none

Depth (inches) _____

Drainage Class: vpd

Soil Map Unit Name: _____

Hydric Soil Present?

Yes ☒No ☐

Comments:

1. Very bright rxn to rx
- 2.
- 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, msr from soil surface):

Primary Indicators (any one indicator is sufficient)

☒ Surface Water (A1)☒ High Water Table (A2) (w/in 12")☒ Saturation (A3) (w/in 12")☐ 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) (w/in 12")☐ Dry-Season Water Table (C2) (w/in 24")☐ Other (explain)

Secondary Indicators (at least 2 are required)

☐ Water-Stained Leaves (B9)☒ Drainage Patterns (B10)☐ Oxid'd Rhizospheres on Living Roots (C3) (w/in 12")☐ Presence of Reduced Iron (C4) (pos. α, α or soil color change w/in 12")☐ Salt Deposits (C5)☐ Stunted or Stressed Plants (D1)☐ Geomorphic Position (D2)☐ Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")☐ Microtopographic Relief (D4) (caused by water)☐ FAC Neutral Test (D5)

(# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes ☒ No ☐ Depth of water (in.) 2Water Table Present? Yes ☒ No ☐ Depth to water (in.) 10

Seeping in at that depth but not yet filled: _____

Saturation Present? Yes ☒ No ☐ Depth to sat. (in.) 3

(includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Surface water present in depressions throughout plot



Site 36: Soil. Photo taken September 29, 2016



Site 36: Soil. Photo taken September 29, 2016



Site 36: Vegetation. Photo taken September 29, 2016



Site 36: Vegetation. Photo taken September 29, 2016

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: ARRC Portage Pass Borough/City: MOA Date: 9/29/16
 Applicant/Owner: ARRC Sampling Point #: 038
 Investigator(s): Mike S., Andrew D. Firm: HDR Alaska, Inc.
 Lat. (dec.°) 60.80813 Long. 148.97043 ± ' NAD 83 Recorded on GPS #: 402 Marked on map? ☒ Field Map #: —
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: terrace Slope (%): — Aspect: —
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: Upland
 Photo nos./descriptions: 511 627-8 N 629 5638 Camera #: — Veg Type (Vioreck Level 4 or other): Open cotton wood for
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ☒ No: — If no, explain. HGM type: alder under
 Are Vegetation N, Soil A, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No —
 Are Vegetation N, Soil A, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes ☒	No <u>—</u>	Is the sampled area within a wetland? Yes <u>—</u> No ☒ Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <u>—</u>	No ☒	
Wetland Hydrology Present?	Yes <u>—</u>	No ☒	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")

Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.
1. <u>Pop bal</u>	<u>25</u>	☒	<u>FACU</u>	5. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
2. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	6. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
3. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	7. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
4. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	8. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

Total Tree Cover: 2550% of total cover: 12.520% of total cover: 5

Sapling/Shrub Stratum (woody plants < 3" dbh)

Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.
1. <u>1/16 edn</u>	<u>25</u>	☒	<u>FACU</u>	7. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
2. <u>1/16 sin</u>	<u>50</u>	☒	<u>FAC</u>	8. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
3. <u>Sam race</u>	<u>5</u>	<u>—</u>	<u>FACU</u>	9. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
4. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	10. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
5. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	11. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
6. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	12. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

Total Sapling/Shrub Cover: 8050% of total cover: 4020% of total cover: 16

Herb Stratum

Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.
1. <u>Ry grass</u>	<u>1</u>	<u>—</u>	<u>FACU</u>	12. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
2. <u>Adh. Felix</u>	<u>7</u>	☒	<u>FAC</u>	13. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
3. <u>Cal can</u>	<u>10</u>	☒	<u>FAC</u>	14. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
4. <u>Ang lue</u>	<u>1</u>	<u>—</u>	<u>FACU</u>	15. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
5. <u>Eri anu</u>	<u>5</u>	<u>—</u>	<u>FACU</u>	16. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
6. <u>Dry d:1</u>	<u>3</u>	<u>—</u>	<u>FACU</u>	17. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
7. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	18. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
8. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	19. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
9. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	20. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
10. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	21. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>
11. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>	22. <u>—</u>	<u>—</u>	<u>—</u>	<u>—</u>

Total Herb Cover: 2750% of total cover: 13.520% of total cover: 5.4

Circular 1/10-ac plot ☒ or other plot dimension: — % of bare ground: —
 % Cover of Wetland Bryophytes — % Total Cover of Bryophytes — %
 (where applicable)

Remarks:

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)Total Number of Dominant Species Across All Strata: 5 (B)Percent of Dominant Species That are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>—</u>	X1= <u>—</u>
FACW species <u>—</u>	X2= <u>—</u>
FAC species <u>67</u>	X3= <u>201</u>
FACU species <u>65</u>	X4= <u>260</u>
UPL + NL species <u>—</u>	X5= <u>—</u>
Column Totals: <u>132</u> (A)	<u>461</u> (B)

Prevalence Index = B/A = 3.49

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%
☒ Prevalence Index is ≤3.0

— Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

— Problematic Hydrophytic Vegetation¹ (Explain)

¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes ☒ No —

SOIL

Sampling Point #: 38

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	a,α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-6	0i	—	—	—	—	—	—	—	—	—
6-20	C	10Y 2.5/1	—	—	—	—	—	loamy sand	—	of negative

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- ☒ Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- ☒ Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- ☒ Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____" in this pit)
- ☒ Thick Dark Surface (A12)
- ☒ Alaska Gleyed (A13)
- ☒ Alaska Redox (A14)
- ☒ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- ☒ Alaska Color Change⁴ (TA4)
- ☒ Alaska Alpine Swales (TA5)
- ☒ Alaska Redox with 2.5Y Hue
- ☒ Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- ☐ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

⁴Give details of color change in Remarks.

Restrictive Layer (if present)

Type: none

Depth (inches) _____

Drainage Class: wd

Soil Map Unit Name: _____

Hydric Soil Present?

Yes _____ No ☒

Comments:

1. Very sandy. Drains rapidly.
2. _____
3. _____

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2) (w/in 12")
- ☒ Saturation (A3) (w/in 12")
- ☒ 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) (w/in 12")
- ☒ Dry-Season Water Table (C2) (w/in 24")
- ☒ Other (explain) _____

Secondary Indicators (at least 2 are required)

- ☒ Water-Stained Leaves (B9)
- ☒ Drainage Patterns (B10)
- ☒ Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- ☒ Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
- ☒ Salt Deposits (C5)
- ☒ Stunted or Stressed Plants (D1)
- ☒ Geomorphic Position (D2)
- ☒ Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
- ☒ Microtopographic Relief (D4) (caused by water)
- ☒ FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes _____ No ☒ Depth of water (in.) _____

Water Table Present? Yes _____ No ☒ Depth to water (in.) _____

Seeping in at that depth but not yet filled?: _____

Saturation Present? Yes _____ No ☒ Depth to sat. (in.) _____

(includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes _____ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



Site 38: Soil. Photo taken September 29, 2016



Site 38: Soil. Photo taken September 29, 2016



Site 38: Vegetation. Photo taken September 29, 2016



Site 38: Vegetation. Photo taken September 29, 2016

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: ARPC Portage Preserve Borough/City: MOA Date: 9/30/16
 Applicant/Owner: ARPC Sampling Point #: 46
 Investigator(s): Mac S., Andrew D. Firm: HDR Alaska, Inc. FT51
 Lat. (dec.): 66.81093 Long. 148.97142 ± ' NAD 83 Recorded on GPS #: 402 Marked on map? ☒ Field Map #:
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: terrace Slope (%): Aspect:
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSS1C
 Photo nos./descriptions: Soil 648-9 N 650, 5651 Camera #: Veg Type (Viereck Level 4 or other): Closed alder willow
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: ☒ No: If no, explain. HGM type: Riverine
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No
 Are Vegetation , Soil , or Hydrology naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes ☒	No <u> </u>	Is the sampled area within a wetland? Yes ☒ No <u> </u> Remarks (e.g., marginal?): <u> </u>
Hydric Soil Present?	Yes ☒	No <u> </u>	
Wetland Hydrology Present?	Yes ☒	No <u> </u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:	
Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:	
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	4	(A)
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	4	(B)
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	100	(A/B)
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	8. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
Total Tree Cover: <u> </u>								Percent of Dominant Species That are OBL, FACW, or FAC: <u> </u>	
50% of total cover: <u> </u> 20% of total cover: <u> </u>								Prevalence Index worksheet:	
Sapling/Shrub Stratum (woody plants < 3" dbh)								Total % Cover of:	
Species	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.	Multiply by:	
1. <u>Aln sin</u>	<u>35</u>	☒	<u>FAC</u>	7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	OBL species	<u>19</u> X1= <u>19</u>
2. <u>Sal sca</u>	<u>60</u>	☒	<u>FAC</u>	8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACW species	<u>9</u> X2= <u>18</u>
3. <u>Myr gal</u>	<u>10</u>	<u> </u>	<u>OBL</u>	9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FAC species	<u>121</u> X3= <u>363</u>
4. <u>Sal gla</u>	<u>3</u>	<u> </u>	<u>FAC</u>	10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACU species	<u>1</u> X4= <u>4</u>
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	UPL + NL species	<u> </u> X5= <u> </u>
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	12. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Column Totals:	<u>150</u> (A) <u>404</u> (B)
Total Sapling/Shrub Cover: <u>108</u>								Prevalence Index = B/A = <u>2.69</u>	
50% of total cover: <u>54</u> 20% of total cover: <u>21.6</u>									
Herb Stratum								Hydrophytic Vegetation Indicators:	
Species	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.	☒ Dominance Test is >50%	
1. <u>Ang gen</u>	<u>5</u>	<u> </u>	<u>FACW</u>	12. <u> </u>	<u> </u>	<u> </u>	<u> </u>	☒ Prevalence Index is ≤3.0	
2. <u>Cal can</u>	<u>20</u>	☒	<u>FAC</u>	13. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
3. <u>Egna fln</u>	<u>7</u>	☒	<u>OBL</u>	14. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)	
4. <u>Ranun sp.</u>	<u>1</u>	<u> </u>	<u> </u>	15. <u> </u>	<u> </u>	<u> </u>	<u> </u>	¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.	
5. <u>Egna ar v</u>	<u>3</u>	<u> </u>	<u>FAC</u>	16. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
6. <u>Egna var</u>	<u>3</u>	<u> </u>	<u>FACW</u>	17. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
7. <u>Saggy sti</u>	<u>1</u>	<u> </u>	<u>FACW</u>	18. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
8. <u>Byr are</u>	<u>1</u>	<u> </u>	<u>FACW</u>	19. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
9. <u>Car lya</u>	<u>2</u>	<u> </u>	<u>OBL</u>	20. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	21. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
11. <u> </u>	<u> </u>	<u> </u>	<u> </u>	22. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
Total Herb Cover: <u>43</u>								Hydrophytic Vegetation Present? Yes ☒ No <u> </u>	
50% of total cover: <u>21.5</u> 20% of total cover: <u>8.6</u>									
Circular 1/10-ac plot ☒ or other plot dimension: <u> </u> % of bare ground: <u>30</u>									
% Cover of Wetland Bryophytes <u>0</u> % Total Cover of Bryophytes <u> </u> % (where applicable)									
Remarks: <u>30% bare ground, grey silt area may be totally influenced</u>									

SOIL

Sampling Point #: 46

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α, α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-5	A	5Y2.5/1	90	10PR4/3	100	C	M	silt	-	
5-19	B	N4/1	90	2.5YR4/4	100	C	RCPL	vf sal	-	

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

☐ Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)

☐ Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)

☐ Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____" in this pit)

☐ Thick Dark Surface (A12)

☐ Alaska Gleyed (A13)

☒ Alaska Redox (A14)

☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

☐ Alaska Color Change⁴ (TA4)

☐ Alaska Alpine Swales (TA5)

☐ Alaska Redox with 2.5Y Hue

☒ Alaska Gleyed without Hue 5Y or Redder Underlying Layer

☐ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

⁴Give details of color change in Remarks.

Restrictive Layer (if present) Type: _____ Depth (inches) _____	Drainage Class: <u>swpd</u> Soil Map Unit Name: _____	Hydric Soil Present? Yes ☒ No ☐
---	--	--

Comments:

-
-
-

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

☒ Surface Water (A1)	☒ Surface Soil Cracks (B6)
☐ High Water Table (A2) (w/in 12")	☐ Inundation Visible on Aerial Imagery (B7)
☐ Saturation (A3) (w/in 12")	☐ Sparsely Vegetated Concave Surface (B8)
☐ Water Marks (B1)	☐ Marl Deposits (B15)
☐ Sediment Deposits (B2)	☐ Hydrogen Sulfide Odor (C1) (w/in 12")
☐ Drift Deposits (B3)	☒ Dry-Season Water Table (C2) (w/in 24")
☐ Algal Mat or Crust (B4)	☐ Other (explain) _____
☒ Iron Deposits (B5)	

Secondary Indicators (at least 2 are required)

☒ Water-Stained Leaves (B9)

☒ Drainage Patterns (B10) _____

☐ Oxid'd Rhizospheres on Living Roots (C3) (within 12")

☐ Presence of Reduced Iron (C4) (pos. α, α or soil color change w/in 12")

☐ Salt Deposits (C5)

☐ Stunted or Stressed Plants (D1)

☐ Geomorphic Position (D2)

☐ Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")

☐ Microtopographic Relief (D4) (caused by water)

☒ FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):	Wetland Hydrology Present? Yes ☒ No ☐
Surface Water Present? Yes ☐ No ☒ Depth of water (in.) _____	
Water Table Present? Yes ☐ No ☒ Depth to water (in.) _____	
Seeping in at that depth but not yet filled?: _____	
Saturation Present? Yes ☐ No ☒ Depth to sat. (in.) _____	
(includes capillary fringe) Epi Endo Unknown	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Area may be tidally influenced. Large patches of silt. Lots of drowned herb veg. Water flows through area. Small dry channels connecting to Explorer Creek



Site 46: Soil. Photo taken September 30, 2016



Site 46: Soil. Photo taken September 30, 2016



Site 46: Vegetation. Photo taken September 30, 2016



Site 46: Vegetation. Photo taken September 30, 2016

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: ARRC Portage Reserve Borough/City: MOA Date: 9/30/16
 Applicant/Owner: ARRC Sampling Point #: 47
 Investigator(s): Mac S., Andrew D. Firm: HDR Alaska, Inc.
 Lat. (dec.): 60.51055 Long: 148.97096 ± NAD 83 Recorded on GPS #: 407 Marked on map? X Field Map #: 8
 Subregion (circle one): SE ~~Southeastern~~ Western Aleutian Interior Northern Landform: Flat Slope (%): - Aspect: -
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PEMIC
 Photo nos./descriptions: CS2-3 soil 654 N 1,555 Camera #: - Veg Type (Vioreck Level 4 or other): Grass marsh
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: - If no, explain. HGM type: Flat
 Are Vegetation AL, Soil AL, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No -
 Are Vegetation AL, Soil AL, or Hydrology AL naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>-</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u>-</u> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <u>X</u>	No <u>-</u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u>-</u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:			
Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:			
1. <u>-</u>				5. <u>-</u>				2	(A)		
2. <u>-</u>				6. <u>-</u>				Total Number of Dominant Species Across All Strata:	2 (B)		
3. <u>-</u>				7. <u>-</u>				Percent of Dominant Species That are OBL, FACW, or FAC:	100 (A/B)		
4. <u>-</u>				8. <u>-</u>				Prevalence Index worksheet:			
Total Tree Cover: <u>-</u>								Total % Cover of:			
50% of total cover: <u>-</u> 20% of total cover: <u>-</u>								Multiply by:			
Sapling/Shrub Stratum (woody plants < 3" dbh)								OBL species			
Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.	FACW species			
1. <u>Sail bar</u>	2		FAC	7. <u>-</u>				FAC species			
2. <u>-</u>				8. <u>-</u>				FACU species			
3. <u>-</u>				9. <u>-</u>				UPL + NL species			
4. <u>-</u>				10. <u>-</u>				Column Totals:			
5. <u>-</u>				11. <u>-</u>				70 (A) 136 (B)			
6. <u>-</u>				12. <u>-</u>				Prevalence Index = B/A = 1.94			
Total Sapling/Shrub Cover: <u>-</u> (<5%, so moved to herb)											
50% of total cover: <u>-</u> 20% of total cover: <u>-</u>											
Herb Stratum								Hydrophytic Vegetation Indicators:			
Species	Abs. Cov. %	Dom?	Ind.	Species	Abs. Cov. %	Dom?	Ind.	<u>X</u> Dominance Test is >50%			
1. <u>Equisetum</u>	25	X	OBL	12. <u>-</u>				<u>X</u> Prevalence Index is ≤3.0			
2. <u>Carex</u>	7		OBL	13. <u>-</u>				<u>-</u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
3. <u>Potamogeton</u>	2		OBL	14. <u>-</u>				<u>-</u> Problematic Hydrophytic Vegetation ¹ (Explain)			
4. <u>Carex</u>	30	X	FAC	15. <u>-</u>				¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.			
5. <u>Equisetum</u>	2		FACW	16. <u>-</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No <u>-</u>			
6. <u>Carex</u>	2		OBL	17. <u>-</u>							
7. <u>-</u>				18. <u>-</u>							
8. <u>-</u>				19. <u>-</u>							
9. <u>-</u>				20. <u>-</u>							
10. <u>-</u>				21. <u>-</u>							
11. <u>-</u>				22. <u>-</u>							
Total Herb Cover: <u>70</u> (includes Sail bar)											
50% of total cover: <u>35</u> 20% of total cover: <u>14</u>											
Circular 1/10-ac plot <u>X</u> or other plot dimension: <u>-</u> % of bare ground: <u>-</u>											
% Cover of Wetland Bryophytes <u>-</u> % Total Cover of Bryophytes <u>-</u> % (where applicable)											
Remarks: <u>Standing dead spruce trunks. Open patches not only Equiflora dispersed throughout</u> <u>Sail bar included in herb stratum for 50/20 calculations</u>											

SOIL

Sampling Point #: 47

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α, α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-5	A	5Y3/1		10YR3/4	10	C	RC	sil	-	
5-15	B	10Y4/1		10YR4/4	10	C	RC	sil	-	

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- ☐ Histosol or Histel (A1) (≥ 16 " organic surface, sat'd during wet period of growing season)
☐ Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤ 2)
☐ Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____" in this pit)
☐ Thick Dark Surface (A12)
☐ Alaska Gleyed (A13)
☒ Alaska Redox (A14)
☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- ☐ Alaska Color Change⁴ (TA4)
☐ Alaska Alpine Swales (TA5)
☐ Alaska Redox with 2.5Y Hue
☐ Alaska Gleyed without Hue 5Y or Redder Underlying Layer
☐ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
⁴Give details of color change in Remarks.

Restrictive Layer (if present)

 Type: none
 Depth (inches): _____
Drainage Class: pd

Soil Map Unit Name: _____

Hydric Soil Present?

Yes ☒ No ☐

Comments:

-
-
-

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1) ☐ Surface Soil Cracks (B6)
☐ High Water Table (A2) (w/in 12") ☐ Inundation Visible on Aerial Imagery (B7)
☒ Saturation (A3) (w/in 12") ☐ Sparsely Vegetated Concave Surface (B8)
☒ Water Marks (B1) ☐ Marl Deposits (B15)
☐ Sediment Deposits (B2) ☐ Hydrogen Sulfide Odor (C1) (w/in 12")
☐ Drift Deposits (B3) ☐ Dry-Season Water Table (C2) (w/in 24")
☐ Algal Mat or Crust (B4) ☐ Other (explain)
☐ Iron Deposits (B5)

Secondary Indicators (at least 2 are required)

- ☐ Water-Stained Leaves (B9)
☐ Drainage Patterns (B10)
☒ Oxid'd Rhizospheres on Living Roots (C3) (within 12")
☐ Presence of Reduced Iron (C4) (pos. α, α or soil color change w/in 12")
☐ Salt Deposits (C5)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2)
☐ Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
☐ Microtopographic Relief (D4) (caused by water)
☒ FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes ☐ No ☒ Depth of water (in.) _____
 Water Table Present? Yes ☒ No ☐ Depth to water (in.) 19
 Seeping in at that depth but not yet filled?: 15
 Saturation Present? Yes ☒ No ☐ Depth to sat. (in.) 8
 (includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Water marks on dead trees



Site 47: Soil. Photo taken September 30, 2016



Site 47: Soil. Photo taken September 30, 2016



Site 47: Vegetation. Photo taken September 30, 2016



Site 47: Vegetation. Photo taken September 30, 2016

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: ARRC Portage Reserve Borough/City: NOA Date: 9/30/16
 Applicant/Owner: ARRC Sampling Point #: 49
 Investigator(s): Marc S., Andrew D. Firm: HDR Alaska, Inc.
 Lat. (dec.) 60.81015 Long. 148.97081 ± ' NAD 83 Recorded on GPS #: 407 Marked on map? Y Field Map #: 8
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: flat Slope (%): — Aspect: —
 Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: U
 Photo nos./descriptions: 659-60 N61 5602 Camera #: 407 Veg Type (Viereck Level 4 or other): —
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: — HGM type: —
 Are Vegetation 1 Soil 1 or Hydrology 11 significantly disturbed? Are "Normal Circumstances" present? Yes X No —
 Are Vegetation 1 Soil 1 or Hydrology 11 naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Fireweed meadow

Hydrophytic Vegetation Present?	Yes <u>—</u>	No <u>X</u>	Is the sampled area within a wetland?	Yes <u>—</u>	No <u>X</u>
Hydric Soil Present?	Yes <u>—</u>	No <u>X</u>		Remarks (e.g., marginal?):	
Wetland Hydrology Present?	Yes <u>—</u>	No <u>X</u>			

VEGETATION (Use scientific names.)

Tree Stratum (dbh ≥ 3")

Sp.	Abs.Cov.%	Dom?	Ind.	Species	Abs.Cov.%	Dom?	Ind.
1. <u>—</u>				5. <u>—</u>			
2. <u>—</u>				6. <u>—</u>			
3. <u>—</u>				7. <u>—</u>			
4. <u>—</u>				8. <u>—</u>			
Total Tree Cover: <u>—</u>							
50% of total cover: <u>—</u>				20% of total cover: <u>—</u>			

Sapling/Shrub Stratum (woody plants < 3" dbh)

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. <u>Sum rac</u>	<u>5</u>	<u>X</u>	<u>FACU</u>	7. <u>—</u>			
2. <u>—</u>				8. <u>—</u>			
3. <u>—</u>				9. <u>—</u>			
4. <u>—</u>				10. <u>—</u>			
5. <u>—</u>				11. <u>—</u>			
6. <u>—</u>				12. <u>—</u>			
Total Sapling/Shrub Cover: <u>5</u>							
50% of total cover: <u>2.5</u>				20% of total cover: <u>1</u>			

Herb Stratum

	Cov.%	Dom	Ind.		Cov.%	Dom	Ind.
1. <u>Rub rose</u>	<u>1</u>		<u>FAC</u>	12. <u>—</u>			
2. <u>Epi ang</u>	<u>40</u>	<u>X</u>	<u>FACU</u>	13. <u>—</u>			
3. <u>Ath Fel</u>	<u>15</u>		<u>FAC</u>	14. <u>—</u>			
4. <u>Cal can</u>	<u>50</u>	<u>X</u>	<u>FAC</u>	15. <u>—</u>			
5. <u>Egum ar</u>	<u>5</u>		<u>FAC</u>	16. <u>—</u>			
6. <u>Her lan</u>	<u>5</u>		<u>FACU</u>	17. <u>—</u>			
7. <u>Gal bar</u>	<u>2</u>		<u>FACU</u>	18. <u>—</u>			
8. <u>Poa sp</u>	<u>1</u>			19. <u>—</u>			
9. <u>—</u>				20. <u>—</u>			
10. <u>—</u>				21. <u>—</u>			
11. <u>—</u>				22. <u>—</u>			
Total Herb Cover: <u>119</u>							
50% of total cover: <u>59.5</u>				20% of total cover: <u>23.8</u>			

Circular 1/10-ac plot X or other plot dimension: — % of bare ground: —
 % Cover of Wetland Bryophytes — % Total Cover of Bryophytes — %
 (where applicable)

Remarks:

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across All Strata: 3 (B)
 Percent of Dominant Species That are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>—</u>	X1= <u>—</u>
FACW species <u>—</u>	X2= <u>—</u>
FAC species <u>76</u>	X3= <u>213</u>
FACU species <u>52</u>	X4= <u>208</u>
UPL + NL species <u>—</u>	X5= <u>—</u>
Column Totals: <u>123</u> (A)	<u>421</u> (B)

Prevalence Index = B/A = 3.42

Hydrophytic Vegetation Indicators:

1 Dominance Test is >50%
1 Prevalence Index is ≤3.0
— Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
— Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.

Hydrophytic Vegetation Present?

Yes — No X

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

Depth (in.)	Horizon Name	Soil Matrix		Redox Features				Texture	α, α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-2	O _i									
2-7	A	10YR 3/1						1f sa		
7-20	B	10YR 2/1						f sa		

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, msr from top of mineral layers unless otherwise noted):

Indicators for Problematic Hydric Soils ³ :	
☒ Histosol or Histel (A1) ($\geq 16"$, sat'd during wet period of growing season)	☒ Alaska Color Change ⁴ (TA4)
☒ Histic Epipedon (A2) (8-16", sat'd, underlain by mineral soil with chroma ≤ 2)	☒ Alaska Alpine Swales (TA5)
☒ Hydrogen Sulfide (A4) (w/in 12" of ground surface; @ _____" in this pit)	☒ Alaska Redox with 2.5Y Hue
☒ Thick Dark Surface (A12)	☒ Alaska Gleyed without Hue 5Y or Redder Underlying Layer
☒ Alaska Gleyed (A13)	☒ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)
☒ Alaska Redox (A14)	
☒ Alaska Gleyed Pores (A15)	

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
⁴Give details of color change in Remarks.

Restrictive Layer (if present)

Type: none

Depth (inches) _____

Drainage Class: wd

Soil Map Unit Name: _____

Hydric Soil Present?

Yes ☒No ☒

Comments:

-
-
-

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, msr from soil surface):

Primary Indicators (any one indicator is sufficient)

☒ Surface Water (A1)	☒ Surface Soil Cracks (B6)
☒ High Water Table (A2) (w/in 12")	☒ Inundation Visible on Aerial Imagery (B7)
☒ Saturation (A3) (w/in 12")	☒ Sparsely Vegetated Concave Surface (B8)
☒ Water Marks (B1)	☒ Marl Deposits (B15)
☒ Sediment Deposits (B2)	☒ Hydrogen Sulfide Odor (C1) (w/in 12")
☒ Drift Deposits (B3)	☒ Dry-Season Water Table (C2) (w/in 24")
☒ Algal Mat or Crust (B4)	☒ Other (explain)
☒ Iron Deposits (B5)	

Secondary Indicators (at least 2 are required)

☒ Water-Stained Leaves (B9)
☒ Drainage Patterns (B10)
☒ Oxid'd Rhizospheres on Living Roots (C3) (w/in 12")
☒ Presence of Reduced Iron (C4) (pos. α, α or soil color change w/in 12")
☒ Salt Deposits (C5)
☒ Stunted or Stressed Plants (D1)
☒ Geomorphic Position (D2)
☒ Shallow Aquitard (D3) (w/in 24", can perch H ₂ O w/in 12")
☒ Microtopographic Relief (D4) (caused by water)
☒ FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes _____ No ☒ Depth of water (in.) _____Water Table Present? Yes _____ No ☒ Depth to water (in.) _____

Seeping in at that depth but not yet filled: _____

Saturation Present? Yes _____ No ☒ Depth to sat. (in.) _____

(includes capillary fringe)

Epi Endo Unknown

Wetland Hydrology Present?

Yes _____

No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



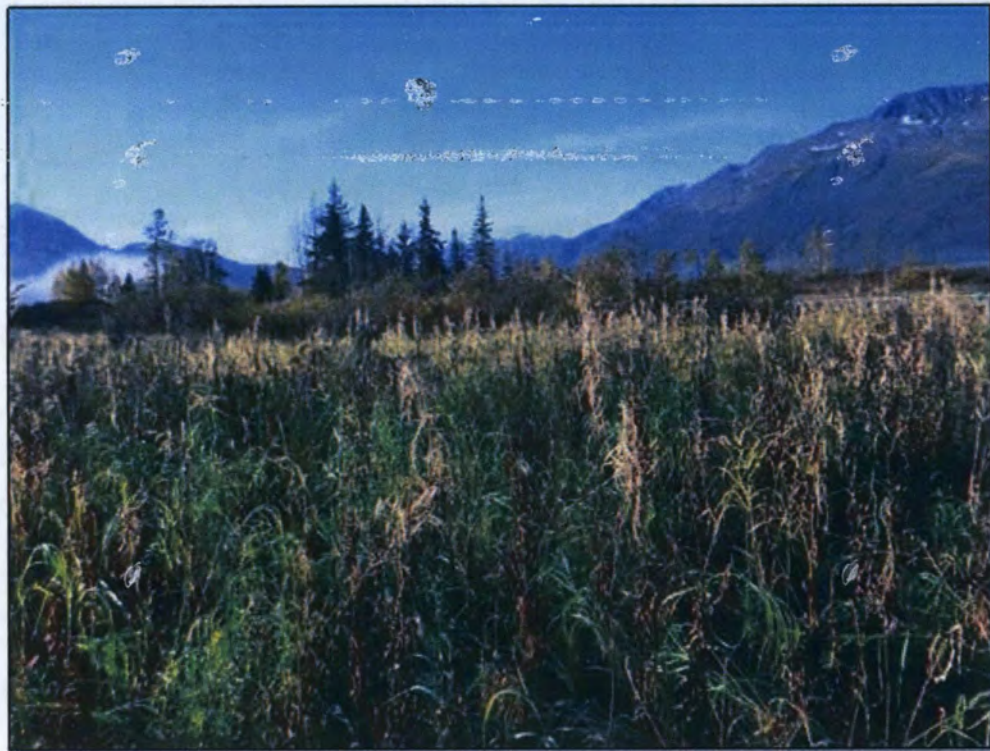
Site 49: Soil. Photo taken September 30, 2016



Site 49: Soil. Photo taken September 30, 2016



Site 49: Vegetation. Photo taken September 30, 2016



Site 49: Vegetation. Photo taken September 30, 2016

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: APRC Portage Reserve Borough/City: NOA Date: 9/30/16
 Applicant/Owner: APRC Sampling Point #: 56
 Investigator(s): Mac S., Andrew D Firm: HDR Alaska, Inc.
 Lat. (dec.) 60.71183 Long. 148.97137 ± ' NAD 83 Recorded on GPS #: 402 Marked on map? Y Field Map #: 7
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: Flat Slope (%): — Aspect: —
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PEM1E
 Photo nos./descriptions: soil 690-1 N82 583 Camera #: — Veg Type (Vioreck Level 4 or other): Sedge Grass Marsh
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: — If no, explain. HGM type: —
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No —
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>—</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u>—</u> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <u>X</u>	No <u>—</u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u>—</u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:	
Species	Cov.%	Dom?	Ind.	Species	Cov.%	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:	
1. <u>—</u>				5. <u>—</u>				3	(A)
2. <u>—</u>				6. <u>—</u>				Total Number of Dominant Species Across All Strata:	3 (B)
3. <u>—</u>				7. <u>—</u>				Percent of Dominant Species That are OBL, FACW, or FAC:	100 (A/B)
4. <u>—</u>				8. <u>—</u>				Prevalence Index worksheet:	
Total Tree Cover: <u>—</u>								Total % Cover of:	Multiply by:
50% of total cover: <u>—</u> 20% of total cover: <u>—</u>								OBL species	108 X1= 108
Sapling/Shrub Stratum (woody plants < 3" dbh)								FACW species	— X2= —
Abs.Cov.%	Dom?	Ind.	Abs.Cov.%	Dom?	Ind.	FAC species	55 X3= 165		
1. <u>—</u>			7. <u>—</u>			FACU species	— X4= —		
2. <u>—</u>			8. <u>—</u>			UPL + NL species	— X5= —		
3. <u>—</u>			9. <u>—</u>			Column Totals:	163 (A) 273 (B)		
4. <u>—</u>			10. <u>—</u>			Prevalence Index = B/A = 1.67			
5. <u>—</u>			11. <u>—</u>			Hydrophytic Vegetation Indicators:			
6. <u>—</u>			12. <u>—</u>			☒ Dominance Test is >50% ☒ Prevalence Index is ≤3.0			
Total Sapling/Shrub Cover: <u>—</u>								☐ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ☐ Problematic Hydrophytic Vegetation ¹ (Explain)	
50% of total cover: <u>—</u> 20% of total cover: <u>—</u>								¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.	
Herb Stratum								Hydrophytic Vegetation Present?	
Abs.Cov.%	Dom?	Ind.	Abs.Cov.%	Dom?	Ind.	Yes <u>X</u> No <u>—</u>			
1. <u>Car. agn</u>	10		OBL	12. <u>—</u>					
2. <u>Cal. coh</u>	50	X	FAC	13. <u>—</u>					
3. <u>Eg. flu</u>	15	X	OBL	14. <u>—</u>					
4. <u>Car. utr</u>	30	X	OBL	15. <u>—</u>					
5. <u>Eg. ary</u>	5		FAC	16. <u>—</u>					
6. <u>Pat. pal</u>	3		OBL	17. <u>—</u>					
7. <u>—</u>				18. <u>—</u>					
8. <u>—</u>				19. <u>—</u>					
9. <u>—</u>				20. <u>—</u>					
10. <u>—</u>				21. <u>—</u>					
11. <u>—</u>				22. <u>—</u>					
Total Herb Cover: <u>163</u>									
50% of total cover: <u>81.5</u> 20% of total cover: <u>32.6</u>									
Circular 1/10-ac plot <u>X</u> or other plot dimension: <u>—</u> % of bare ground: <u>—</u>									
% Cover of Wetland Bryophytes <u>—</u> % Total Cover of Bryophytes <u>25</u> % (where applicable)									
Remarks: <u>Water 20%</u>									

SOIL

Sampling Point #: 56

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α, α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-10	O _i	—	—	—	—	—	—	—	—	—
10-20	B	10Y/4/1	—	—	—	—	—	—	—	—

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

☐ Histosol or Histel (A1) (≥ 16 " organic surface, sat'd during wet period of growing season)☒ Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤ 2)☒ Hydrogen Sulfide (A4) (within 12" of ground surface; @ 10" in this pit)☐ Thick Dark Surface (A12)☐ Alaska Gleyed (A13)☐ Alaska Redox (A14)☐ Alaska Gleyed Pores (A15)Indicators for Problematic Hydric Soils³:☐ Alaska Color Change⁴ (TA4)☐ Alaska Alpine Swales (TA5)☐ Alaska Redox with 2.5Y Hue☐ Alaska Gleyed without Hue 5Y or Redder Underlying Layer☐ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.⁴Give details of color change in Remarks.

Restrictive Layer (if present)

Type:

none

Depth (inches)

Drainage Class:

vpd

Soil Map Unit Name:

Hydric Soil Present?

Yes ☒No ☐

Comments:

1.

2.

3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

☒ Surface Water (A1)☒ High Water Table (A2) (w/in 12")☒ Saturation (A3) (w/in 12")☐ 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) (w/in 12")☐ Dry-Season Water Table (C2) (w/in 24")☐ Other (explain)

Secondary Indicators (at least 2 are required)

☐ Water-Stained Leaves (B9)☐ Drainage Patterns (B10)☐ Oxid'd Rhizospheres on Living Roots (C3) (within 12")☐ Presence of Reduced Iron (C4) (pos. α, α or soil color change w/in 12")☐ Salt Deposits (C5)☐ Stunted or Stressed Plants (D1)☐ Geomorphic Position (D2)☐ Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")☐ Microtopographic Relief (D4) (caused by water)☒ FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present?

Yes ☒No ☐

Depth of water (in.)

2

Water Table Present?

Yes ☒No ☐

Depth to water (in.)

0

Seeping in at that depth but not yet filled?:

Saturation Present?

Yes ☒No ☐

Depth to sat. (in.)

0

(includes capillary fringe)

Epi Endo Unknown

Wetland Hydrology Present?

Yes ☒No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

from inundation.



Site 56: Soil. Photo taken September 30, 2016



Site 56: Soil. Photo taken September 30, 2016



Site 56: Vegetation. Photo taken September 30, 2016



Site 56: Vegetation. Photo taken September 30, 2016

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: APRC Portage Reserve Borough/City: MOA Date: 9/30/16
 Applicant/Owner: _____ Sampling Point #: 59
 Investigator(s): Mac Salway, Andrew Dambert Firm: HDR Alaska, Inc.
 Lat. (dec.): 60.81425 Long. 148.97029 ± ' NAD 83 Recorded on GPS #: 402 Marked on map? X Field Map #: 6
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: gentle slope Slope (%): .5 Aspect: W
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSS1/EM1C
 Photo nos./descriptions: soil 8990 1191 S 92 Camera #: X Veg Type (Vioreck Level 4 or other): Open S-S
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: _____ If no, explain. HGM type: Flat
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	Is the sampled area within a wetland? Yes <u>X</u> No _____ Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <u>X</u>	No _____	
Wetland Hydrology Present?	Yes <u>X</u>	No _____	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3") <table border="1"> <thead> <tr> <th>Species</th> <th>Cov. %</th> <th>Dom?</th> <th>Ind.</th> <th>Species</th> <th>Cov. %</th> <th>Dom?</th> <th>Ind.</th> </tr> </thead> <tbody> <tr><td>1. _____</td><td>_____</td><td>_____</td><td>_____</td><td>5. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>2. _____</td><td>_____</td><td>_____</td><td>_____</td><td>6. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>3. _____</td><td>_____</td><td>_____</td><td>_____</td><td>7. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> <tr><td>4. _____</td><td>_____</td><td>_____</td><td>_____</td><td>8. _____</td><td>_____</td><td>_____</td><td>_____</td></tr> </tbody> </table> Total Tree Cover: _____ 50% of total cover: _____ 20% of total cover: _____								Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.	1. _____	_____	_____	_____	5. _____	_____	_____	_____	2. _____	_____	_____	_____	6. _____	_____	_____	_____	3. _____	_____	_____	_____	7. _____	_____	_____	_____	4. _____	_____	_____	_____	8. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That are OBL, FACW, or FAC: <u>100</u> (A/B)																																	
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Abs. Cov. %	Dom?	Ind.	Abs. Cov. %	Dom?	Ind.																																																																												
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Circular 1/10-ac plot <u>X</u> or other plot dimension: _____ % of bare ground: _____ % Cover of Wetland Bryophytes _____ % Total Cover of Bryophytes _____ % (where applicable)								Hydrophytic Vegetation Present? Yes <u>X</u> No _____																																																																									
Remarks:																																																																																	

SOIL

Sampling Point #: 59

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				a,a dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	
0-4	O _i								
4-13	A	N4/1	90	7.5YR 4/4	10	C	RC, PL	vsal	+
13-20	B	N3/1	95	10YR 4/6	5	C	M	vsal	+

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- ☐ Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
- ☐ Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
- ☐ Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____" in this pit)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☒ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- ☐ Alaska Color Change⁴ (TA4)
- ☐ Alaska Alpine Swales (TA5)
- ☐ Alaska Redox with 2.5Y Hue
- ☐ Alaska Gleyed without Hue 5Y or Redder Underlying Layer
- ☐ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

⁴Give details of color change in Remarks.

Restrictive Layer (if present)

Type: _____

Depth (inches) _____

Drainage Class: pd

Soil Map Unit Name: _____

Hydric Soil Present?

Yes ☒ No _____

Comments:

1. positive as on both H and B layers
- 2.
- 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2) (w/in 12")
- ☒ Saturation (A3) (w/in 12")
- ☐ 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) (w/in 12")
- ☐ Dry-Season Water Table (C2) (w/in 24")
- ☐ Other (explain) _____

Secondary Indicators (at least 2 are required)

- ☐ Water-Stained Leaves (B9)
- ☒ Drainage Patterns (B10)
- ☐ Oxid'd Rhizospheres on Living Roots (C3) (within 12")
- ☐ Presence of Reduced Iron (C4) (pos. αα or soil color change w/in 12")
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3) (w/in 24", can perch H₂O w/in 12")
- ☐ Microtopographic Relief (D4) (caused by water)
- ☒ FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes ☒ No _____ Depth of water (in.) 1

Water Table Present? Yes ☒ No _____ Depth to water (in.) 11

Seeping in at that depth but not yet filled? 8

Saturation Present? Yes ☒ No _____ Depth to sat. (in.) 0

(includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes ☒ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Scattered patches of mudstone



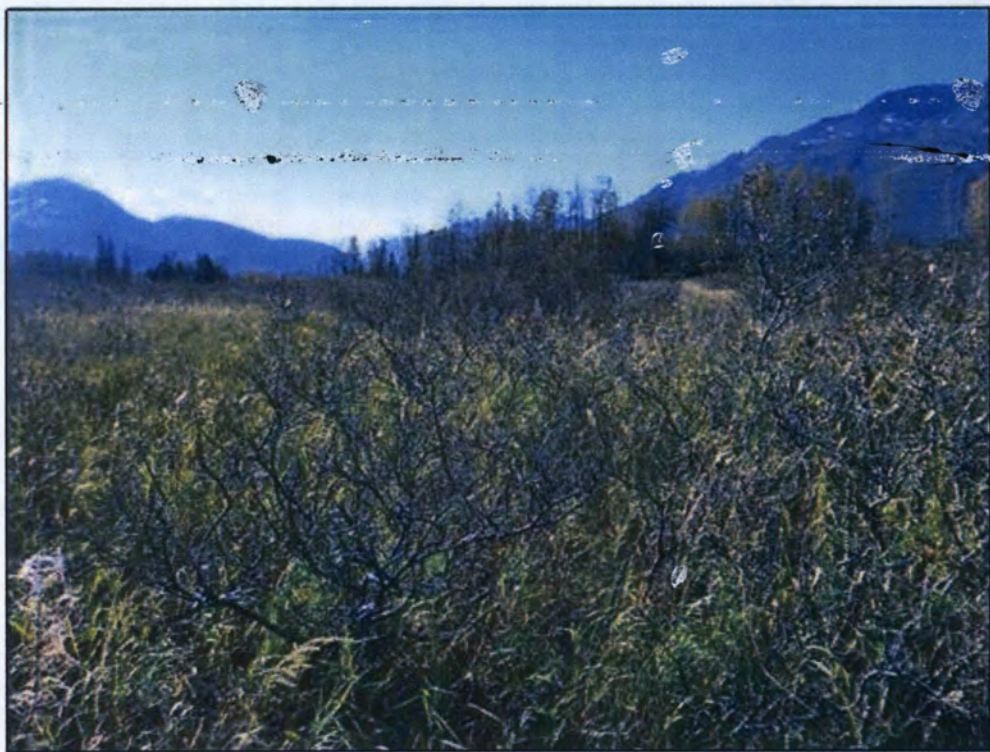
Site 59: Soil. Photo taken September 30, 2016



Site 59: Soil. Photo taken September 30, 2016



Site 59: Vegetation. Photo taken September 30, 2016



Site 59: Vegetation. Photo taken September 30, 2016

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: ARRC Portage Reserve Borough/City: MOA Date: 9/30/16
 Applicant/Owner: ARRC Sampling Point #: 63
 Investigator(s): Mac S., Andrew D. Firm: HDR Alaska, Inc.
 Lat. (dec.): 66.81546 Long. 148.96649 ± 1 NAD 83 Recorded on GPS #: 402 Marked on map? X Field Map #: 7
 Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landform: FT36 Slope (%): — Aspect: —
 Local relief: Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / concave NWI classification: PSS1/FM1C
 Photo nos./descriptions: 5015 7023 114 55 Camera #: — Veg Type (Vioreck Level 4 or other): Open alder / birch
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes: X No: — If no, explain. HGM type: flat
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No —
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? If needed, explain answers here.

SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u>—</u>	Is the sampled area within a wetland? Yes <u>X</u> No <u>—</u> Remarks (e.g., marginal?):
Hydric Soil Present?	Yes <u>X</u>	No <u>—</u>	
Wetland Hydrology Present?	Yes <u>X</u>	No <u>—</u>	

VEGETATION (Use scientific names.) Estimate absolute % cover (not relative cover). % can total >100%. Use 2012 indicator status.

Tree Stratum (dbh ≥ 3")								Dominance Test worksheet:	
Species	Cov. %	Dom?	Ind.	Species	Cov. %	Dom?	Ind.	Number of Dominant Species That are OBL, FACW, or FAC:	
1. <u>—</u>				5. <u>—</u>				<u>2</u>	(A)
2. <u>—</u>				6. <u>—</u>				Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. <u>—</u>				7. <u>—</u>				Percent of Dominant Species That are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. <u>—</u>				8. <u>—</u>				Prevalence Index worksheet:	
Total Tree Cover: <u>—</u>								Total % Cover of:	Multiply by:
50% of total cover: <u>—</u> 20% of total cover: <u>—</u>								OBL species	<u>3</u> X1= <u>3</u>
Sapling/Shrub Stratum (woody plants < 3" dbh)								FACW species	<u>—</u> X2= <u>—</u>
Abs. Cov. % Dom? Ind.								FAC species	<u>128</u> X3= <u>384</u>
1. <u>Aln gl</u>	<u>40</u>	<u>X</u>	<u>FAC</u>	7. <u>—</u>				FACU species	<u>2</u> X4= <u>8</u>
2. <u>Pice glau</u>	<u>2</u>		<u>FACU</u>	8. <u>—</u>				UPL + NL species	<u>—</u> X5= <u>—</u>
3. <u>—</u>				9. <u>—</u>				Column Totals:	<u>133</u> (A) <u>395</u> (B)
4. <u>—</u>				10. <u>—</u>				Prevalence Index = B/A = <u>2.97</u>	
5. <u>—</u>				11. <u>—</u>				Hydrophytic Vegetation Indicators:	
6. <u>—</u>				12. <u>—</u>				<u>X</u> Dominance Test is >50%	
Total Sapling/Shrub Cover: <u>42</u>								<u>X</u> Prevalence Index is ≤3.0	
50% of total cover: <u>21</u> 20% of total cover: <u>8.4</u>								<u>—</u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
Herb Stratum								<u>—</u> Problematic Hydrophytic Vegetation ¹ (Explain)	
Abs. Cov. % Dom? Ind.								¹ Indicators of hydric soil and wetland hydrology must be present unless disturbed or problematic.	
1. <u>Cal can</u>	<u>80</u>	<u>X</u>	<u>FAC</u>	12. <u>—</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No <u>—</u>	
2. <u>Lab arc</u>	<u>5</u>		<u>FAC</u>	13. <u>—</u>					
3. <u>Fan arv</u>	<u>3</u>		<u>FAC</u>	14. <u>—</u>					
4. <u>Lot pal</u>	<u>3</u>		<u>OBL</u>	15. <u>—</u>					
5. <u>Viola sp</u>	<u>1</u>		<u>—</u>	16. <u>—</u>					
6. <u>—</u>				17. <u>—</u>					
7. <u>—</u>				18. <u>—</u>					
8. <u>—</u>				19. <u>—</u>					
9. <u>—</u>				20. <u>—</u>					
10. <u>—</u>				21. <u>—</u>					
11. <u>—</u>				22. <u>—</u>					
Total Herb Cover: <u>92</u>									
50% of total cover: <u>46</u> 20% of total cover: <u>18.4</u>									
Circular 1/10-ac plot <u>X</u> or other plot dimension: <u>—</u> % of bare ground: <u>—</u>									
% Cover of Wetland Bryophytes <u>10</u> % Total Cover of Bryophytes <u>—</u> % (where applicable) <u>Sphagnum</u>									
Remarks:									

SOIL

Sampling Point #: 103

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

Depth (in.)	Horizon (opt.)	Soil Matrix		Redox Features				Texture	α,α dip. (pos/ neg)	Remarks (or use comment number)
		Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-5	0i	—	—	—	—	—	—	—	—	—
5-20	B	10Y4/1	—	—	—	—	—	vf sa	+	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—

¹Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ²Location: PL = Pore Lining, RC = Root Channel, M = Matrix

Hydric Soil Indicators (check ones that apply, measure from top of mineral layers unless otherwise noted):

Standard Indicators:

- ☐ Histosol or Histel (A1) (≥16" organic surface, sat'd during wet period of growing season)
☐ Histic Epipedon (A2) (8-16" organics, sat'd, underlain by mineral soil with chroma ≤2)
☐ Hydrogen Sulfide (A4) (within 12" of ground surface; @ _____ " in this pit)
☐ Thick Dark Surface (A12)
☐ Alaska Gleyed (A13)
☐ Alaska Redox (A14)
☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils³:

- ☐ Alaska Color Change⁴ (TA4)
☐ Alaska Alpine Swales (TA5)
☐ Alaska Redox with 2.5Y Hue
☒ Alaska Gleyed without Hue 5Y or Redder Underlying Layer
☐ Other (e.g., see p.91 of 2007 Supplement; explain in Remarks)

³One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.

⁴Give details of color change in Remarks.

Restrictive Layer (if present)

Type: none

Depth (inches) _____

Drainage Class: po

Soil Map Unit Name: _____

Hydric Soil Present? Yes ☒ No ☐

Comments:

1. pos. soil @ 12"
 2.
 3.

HYDROLOGY

Wetland Hydrology Indicators (check ones that apply, measure from soil surface):

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1) ☐ Surface Soil Cracks (B6)
☒ High Water Table (A2) (w/in 12") ☐ Inundation Visible on Aerial Imagery (B7)
☒ Saturation (A3) (w/in 12") ☐ Sparsely Vegetated Concave Surface (B8)
☐ Water Marks (B1) ☐ Marl Deposits (B15)
☐ Sediment Deposits (B2) ☐ Hydrogen Sulfide Odor (C1) (w/in 12")
☐ Drift Deposits (B3) ☐ Dry-Season Water Table (C2) (w/in 24")
☐ Algal Mat or Crust (B4) ☐ Other (explain)
☐ Iron Deposits (B5)

Secondary Indicators (at least 2 are required)

- ☐ Water-Stained Leaves (B9)
☐ Drainage Patterns (B10)
☐ Oxid'd Rhizospheres on Living Roots (C3) (within 12")
☐ Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12")
☐ Salt Deposits (C5)
☐ Stunted or Stressed Plants (D1)
☐ Geomorphic Position (D2) Valley bottom
☐ Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")
☐ Microtopographic Relief (D4) (caused by water)
☒ FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)

Field Observations (in. from ground surface):

Surface Water Present? Yes ☒ No ☐ Depth of water (in.) 0-1Water Table Present? Yes ☒ No ☐ Depth to water (in.) 8Seeping in at that depth but not yet filled? ☐Saturation Present? Yes ☒ No ☐ Depth to sat. (in.) 0

(includes capillary fringe) Epi Endo Unknown

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



Site 63: Soil. Photo taken September 30, 2016



Site 63: Soil. Photo taken September 30, 2016



Site 63: Vegetation. Photo taken September 30, 2016



Site 63: Vegetation. Photo taken September 30, 2016