Appendix C: Wetland Delineation and Functional Assessment

Jurisdictional Determination Report Knik-Goose Bay Road Reconstruction Project *Wasilla, Alaska*

Prepared for:



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1 Introduction and Purpose

The State of Alaska Department of Transportation and Public Facilities (DOT&PF) is evaluating roadway improvements along a 7.5 mile section of Knik-Goose Bay Road (KGB Road.) and a portion of Fairview Loop Road near its intersection with KGB Road in Wasilla, AK. The project area includes KGB Road between Centaur Avenue to the east and Vine Road to the west. To assist with the corridor evaluation, DOT&PF contracted HDR Alaska, Inc. (HDR) to perform a wetlands delineation and functional assessment. Through field work and mapping efforts, several wetland community types were identified within a single wetland complex. The wetland types include open black spruce scrub, open low alder shrub, and sedge meadow. This report provides a summary of the delineation field work, subsequent mapping, and functional assessment results. Information presented here complies with the U.S. Army Corps of Engineers (USACE) guidance for Jurisdictional Determination Reports, Special Public Notice (SPN) 2010-45. (USACE, 2010)

This report serves two objectives: to identify locations within the corridor that are subject to the jurisdiction of the USACE under authority of Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act of 1899; and to assess the ecological and hydrological functions of those areas for the purpose of assessing project impacts and calculating mitigation requirements. By federal law and associated policy, it is necessary to avoid project impacts to wetlands wherever practicable, minimize impacts that can not be avoidable, and in some cases compensate for unavoidable impacts. Wetlands, waters of the U.S., and uplands (non-wetlands), as referenced in this report, are defined as:

<u>Wetlands:</u> "Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 Code of Federal Regulations [CFR] Part 328.3(b)). Wetlands are a subset of "waters of the U.S." Note that the "wetlands" definition does not include unvegetated areas such as streams and ponds.

As described in the USACE's 1987 Wetlands Delineation Manual and the 2007 Alaska Regional Supplement, wetlands must possess the following three characteristics: (1) a vegetation community dominated by plant species that are typically adapted for life in saturated soils, (2) inundation or saturation of the soil during the growing season, and (3) soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions. (USACE 1987, 2007)

<u>Waters of the U.S.</u>: Waters of the U.S. include other waterbodies regulated by the USACE, including navigable waters, lakes, ponds, and streams, in addition to wetlands.

Uplands: Non-water and non-wetland areas are called uplands.

1.1 Project Area Description

KGB Road extends south from Wasilla to Goose Bay, Alaska. The length of road being evaluated is approximately 7.5 miles from the Centaur Avenue to Vine Road. Wetland mapping was completed for a corridor 500 feet wide extending 250 feet to each side of the road centerline (Figure 1). In addition, a portion of Fairview Loop Road was evaluated near its intersection with KGB Road. The legal description for this section of road is:

Township 17 North, Range 1 West, Sections 10, 15, 16, 17, 19, 20, Seward Meridian

Township 17 North, Range 2 West, Sections 24, 25, 26, 27, Seward Meridian

The corridor contains a mix of developed and undeveloped parcels, within the Cottonwood Creek watershed. In general, the corridor is located either on a terrace or along a ridge positioned above the Cottonwood Creek floodplain. Elevations range from 200 to 400 feet above sea level and the landscape within the corridor is typically flat to undulating. The majority of the undeveloped areas consist of mixed broadleaf forests that are well drained. One wetland was located within the project corridor; situated along the north side of the KGB Road. near Lakewood Drive. This wetland contains several distinct vegetation communities, hydric soils, and evidence of wetland hydrology.

2 Methods

Prior to conducting the field work, high resolution, true color, orthorectified aerial photography was reviewed in the office to locate potential wetlands and water bodies for field truthing. Two sets of photography were reviewed: Google Earth Imagery (2011 DigitalGlobe, GeoEye) and imagery provided by DOT&PF (Kodiak Mapping, Inc, 2010). The Google Earth imagery was captured in early spring before leaf-out, when runoff from snow melt was present in many roadside ditches and on flat gravel clearings. DOT&PF's imagery was captured on May 3rd, 2010, soon after leaf-out and significantly fewer areas had visible surface water. Sites with potential standing water, saturation tolerant vegetation, or dark soils (indicating surface saturation), as identified in either image, were marked with points in a Geographic Information System (GIS) for field truthing. Field maps were created in GIS and included these waypoints, DOT&PF's imagery, and two foot contour.

The field work was performed July 21, 2011, by Christopher Wrobel and George Hoden, environmental scientists at HDR. The field work occurred during the middle of the growing season for the Cook Inlet ecoregion of Alaska (USACE 2007). Data plots were studied using the methods described in the 1987 USACE Wetland Delineation Manual and the 2007 Alaska Regional Supplement (USACE 1987, 2007). Additionally a Wetland Assessment Data Form for the DOT&PFs Alaska Wetland Assessment Method (AKWAM) was completed as part of a wetland functional assessment.

Data were collected using two types of sample plots: wetland determination plots and photo points. Wetland determination plots included data forms from the 2007 Alaska Regional Supplement. Photo points included photographs of the soils and vegetation, plus field notes on the presence or absence of wetland indicators. Photo points were collected after vegetation, soil, and hydrology parameters were well documented by representative wetland determination plots.

Six wetland determination data forms were completed and seven additional photo points were recorded. In total, 13 locations were visited (Figure 1). Wetland determination data forms and photographs from each site are included in Appendix A. Coordinates of each location were recorded with a handheld global positioning system (GPS). Additional notes for mapping, such as wetland/upland boundaries and National Wetlands Inventory (NWI) coding were also recorded in the field.

One wetland area was observed within the project corridor. It contained several distinct vegetation communities and separate wetland data plots were collected at each community type. Along the eastern edge of the wetland, the wetland/upland boundary was unclear and paired plots were collected to delineate the boundary. The paired plot method involved collecting data at adjacent wetland and upland sites and observing the transition in the soils, plant species composition, and surface hydrology. The approximate wetland/upland boundary was drawn on the field map by correlating the on-site observations with the field map's contour data and aerial photography.

After the field work was complete, the remaining wetland/upland boundaries were drawn in GIS by interpreting the field data, aerial imagery, contour line data and reviewing reference mapping. Wetland mapping for the corridor was available from the U.S. Fish and Wildlife Services NWI mapping (USFWS 2011) and from the Matanuska-Susitna Borough (MSB) Wetland Mapping (Gracz 2011); both were reviewed for this project. Soil survey maps were also downloaded from the Natural Resource Conservation Service (NRCS) website and used to identify possible wetlands in the corridor. Wetland types were classified using NWI codes (Cowardin et. al 1979, USFWS 1995). Scientists also reviewed available MSB streams and waterbody mapping in GIS; none were identified within the project corridor.

3 Results

Wetlands were identified at field sites where the investigators observed indicators of hydrophytic vegetation, wetland hydrology, and hydric soils, and where similar characteristics were seen on the aerial photography. Table 1 lists each plot, the presence or absence of wetland indicators, and the NWI code. Note that all three wetland parameters (hydrophytic vegetation, hydric soils, and wetland hydrology) must all be present for a site to be considered a wetland. If any of these three requirements are not met, the site normally does not meet the USACE's criteria for being classified as a wetland, and therefore would not be subject to Section 404 regulations.

Table 1 Summary of Wetland Determination Field Plots.							
Data Plot	Plot Type	Wetland Determination	Hydrophytic Vegetation	Hydric Soils	Wetland Hydrology	NWI Code	
101	Data Form	Upland	Ν	N	Ν	U	
102	Photo Point	Upland	Ν	N	Ν	U	
103	Photo Point	Upland/Fill	Ν	N	Ν	U	
104	Photo Point	Upland	Ν	N	Ν	U	
105	Data Form	Upland	Ν	N	Ν	U	
106	Photo Point	Upland/Fill	Ν	N	Y	U	
107	Data Form	Upland	Y	N	Y	U	
108	Data Form	Wetland	Y	Y	Y	PSS1/EM1C	
109	Data Form	Wetland	Y	Y	Y	PEM1C	
110	Data Form	Wetland	Y	Y	Y	PSS4/1B	
111	Photo Point	Wetland	Y	Y	Y	PEM1/2C	
112	Photo Point	Upland/Fill	N	N	Ν	U	
113	Photo Point	Upland/Fill	Y	N/A (water body)	Y	PEM1/UBx	

Key: Y = Yes, N= No, N/A = Not applicable

3.1 Vegetation

The corridor was dominated by upland mixed forest and development. One wetland complex containing several hydrophytic vegetation communities was observed just west of Lakewood Drive. The majority of this wetland contained open black spruce scrub. An open alder low shrub community was observed near the eastern edge of the wetland and sedge dominated meadows were intermixed in small openings. The vegetation within the wetland showed moderate disturbance. Standing dead paper birch (*Betula paperifera*) and black spruce (*Picea mariana*) trees were common and a pipeline/power line corridor was present near the wetland's eastern boundary.



Inset 1. Typical open black spruce scrub community.

Of the six plots where wetland determination data forms were completed, four had hydrophytic vegetation (Table 1). Brief descriptions of each hydrophytic community type are provided below, followed by a general description of the surrounding upland vegetation.

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The most common hydrophytic community was open black spruce scrub (Inset 1); represented by field plot 110. Common plants included black spruce, (*Picea mariana*) dwarf birch (*Betula glandulosa*), Labrador tea (*Ledum groenlandicum*), leatherleaf (*Chamaedaphne calyculata*), cloudberry (*Rubus chamaemorus*) and russet's cotton-grass (*Eriophorum russeolum*). Standing dead black spruce trees were common throughout this community; their cover value was estimated at 20% within the data plot and they were common in surrounding areas as well. Open black spruce scrub is identified on the attached field forms (Appendix A) and map (Figure 2) by the NWI code PSS4/1B (palustrine, mixed needle leaved evergreen and broad leaved deciduous scrub-shrub, saturated wetland).

An open low alder shrub community was the second most abundant hydrophytic vegetation type observed (Inset 2). Common plants included Sitka alder (*Alnus sinuata*), paper birch saplings, blue-joint reedgrass (*Calamagrostis canadensis*), and marsh cinquefoil (*Potentilla palustris*). This community contained an abundance of standing dead paper birch trees, with no live trees present. This community was documented by field plot 108 and coded on the attached map as a PSS1/EM1C wetland (palustrine, mixed scrub-shrub and persistent emergent, seasonally flooded wetland).

Sedge meadow communities were dispersed throughout the wetland (Inset 3). Common plants included leatherleaf, russet's cotton-grass, hoary sedge (*Carex canescens*), and boreal bog sedge (*Carex magellanica*). Disturbance from a pipeline/powerline corridor forms the east and west boundaries of the largest sedge meadow within the wetland. Sedge meadows were documented by one wetland determination field plot (109) and one photo point (111). The species composition of both plots was similar with one general difference: water horsetail (*Equisetum fluviatile*) was more abundant at plot 111. The plots were coded PEM1C and PEM1/2C,



Inset 2. Typical open alder low shrub community with emergent vegetation in the foreground.



Inset 3. Typical sedge meadow community.

respectively (palustrine, persistent emergent, seasonally flooded wetland; and palustrine, mixed persistent/non-persistent emergent, seasonally flooded wetland).

Two non-hydrophytic communities were documented with data plots in the project corridor: mixed paper birch and white spruce forest, and closed willow tall shrub. Both types were prevalent through the corridor and are represented by wetland determination plots 101, 105, and 107. Common plants

included paper birch, white spruce (*Picea glauca*), bebb willow (*Salix bebbiana*), high-bush cranberry (*Viburnum edule*), prickly rose (*Rosa acicularis*), woodland horsetail (*Equisetum silvaticum*), field horsetail (*Equisetum arvense*), oak fern (*Gymnocarpium dryopteris*), blue-joint reedgrass, and fireweed (*Epilobium angustifolium*). These non-hydrophytic communities were determined to be uplands, and were given the NWI code U.

Developed, partially vegetated, and unvegetated sites were documented at photo points 103, 104, 106, and 112. When vegetation was present (not cleared), it was non-hydrophytic and included a mix of

cottonwood saplings (*Populus balsamifera*), Scouler willow (*Salix scouleriana*), blue-joint reedgrass, and common roadside weeds. The attached mapping includes these areas with surrounding uplands

3.2 Soils

NRCS soils mapping was available for the area showing the locations of hydric and non-hydric soil map units. Non-hydric soils dominate the corridor and were represented by Knik Silt Loam, Kalambach Silt Loam, and Deception Silt Loam. Two hydric map soil map units occur in one area, in the same approximate areas as the wetland described above. The hydric soil map units are Cryaquepts, depressional, 0 to 7 percent slopes; and Histosols (NRCS 2011).

As suggested by the NRCS mapping, hydric soils were not found to be widespread during the field work. Five data plots had hydric soils and these were located within the same wetland complex (plots 107-111). A typical hydric soil profile included an 8-20+ inch thick organic horizon with 4-10 inches of fibric material followed by 2-14 inches of hemic material (Inset 4). Mineral soil, a silt loam, was observed below the organic layers. Seasonal frost was also observed, between 12-20 inches below the ground surface. Hydric soil indicators included the presence of Histic Epipedon (A2) and Histosol (A1) conditions. The histic epipedon at plot 108 was only 8 inches deep, the minimum required for this indicator. The underlying silt loam was tested for reducing conditions with alphaalpha dipyridyl; a positive reaction was observed, providing additional support for a hydric soil parameter at this data plot. Non-hydric soils were widespread throughout the remainder of the project corridor and are represented by 8 of the 13 data plots.



Inset 4. Typical hydric soil with thick organic horizon.



Inset 5. Test pit of a moderately well drained non-hydric soil.

Two typical non-hydric soil profiles were observed. Well drained sites showed evidence of spodic soil development and included a thin organic surface horizon, followed by A, E, Bhs, Bs, and Bw layers. Moderately well drained soils contained a thin organic layer, followed by Bw layers (Inset 5). Soil textures for both types were silt loam and dominant hues matched the 10YR page from the Munsell Soil Color Chart (Munsell 2009). Photographs showing soil conditions for each sampled site are included in Appendix A.

3.3 Hydrology

Precipitation data for the three-month period prior to the field investigation was reviewed to determine the degree to which any recent climatic events (i.e., abnormal wet or dry conditions) may have influenced field hydrology. The nearest available climate data was available from Anchorage (http://weather.gov/climate). Precipitation trends from Anchorage were assumed to be similar to the project area. The average precipitation totals over the three month period preceding the field visit were compared to normal totals from 1961 to 1990, using the NRCS Engineering Field Handbook method (NRCS 1997). This method weights the data by both the amount of precipitation and the relative age of a rainfall event. The values used for this comparison are shown in Table 2.

Table 2 Long Term Precipitation Analysis								
Month	3 yrs in 10 less than	3 yrs in 10 more than	Rain fall (actual)	Condition	Condition value	Month Weight Value	Sum Product (Condition x Weight)	
July	1.09	2.06	2.08	Wet	3	3	9	
June	0.66	1.38	1.19	Normal	2	2	4	
May	0.4	0.9	0.35	Dry	1	1	1	
Sum	1	1	1	1	1	1	14	

Conclusion: Antecedent precipitation was normal

Using the NRCS method, it was determined that precipitation for the three months prior to the fieldwork was normal (Sum equals 14, where a value of 11 - 14 is normal). Conditions observed in the field data correlate with this analysis; hydrology observations were well supported by landscape position, hydrophytic vegetation, and hydric soils.

Evidence of wetland hydrology was observed at four plots where wetland determination forms were completed and at three additional photo points. The most common primary indicators were High Water Table (A2), Saturation (A3) and Dry-Season Water Table (C2). The most common secondary indicators were Stunted or Stressed Plants (D1), Geomorphic Position (D2) and FAC Neutral Test (D5).

One photo point, plot 106, had positive wetland hydrology from surface inundation but lacked positive vegetation or soil parameters. Several inches of water were perched on top of a compacted gravel parking lot. This area was determined to be an upland site.

Wetland determination plot 107 had wetland hydrology from two secondary indicators (Oxidized rhizospheres on living roots, C3, and D2) and hydrophytic vegetation, but it and lacked hydric soils. This plot was located on a toeslope above the wetland complex and was determined to be an upland site, although influenced by transitional hydrology.

Six data plots lacked wetland hydrology indicators. These plots were located throughout the corridor in flat or convex areas that were photo-interpreted to have potential wetland hydrology based on the Google Earth Imagery. During the field work, these sites were found to be well drained; often lacking any hydrophytic plants or hydric soil indicators. The surface inundation seen in the Google Earth Imagery was likely due to snowmelt temporarily perched above frozen ground.

4 Mapping Results

Figure 2 and Figure 3 provide wetland/upland boundaries within the project area. The figures also show where wetland determination data forms and photo points were completed. Table 3 summarizes the acreage of wetlands and uplands within the project area by NWI classification.

The project corridor encompasses approximately 604 acres with over 98% of the area mapped as uplands. Potentially jurisdictional wetlands comprise approximately 8 acres of scrub-shrub and emergent types. No water bodies or streams were identified on the project corridor.

The wetland mapping from the MSB (Gracz 2011) coded this wetland as "forested depression with shrubby areas." This is different from HDR's findings; trees were present but the abundance of live trees was too low to classify the wetland types as forested (standing dead trees were not included in the NWI classification criteria). Available NWI mapping was similar to HDR's although it classified the wetland as one NWI type, PSS1/4B. Site specific data collected for the project supports classifying the wetland as three different NWI types. Also, the wetland's eastern boundary extends further in this report than on the NWI mapping.

	Table 3 Mapping Summary								
Mapping Codes Description									
PSS4/1B	Saturated freshwater wetland with needle leaved evergreen scrub and broad leaved deciduous shrubs	5.06							
PSS1/EM1C	Seasonally flooded freshwater wetland with broad leaved deciduous shrubs and persistent emergent vegetation	1.28							
PEM1C	Seasonally flooded freshwater emergent wetland with persistent emergent vegetation	1.00							
PEM1/2C	Seasonally flooded freshwater emergent wetland with persistent and non- persistent vegetation	0.72							
	Total Wetland Area	8.06							
U	Upland	595.72							
PEM1/UBx	Stormwater run-off pond draining uplands (recommend non- jurisdictional)	0.36							
	Total Mapped Area	604.14							

5 Jurisdictional Status

The wetland area described within this report appears to be connected by subsurface hydrology to adjacent wetlands to the north and Cottonwood Creek, which is located less than 1,000 feet to the south. Cottonwood Creek is a tributary to Knik Arm, a navigable water (USACE 1995); because the wetland extends beyond the project corridor, scientists did not walk the entire wetland/upland border to look for surface water connections. However, due to the wetland's elevation above Cottonwood Creek, and probable groundwater connections, this wetland is assumed to be jurisdictional; subject to confirmation by the USACE.

A storm water collection pond is located near the corner of KGB Road and the Palmer-Wasilla Highway. It is shown on Figure 3 with the NWI code PEM1/UBx. The pond drains uplands, not wetlands, and by USACE definition, would be non-jurisdictional.

6 Wetland Functional Assessment

A functional assessment of the mapped wetland was performed using DOT&PF's Alaska Wetland Assessment Method (AKWAM). AKWAM assesses ten wetland functions and provides a quantitative method to evaluate their level of performance. Each function receives a rating from Low to High, and a score between 0 and 1, based on a combination of field observations and office based analysis. The scores, along with other indicators, are then used to rate the wetland in a Category from 1 to 4, where Category 1 wetlands rate the highest. Category ratings can be used to evaluate project alternatives and to determine compensatory mitigation ratios. The wetland identified in this report was evaluated as a single assessment area. The functional assessment data form is included in Appendix A. Table 4 summarizes the scores for each of the wetland functions and provides the Category rating for the wetland.

This wetland was found to perform seven out of 10 functions. One function was rated 'high', two functions were rated 'moderate', four functions were rated 'low', and three functions were not performed. The highest rated function was Sediment/Nutrient/Toxicant Retention and Removal. In order to obtain a high rating for this function, a wetland must receive deleterious materials such as sediments, excess nutrients, or toxicants and it must also have the ability to retain and treat those contaminants. The wetland evaluated in this report met those requirements due to the following conditions. It is located near development; road runoff, pet waste, and dust are potential sources of contaminants; and it had the requisite vegetation density and hydrology to perform a relatively high amount of on-site treatment.

The functions rated at a moderate level include: Water Storage and Groundwater Recharge. The functions rated at a low level include: Habitat for Federally Listed/Candidate T&E Species or Other Species of Concern, General Wildlife Support (due to the amount of surrounding development), Production Export/Food Chain Support, and Uniqueness.

The following functions were not performed by this wetland and they did not receive a score. General Fish Support was not evident as there were no fish bearing water bodies within the assessment area, and therefore no fish habitat. Sediment/Shoreline Stabilization was performed as the assessment area does not occur on the banks of a water body and there was no flowing water observed in the wetland. Recreation/Education Potential was not applicable because there was no evidence that the wetland is currently, or planned for, these uses.

In addition to above ratings, each function was assigned Actual Functional Points. The wetland received a score of 2.8 total Functional Points out of 7 Possible Functional Points. The Percent of the Possible Score (Functional Points divided by Possible Functional Points) was 40%.

To determine the Category for the wetland, the percentage value is considered along with other criteria. For example, high ratings for Threatened or Endangered Species or Other Species of Concern, General Fish Support, or Uniqueness can increase the Category for the wetland. This wetland did not meet any of the criteria and the Category ranking was determined based on the percentage value.

The overall rating for the wetland is Category 3, a moderate to low functioning wetland. Category 3 wetlands have a Percent of Possible Score between 35 and 49% (this wetland scored 40%) and they do not meet any criteria of a Category 1 or 2 wetland. This wetland received a lower rating than Category 1 or 2 wetlands because of the absence of any streams or other water bodies, disturbance within the wetland, adjacent development, an abundance of similar wetlands within watershed, and moderate to low wildlife and habitat values. While the wetland performs important ecological functions within the Cottonweed Creek watershed, these factors limit the wetland from performing those functions at a higher level.

	Table 4 Summary of Wetland Assessment Ratings and Points						
	Functions and Services	Rating	Actual Functional Points	Possible Functional Points			
Α.	Habitat for Federally Listed/Candidate T&E Species or Other Species of Concern	L	0	1.0			
В.	General Wildlife Support	L	0.3	1.0			
C.	General Fish Support	N/A	N/A	N/A			
D.	Water Storage	М	0.7	1.0			
E.	Sediment/Nutrient/Toxicant Removal	Н	1.0	1.0			
F.	Sediment/Shoreline Stabilization	N/A	N/A	N/A			
G.	Production Export/Food Chain Support	L	0.3	1.0			
Н.	Groundwater Discharge/Recharge	М	0.4	1.0			
١.	Uniqueness	L	0.1	1.0			
J.	Recreation/Education Potential (bonus pts.)	N/A	N/A	N/A			
	Totals:		2.8	7			
	Percentage of Possible Score:		40%	•			
	Category*		3				

Ratings: L=Low, M= Moderate, H=High

*Category is reported on a scale of 1 to 4 where Category 1 wetlands have the highest value.

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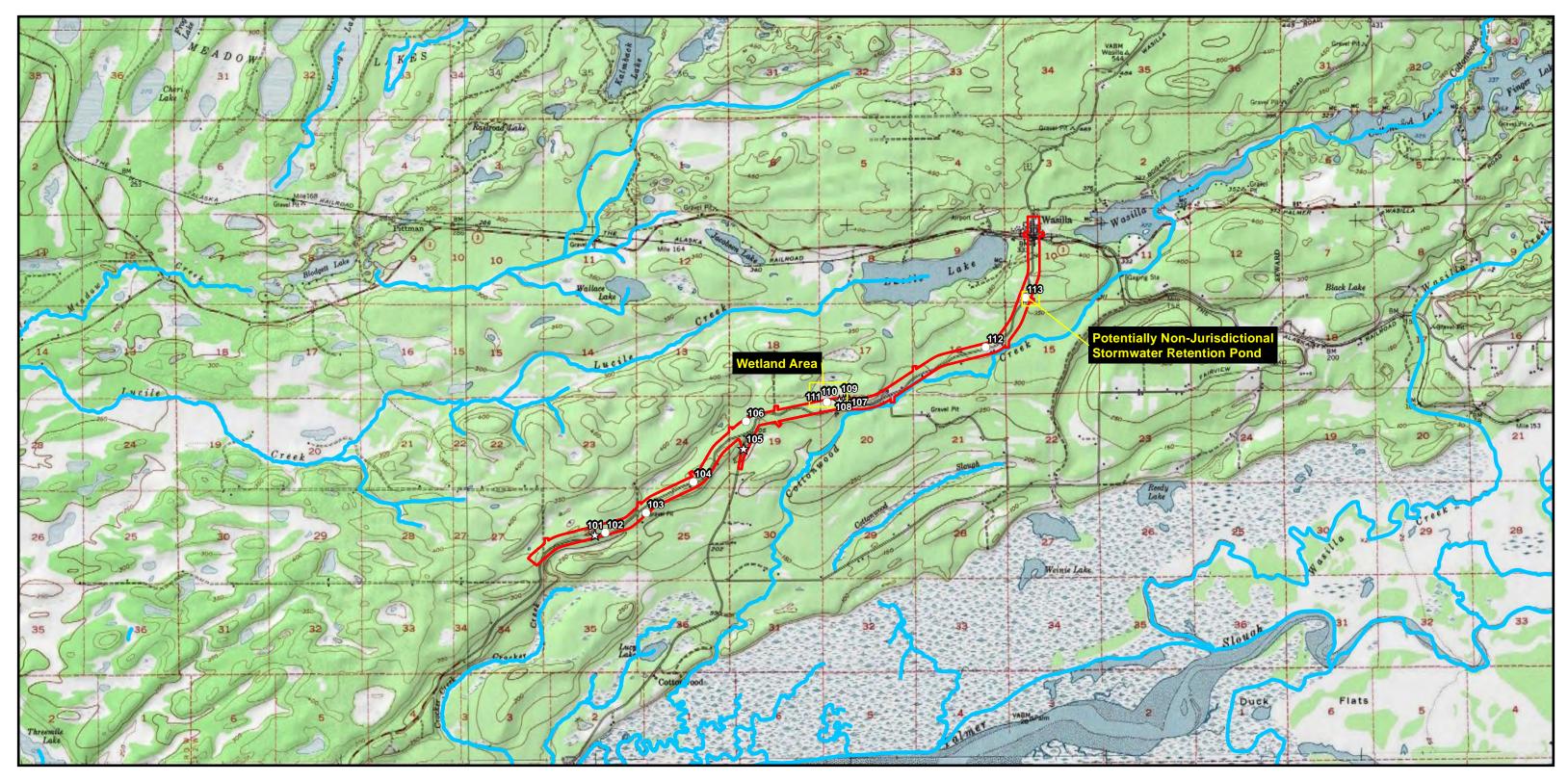
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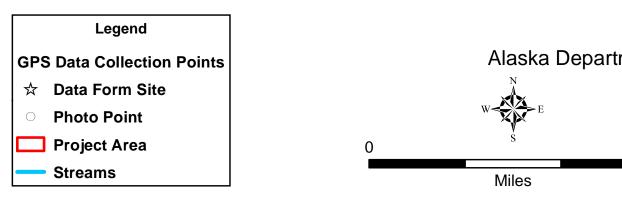
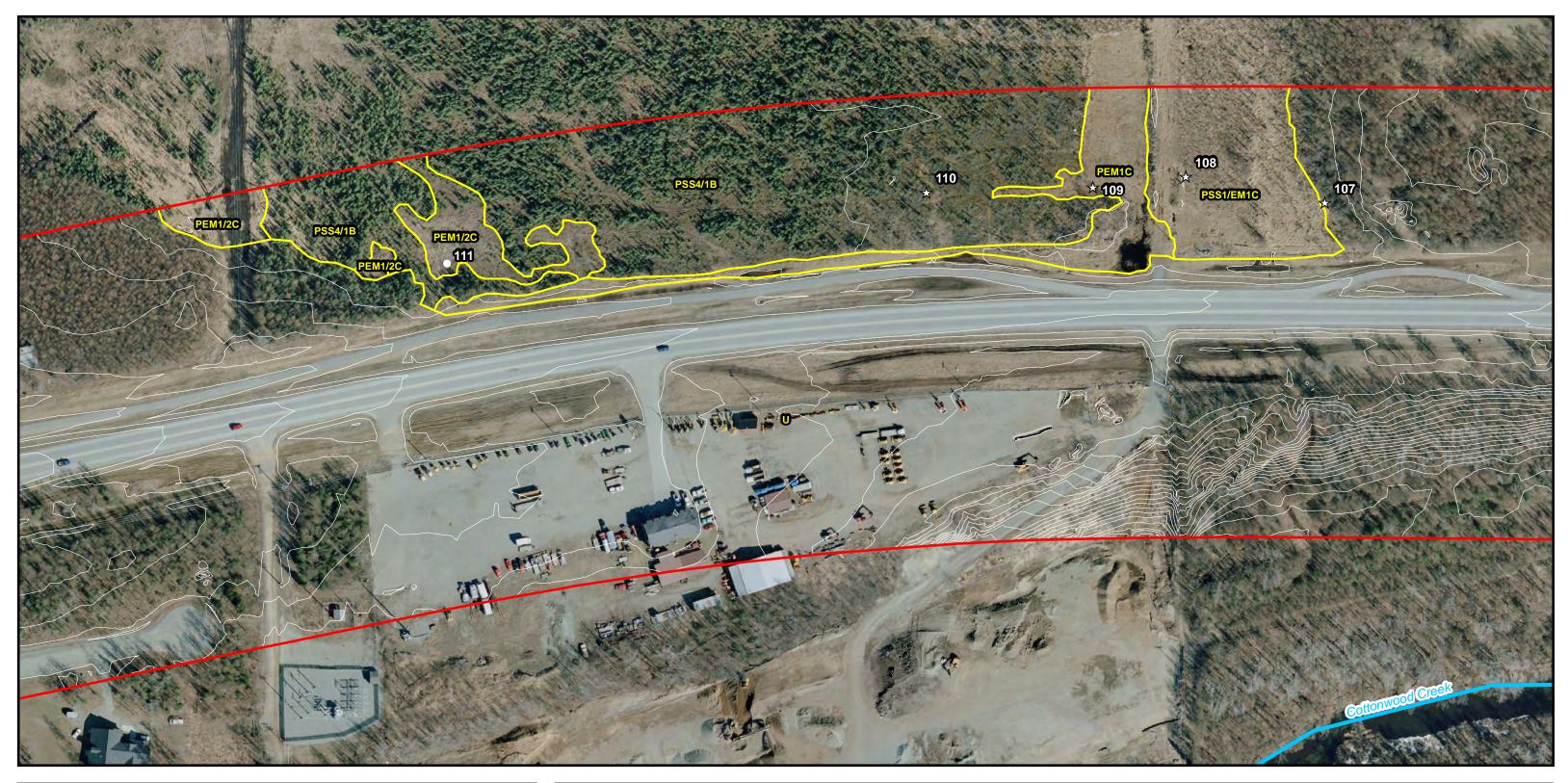


Figure 1: OverviewKnik-Goose Bay Road ReconstructionAlaska Department of Transportation and Public FacilitiesMathematical StructureMathematical Structure





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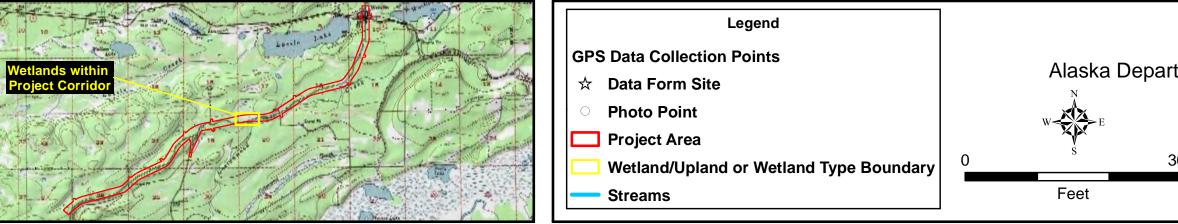
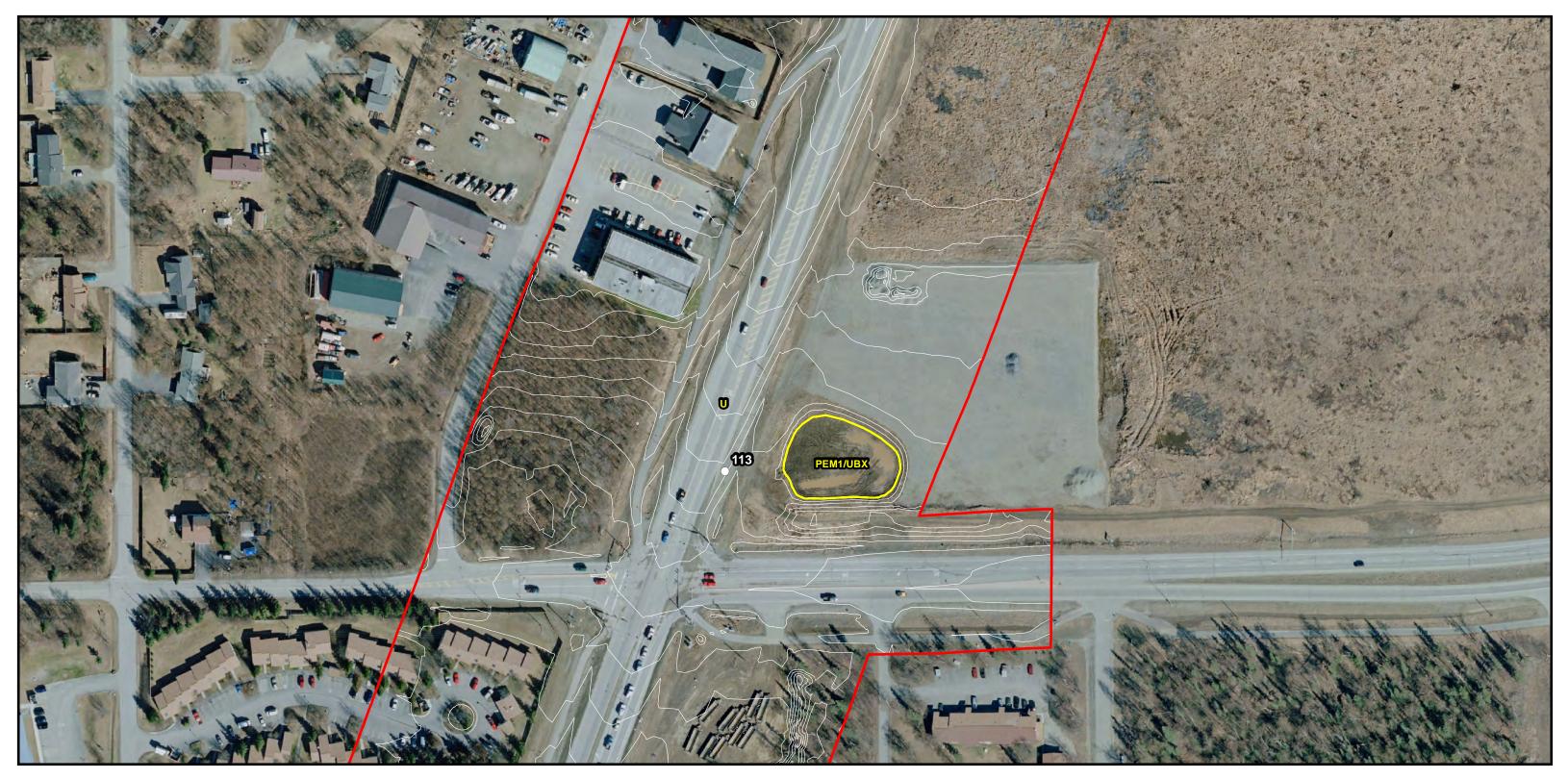


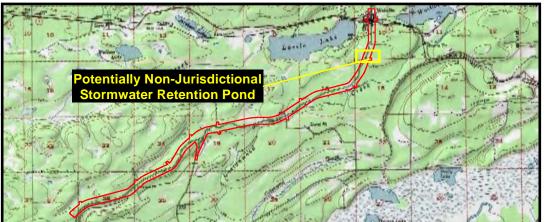
Figure 2: Wetland DelineationKnik-Goose Bay Road ReconstructionAlaska Department of Transportation and Public FacilitiesMathematical StructureJurisdictional Determination Report



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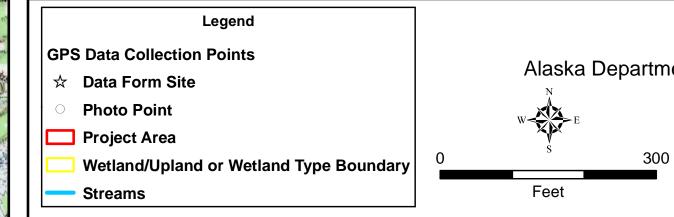


Figure 3: Stormwater Retention PondKnik-Goose Bay Road ReconstructionAlaska Department of Transportation and Public FacilitiesMathematical StructureJurisdictional Determination Report





Appendix A

Field Collected Data

Jurisdictional Determination Forms and Site Photographs

WETLAND DETERMINATION DATA FORM – Alaska Region

Applicant/Owner: ARTON AFF Investigator(s): CW, GH	Sampling Point #: HDR Alaska, Inc.
Lat. (dec.°) N GI+53461 Long. W 149 58562 ± ' NAD 83 Recorded	Contraction of the second se
Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Land	
Shape across slope: linear / convex / concave) Shape up/downslope: linear / convex / co	
Photo nos./descriptions: <u>S16 (S012</u> , S17 L 18 (VEG) Camera #:	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No:	
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Cir-	
Are Vegetation, Soil, or Hydrology aguineanly addapted? If needed, explai	
SUMMARY OF FINDINGS	in bilawers nere.
Hydrophytic Vegetation Present? Yes No /	1
Is the sampled a	
Wetland Hydrology Present? Yes No V	Remarks (e.g., marginal?):
VEGETATION (Use scientific names.)	Dominance Test worksheet:
Tree Stratum (dbh≥ 3")	Dominance Test worksneet.
Sp. Abs.Cov.% Dom? Ind. Species Abs.Cov.% Dom? Ind.	Number of Dominant Species
1. BET PAP 75 V FACU 5	That are OBL, FACW, or FAC:
2. PIC GLU I FACU 6.	Total Number of Dominant 5
3 7	Species Across All Strata:
4 0 0	Percent of Dominant Species
	That are OBL, FACW, or FAC:
50% of total cover: <u>36</u> 20% of total cover: <u>15.2</u>	Prevalence Index worksheet:
Sapling/Shrub Stratum (woody plants < 3" dbh)	Total % Cover of: Multiply b
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? Ind.	OBL species X1=
1. VIB EDU 35 V FACU 7. PIC GLA T_ fool	
2. ROS ASI 5 Faell 8. SFT PAP 3 Fael 3. RIBTRI 8 FAC 9. VAC VIT 3 FAE	FAC species X3=8
3. RIBTRI 8 FAC 9. VAC VIT 3 HAC 4. RUB IDDAW 1 FAC 10.	FACU species X4= K4=
95. POP BAL T Fack 11.	UPL + NL species X5= 5
6. SAL SCO T Fac 12	Column Totals: 177 (A) 693
Total Sapling/Shrub Cover: 55	
	Prevalence Index = $B/A = 3.92$
	Prevalence Index = B/A =
Herb Stratum Abs.Cov.% Dom? Ind. Abs. Cov.% Dom? Ind.	
Abs. Cov. & Dom? Ind. Abs. Cov. & Dom? Ind. 1. EPI ANG 10 X Full 12. PVR ASA 1 Fac	
2 CAL CAN 5 Fac 13. EQU ARV 5 Facell	Hydrophytic Vegetation Indicators:
3. EQUISIL B X Fach (MONNENTOCIS T	Dominance Test is>50% N
4.11TH FOIL 1 Fac 15.	Prevalence Index is ≤3.0 N
5GYN DRY 12 X FacU6.	Morphological Adaptations ¹ (Provide supp
6. DKY DIL FacU17	data in Remarks or on a separate sheet)
7. COR CAN 5 FacU18	Problematic Hydrophytic Vegetation ¹ (Exp
8.7RI EUR 2 Fac 19	
9. Poly Acu T 20	
10/111 BOR 1 UPL 21	¹ Indicators of hydric soil and wetland hydrology r be present unless disturbed or problematic.
11. MOR LAT T22	se present antess distarbed of problematic.
Total Heib Cover: <u>5)</u>	
50% of total cover: <u>25.5</u> 20% of total cover: <u>10.2</u>	Hydrophytic
Circular 1/10-ac plot 🗹 or other plot dimension: % of bare ground:	Vegetation Yes No <u>No</u> Present?
% Cover of Wetland Bryophytes% Total Cover of Bryophytes%	

IL rofile Description: (Describe to the depth needed to document the indicator or i	Sampling Point #: 0
epth Horizon <u>Soil Matrix</u> Redox Feature	
	pe ¹ Loc ² Texture (pos/ Remarks (or use comment number)
2 <u>0e</u>	
-4 A 104R2/2 100	Sit ROOTS PRESENT
-6 E 104R4/1 100	
-7 BS 10YR 4/4 100	
-20 BW 104ES/4 100	<u></u>
ype: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand	
dric Soil Indicators (check ones that apply, msr from top of mineral layers u Indicators for Problema	
W Histopol or Histel (A1) (>16"organic surface	³ One indicates of body of the
sat'd during wet period of growing season)	one primary indicator of wetland
<u>M</u> Histic Epipedon (A2)(8-16" organics, sat'd, underlain by mineral soil with chroma ≤2) <u>M</u> Alaska Alpine Swale	s (TA5) hydrology, and an appropriate landscape position must be present unless disturbe
Hydrogen Sulfide (A4) (w/in 12"of ground	or problematic.
surface; @ " in this pit Alaska Redox with ;	
Thick Dark Surface (A12) Alaska Gleyed with Underlying Layer	ut Hue 5Y or Redder
Alaska Gleyed (A13)	of 2007
Alaska Redox (A14)	
Alaska Gleyed Pores (A15)	
estrictive Layer (if present) Drainage Class: WE	L I
	RAINED Hydric Soil Present? Yes No
Depth (inches) N [A	
DROLOGY etland Hydrology Indicators (check ones that apply, msr from soil surface): mary Indicators (any one indicator is sufficient) Surface Water (A1)	Δ Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12") Δ Salt Deposits (C5) Δ Stunted or Stressed Plants (D1)
d Observations (in. from ground surface):	
rface Water Present? Yes No Depth of water (in.)	-
rface Water Present? Yes No Depth of water (in.) ater Table Present? Yes No Depth to water (in.)	
rface Water Present? Yes No Depth of water (in.) ater Table Present? Yes No Depth to water (in.) Seeping in at that depth but not yet filled:	1
trace Water Present? Yes No Depth of water (in.) ter Table Present? Yes No Depth to water (in.) Seeping in at that depth but not yet filled: turation Present? Yes No Depth to sat. (in.)	Wetland Hydrology Present? Yes No
rface Water Present? Yes No Depth of water (in.) ater Table Present? Yes No Depth to water (in.) Seeping in at that depth but not yet filled: turation Present? Yes No Depth to sat. (in.) cludes capillary fringe) Epi Endo Unknown	Wetland Hydrology Present? Yes No
trace Water Present? Yes No Depth of water (in.) ter Table Present? Yes No Depth to water (in.) Seeping in at that depth but not yet filled: turation Present? Yes No Depth to sat. (in.)	Wetland Hydrology Present? Yes No
rface Water Present? Yes No Depth of water (in.) ater Table Present? Yes No Depth to water (in.) Seeping in at that depth but not yet filled: turation Present? Yes No Depth to sat. (in.) cludes capillary fringe) Epi Endo Unknown	Wetland Hydrology Present? Yes No



Site 101. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 101. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 101. KGB Road Wetland Delineation – Photo taken July 21, 2011

WETLAND DETERMINATION DATA FORM – Alaska Region

Investigator(s): CLU GH				
Lat. (dec.*)Lc	ng ±	_' NAD 83 Reco	rded on GPS #: N	/arked on map? 📥 Field Map #:
Subregion (circle one): SE Southcen				
Shape across slope: linear / convex / c		and the second		
Photo nos./descriptions:(Sold) 052				
Are climatic / hydrologic conditions on t	14 1		a de como de la como de	HGM type:
Are Vegetation, Soil, or Hydro				
Are Vegetation, Soil, or Hydro				
	naturally problem	attor in needed, e	Apiani answers nere.	
SUMMARY OF FINDINGS Hydrophytic Vegetation Present?	Yes No	- Iteration	100 C	/
			led area Yes	No
Hydric Soil Present?		within a we		
Wetland Hydrology Present?	Yes No		Remarks (e.	g., marginal?):
VEGETATION (Use scientific names.	.)			
Tree Stratum (dbh≥ 3")			Dominance le	est worksheet:
Sp. Abs.Cov.% Dom?	Ind. Species Ab	s.Cov.% Dom?		
1. PIC GLA 15	FAcl 5.		That are OBL,	FACW, or FAC:
2. BAT FAT 65 X	tall 6		Total Number of	
3	7		Species Across	All Strata:
4	8		Percent of Don	ninant Species
	Tree Cover: 80	17	That are OBL,	FACW, or FAC:
50% of total cover: _	20% of to	tal cover:	Prevalence In	dex worksheet:
Sapling/Shrub Stratum (woody plants			Total %	6 Cover of: Multiply b
Abs.Cov.% Dom?		s.Cov.% Dom?	Ind. OBL species	X1=O
	acU 7		FACW species	
	act 8		FAC species	X3= ZO
3.54- 360 2 - 7 4.VAC VIT 3 - 7	Fac 9		FACU species	_124 X4=_496
4. <u>v///</u>	11.		UPL + NL spec	ies 0 X5=
6.	12.		Column Totals	135 (A) 528
Total Sapling/S	76		_	102220 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
50% of total cover:		cover: 5	Desuglases	Index = B/A = 3,91
Laboration and the second second	20% of total	cover.	Prevalence	index = b/A = 2/11
Herb Stratum Abs.Cov.% Dom?	Ind. Abs.	Cov.% Dom?	Ind.	
	FacU12 CAREX CAN	Contraction of the second second second	Fac	
	acV13.		Hydrophytic V	egetation Indicators:
	hacU14.			nce Test is>50% નો
4. COR CAN 2 F	acU15	==	Prevale	nce Index is ≤3.0 _N
5. STR AMP T	Fac 16.		Morpho	ogical Adaptations ¹ (Provide supp
6 TYR ASA _ 1 1	Fec 17			Remarks or on a separate sheet)
	ac 18		Problem	atic Hydrophytic Vegetation ¹ (Expl
	19			
	acW20	-	-	والمراجعة والمتحد والمراجع والمراجع
10.TRI EUR 1 1	JPV 22.			ydric soil and wetland hydrology n ess disturbed or problematic.
A 17				
50% of total cover: _	12 -	E	A GIVE AL	1
		Add to Second Second Second	Hydrophytic Vegetation	Yes No
Circular 1/10-ac plot or other plot		of bare ground:	Present?	165 NO
% Cover of Wetland Bryophytes	M 1 % Total Cover of I	Bryophytes	%	

SOIL									Sampling Point #: 105	
Profile Description	: (Describe to the c	epth needed	d to document the	indicator	or confirm	the abse	ence of indicate	ors)		
Depth Horizon	Soil Matri	x	Re	edox Fea	tures			a,a dip.		
(in.) Name 0-4 A <u>4-8 Swl</u>	<u>Color (moist)</u> 104R3/2 104R4/4	% 1 <u>00</u> 7 <u>3</u>	<u>Color (moist)</u> 2.574/1 57R4/6	20 7		Loc ²	<u>SiL</u> SiL	(pos/ neg)	<u>Remarks</u> (or use comment number)	
<u>8-16 BW2</u>	107R3/4		1	1111			<u>SL</u>			
								Lining, RC	= Root Channel, M = Matrix	
Hydric Soil Indicate	ors (check ones that	it apply, msi	r from top of min	eral laye	rs unless	otherwis	e noted):			
sat'd during we — Histic Epipe underlain by m — Hydrogen Sulfir surface; @ — Thick Dark Sur — Alaska Gleyed — Alaska Redox (" in this pit face (A12) (A13) (A14)	season) inics, saťd, oma ≤2)	ル Alaska Underly <u>ル</u> Other (Alpine S Redox w Gleyed v ying Laye e.g., see	wales (TA vith 2.5Y H without Hu	5) ue ∋ 5Y or R 07	one hyd pos or p ⁴Gj	e primary ind frology, and sition must b problematic.	of hydrophytic vegetation, licator of wetland an appropriate landscape e present unless disturbed color change in Remarks.	
Alaska Gleyed Restrictive Layer (if p			Destaces Old			1				
Type: Depth (inches) _	Jesent)		Drainage Class: MoD, WELL Soil Map Unit Name: DRAINE				/			
Comments: 1. Montues 2. 3.	Runoff fre	ium Adt	LOENT SLO	PE.	SHOLT	TER	M SATUR	Arien		
YDROLOGY										
Wetland Hydrology Primary Indicators (a			ply, msr from soi	I surface	e):		ondary Indicate Water-Stained		2 are required)	
Arriace Water (A Arrigh Water Table	8	e Soil Cracks (B6) ation Visible on Aerial Imagery (B7) ely Vegetated Concave Surface (B8) peposits (B15)			U Drainage Patterns (B10) ↓ Oxid'd Rhizospheres on Living Roots (C3) (w/					
Saturation (A3) (sely Vegetated Co Deposits (B15)				Presence of R (pos. a.a or Salt Deposits (soil color ch	(C4) ange w/in 12")			
Sediment Depos Drift Deposits (B)		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ogen Sulfide Odo Season Water Tab			1.2	Stunted or Str Geomorphic P		s (D1)	
Algal Mat or Crus		<u>_</u> Othe	r (explain)			<u>A</u>	Shallow Aquita (w/in 24", can	· · · · · · · · · · · · · · · · · · ·	w/in 12")	
Iron Deposits (B5)	5)					M	Microtopograp	hic Relief (E	04) (caused by water)	

Iron Deposits (B5)				MIcrotopographic Relief (D4) (caused by water)
				/U FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)
Field Observations (in. from	ground surfa	ce):		
Surface Water Present?	Yes	No Mu	Depth of water (in.)	
Water Table Present?	Yes	No No	Depth to water (in.)	
	Seepi	ng in at that c	lepth but not yet filled:	1
Saturation Present?	Yes	No A	Depth to sat. (in.)	Wetland Hydrology Present? Yes No
(includes capillary fringe)			Epi Endo Unknown	
Describe Recorded Data (si	tream gauge, i	monitoring we	ell, aerial photos, previous inspecti	ons), if available:
Remarks:				



Site 105. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 105. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 105. KGB Road Wetland Delineation – Photo taken July 21, 2011

Project: KGB Rd. Borough/City: MAT Applicant/Owner: AK DOT & PF		Date: <u>07 . 2</u>]].
Investigator(s): G. Hopen, C. WEOBEL Fin	m: HDR Alaska Inc	
Lat. (dec.") N. 61.55520 Long. W 149.5020 ± 2' NAD 83 Records		ked on man? / Field Man #:
Subregion (circle one): SE Southcentral) Western Aleutian Interior Northern La		
Shape across slope: (linear) convex / concave Shape up/downslope; linear) convex /		
Photo nos./descriptions: Sold 0532.33 VEC 0534 0525, 0536 Camera #:		
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: V No:		HGM type:
Are Vegetation \underline{A} , Soil \underline{A} , or Hydrology \underline{A} significantly disturbed? Are "Normal C		
Are Vegetation <u>M</u> , Soil <u>M</u> , or Hydrology <u>M</u> naturally problematic? If needed, exp	and the second	res <u>4</u> NO
SUMMARY OF FINDINGS	nam answers here.	
Hydrophytic Vegetation Present? Yes <u>No</u>		
Is the sampled	area Yes N	lo <u>X</u>
		marging[2]
	Remarks (e.g.,	marginar():
VEGETATION (Use scientific names.)	Dominance Test	worksheet:
<u>Tree Stratum</u> (dbh≥ 3")		11
Sp. Abs.Cov.% Dom? Ind. Species Abs.Cov.% Dom? Ind. 1. BET PATE Fully 5. Fully 5. <td>d. Number of Domin That are OBL, FA</td> <td>CW, or FAC:</td>	d. Number of Domin That are OBL, FA	CW, or FAC:
2.5AL BEB 40 × Fac 6	Total Number of [
3 7 7	_ Species Across A	Il Strata:
4 8	Percent of Domin	ant Species 52-%
Total Tree Cover: <u>47</u>	That are OBL, FA	
50% of total cover: 23.5 20% of total cover: 9.4	Prevalence Index	k worksheet:
Sapling/Shrub Stratum (woody plants < 3" dbh)	Total % C	over of: Multiply b
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? In	d. OBL species _	0 X1= 0
1. BET PAP 2 X FACUT	FACW species	0 X2= 0
2.5AL BEB 4 X Fac 8	- FAC species	65 x3= 195
3. Ros ACI 7 X FacU9	FACU species	90 X4= 360
5. RUB INE 2 X Fac11.	UPL + NL species	2 X5= 10
6. 12.	Column Totals:	157 (A) 565
Total Sapling/Shrub Cover:		
50% of total cover: <u>5.5</u> 20% of total cover: 2.2	Drovolonoo In	dex = B/A = 3,60
	_ Prevalence in	dex = B/A =
Herb Stratum Abs.Cov.% Dom? Ind. Abs. Cov.% Dom? Ind.	d	
	2/	
2. CALLAN 15 X Fac 13.		etation Indicators:
3.EQUARY 45 X Fach4		e Test is>50%
4.GYMDRY IO FacU15	Prevalence	الم Index is ≤3.0
5. MER PAN IL	Morpholog	ical Adaptations ¹ (Provide supp
CAERERI 2 UPL 17	data in R	emarks or on a separate sheet)
BUGAL TRIFLI FAUL 18	Problemati	c Hydrophytic Vegetation ¹ (Exp
9. TRI EUR 1 Fac 20	_	
10. URT DIO FacU 21.	¹ Indicators of hvd	ric soil and wetland hydrology n
11.STR AMP Fac 22.	be present unless	disturbed or problematic.
Total Herb Cover: 100		
50% of total cover: <u>50</u> 20% of total cover: <u>20</u>	_ Hydrophytic	
Circular 1/10-ac plot X or other plot dimension: % of bare ground: 2	Vegetation	Yes No _X
% Cover of Wetland Bryophytes <u>N/A</u> % Total Cover of Bryophytes	Present?	
(where applicable)		

US Army Corps of Engineers

SOIL	*					_				Sampling Point #: 107		
Profile D	escription:	: (Describe to the de	pth need	led to document the	indicato	r or confirm	the abs	ence of indicato	ors)			
Depth Horizon <u>Soil Matrix</u>			Re	Redox Features				a,a dip.				
<u>(in.)</u>	Name	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	(pos/ neg)	 (or use comment number)		
0-2	Oi		-			_			negr	for use comment number		
2-4	A	10 YR 2.5/2	Loo		_		1	SIL	100			
4-6	But-	10 YR3/2	100		_			SIL				
6-20	Burz	10 YR 3/2	BS	7.542314	10	C	M	SIL		TIGHT HARD RACE		
		222.23		2.54 3/	5	D	M	514		Tribula Index Case 2		
					_		1	1	1			
					_		1	-				
¹ Type: C	= Concentr	ation, D = Depletion,	RM = R	educed Matrix, CS=	Coated	Sand Grain	s ² Locati	on: PL = Pore	Lining, RC	= Root Channel, M = Matrix		
		rs (check ones that										
1				Indicators for	or Probl	ematic Hy	dric Soil	s ³ :				
		el (A1) (≥16"organic		N Alaska	Color C	hanne ⁴ (TA	1	³ On	e indicator	of hydrophytic vegetation,		
Alaska Color Change ⁴ (TA4) Histic Epipedon (A2)(8-16" organics, sat'd,							(4)	one primary indicator of wetland hydrology, and an appropriate landscape				
		ineral soil with chron	Alaska	Alaska Alpine Swales (TA5) hydrology, and an appropriate is position must be present unless								
7 ^Δ Hyd	drogen Sulfic	de (A4) (w/in 12"of gr	H Alaska	or problematic.								
Underlying Layer												
N Alaska Gleyed (A13) M Other (e.g., see p.91 N Alaska Redox (A14) Supplement; explain												
	 (a) (b) (b) (b) (c) (c) 	Contraction and the second		Supple	ment, ex	cplain in Re	marks)					
	ska Gleyed I				-		-					
	e Layer (if p	N/A		Drainage Class: Mod, we work								
1760.				Soil Map Uni	Soil Map Unit Name:			Hydric Soil Present? Yes No				
Depth	(inches) _	1. F4										
Comment	ATURAT D	1.1										
2.	diseleter a											
3.	1.01						-					
YDROL												
Wetland Hydrology Indicators (check ones that apply, msr from soil surface):								Secondary Indicators (at least 2 are required)				
Primary Indicators (any one indicator is sufficient)							Water-Stained Leaves (B9)					
				the second secon	ce Soil Cracks (B6)				Drainage Patterns (B10)			
				ation Visible on Aerial Imagery (B7)				<u>Υ</u> Oxid'd Rhizospheres on Living Roots (C3) (w/in 12") <u>N</u> Presence of Reduced Iron (C4) (pos. α,α or soil color change w/in 12") <u>N</u> Salt Deposits (C5)				
A 4 1 1 1 1 1	ration (A3) (1	arsely Vegetated Co	ely Vegetated Concave Surface (B8)								
Contract of the	r Marks (B1)		rl Deposits (B15)									
					ogen Sulfide Odor (C1) (w/in 12")			Stunted or Stressed Plants (D1)				
<u>I</u> Drift Deposits (B3) <u>I</u> Dry-Se				y-Season Water Tab	Season Water Table (C2) (w/in 24")			Ceomorphic Position (D2)				
<u> </u>							N	N Shallow Aquitard (D3) (w/in 24", can perch H2O w/in 12")				
└ Iron Deposits (B5)							N	MIcrotopographic Relief (D4) (caused by water)				
							_ <u>₩</u> FAC Neutral Test (D5) (# OBL+FACW dominants > # FACU+UPL dominants)					
Field Obs	ervations (in	n. from ground surfac	e).				(1	# OBL+FACW	dominants	> # FACU+UPL dominants)		
	Vater Preser		No ~	Depth of wat	er (in.)							
	Table Present? Yes No / Depth for water (in.)											
			1 . Y							1		
Saturation	Present?	Yes	No	We want the second s	epth but not yet filled: Depth to sat. (in.)			Wetland Hydrology Present? Yes <u>No</u>				
	capillary frin		110		Unkno	wn	wet	and Hydrolog	y Fresent	Yes No		
A particular that has been a		ata (stream gauge, n	nonitorin				ins), if av	ailable:				
				a contra contra sentina e								
Remarks:												



Site 107. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 107. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 107. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 107. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 107. KGB Road Wetland Delineation – Photo taken July 21, 2011

WETLAND DETERMINATION DATA FORM – Alaska Region

Project: KGTS ROAD WETLANDS Borough/City: WAT-	Soil Date: +06 7 / 2 / / 2 Sampling Point #: _08
Applicant/Owner: AROGI 4 IT	
nvestigator(s): Firm. .at. (dec.°) 61. 55551 Long. 147.50522 ±' NAD 83 Recorded	
Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Land	
Shape across slope: linear / convex / concave Shape up/downslope: linear / convex / c	
Photo nos./descriptions: (5011) 0538 -9 (VEG)0540-1 Camera #:	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: No:	
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "Normal Cir	
Are Vegetation, Soil, or Hydrology naturally problematic? If needed, explai	n answers here.
SUMMARY OF FINDINGS	
Hydrophytic Vegetation Present? Yes <u>No</u> Is the sampled a	rea Yes XNo
Hydric Soil Present? Yes <u>V</u> No within a wetland	
Wetland Hydrology Present? Yes No	Remarks (e.g., marginal?):
/EGETATION (Use scientific names.)	
The Obstant (dube 0)	Dominance Test worksheet:
<u>Tree Stratum</u> (dbh≥ 3") Sp. Abs.Cov.% Dom? Ind. Species Abs.Cov.% Dom? Ind.	Number of Dominant Species 3 4
1. N/A 5	That are OBL, FACW, or FAC:
2 6	Total Number of Dominant 3 5 /
3 7	Species Across All Strata:
4 8	Percent of Dominant Species 190 80 10
Total Tree Cover:	Percent of Dominant Species 100 80/6 That are OBL, FACW, or FAC:
50% of total cover: 20% of total cover:	
Sapling/Shrub Stratum (woody plants < 3" dbh)	Total % Cover of: Multiply by:
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? Ind.	
1. BET TAP IS X FACUT.	FACW species 0 X2= 0
2. ALN SIM 35 X FOC 8.	
3) SAL PUL T UPL 9.	FACU species X4= 44=
4. SAL BED Fac 10	UPL + NL species 2 X5= 0
5 11	Column Totals: 121 (A) 309 (B
6 12	Column Totals: $7 \approx 7 \approx (A)$ $3 \approx 7 \approx 7 = (B)$
Total Sapling/Shrub Cover: 50	
50% of total cover: 20% of total cover:	Prevalence Index = $B/A = -\frac{2.55}{5}$
Herb Stratum	
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? Ind.	the second se
1. Cac cours 35 X Fac 12	Hydrophytic Vegetation Indicators:
2. POT FAL 20 X OBH13	X Dominance Test is>50%
4. CAR CAN 15 X OBL 15.	Prevalence Index is ≤3.0
5.STELLARIA SP. T 16.	
6, 17 17.	Morphological Adaptations ¹ (Provide supportin data in Remarks or on a separate sheet)
718	
8 19	Problematic Hydrophytic Vegetation ¹ (Explain)
9 20	
10 21	¹ Indicators of hydric soil and wetland hydrology must
11 22	be present unless disturbed or problematic.
Total Herb Cover: 71	7
50% of total cover: 35,5 20% of total cover: 14,2	Hydrophytic
Circular 1/10-ac plot 🔜 or other plot dimension: % of bare ground: 📈	Vegetation Yes No
% Cover of Wetland Bryophytes% Total Cover of Bryophytes 65 %	Present?
(where applicable)	

US Army Corps of Engineers

IND

Alaska Version 2.0 Modified by HDR

1 Image: Section means Image: Section mea	Profile Description: (De	scribe to the dep	oth needed to	o document the	indicator	or confirm	the abse	nce of indicat	ors)	Sampling Point #: 1
Image for the second set of the set	Depth Horizon	Soil Matrix	<u> </u>	R	edox Feat	ures	-		a,a dip.	
B 200 A 2.573/2 100 Stell Ste	0-5 Di	color (moist)	<u>%</u>	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	(pos/	<u>Remarks</u> (or use comment nu
"Type: C = Concentration, D = Depletion, RM = Reduced Matrix, CS=Coated Sand Grains ¹ Location: PL = Pore Lining, RC = Root Channel, M = "Hydric Soil Indicators (check ones that apply, mar from top of mineral layers unless otherwise noted): Indicators for Problematic Hydric Soils': "One indicator of hydrophytic veget on provide season, within chroma s.2]. M Hydric Soil Indicators (A2): 6*6' organics, said, understand by mineral alswith chroma s.2]. // Alaska Color Change' (TA) "One indicator of hydrophytic veget on provide season, understand of hydrophytic veget on provide season, understand of hydrophytic veget on provide season, understand (A2): 6*6' organics, said, understand, understand (A2): 6*6' organics, said, understand, understand (A2): 6*6' organics, said, understand, unde	5.8 De	-			_		_			
Hydric Soil Indicators (check ones that apply, mar from top of mineral layers unless otherwise noted): Indicators for Problematic Hydric Soils*: "One indicator of hydrophytic veget one primary indicator of hydrophytic veget one primary indicator of wetland bydrings, and an appropriate land; position must be present unless dis or problematic. Mistosol or Histel (A1) (216" organics, said, underlain by mineral solf with chroma 52) // Alaska Color Change* (TAA) "One indicator of hydrophytic veget one primary indicator of wetland bydrings, and an appropriate land; position must be present unless dis or problematic. Mistosol or Histel (A1) (216" organics, said, underlain by mineral solf with torma 52) // Alaska Redox (Mith 2.5 Y Hue "One indicator of hydrophytic veget "Give details of color change in Rer "Color change in Rer "Color change (TAA) Mistosol or Histel (A1) (214" // Alaska Redox (Mith 2.5 Y Hue "Other (e.g., see p.51 of 2007 Mistosol or Histel (A1) (214" // Alaska Sieked (Mith 2.5 Y Hue "Other (e.g., see p.51 of 2007 Mistosol or Histel (Inches) Drainage Class: T∨, PEALUCE Hydric Soil Present? Yes No_ Comments: A Layeft Vettery DAREK 4 SMEARU, Hitch DEGAAULC CONTENT, 2, AltZ Nort CHECKE'S ESEAUSE of MIGH Wather TABLE Mater Checke (B) // Water Stained Leaves (B) Mydric Soil Present? // Surface Water (A1) // Surface Soil Cracks (B) // Drainage Patterns (B(10) // Veset Mich (B2) // Drainage Patterns (B(10) // Ves	<u>B-20 A</u> 2.	5/3/2	100		-	Ξ.	-	SiL	Y	SEE ссттел
Hydric Soil Indicators (check ones that apply, msr from top of mineral layers unless otherwise noted): Indicators for Problematic Hydric Soils ¹ : ¹ One indicator of hydrophytic veget one primary indicator of vetland vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlying Layer // Alaska Gleyed (A13) // Cher (e.g., see p.S1 of 2007 Soil Map Unit Name: veget memory veget veget memory veget memory veget					·		-		-	
Hydric Soil Indicators (check ones that apply, msr from top of mineral layers unless otherwise noted): Indicators for Problematic Hydric Soils ¹ : ¹ One indicator of hydrophytic veget one primary indicator of vetland vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlying Layer // Alaska Gleyed (A13) // Cher (e.g., see p.S1 of 2007 Soil Map Unit Name: veget memory veget veget memory veget memory veget					-			-		
Hydric Soil Indicators (check ones that apply, msr from top of mineral layers unless otherwise noted): Indicators for Problematic Hydric Soils ¹ : ¹ One indicator of hydrophytic veget one primary indicator of vetland vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlain by mineral soil with chroma s2) // Alaska Color Change ⁴ (TAA) vunderlying Layer // Alaska Gleyed (A13) // Cher (e.g., see p.S1 of 2007 Soil Map Unit Name: veget memory veget veget memory veget memory veget	\rightarrow $=$ $=$		= $=$		-			_		
✓ Histosol or Histel (A1) (216° organic surface, alt° during wet period of growing season) ✓ Alaska Color Change* (TA4) *One indicator of hydrophytic veget or perimary indicator of wetland hydrophytic veget or perimary indicator of wetland hydrology, and an appropriate land. ✓ Histic Epipedon (A2)(E-16° organics, satd, underlying Layer ✓ Alaska Alpine Swales (TA5) *One indicator of hydrophytic veget or perimary indicator of wetland hydrology, and an appropriate land, position must be present unless dis problematic. ✓ Histosol or Histel (A1) (Win 12°d ground surface) ✓ Alaska Color Change* (TA4) *One indicator of hydrophytic veget or problematic. ✓ Alaska Gleyed (A13) ✓ Alaska Gleyed without Hue 5Y or Redder Underlying Layer *Other (e.g., see p.51 of 2007 ✓ Alaska Gleyed Pores (A15) Restrictive Layer (If present) Drainage Class: Teor., PEA.UCE Hydric Soil Present? Yes No									Lining, RC	= Root Channel, M =
M Histosol or Histo (A1) (216° organics surface, sard (A1) ✓ Alaska Color Change* (TA4) "One indicator of hydrophytic vegato or problematic unany indicator of provide surface, ge	Hydric Soil Indicators (c	heck ones that	apply, msr fr							
	N Historol or Histol (A	1) />16"oroopic (urface	1		10000				af hudan huda an a
✓ Indertain by mineral soil with chroma s2) ✓ Alaska Appline Svalies (AB) position must be present unless dis or problematic. ✓ Thick Dark Surface (A12) ↓ ✓ Alaska Redox with 2.5Y Hue 'Give details of color change in Rer ✓ Thick Dark Surface (A12) ↓ ✓ Alaska Redox with 2.5Y Hue 'Give details of color change in Rer ✓ Alaska Gleyed (A13) ✓ Alaska Gleyed Virtual (Equipartic Color Change in Rer 'Give details of color change in Rer ✓ Alaska Gleyed Pores (A15) Other (e.g., see p.91 of 2007 Restrictive Layer (if present) Drainage Class: 'Ror(L), D'RALLOR Type: Soil Map Unit Name: Hydric Soil Present? 1. A Layer very DArk \$ Switching, High Unit Name: Hydric Soil Present? No_ 2. ALZ Nor CHECKED BERAUSE of MIGH Watter: TABLE HYOROLOGY Wetland Hydrology Indicators (check ones that apply, msr from soil surface): Secondary Indicators (at least 2 are required) No Saturation (A3) (w/in 12') ✓ Sparsely Vegetated Concave Surface (B3) ✓ Oxid'd Rhizospheres on Living Roots (C3) (w/i Y Yedresent of Reduced Iron (C4) Oxid'd Rhizospheres on Living Roots (C3) (w/i ✓ Staturation (A3) (w/in 12') ✓ Sparsely Vegetated Concave Surface (B3) Y Mareseed Parist (D5) ✓ Dry-Season Water Table (C2) (w	sat'd during wet per	iod of growing se	eason)	Alaska	Color Ch	ange ⁴ (TA	4)	on	e primary in	dicator of wetland
M Hydrogen Sulface (A4) (win 12° of ground surface; @ in this pit Image Class: Redox with 2.5Y Hue "Give details of color change in Rer "Give details of color change wint 12" "Give details of color change wint 1				N_Alaska	Alpine Sv	vales (TAS	5)			
Image Data Subset Underlying Layer Maska Gleyed (A13) Moderlying Layer Moderlying Layer Supplement; explain in Remarks) Maska Gleyed Pores (A14) Supplement; explain in Remarks) Maska Gleyed Pores (A15) Drainage Class: Ref(L), DEALMED Restrictive Layer (if present) Drainage Class: Ref(L), DEALMED Type: Soil Map Unit Name: Deptin (inches) Drainage Class: Ref(L), DEALMED Comments: 1. A Layer Very Dates & SMEARL, (High DRAAMIC CONTENT, 2; ALZ NOT CHECKED BERAJSE OF MIGH WATER TRELE HYDROLOGY Wetland Hydrology Indicators (check ones that apply, msr from soil surface): Wetland Hydrology Indicators (check ones that apply, msr from soil surface): Secondary Indicators (at least 2 are required) Minary Indicators (any one indicator is sufficient) Moderly Mater Relow States (B1) Moderly Indicators (at least 2 are required) Minary Indicators (any one indicator is sufficient) Moderly Anticator (S10) Moderly Checke (B9) Moderly Water Marks (B1) Moderly Indicators (B1) Moderly Indicators (C1) (win 12") Maska Marks (B1) Mark Present Suffice Concave Surface (B8) Moderly Indicator (C2) (win 2") Male Marks (B3) Moderly Marke Rased Relate (D1) Satindeo Position (D2)	N Hydrogen Sulfide (A	4) (w/in 12"of are		N_Alaska	Redox w	th 2.5Y H	ue	or	problematic	
L∠_ Alaska Gleyed (A13) M Other (e.g., see p.91 of 2007 Supplement; explain in Remarks) M Alaska Redox (A14)	1	1000					9 5Y or R	edder		
		6		M Other	e.g., see	p.91 of 20	07			
Restrictive Layer (if present) Drainage Class: Portul PEALMED Type: Soil Map Unit Name: Depth (inches) Soil Map Unit Name: Comments: Soil Map Unit Name: 1. A Layer very Dark \$ SWEARD, High OFGADIC CONTENT. 2. A12 NOT CHECKED BECAUSE OF MIGH WATER TABLE HYDROLOGY Wetland Hydrology Indicators (check ones that apply, msr from soil surface): Primary Indicators (any one indicator is sufficient) A Surface Water (A1) A Surface Soil Cracks (B6) Y High Water Table (A2) (win 12") Sparsely Vegetated Concave Surface (B8) Y Saturation (A3) (win 12") Sparsely Vegetated Concave Surface (B8) A Surface Water (A1) Marl Deposits (B15) Y Saturation (A3) (win 12") Marl Deposits (B15) Y Saturation (A3) (win 12") Hydrogen Suffide Odor (C1) (win 12") Y Stunted or Stressed Plants (D1) Y Presence of Reduced Iron (C4) (nos. ac or soil color change wiln 12") Y Agal Mat or Crust (B4) Other (explain) Marl Deposits (B5) Water Table (C2) (win 24", can perch H2O wiln 12") Y Algal Mat or Crust (B4) Other (explain) Mater Deposits (B5) Microtopographic Relief (D4) (caused by water Field Observations (in. from ground surface): <td></td> <td></td> <td></td> <td>Supple</td> <td>ment; exp</td> <td>lain in Re</td> <td>marks)</td> <td></td> <td></td> <td></td>				Supple	ment; exp	lain in Re	marks)			
Type:				1			-			
Depth (inches)		nt)				Y PRAL				1
Comments: 1. A LAYER VERY DAEK \$ SMEARY, HIGH OFGANIC CONTENT. 2. AI2 NOT CHECKED BELAUSE OF MIGH WATER TABLE HYDROLOGY Wetland Hydrology Indicators (check ones that apply, msr from soil surface): Secondary Indicators (at least 2 are required) Primary Indicators (any one indicator is sufficient) M Water-Stained Leaves (B9) M Surface Water (A1) M Surface Soil Cracks (B6) Y High Water Table (A2) (w/in 12") M Inundation Visible on Aerial Imagery (B7) Y Saturation (A3) (w/in 12") M Sparsely Vegetated Concave Surface (B8) M Water Marks (B1) M Mart Deposits (B15) M Adgal Mat or Crust (B4) Mart Deposits (B15) M Algal Mat or Crust (B4) Other (explain) M Angal Mat or Crust (B4) Other (explain) Mater Table Present? Yes No Depth of water (in.) Water Table Present? Yes No Depth to sat. (in.) Saturation Present? Yes No Depth to sat. (in.) Saturation Present? Yes No Depth to sat. (in.) Water Table Present? Yes No Depth to sat. (in.) Water Table Present? <	and the second s			Soil Map Un	it Name:		Hyd	dric Soil Pres	ient?	Yes <u>No</u>
N Surface Water (A1) N Surface Soil Cracks (B6) N Drainage Patterns (B10) N Y High Water Table (A2) (w/in 12") N Inundation Visible on Aerial Imagery (B7) N Oxid'd Rhizospheres on Living Roots (C3) (w/in 12") N Saturation (A3) (w/in 12") N Sparsely Vegetated Concave Surface (B8) N Presence of Reduced Iron (C4) (bos. or.or or soil color change w/in 12") N Water Marks (B1) N Mard Deposits (B15) N Saturation (Pasterns (B10) N Saturation (C1) (w/in 12") Stunface Or C10 (w/in 12") N Saturation (C4) (bos. or.or or soil color change w/in 12") N Saturation Crust (B4) No Dry-Season Water Table (C2) (w/in 24") N Saturation (D2) N Saturation (D2) N Saturation (D2) N Saturation (D2) N Microtopographic Relief (D4) (caused by water Y FAC Neutral Test (D5) N No Depth of water (in.) N No Depth of water (in.) N No Seeping in at that depth but not yet filled: No	HYDROLOGY Wetland Hydrology Indic	ators (check on	es that apply				Seco			
✓ 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) ✓ Depth of water (in.) ✓ Seeping in at that depth but not yet filled: ✓ Saturation Present? Yes No Depth to sat. (in.) Ø Epi Endo Unknown Epi Endo Unknown Wetland Hydrology Present? Yes Vescribe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Wetland Hydrology Present? Yes No				Soil Cracks (F	86)				and the second	9)
✓ Water Marks (B1) ✓ Marl Deposits (B15) ✓ Salt Deposits (C5) ✓ Marl Deposits (B15) ✓ Salt Deposits (C5) ✓ ✓ Drift Deposits (B3) ✓ Hydrogen Sulfide Odor (C1) (w/in 12") ✓ Stunted or Stressed Plants (D1) ✓ Drift Deposits (B3) ✓ Dry-Season Water Table (C2) (w/in 24") ✓ Geomorphic Position (D2) ✓ Algal Mat or Crust (B4) Other (explain) ✓ ✓ Shallow Aquitard (D3) ✓ Iron Deposits (B5) ✓ Check ✓ ✓ Marcotopographic Relief (D4) (caused by water Field Observations (in. from ground surface): Surface Water Present? Yes No Depth of water (in.) ✓ Saturation Present? Yes No Depth to sat. (in.) ✓ Wetland Hydrology Present? Yes No Saturation Present? Yes No Depth to sat. (in.) ✓ Wetland Hydrology Present? Yes No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Describe Yes No						gery (B7)				iving Roots (C3) (w/in
Marker Marks (B1) Marker Marks (B1) Marker Marks (B1) Marker Marker (B1) Marker (B1) Marker (B1) Marker Marker (B1)	Y Saturation (A3) (w/in 1	2")	M Sparse	ly Vegetated C	oncave St	urface (B8)) ¥			
✓ Drift Deposits (B3) ✓ Dry-Season Water Table (C2) (w/in 24") ✓ Geomorphic Position (D2) ✓ Algal Mat or Crust (B4) Other (explain) ✓ ✓ Iron Deposits (B5) ✓ Check 14 ✓ Other ground surface): ✓ Surface Water Present? Yes No Vater Table Present? Yes No Seeping in at that depth but not yet filled: ✓ Saturation Present? Yes No Epi Endo Unknown Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Wetland Hydrology Present?								Salt Deposits	(C5)	
Magel Mat or Crust (B4) Other (explain) Magel Mat or Crust (B4) Magel Mat or Crust (B4) Magel Mat or Crust (B4) Other (explain) Magel Mat or Crust (B4) Magel Mat or Crust (B4) Magel Mat or Crust (B4) Other (explain) Magel Mat or Crust (B4) Magel Mat or Crust (D3) Magel Mat or Crust (B4) Other (explain) Magel Mat or Crust (D3) Magel Mat or Crust (D3) Magel Mat or Crust (B5) Other (explain) Magel Mat or Crust (D3) Magel Mat or Crust (D4) (caused by water of the caused by matter (D5) Field Observations (in. from ground surface): Magel Mat or Crust (D5) Magel Mat or Crust (D5) Magel Mat or Crust (D5) Surface Water Present? Yes No Depth of water (in.) Magel Mat or Crust (D5) Water Table Present? Yes No Depth to water (in.) Magel Mat or Crust (D2) Saturation Present? Yes No Depth to sat. (in.) Mater Crust (D2) (includes capillary fringe) Epi Endo Unknown Metland Hydrology Present? Yes No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	이 그렇게 잘 가면 잘 들어야 하는 것 같아.	2)	N/				1000			
Auganitiation Crust (D4) Other (explain)			1	and the second second	ole (C2) (V	v/in 24")				
Field Observations (in. from ground surface): Ves	.1)	Other ((14	N	(w/in 24", can MIcrotopograp	perch H2O hic Relief (I	
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.) Wetland Hydrology Present? Yes No Cincludes capillary fringe) Epi Endo Unknown Wetland Hydrology Present? Yes No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					Office	-				> # FACU+UPL domi
Water Table Present? Yes No Depth to water (in.) 4		n ground surface	e): /							
Seeping in at that depth but not yet filled:		1								
Saturation Present? Yes No Depth to sat. (in.) O Wetland Hydrology Present? Yes No (includes capillary fringe) Epi Endo Unknown Unknown Wetland Hydrology Present? Yes No Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Describe Stream Stream	water Table FleSent?		1							
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	Saturation Present?				-)	Wetla	and Hydrolog	y Present?	Yes / No
Descention in the second se								sileble:		
Remarks:		tream aquian m	onitorina we	Il agrial shat-	in monther the	inon-l'-	mal if			
REMARKS: DI: DEAD BIRCH TREES & SKPLINGS		stream gauge, m	ionitoring we	II, aerial photos	, previous	inspectio	ns), if ava	anable.		



Site 108. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 108. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 108. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 108. KGB Road Wetland Delineation – Photo taken July 21, 2011

WETLAND DETERMINATION DATA FORM – Alaska Region

Project: KGB Rd. Borough/City: M4		Date: 07.21.11
Applicant/Owner: AK DOT & PF		_ Sampling Point #: / 0 S
Investigator(s): G. HODEN, CIWROBEL Firm: I		
Lat. (dec.") N 61.55527 Long. W. 149.50400 ± 0' NAD 83 Recorded of	on GPS #: 191 Marke	d on map? Field Map #:
Subregion (circle one): SE Southcentral Western Aleutian Interior Northern Landfo	orm: FLAT	_Slope (%): _O_ Aspect:
Shape across slope linear/ convex / concave Shape up/downslope linear/ convex / co	ncave NWI cla	assification: PEM/C
Photo nos./descriptions: Sort = 0542, 0543 UEC 0544-7 Camera #:	Veg Type (Viereck L	evel 4 or other):
Are climatic / hydrologic conditions on the site typical for this time of year? Yes: 🗡 No:		HGM type: FLAT
Are Vegetation <u>1</u> , Soil <u>11</u> , or Hydrology <u>12</u> significantly disturbed? Are "Normal Circ		
Are Vegetation, Soil, or Hydrology naturally problematic? If needed, explain		
SUMMARY OF FINDINGS		
Hydrophytic Vegetation Present? Yes X No	A	
Hydric Soil Present? Yes K No Is the sampled and within a wetland	ea Yes <u>×</u> No	
Wetland Hydrology Present? Yes X No	Remarks (e.g., m	arginal?):
	Nemana (e.g., m	
VEGETATION (Use scientific names.)	Dominance Test w	orksheet:
<u>Tree Stratum</u> (dbh≥ 3")		σ,
Sp. Abs.Cov.% Dom? Ind. Species Abs.Cov.% Dom? Ind.	Number of Dominan That are OBL, FAC	
1 <u></u> b		
2	Total Number of Do Species Across All S	1 10
	openes Across Aire	Juana.
Total Tree Cover:	Percent of Dominan	
50% of total cover: $\underline{N/A}$ 20% of total cover: $\underline{N/A}$	That are OBL, FACU Prevalence Index v	N, or FAC:
<u>Sapling/Shrub Stratum (</u> woody plants < 3" dbh)	Total % Cov	
Abs.Cov.% Dom? Ind. Abs.Cov.% Dom? Ind.	OBL species	
1. ANN SIN Fac 7	FACW species	-
3CHA CAL 5 × FOCW 9.	FAC species	9 X3= <u></u>
4.BET GLA 3 X EOG 10.	FACU species	/X4=4
5 11	UPL + NL species	O X5= O
6 12	Column Totals:	102 (A) 143
Total Sapling/Shrub Cover: 10		
50% of total cover: 5 20% of total cover: 2	Prevalence Inde	x=B/A= 1.40
Herb Stratum	200728-00-00-00-00-00-00-00-00-00-00-00-00-00	
Abs.Cov.% Dom? Ind. Abs. Cov.% Dom? Ind.		
1. CAR CAN 30 Y OBL 12.	Hydrophytic Veget	ation Indicators:
2. FRI RUS IS X FOCW13.		A DE COLOR OF THE OWNER OWNE
3. POT MAL 10 X OBL 14	Dominance T	
03. <u>ERI ANGT 8</u> 031-15	Fievalence in	IUEX IS ≥3.0
5 <u>CAR LOL 3 OBL 16.</u>		Adaptations ¹ (Provide suppo
6. VAC DX1 OBL 17	data in Ren	narks or on a separate sheet)
18 CARIMAG 15 X 08L 19.	Problematic I	Hydrophytic Vegetation ¹ (Expl
BCALCAN Fac 20.		
10.CIC MAC T 086 21.	¹ Indicators of hydric	soil and wetland hydrology n
11.ERIGEA T22	be present unless d	isturbed or problematic.
Total Herb Cover: 92		
50% of total cover:	Hydrophytic	1
Circular 1/10-ac plot or other plot dimension: % of bare ground:	Vegetation	Yes No
% Cover of Wetland Bryophytes% Total Cover of Bryophytes%	Present?	
70 Total Gover of Mediand Dryophytes70		

US Army Corps of Engineers

Alaska Version 2.0 Modified by HDR

OIL									Sampling Point #: 207
Profile Description:			to document the	indicator	r or confirm	the abse	ence of indicate	ors)	
Depth Horizon	Soil Matrix	-	Re	edox Fea	tures			a,a dip.	A
(in.) Name	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	(pos/ neg)	<u>Remarks</u> (or use comment number)
0-6 <u>Oi</u>		100		-		_			ter see service and the moort
5-20 De		100		-	_	1			
					-				
				_	-	-		-	
					_	-		-	
				-					
				-			_	1	
		2.2			-				
Type: C = Concentra	ation, D = Depletion,	RM = Red	uced Matrix, CS=	Coated S	Sand Grain	s ² Locatio	on: PL = Pore	Lining, RC :	= Root Channel, M = Matr
Hydric Soil Indicator	rs (check ones that	apply, msr	from top of min	eral laye	ers unless	otherwis	e noted):		
	· · · ·		Indicators for	or Proble	ematic Hy	dric Soils	s ³ :		
	el (A1) (≥16"organic		Alaska	Color G	ange ⁴ (TA	4)	³ Or	e indicator o	of hydrophytic vegetation,
	t period of growing s lon (A2)(8-16" organ			00,01 01	ange (in				licator of wetland an appropriate landscape
	ineral soil with chron		_N_ Alaska	Alpine S	wales (TA	5)	pos	ition must b	e present unless disturber
N Hydrogen Sulfid	le (A4) (w/in 12"of gr		N Alecka	Redevu	vith 2.5Y H		orp	problematic.	
surface; @	_" in this pit		14.1					ve details of	color change in Remarks
M Thick Dark Surfa	ace (A12)				without Hu	e 5Y or Re	edder		
Alaska Gleyed (A13)		3.7	ying Laye					
Alaska Redox (A					p.91 of 20 plain in Re				
Alaska Redux (P	Contraction and the second sec		- approx	incin, on	pican ni i i c	manoy			
			Drainage Cla		2 10	no la -5			
estrictive Laver (if or			Diamage Cia	122+ 400	22L U	KHINE!	D		
Constraint and the second second second	resent)			t Nome:		Lhu	data Call Duna	C +	Van V N-
Type: Depth (inches) Comments: 1. 2.	N/A		Soil Map Uni	t Name:		Нус	dric Soil Pres	ent?	Yes_ <u>×</u> No
Type: Depth (inches) Comments: 1. 2. 3. YDROLOGY Wetland Hydrology II Primary Indicators (an M Surface Water (A M Surface Water (A M Surface Water Table Saturation (A3) (w M Water Marks (B1) Sediment Deposits M Drift Deposits (B3 M Algal Mat or Crust	ndicators (check or iy one indicator is su 1) (A2) (w/in 12") w/in 12") is (B2)) t (B4)	Ifficient) Surfa Unund Spars Marl I Hydro Y Dry-S	Soil Map Uni	il surface 6) Aerial Ima oncave S r (C1) (w.	agery (B7) Surface (B8 /in 12")	Secc. 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Dindary Indicato Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. d. d or s Salt Deposits (Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	ors (at least ; Leaves (B9 erns (B10) _ oheres on Li educed Iron soil color cha C5) essed Plants osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	2 are required)) ving Roots (C3) (w/in 12") (C4) ange w/in 12") s (D1) w/in 12") i4) (caused by water)
Type: PJ Depth (inches) Comments: Comments: Primary Indicators (and Mydrology Internet) Primary Indicators (and Mydrology Internet) Surface Water (A') Marks (B1) Sediment Deposits (B3) Drift Deposits (B3) Algal Mat or Crust Iron Deposits (B5)	ndicators (check or y one indicator is su 1) (A2) (w/in 12") w/in 12") is (B2)) t (B4))	Ifficient) ASurfa ASpars ASpars AMarl I AMarl I AN Hydro Y Dry-S A Other	Soil Map Uni oly, msr from soi ace Soil Cracks (B lation Visible on A sely Vegetated Co Deposits (B15) ogen Sulfide Odor Geason Water Tab	il surface 6) Aerial Ima oncave S r (C1) (w.	agery (B7) Surface (B8 /in 12")	Secc. 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Dindary Indicato Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. d. d or s Salt Deposits (Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	ors (at least ; Leaves (B9 erns (B10) _ oheres on Li educed Iron soil color cha C5) essed Plants osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	2 are required)) ving Roots (C3) (w/in 12") (C4) ange w/in 12") s (D1) w/in 12")
Type: Depth (inches) Comments: Comments: COMMENTS: COMM	ndicators (check or y one indicator is su 1) (A2) (w/in 12") w/in 12") is (B2)) t (B4)) . from ground surface	Ifficient) ASurfa ASpars ASpars AMarl I AMarl I AN Hydro Y Dry-S A Other	Soil Map Uni oly, msr from soi ace Soil Cracks (B lation Visible on A sely Vegetated Co Deposits (B15) ogen Sulfide Odor Season Water Tab r (explain) Depth of wate	I surface 6) Aerial Ima oncave S r (C1) (w. ole (C2) (ole (C2) (agery (B7) Surface (B8 /in 12") w/in 24")	Secc. 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Dindary Indicato Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. d. d or s Salt Deposits (Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	ors (at least ; Leaves (B9 erns (B10) _ oheres on Li educed Iron soil color cha C5) essed Plants osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	2 are required)) ving Roots (C3) (w/in 12") (C4) ange w/in 12") s (D1) w/in 12") i4) (caused by water)
Type: Depth (inches) Comments: Comments: Comments: Comments: Comments: Comments: Comments: Comments: Comments: Comment Cology In Comment Processing (inclusted on the constitution of the cology of the c	ndicators (check or y one indicator is su 1) (A2) (w/in 12") w/in 12") is (B2)) t (B4)) from ground surfact t? Yes	Ifficient) ▲ Surfa ↓ Inund ↓ Spars ↓ Marl I ↓ Hydro ↓ Dry-S ↓ Other xe):	Soil Map Uni oly, msr from soi ace Soil Cracks (B lation Visible on A sely Vegetated Co Deposits (B15) ogen Sulfide Odor Season Water Tab r (explain) Depth of wate	I surface 6) Aerial Ima oncave S r (C1) (w. ole (C2) (ole (C2) (agery (B7) Surface (B8 /in 12") w/in 24")	Secc. 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Dindary Indicato Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. d. d or s Salt Deposits (Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	ors (at least ; Leaves (B9 erns (B10) _ oheres on Li educed Iron soil color cha C5) essed Plants osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	2 are required)) ving Roots (C3) (w/in 12") (C4) ange w/in 12") s (D1) w/in 12") i4) (caused by water)
Type: Depth (inches) Comments: Comments: Comments: Comments: Comments: Comments: Comments: Comments: Comments: Comment Cology In Comment Processing (inclusted on the constitution of the cology of the c	ndicators (check or ny one indicator is su 1) (A2) (w/in 12") w/in 12") is (B2)) t (B4)) from ground surfact t? Yes Yes	Initial Spars Initial Spars <td< td=""><td>Soil Map Uni oly, msr from soi ace Soil Cracks (B lation Visible on A sely Vegetated Co Deposits (B15) ogen Sulfide Odor Season Water Tab r (explain) Depth of wate</td><td>I surface 6) Aerial Ima oncave S or (C1) (wa ole (C2) (er (in.)</td><td>agery (B7) Surface (B8 /in 12") w/in 24")</td><td>Secc. 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2</td><td>Dindary Indicato Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. d. d or s Salt Deposits (Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T</td><td>ors (at least ; Leaves (B9 erns (B10) _ oheres on Li educed Iron soil color cha C5) essed Plants osition (D2) ard (D3) perch H2O hic Relief (D est (D5)</td><td>2 are required)) ving Roots (C3) (w/in 12") (C4) ange w/in 12") s (D1) w/in 12") i4) (caused by water)</td></td<>	Soil Map Uni oly, msr from soi ace Soil Cracks (B lation Visible on A sely Vegetated Co Deposits (B15) ogen Sulfide Odor Season Water Tab r (explain) Depth of wate	I surface 6) Aerial Ima oncave S or (C1) (wa ole (C2) (er (in.)	agery (B7) Surface (B8 /in 12") w/in 24")	Secc. 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Dindary Indicato Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. d. d or s Salt Deposits (Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	ors (at least ; Leaves (B9 erns (B10) _ oheres on Li educed Iron soil color cha C5) essed Plants osition (D2) ard (D3) perch H2O hic Relief (D est (D5)	2 are required)) ving Roots (C3) (w/in 12") (C4) ange w/in 12") s (D1) w/in 12") i4) (caused by water)
Type: PJ Depth (inches) Comments:	ndicators (check or ny one indicator is su 1) (A2) (w/in 12") w/in 12") is (B2)) t (B4)) from ground surfact t? Yes Yes	Initial Spars Initial Spars <td< td=""><td>Soil Map Uni Doly, msr from soi ace Soil Cracks (B lation Visible on A sely Vegetated Co Deposits (B15) ogen Sulfide Odor Season Water Tab r (explain) Depth of wate Depth to wate</td><td>I surface 6) Aerial Ima oncave S oncave S oncave S oncave S (C1) (wo ole (C2) (er (in.) er (in.)</td><td>agery (B7) Surface (B8 /in 12") w/in 24")</td><td>Seco 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2</td><td>Dindary Indicato Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. d. d or s Salt Deposits (Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T</td><td>ors (at least ; Leaves (B9 erns (B10) _ oheres on Li educed Iron soil color cha C5) essed Plants osition (D2) ard (D3) perch H2O hic Relief (D est (D5) dominants ></td><td>2 are required)) ving Roots (C3) (w/in 12") (C4) ange w/in 12") s (D1) w/in 12") i4) (caused by water) • # FACU+UPL dominants</td></td<>	Soil Map Uni Doly, msr from soi ace Soil Cracks (B lation Visible on A sely Vegetated Co Deposits (B15) ogen Sulfide Odor Season Water Tab r (explain) Depth of wate Depth to wate	I surface 6) Aerial Ima oncave S oncave S oncave S oncave S (C1) (wo ole (C2) (er (in.) er (in.)	agery (B7) Surface (B8 /in 12") w/in 24")	Seco 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Dindary Indicato Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. d. d or s Salt Deposits (Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T	ors (at least ; Leaves (B9 erns (B10) _ oheres on Li educed Iron soil color cha C5) essed Plants osition (D2) ard (D3) perch H2O hic Relief (D est (D5) dominants >	2 are required)) ving Roots (C3) (w/in 12") (C4) ange w/in 12") s (D1) w/in 12") i4) (caused by water) • # FACU+UPL dominants
Type: Depth (inches) Comments: Comm	ndicators (check or y one indicator is su 1) (A2) (w/in 12") w/in 12") is (B2)) t (B4)) from ground surfact t? Yes Yes Seepir Yes ge)	Ifficient) Surfa Surfa Inund Spars Marl I Hydro Y Dry-S Other No <u>M</u> ng in at that No <u>M</u>	Soil Map Uni Doly, msr from soi ace Soil Cracks (B lation Visible on A sely Vegetated Co Deposits (B15) ogen Sulfide Odor Geason Water Tab r (explain) Depth of wate Depth to wate depth but not yet Depth to sat. Epi Endo	I surface 66) Aerial Ima oncave S r (C1) (w. ole (C2) (er (in.) er (in.) t filled: (in.) Unknow	agery (B7) Surface (B8 /in 12") w/in 24")	Secc - - - - - - - - - -	ondary Indicato Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. α.α or s Salt Deposits (Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T ¢ OBL+FACW	ors (at least ; Leaves (B9 erns (B10) _ oheres on Li educed Iron soil color cha C5) essed Plants osition (D2) ard (D3) perch H2O hic Relief (D est (D5) dominants >	2 are required)) ving Roots (C3) (w/in 12", (C4) ange w/in 12") s (D1) w/in 12") i4) (caused by water) • # FACU+UPL dominants
Type: PJ Depth (inches) Depth (inches) Comments: Comments: Primary Indicators (and Mydrology Internation (A) Surface Water Carly Migh Water Table Mathematical Surface Water (A) Migh Water Table Saturation (A3) (where Water Marks (B1) Sediment Deposits (B3) Sediment Deposits (B3) Drift Deposits (B3) Magal Mat or Crust Magal Mat or Crust Surface Water Present Staturation Present? Saturation Present? Saturation Present?	ndicators (check or y one indicator is su 1) (A2) (w/in 12") w/in 12") is (B2)) t (B4)) from ground surfact t? Yes Yes Seepir Yes ge)	Ifficient) Surfa Surfa Inund Spars Marl I Hydro Y Dry-S Other No <u>M</u> ng in at that No <u>M</u>	Soil Map Uni Doly, msr from soi ace Soil Cracks (B lation Visible on A sely Vegetated Co Deposits (B15) ogen Sulfide Odor Geason Water Tab r (explain) Depth of wate Depth to wate depth but not yet Depth to sat. Epi Endo	I surface 66) Aerial Ima oncave S r (C1) (w. ole (C2) (er (in.) er (in.) t filled: (in.) Unknow	agery (B7) Surface (B8 /in 12") w/in 24")	Secc - - - - - - - - - -	ondary Indicato Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. α.α or s Salt Deposits (Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T ¢ OBL+FACW	ors (at least ; Leaves (B9 erns (B10) _ oheres on Li educed Iron soil color cha C5) essed Plants osition (D2) ard (D3) perch H2O hic Relief (D est (D5) dominants >	2 are required)) ving Roots (C3) (w/in 12") (C4) ange w/in 12") s (D1) w/in 12") i4) (caused by water) • # FACU+UPL dominants
Depth (inches) Comments: 1. 1. 2. 3. YDROLOGY Wetland Hydrology In Primary Indicators (and Market (B1) A Surface Water Table Saturation (A3) (we market Market Market (B1) Sediment Deposits Saturation (A3) (we market (B1) Sediment Deposits (B3) Drift Deposits (B3) Algal Mat or Crusic Drift Deposits (B3) Market Market Present Saturation Present? Saturation Present? Saturation Present? Saturation Present? Saturation Present? Saturation Present? Saturation Present?	ndicators (check or y one indicator is su 1) (A2) (w/in 12") w/in 12") is (B2)) t (B4)) from ground surfact t? Yes Yes Seepir Yes ge)	Ifficient) Surfa Surfa Inund Spars Marl I Hydro Y Dry-S Other No <u>M</u> ng in at that No <u>M</u>	Soil Map Uni Doly, msr from soi ace Soil Cracks (B lation Visible on A sely Vegetated Co Deposits (B15) ogen Sulfide Odor Geason Water Tab r (explain) Depth of wate Depth to wate depth but not yet Depth to sat. Epi Endo	I surface 66) Aerial Ima oncave S r (C1) (w. ole (C2) (er (in.) er (in.) t filled: (in.) Unknow	agery (B7) Surface (B8 /in 12") w/in 24")	Secc - - - - - - - - - -	ondary Indicato Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. α.α or s Salt Deposits (Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T ¢ OBL+FACW	ors (at least ; Leaves (B9 erns (B10) _ oheres on Li educed Iron soil color cha C5) essed Plants osition (D2) ard (D3) perch H2O hic Relief (D est (D5) dominants >	2 are required)) ving Roots (C3) (w/in 12") (C4) ange w/in 12") s (D1) w/in 12") i4) (caused by water) • # FACU+UPL dominants
Type: PJ Depth (inches) Comments: 1. 2. 3. YDROLOGY Wetland Hydrology In Primary Indicators (an A Surface Water (A' High Water Table A Surface Water (A') High Water Table Saturation (A3) (w W Water Marks (B1) Sediment Deposits (B3) Drift Deposits (B3) Drift Deposits (B3) P Algal Mat or Crust M Iron Deposits (B5) Field Observations (in. Surface Water Present Nater Table Present? Saturation Present? Saturation Present?	ndicators (check or y one indicator is su 1) (A2) (w/in 12") w/in 12") is (B2)) t (B4)) from ground surfact t? Yes Yes Seepir Yes ge)	Ifficient) Surfa Surfa Inund Spars Marl I Hydro Y Dry-S Other No <u>M</u> ng in at that No <u>M</u>	Soil Map Uni Doly, msr from soi ace Soil Cracks (B lation Visible on A sely Vegetated Co Deposits (B15) ogen Sulfide Odor Geason Water Tab r (explain) Depth of wate Depth to wate depth but not yet Depth to sat. Epi Endo	I surface 66) Aerial Ima oncave S r (C1) (w. ole (C2) (er (in.) er (in.) t filled: (in.) Unknow	agery (B7) Surface (B8 /in 12") w/in 24")	Secc - - - - - - - - - -	ondary Indicato Water-Stained Drainage Patte Oxid'd Rhizosp Presence of R (pos. α.α or s Salt Deposits (Stunted or Stre Geomorphic P Shallow Aquita (w/in 24", can Microtopograp FAC Neutral T ¢ OBL+FACW	ors (at least ; Leaves (B9 erns (B10) _ oheres on Li educed Iron soil color cha C5) essed Plants osition (D2) ard (D3) perch H2O hic Relief (D est (D5) dominants >	2 are required)) ving Roots (C3) (w/in 12") (C4) ange w/in 12") s (D1) w/in 12") i4) (caused by water) • # FACU+UPL dominants



Site 109. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 109. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 109. KGB Road Wetland Delineation – Photo taken July 21, 2011



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Site 109. KGB Road Wetland Delineation – Photo taken July 21, 2011

WETLAND DETERMINATION DATA FORM - Alaska Region

Project: KGB ROND	Borough/Ci	ity: IPTro	7 - 合	R	Date: 7	121/2011
Applicant/Owner: AK 1200 \$ FF					Sampling	Point #: 110
nvestigator(s): Cor d 6x			Firm: H	DR Alaska, Inc.		1
at. (dec.") 61-55526 Long. 149.5	0537 ±_' NA	D 83 Rec	corded or	GPS #: Mar	ked on map? _	Field Map #: 4
Subregion (circle one): SE Southcentral Western	Aleutian Interior	Northern	Landfor	m: FLANT	Slope (%);	Aspect:
Shape across slope: (inear) / convex / concave S	hape up/downslope: li	inear / con	vex / con	cave NWI	classification:	P554/1B
Photo nos./descriptions: (VEG) 0550 -1 (Se	112 0548-9	Camera	#:	Veg Type (Viereck	Level 4 or oth	er):
Are climatic / hydrologic conditions on the site typica				and the second sec		
Are Vegetation, Soil, or Hydrology si						and the second sec
Are Vegetation, Soil, or Hydrology na				and the second sec		
SUMMARY OF FINDINGS						
Hydrophytic Vegetation Present? Yes 🗸	No		124255			
Hydric Soil Present? Yes 🗸		s the sam within a w			lo	
Wetland Hydrology Present? Yes _/	No			Remarks (e.g.,	marginal?);	
/EGETATION (Use scientific names.)					and Q (next)	
				Dominance Test	worksheet:	
<u>Tree Stratum</u> (dbh≥ 3") Sp. Abs.Cov.% Dom? Ind. Spe	cies Abs.Cov.	0/ Dam2	Ind	Number of Densis	ant Canadian	7
	cles Abs.Cov.		ind.	Number of Domin That are OBL, FA		(A
Contraction of the second seco				Total Number of I	- Million Correct	0
			-	Species Across A		
4 8						
Total Tree Cover:	15			Percent of Domin That are OBL, FA		100 (A/E
50% of total cover: _ 7.5	20% of total cove	er: 3		Prevalence Index		
Sapling/Shrub Stratum (woody plants < 3" dbh)				Total % C	over of	Multiply by:
Abs.Cov.% Dom? Ind.	Abs.Cov.%	6 Dom?	Ind.	OBL species	6	X1= 6
	L WAR 20		Foch	FACW species	90	X2= 180
2.100 040 15 K Fac 8.				FAC species	21	x3= <u>63</u>
3) CHACAL ZO X FACW 9.		_	_	FACU species	10	x4= 40
4. Les Che 25 X FacW 10.		-		UPL + NL species	0	
			-			X5= 0 289 (B
6. VAC VIT 5 Fac 12	00		-	Column Totals:	127 (A)	(B
Total Sapling/Shrub Cover:	78	19 1				000
50% of total cover:	20% of total cover: _	19.6		Prevalence In	dex = B/A =	2.28
Herb Stratum						
Abs.Cov.% Dom? Ind. 1. RUS SHA 5 X FacW12	Abs. Cov.%	Dom?	Ind.			
1. RUS GHA 5 × tacW12. 2. ERI RIIS 5 × FacW13.		\rightarrow	-	Hydrophytic Veg	etation Indica	tors:
3. EGA FUL 3 X OBL 14.			-	× Dominance	e Test is>50%	
the second se		_		X Prevalence	e Index is ≤3.0	
5. CAL CAN 1 Fac 16.				Morpholog	ical Adaptation	s ¹ (Provide supportin
6 17			_			separate sheet)
7 18,	<u></u>		_	Problemati	c Hydrophytic V	Vegetation ¹ (Explain)
8 19					- Weiter And	- Several (mobility)
9 20 20		-	-	1		
10 21 11 22			-	be present unless		land hydrology must roblematic.
Total Herb Cover:	14		-	P. G. Constant Stranger	1	
	20% of total cover: _	75			1.0	
			-	Hydrophytic Vegetation	Yes X	No
				- versioner		
Circular 1/10-ac plot <u>V</u> or other plot dimension: _ % Cover of Wetland Bryophytes <u>N/A</u> %			50	Present?	1.1	

US Army Corps of Engineers

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SOIL									Sampling Point #: 110
Profile Descript	ion: (Describe to the d	epth needed	to document the	indicator	r or confirm	the abs	ence of indicate	ors)	
Depth Horizo	on Soil Matrix	<u>(</u>	Re	dox Fea	tures			a,a dip.	
(in.) Name	e <u>Color (moist)</u>	%	Color (moist)	%	Type ¹	Loc ²	Texture	(pos/	Remarks
0-10 02				1				neg)	(or use comment number)
10-12 00				_			1000	-	*.
- IF 00									
								4	
·						-			
					· inner				
						-			
				-					
Contraction of the second second								Lining, RC	= Root Channel, M = Matri
Hydric Soil Indi	cators (check ones tha	t apply, msr	from top of mine	eral laye	ers unless	otherwi	se noted):		
			Indicators for	or Proble	ematic Hyd	dric Soil	s ³ :		
	Histel (A1) (≥16"organic		N_ Alaska	Color Cl	ange ⁴ /TA	41	³ Or	ne indicator	of hydrophytic vegetation,
	g wet period of growing		Alaska	00101 01	lange (IA	(4)			licator of wetland
	oipedon (A2)(8-16" orga by mineral soil with chro		M_Alaska	Alpine S	wales (TA	5)			an appropriate landscape e present unless disturbed
	Sulfide (A4) (w/in 12"of g						orp	problematic.	
surface; @	" in this pit	, surra	Alaska	Redox w	vith 2.5Y H	ue	⁴ Gi	ve details of	color change in Remarks.
A Thick Dark	Surface (A12)		N_ Alaska	Gleyed	without Hue	e 5Y or F	Redder		
			Underly	ing Laye	er				
M_Alaska Gle			N Other (e	e.g., see	p.91 of 20	07			
Alaska Red	ox (A14)		Suppler	ment; ex	plain in Re	marks)			
Alaska Gle	ed Pores (A15)								
Restrictive Layer	(if present)		Drainage Cla	ss: Po	orig				1
Туре:			Soil Map Unit	Name:	DRAWE	D Hy	dric Soil Pres	ent?	Yes No
Depth (inche	s)								
1. FROZEN (2. 3. HYDROLOGY		_							
the second s	ogy Indicators (check o	ones that app	ly msr from soil	surface	e):	Sec	condary Indicate	ors (at least	2 are required)
State and the State of the	s (any one indicator is s				-//-		Water-Stained	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
N Surface Wat			ce Soil Cracks (B	6)			Drainage Patte		1
T	able (A2) (w/in 12")		ation Visible on A		ageny (B7)				iving Roots (C3) (w/in 12")
V Saturation (A						A 19	Presence of R		
	COLOR DE LA COL		ely Vegetated Co	incave a	unace (Bo	11	(pos. a.a or s	soil color ch	ange w/in 12")
Water Marks			Deposits (B15)			10	Salt Deposits (the second second second	
A Sediment De		17	gen Sulfide Odor	1 1 1 C 1	and the second	4	Stunted or Stre		2. A. J. 1997
Drift Deposits	s (B3)	Dry-S	eason Water Tab	le (C2) (w/in 24")	1	Geomorphic P		
Algal Mat or	Crust (B4)	M_ Other	(explain)			M	Shallow Aquita		with down
N Iron Deposits	(B5)					1	(w/in 24", can		A CONTRACTOR OF A REAL PROPERTY
repusits	(65)			-		N V	FAC Neutral T		04) (caused by water)
									# FACU+UPL dominants)
Field Observation	is (in. from ground surfa	ce): /							
Surface Water Pr	esent? Yes	No /	Depth of wate	er (in.)					
Water Table Pres	ent? Yes 🗸	No	Depth to wate	er (in.)	3				
	Seep	ing in at that	depth but not yet	filled:					1
Saturation Preser		No	Depth to sat.			Wei	land Hydrolog	v Present?	Yes No
(includes capillary	George States			Unknow			auna nyarong	ly i resenti	10310
	ed Data (stream gauge,	monitoring w				ons), if av	/ailable:		
2010				a second					
Remarks:	and the second	an in	. 02						
SEN	some freet	@ 12	5						



Site 110. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 110. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 110. KGB Road Wetland Delineation – Photo taken July 21, 2011



Site 110. KGB Road Wetland Delineation – Photo taken July 21, 2011

Appendix A Wetland Assessment Data Form

Use this form to assess areas that are primarily wetlands (versus waterbodies). For waterbodies, use the Waterbody Categorization Form.

SEE 108 TD EVIT

	waterbody poter		proposed project _ Other	Mitigation wetlands; pre-c	onstruction	
Approx. statio Lat/long: <u>N 6</u> Watershed: <u>6</u> dentifying numb PS waypoint # _ hap (#) showing triefly describe WETHAT	Nor S (circle one ning or milepos 55531 o Cortonwood Ck ers of related d 108 AA: <u>4</u> the features tha 10 PLAM al acres, not just	its or pertinent pro 	Ject component: Datum: _NAD 8: stream), tributary of mination forms4 //0, //(office AA (e.g., tribut: AFC (visually estimate	AT 17 (Por S; R L E or LOCATED WEST Nearest community KNIK ARM EC 18 - 111 photos O al instructions for identifying the ary, wetland/upland boundary, wetland/upland boundary, ed) or <u>15 acres (measuressed using the waterbody for</u>	EF WAKEWOOD WASILLA oregion (from USCOE 20 538 - 0557 e AA) extreme low tide elevation easured, e.g., in GISD	<u>PR ON N</u> SI 1007): <u>Cook (NLET</u>) DON):
		Vaterbody in the W	letland AA:		im: <u> </u>	s of <u>wetland</u> in AA.
Class (Cowardin)	Water Regime (Cowardin)	Modifier (if any; % Cowardin)	(FO), Scru	Classes: Forested Wetland b-Shrub Wetland (SS),	HGM Class (Brinson)	% of AA
55/EM	5/I	K NIA /		Wetland (EM), Moss-lichen IL), Aquatic Bed (AB), ed (UN)	F	100%
EM	5/I T/E	ZNIA Z BNIA O	3% Water (Inu Permanen Seasonal/	ndation) Regimes: /Perennial (P/P), ntermittent (S/I), /Ephemeral/Saturated (T/E)	-	
55			Modifiers:	Excavated (X), Impounded D), Partly Drained (PD),		
55			VIII - MAZZ I	A multi manage (=/i	HGM Classes: Riv	
rmed (F), Artificial . Estimated relati e definitions in use (Circle one)	ve abundance (i r's manual): Unknown	of similar wetlands <10%	within the same 6 th lev	el hydrologic unit subregion, O //o nt	Depressional (D), S Lacustrine Fringe (L	
rmed (F), Artificial . Estimated relati e definitions in use (Circle one) nat information sou	ve abundance (r's manual): Unknown urces did vou use	of similar wetlands	Abunda	o '/o nt	Depressional (D), S Lacustrine Fringe (L	F)
rmed (F), Artificial . Estimated relati e definitions in use (Circle one) hat information sou	ve abundance (r's manual): Unknown urces did vou use	of similar wetlands	Abunda	o '/o nt	Depressional (D), S Lacustrine Fringe (L	F)
rmed (F), Artificial Estimated relati e definitions in use (Circle one) hat information sou SouPC+S: C ₁ /S (ve abundance (r's manual): Unknown urces did you use - co - to AUCS, Coo)	TON WOOD CR	Abunda Abunda Abunda Abunda Abunda Abunda Abunda Abunda Abunda Abunda Abunda Abunda Abunda Abunda Abunda	el hydrologic unit subregion, origination (H LINEL) OF FROM NWI MC (MSB, NATIONAL COTTON WOOD	Depressional (D), S Lacustrine Fringe (L HUN) 41750 APPING 631 HIS 11	F) cres of Wett acres of SS Stort Hue 6 OPY, AUSHED

Wetland Assessment Form Page 1 of 7

12. General condition of AA:

i. Disturbance (see User's manual for descriptions of disturbance levels):

Conditions adjacent to AA	Predominant conditions adjacent to (within 500 feet of) the AA, <u>plus</u> any area that drains into the AA										
Conditions within AA	Adjacent land is in a natural state	Adjacent land has experienced minimal or minor disturbance	Adjacent land is substantially disturbed								
AA is in a natural state	low disturbance	low disturbance	moderate disturbance								
AA has experienced minimal or minor disturbance	moderate disturbance	moderate disturbance	high disturbance								
AA is substantially disturbed	high disturbance	high disturbance	high disturbance								

Describe the disturbance within the AA (type, age, intensity, source of disturbance, location):

SURARBEN DEVELORINGINT, MODERATE INTELSIS

II. Consider the 6th level HU containing the AA again. If you estimate that more than 10% of the land in the 6th level HU is disturbed, eircle those bold words, cross out the disturbance level you selected in the matrix above and write in the next higher level of disturbance in the same box.

Developed Area works of the level HU members much of washing on the same box.

Phileum Pratematical Area Phile Phile

ill. List any noxious or invasive plant or animal species in the AA or surrounding lands (specify which are in the AA):

TUPICAL ROADSIDE WEEDS; VIL ERA. FEW WEEDS IN CONTRANDS

iv. Briefly describe the AA and surrounding land use and habitat types (dominant species, water source, topography, approximate slope, Trife liven inlets and outlets, land use, relationship to other AAs, adjacent vegetation types and land uses):

Taraxacum SP

CANDIGE SUBATISAN, RESIDENTIAL CONVERSION

HABITAT TYRES BLACK STRUCE / EUL BEREINT BOG

HABITAT TYPE : WINKED DEFELOR

13. Structural Diversity of AA: (based on number of simplified Cowardin vegetated classes present, listed in #10 above)

Existing # of Cowardin vegetated classes in AA	Rating
≥3 classes; or 2 classes if 1 is forested	н
2 classes; or 1 class if forested	M
1 class, and humans do not prevent establishment of additional classes	M
1 class, and humans limit establishment of additional classes	L

14A. Habitat for Federally Listed or Candidate Threatened or Endangered Plants or Animals or Other Species of Concern: i. Species, Documentation, and Habitat Importance.

AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):

Primary or critical habitat (list species)	D	S	species:	
Secondary habitat (list species)	D	S	species:	
Incidental habitat (list species)	D	S	species:	
None or unknown				

ii, Rating (use the conclusions from 14A.i. above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/ primary	sus/ primary	doc/ secondary	sus/ secondary	doc/ incidental	sus/ incidental	none or unknown
One or more of the species listed in 14A.i. is a federally Listed or Candidate Threatened or Endangered Species	1H	.8H	.9M	.7M	.3L	.1L	OL
Species listed in 14A.i. are all "Other Species of Concern" (i.e., not listed under the Endangered Species Act)	.8M	.7M	.6M	.5M	.2L	.1L	OL

Sources for documented or suspected use (e.g., observations, records, etc):

iii. Final Score and Rating: D- None Enter on the summary page on the Habitat for Federally Listed Species row.

14B. General Wildlife Support Rating:

i. Evidence of overall wildlife use in the AA (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- ____ observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ____ presence of extremely limiting habitat features not available in the surrounding area
- ____ interviews with local biologists with knowledge of the AA or its habitat type

Moderate (based on any of the following [check]):

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- upland food sources exist in moderate quantity
- interviews with local biologists with knowledge of the AA or its habitat type

II. Wildlife habitat features Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating.

Structural diversity is from #13.

For class cover to be considered evenly distributed, the most and least prevalent vegetated classes must be within 20% of each other in terms of their percentage of the AA (see #10).

Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent See instructions for further definitions of these terms.

Structural diversity (from #13)		High							Moderate								Low				
Class cover distribution (all vegetated classes)		Eve	en			Uneven			Even					Uneven				Even			
Longest duration of surface water iŋ ≥ 10% of AA, or immediately abutting the AA	P/P	s/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	TE	А	P/P	S/I	T/E	A	
Low disturbance at AA (see #12i & 12ii)	E	E	E	н	E	E.	н	н	E	н	Н	м	E	н	M	м	E	н	м	M	
Moderate disturbance at AA (see #12i & 12ii)	Н	н	Н	н	н	н	н	м	н	Н	М	м	н	м	М	L	н	м	L	L	
High disturbance at AA (see #12i & 12ii)	М	м	М	L	М	м	L	L	м	М	L	L	М		Ø	L	L	L	L	L	

>

iii. Rating (use the conclusions from i. and ii. above and the matrix below to arrive at [circle] the functional points and rating)

And the second second		~		
Evidence of wildlife use (i)	Exceptional	Wildlife habitat fe High	Moderate	(Low)
Substantial	1E	.9H	.8H/	.7M
Moderate	.9H	.7M	(SM)	(.3L)
Minimal Lolor	.64	.4M	2L	11

-

iv. Final Score and Rating: _____Enter on the summary page on the General Wildlife Support row. Comments:

14C. General Fish Support Rating: (Assess this function if any part of the AA (including the waterbody part of a wetland AA) is used by fish or the existing situation is "correctable" such that the AA could be used by fish. If the AA is not used by fish, fish use is not restorable, or is not desired from a management perspective, then circle NA here and proceed to 14D.)

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Perma	anent / Peren	nial	Seaso	nal / Intermitt	ent	Temp	orary / Ephen	meral	
Aquatic hiding / resting / escape cover in waterbody(Table 3 in manual)	Optimal	Adequate	Poor	Optimal	Adequate	Poor	Optima I	Adequate	Poor	
Anadromous salmon species	1E	.8H	.6M	.9H	.7M	.5M	.7M	.5M	.3L	
Resident and non- salmon sport and subsistence species	.9H	.7M	.5M	.8H	.6M	.4M	.6M	.4M	.2L	
Other resident species	.8H	.6M	.4M	.7M	.5M	.3L	.5M	.3L	.10	

Sources used to identify fish species potentially found in AA: NOT OSED BY FIGH

-Minimal-(based on any of the following [check]):

- ___ few or no wildlife observations during peak use periods
- little to no wildlife sign
- ____ sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

EDITS CW 7/29/1 ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA precluded or substantially reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current Alaska Department of Environmental Conservation list of Category 5 / Section 303(d) Impaired Waterbodies (unless its impaired uses are named and aquatic life is not listed as impaired)? NA

N If yes, reduce the score in 14C.i. by 0.1: Y

(If no, do not change the score.)

b) Do noxious or invasive plant species or invasive fish species (see Appendices F and G) occur in the AA? Y N If yes, reduce the score in 14C.i. by 0.1; N/A (If no, do not change the score.)

N/A Enter on the summary page on the General Fish Support row. iii. Final Score and Rating: Comments:

14D. Water Storage: (Applies to wetlands that flood or pond from overbank flooding, precipitation, or overland flow from uplands. If no wetlands in the AA are subject to inundation or ponding, circle NA here and proceed to 14E.)

Rating

Estimate the variation in the water volume stored in the wetland portion of the AA that experiences surface ponding or flooding during the typical year, between break-up and freeze-up. First, identify the part of the AA that is both wetland and has surface water sometime between breakup and freeze-up (the "flooded wetland"). Estimate its area in acres: $\frac{4.83}{2}$ acres = A.

Second, estimate the range in that flooded wetland's water surface elevation between its lowest and highest elevation during the unfrozen period, in feet. Call this D for depth: 0.33 feet = D. For example, if the water table is typically one foot below the ground surface during the driest part of summer, and is typically 6 inches above the surface following breakup, the range is 18 inches, or 1.5 feet. Consider evidence such as water marks, staining on vegetation or rocks, drift lines, and the depth to the water table in your soil pit. Consider also the elevation of the wetland surface relative to the elevation of the water surface in an adjacent stream (i.e., does the channel overflow its banks into the wetland?). During a flood, the depth of water over a stream channel is likely to be double its depth when the stream is full to its banks. Consider the area the stream would flood when the water is that deep.

Multiply the range in the flooded wetland's water surface elevation (D) times the area (A) to estimate the maximum storage volume in acre-feet. D 0.33 feet X A 4,83 acres = 1,59 acre-feet. Use this storage volume estimate in the matrix below.

Next, determine the portion of the flooded wetland that is forested, shrub-dominated, or is neither of those but is dominated by hummocks or tussocks at least one foot in height: % of AA that experiences water surface fluctuation that is forested or scrub/shrub <u>75</u>% plus the additional % of the flooded wetland that is hummocky <u>0</u>% = <u>75</u>% of flooded wetland with water-slowing roughness. Use this percentage in the second row of the matrix below.

Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating.

Estimated maximum acre-feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	4	>5 acre-fee	ţt	(1	to 5 acre-fe	et	<1 acre-foot		
% of flooded wetland classified as forested or scrub/shrub or dominated by hummocks > 1 foot tall	>75%	25-75%	<25%	>75%	25-75%	<25%	>75%	25-75%	<25%
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	(.7M)	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	,8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

ii. Final Score and Rating: Enter on the summary page on the Water Storage row. Comments:

iii. Potential Property Protection

Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? N) Comments: AA 4 10 ACRES Y

14E. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants, through influx of surface or ground water or direct input. If no wetlands in the AA are, or with the planned project will be, subject to such input, circle NA here and proceed to 14F.)

Wetland Assessment Form Page 4 of 7

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the fu

Sediment, nutrient, and toxicant input levels within AA	delive toxicants not substa sources	sed future la er levels of s at levels su antially impa of nutrients hication are	ediments, nu ch that other aired. Minor s or toxicants present, or s	potential to trients, or functions are edimentation,	Impaired Waterbodies or AA receives or surrounding land use has notantial to different surrounding				
% cover of vegetation in AA		Sus	pected.		unnatural tur	bidity, or signs presen	s of eutrophic	cation are	
Evidence of flooding / ponding in AA AA contains no or restricted outlet	(Yes)	No	Yes	70%	≥70		1	0%	
AA contains unrestricted outlet	(H)	.8H	.7M	No _5M	Yes	No	Yes	No	
and a sum estricted outlet	.9Ĥ	.7M	.6M	.5M	.5M	.4M	.31	.2L	
ii. Final Score and Rating	F Entor	on the sume		.4101	.4M	.3L	.2L	.1L	

Comments:

ummary page on the Sediment/Nutrient/Toxicant Retention row.

POTENTIAL BRISTS IF PROJECT UNDER H IS BUILT . LIPLAND BUFFE

14F. Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or ETWEEN ROAD & WE-LAND WILL LIKELY REDUCE on the shoreline of a standing water body which is subject to wave action. If 14F does not apply, circle NA here and proceed to 14G.) Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional point INTER

For the wetland a

to erosive forces, % cover of pecies with deep, soil-binding	Duration of su	tation in the AA		
root masses	Permanent / Perennial	Seasonal / Intermittent		
≥ 65%	1H		Temporary / Ephemera	
35-64%	.7M	.9H	714	
< 35%	21	.6M	.7M	
Final Score and Rating:	.3L	.2L	.5M	

ii. Final Score and Rating: _ Enter on the summary page on the Sediment/Shoreline Stabilization row. Comments:

14G. Production Export/Terrestrial and Aquatic Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat	Genera	Wildlife Hapitat Rating (14B.iii.)
Rating (14C.iii.)	E/H	Mana Kating (14B.iii.)
E/H	Н	
M	Н	M M
L	M	M M
NA	М	the second

CW EDMS 10/4/11

.1L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating.

Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14G.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are a

B	Hi	gh		ponent lerate		low		Vegetated component 1-5 acres				Vegetated component <1 acre							
-	Yes	No	Yes	No	Yes	No		10000	Mod	lerate)	L	ow	H	ligh			<1 acre	1	EDI
P/P	1H	.7M	.8H	.5M	.6M		Yes	NO	Yes	(No)	Yes	No	Yes	T		erate	L	ow	CU
5/1	.9H	.6M	.7M	.4M		.4M	.9H *	.6M	.7M	.4M	.5M	.3L		No	Yes	No	Yes	No	7/
/E	1			.4W	.5M	(.31)	.8H	.5M	.6M	.3L	.4M		.8H	.6M	.6M	.4M	.3L	.2L	1
rA	.8H	.5M	.6M	.3L	.4M	66		0		Q	.4111	.2L	.7M	.5M	.5M	.3L	31	.2L	1 +
				1.000		e e	.7M	(AM)	.5M	(2)	.3L	11	.6M	.4M	.4M			.21	++

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.)

Vegetated Upland Buffer: Area with ≥ 30% plant cover, ≤ 2% noxious or invasive plant cover, and that is not subjected to periodic mechanical mowing a) Is there an average ≥50-foot-wide vegetated upland buffer around ≥75% of the AA circumference?

N If yes, add 0.1 to the score in 14G.ii. above and adjust the rating accordingly: 0.3L iv. Final Score and Rating: DESTM_Enter on the summary page on the Production Export row.

Comments:

Wetland Assessment Form Page 5 of 7

14H. Groundwater Discharge/Recharge: (Check the appropriate indicators in i. and ii. below.)

i. Discharge Indicators

- The AA is a slope wetland (HGM type)
- Springs or seeps are known or observed
- Vegetation growing during dormant season
- Wetland occurs at the toe of a natural slope
- AA permanently flooded during dry periods
- Wetland contains an outlet, but no inlet Other:

ii. Recharge Indicators (NA for fringe wetlands)

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge decreases downstream
- Other:

iii. Rating (use the information from i. and ii. above and the table below to arrive at [circle] the functional points and rating)

Criteria	Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM								
	P/P	S/I	THE	None					
Groundwater Discharge or Recharge Indicators Exist	1H	.7M	(AM)	.1L					
Permafrost Underlies Wetland or Insufficient Information Exists		N	IA						

4m iv. Final Score and Rating: _Enter on the summary page on the Groundwater Discharge/Recharge row. Comments:

14I. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Replacement potential	wetla springs yr-old) OR a pla	ontains irrep and types [fer , seeps, or m forested we ant associati G1, or G2 by (Appendix	ns, bogs, lature (>80- tland type] on listed as the AKNHP	wetla dive contain as S:	not contain i nd types and s rsity (#13) is i s plant associ 3, G3, S?, or G KNHP (Appen	structural high OR iation listed 3? by the	AA does not co irreplaceable wetland structural diversity (a to moderate (Appe		nd types and (#13) is low	
Estimated relative abundance of wetland types (from 11)	rare	common	abundant	rare	common	abundant	rare <	common	abundant	
Low disturbance at AA (from 12.i. and ii.)	1H	.6M	.5M	.8H	.5M	.4M	.7M	.4M	.3L	
Moderate disturbance at AA (from 12.i. and ii.)	.9H	.5M	.4M	.7M	.4M	.3L	.6M	.3L	.2L	
High disturbance at AA (from12.i. and ii.)	.7M	.3L	,2L	.5M	.2L	.1L	4M	(.1L)	.1L	

ii. Final Score and Rating: 011 Enter on the summary page on the Uniqueness row.

Comments:

14J. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential recreation or education site: (circle) Y (N)(if 'Yes' continue with the evaluation; if 'No' then circle NA here and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ____ Educational/scientific study; ____ Consumptive rec.; ____ Non-consumptive rec.; Other iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

iv. Final Score and Rating: ___ Enter on the summary page on the Recreation/Education Potential row. Comments:

General Site Notes:

FUNCTION AND SERVICE SUMMARY	Rating (E, H, M, L)	Actual Functional Points (0 to 1.0)	Possible Functional Points	Optional: Functional Units Affected (Actual Points x AA Acreage Affected)	Indicate the four most prominent functions with an asterisk (*)
A. Habitat for Federally Listed/Candidate T&E Species or Other Species of Concern	r	D	1,0		
B. General Wildlife Support	L	0.3	1.0		
C. General Fish Support	NA	NA	NA	NA	NA
D. Water Storage	M	1,7	61]-	d	1
E. Sediment/Nutrient/Toxicant Removal	H++A	1.0114	13/4	NA	Alta
F. Sediment/Shoreline Stabilization	NIA	NA	NIA	NIA	NIA
G. Production Export/Food Chain Support	610	0.3	1,0	1-11:	6-11-
H. Groundwater-Discharge/Recharge	M	0.4	1.0		
I. Uniqueness	L	0.1	1.0		
J. Recreation/Education Potential (bonus points)	NA	NIA	NA	NIA	NIA
Totals:		2.8	67	11 11 0	-1.1.
Percentage of Possible Score (actual points divided by possible points)	035	28 %			
	0.4	40%			
Category 1 Wetland: Must satisfy one of the follow Score of 0.9 to 1 functional point for Threaten Score of 0.9 or 1 functional point for Uniquene Score of 0.9 or 1 functional point for Water Sto Score of 0.9 or 1 functional point for General F Percent of possible score ≥ 70% (round to nea Percent of possible score ≥ 50% and 6 th level Category 2 Wetland: Criteria for Category 1 not sat Score of 0.8 functional point for Threatened of Score of 0.9 or 1 functional point for General Score of 0.9 or 1 functional point for General Score of 0.8 functional point for General Score of 0.8 functional point for General Score of 0.8 functional point for Uniqueness; Score 0.7 or 0.8 functional point for Water Sto Percent of general before a Score of 0.8 functional point for Water Sto	ed or Endan ess; or orage and an Fish Support arest whole r hydrologic u tisfied and m or Endanger Wildlife Supp al Fish Suppo or or	gered Species nswer to Quest ; or number); or unit subregion h neets any one c ed Species or (port; or port; or	or Other Specie ion 14D.ii. is "ye as already exp of the following Other Species c	es"; or erienced ≥15% lan criteria; otherwise ; of Concern; or	d development. go to Category 4
Percent of possible score ≥ 50% (round to ne Category 3 Wetland: Criteria for Categories 1, 2, ar Does not qualify as Category 1, 2, or 4					
Category 4 Wetland: Criteria for Categories 1 and 2 Vegetated wetland component of AA < 1 acre Score of 0.5 or lower for Uniqueness; and General Wildlife Support is 0.4 or lower; and General Fish Support score is 0.3 or lower; ar	e (do <u>not</u> inclu	d and all of the ude upland veg	following criter etated buffer); ;	ia are met; if not, g and	o to Category 3.

FUNCTION AND SERVICE SUMMARY

If answer to 14D.ii, is "no", score for Water Storage is 0.2, 0.1, or NA; and Is not rated "High" for any function or service; and Percent of possible score < 35% (round to nearest whole number).

OVERALL ASSESSMENT AREA RATING: (circle appropriate category based on the criteria outlined above)

Category: 2 3 1 4

Edi

Wetland Assessment Form Page 7 of 7

Field Collected Data

Photo Points



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