July 2014

Preliminary Wetlands Delineation and Functions and Values Assessment

Dalton Highway Mileposts 0 to 9

DOT&PF Project No. 60911 | Federal Project No. STP-0652(16)

PRELIMINARY WETLANDS DELINEATION
AND
FUNCTIONS AND VALUES ASSESSMENT

DALTON HIGHWAY MILEPOSTS 0 TO 9 RECONSTRUCTION

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LIST OF ACRONYMS

CWA ..... Clean Water Act
DOT&PF……State of Alaska Department of Transportation and Public Facilities
MNWI……Modified National Wetlands Inventory
GIS ..... Geographic Information Systems
LiDAR..... Light Detection and Ranging
MP..... milepost
MS..... material site
NRCS ..... Natural Resources Conservation Service
NWI..... National Wetlands Inventory
PFC ..... proper functioning condition
PWD..... Preliminary Wetlands Delineation
RGL..... Regulatory Guidance Letter
RWD ..... Routine Wetland Determination
TNW ..... traditional navigable waterway
U.S. ..... United States
USDA..... United States Department of Agriculture
USDOI ..... United States Department of the Interior
USACE ..... United States Army Corps of Engineers
USEPA..... United States Environmental Protection Agency
USFWS ..... United States Fish and Wildlife Service
USGS ..... United States Geological Survey
WSDOT ..... Washington State Department of Transportation

EXECUTIVE SUMMARY

The State of Alaska Department of Transportation and Public Facilities proposes to reconstruct and widen Dalton Highway from Milepost 0 to Milepost 9 and reconstruct the intersection of the Dalton and Elliott Highways. Reconstruction includes realignments, grade raises, and construction of turnouts and snowdrift mitigation features, improving safety and reducing maintenance efforts.

In support of this project, DOWL HKM conducted a Preliminary Wetland Delineation for a Study Area comprised of the Dalton Highway Milepost 0 to Milepost 9 and Material Site in 2013 and the area at the Dalton and Elliott Highways intersection in 2014. The Study Area contains four (4) adjoining sections, totaling approximately 1,257.2 acres: the approximate 738.2-acre new highway segment, which includes a 500- to 1,000-foot-wide realignment to the southwest of the existing highway meeting the existing alignment at Milepost 7; the segment from Milepost 7 to Milepost 9, which includes 200 feet on both sides of the existing Dalton Highway centerline; the 237.1-acre area that includes the intersection of the Manley Hot Springs Road and Dalton and Elliott Highways; and the Material Site, which includes 281.9 acres at Mileposts 5.5 to 7 along both sides of the road.

Two environmental specialists conducted a field investigation from September 9, 2013 through September 14, 2013 on the Dalton Highway and material site segments. A second investigation was conducted from June 2, 2014 through June 3, 2014 for the area at the intersection of the roads.

The Study Area is comprised of 436.4 acres of potentially jurisdictional wetlands, 5.3 acres of Waters of the United States (U.S.), and 815.5 acres of uplands.

Wetland functions within the Study Area were the same with varying wetland classes. All the Palustrine emergent, Palustrine forested/scrub-shrub, Palustrine scrub-shrub, and Palustrine scrub-shrub/forested wetlands have an overall moderate functional rating. Ponds and rivers observed within the Study Area were assigned an overall high functional rating.

1.0 INTRODUCTION

A Preliminary Wetland Delineation (PWD) was conducted by DOWL HKM for a Study Area comprised of the Dalton Highway Milepost (MP) 0 to MP 9 and Material Site (MS) during September 2013, and the area at the Dalton and Elliott Highways intersection during June 2014. This report details the classification of wetland and vegetation habitats observed within the Study Area and describes the individual functions and values of each wetland habitat type.

Wetlands are defined by the United States Army Corps of Engineers (USACE) as "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" (USACE, 1987).

This PWD serves to delineate potential USACE jurisdictional areas under authority granted by the Clean Water Act (CWA) Section 404, and to evaluate the hydrological connection of these areas to a "Traditional Navigable Waterway" (TNW).

1.1 Project Description

The State of Alaska Department of Transportation and Public Facilities proposes to reconstruct and widen Dalton Highway from MP 0 to MP 9 and reconstruct the intersection of the Dalton and Elliott Highways. Reconstruction includes realignments, grade raises, and construction of turnouts and snowdrift mitigation features, improving safety and reducing maintenance efforts.

1.2 Study Area Description

The Study Area includes about a 1-mile section of the Elliott Highway and Manley Hot Springs Road, and a 9-mile section of the 414-mile-long Dalton Highway, beginning at the Elliott Highway junction, near Livengood, north of Fairbanks, Alaska. Paralleling the Trans-Alaska Pipeline, the study area terminates at Milepost 9 of the Dalton Highway. (Appendix A, Figure 1).

The Study Area combines four adjoining locations. The 9-mile roadway is broken into two (2) segments: MP 0 to MP 7, which has a new 500- to 1000-foot-wide alignment to the southwest of the current highway and MP 7 to MP 9, along the current alignment with 200 feet on both sides of the Dalton Highway; 275.9 acres around the intersection(s) of the Manley Hot Springs Road

and Dalton and Elliott Highways; and the 281.5-acre MS delineated wetlands from MP 5.5 to MP 7 along the Dalton Highway.

All specified wetlands and uplands occur on Natural Resources Conservation Service (NRCS)-mapped Interior Alaska Highlands-Boreal Upland and Alpine-Rugged Mountains.

1.3 Precipitation Data and Surface Flow

Average annual precipitation for the Livengood, Alaska area is 12.80 inches. During field investigations, two long precipitation events occurred, but no local weather information was found. Surface water was observed downslope along the current alignment; the water was from road runoff. Swales in the area collected sedimentation and were being re-vegetated. Neither precipitation event altered the normal hydrological trends observed within the Study Area.

According to the United States Geological Survey (USGS) topography map, surficial flow for waters and wetlands within the Study Area are hydrologically linked to the Yukon River, through the Tolovana and Tanana Rivers. The Tolovana River runs to the Tanana River, which flows into the Yukon River along with wetlands on the west side of the highway. The Yukon River drains into the Bering Sea, west of the project area.

1.4 Animal Activity

Numerous sightings of moose (*Alces alces gigas*) and bear (*Ursidae sp*) scat were observed during the field investigation. Sightings of red squirrels (*Sciurus vulgaris*) and spruce grouse (*Falcipennis canadensis*) occurred predominantly on upland habitats.

2.0 METHODS

DOWL HKM conducted a PWD in accordance with Part IV of the *Corps of Engineers Wetlands Delineation Manual* (USACE, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (*Version 2.0) (USACE, 2007). This effort includes preliminary data gathering, a field investigation, post-field data review, and Geographical Information Systems (GIS) mapping. A Level III Routine Wetland Determination (RWD) identifies wetlands based upon the three-parameter approach combining site-specific indicators of hydrophytic vegetation, hydric soil, and wetland hydrology. The sampling method

combines the protocol for RWDs in areas larger than five acres, with the observation point protocol used for areas less than or equal to five acres in size.

The Dominance and Prevalence Index Tests determine hydrophytic vegetation (USACE, 2007). Vegetation is hydrophytic, if either test is satisfied.

2.1 Existing Data for the Study Area

The following resources were used for preliminary data gathering and provided a baseline for data collection during field investigation.

- Aerial Photography: High-resolution color aerial photographs of the Study Area, (1.5 feet; State of Alaska Department of Transportation and Public Facilities [DOT&PF], 2010)
- Light Detection and Ranging (LiDAR): 2-foot elevation data of the Study Area (DOT&PF, 2012)
- NRCS Soil Survey (United States Department of Agriculture [USDA], 1995)
- U.S. Fish and Wildlife Service (USFWS, March 2013 National Wetlands Inventory (NWI) Maps)

2.2 Field Methods

Two environmental specialists conducted a field investigation from September 9 through September 13, 2013 and June 2 through June 3, 2014. A pedestrian survey was completed with wetland sampling occurring approximately once every one-quarter mile along the highway corridor and randomly selected in the material site to identify boundaries. The Study Area was divided into sampling areas based on aerial photograph interpretations of distinct vegetative communities and verified by ground truthing. Larger tracts of a particular plant community received more sampling points than smaller communities. Photographs were taken at each sampling point to document vegetation and general community characteristics.

At sampling locations where standing water or complete saturation was absent, soil pits were excavated to depths of at least 24 inches, or to the presence of a restrictive layer. Soil and hydrology characteristics of texture, color, and saturation were recorded. Hydrology

characteristics of depth to saturated soils and water table were recorded. Soil color was determined using *Munsell Soil-Color Charts* (2000). Sampling locations were considered a full sample point only upon excavation of a soil pit.

Vegetation species, stratum, and coverage percentages for each species were recorded at each sampling location. Taxonomic nomenclature follows *Flora of Alaska and Neighboring Territories: A Manual of the Vascular Plants* (Hultén, 1968), and the indicator status of each species is as listed in the *The National Wetland Plant List: 2013 Wetland Ratings* (Lichvar, R.W., 2013). Field resources for vegetation species identification are listed in the reference section. Data sheets were reviewed and boundaries were subsequently mapped.

2.3 Wetland Classifications and Vegetation Habitats

All vegetative habitats were classified to Level III of *The Alaska Vegetation Classification*, which provides the detail necessary to characterize vegetative communities for the purpose of assessing habitats (Viereck et al., 1992). This is a hierarchical system based on dominant growth forms (tree, shrub, herbaceous), canopy height and closure, general soil moisture and salinity, and dominant vegetation. Wetland habitats were then classified according to a method outlined in the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, et al., 1979). The Cowardin method assesses wetland habitats by evaluating landscape position, plant community structure cohesion, and characteristics which form functional units. All Waters of the United States were classified according to the same guidelines.

2.4 Functions and Values Assessment

Wetland functions are self-sustaining properties of a wetland ecosystem that exist in the absence of society. Functions result from both biotic and abiotic components of specific wetlands and include all processes necessary for the self-maintenance of the wetland ecosystem, such as primary production and nutrient cycling. Functions relate to the ecological significance of wetland properties without subjective human values. Wetland values are benefits to society derived from one or more wetland function. The value of a particular wetland function is based on human use, judgment of the worth, merit, quality, or importance attributed to those functions (USACE, 1999).

The functional rating of a wetland was recorded on data sheets using criteria outlined in *Alaska Regulatory Guidance Letter (RGL), ID No. 09-10* (USACE, 2009). The relative importance of 10 attributes encompassing hydrological, water quality, ecological, and social functions were evaluated for each wetland type. Wetland habitats were ranked as having low, medium, or high function, which subsequently allowed comparisons of wetland habitat types within the Study Area.

Riverine habitats are not assessed under this method, as streams/rivers perform vastly different functions than wetlands. The functional condition of Riverine areas were recorded on data forms and assessed according to the criteria outlined in the United States Department of the Interior (USDOI), Bureau of Land Management, Technical Report 1737-15, *Riparian Area Management: A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas* (USDOI, 1998). The proper functioning condition (PFC) assesses whether streams/rivers are functioning properly, functioning at risk, non-functional, or unknown.

2.5 Final Mapping

A geo-referenced aerial photograph from 2010 was used as a base to digitally map wetlands, vegetation communities, and to calculate acreages for each. Wetland habitats are mapped using a "Modified" National Wetland Inventory (MNWI) method that combines Viereck and Cowardin classifications. The MNWI uses a dominant class percentage of 25 instead of the NWI's 30% and also allows mixing of classes. This classification allows tree covers of 10 to 24% to be described as woodlands, giving more description to the vegetation type.

Final mapping was based on aerial photography interpretation, site photographs, field observations, and published USGS topographic data.

2.6 Limitations on Methods

The wetland delineation occurred toward the end of Alaska's growing season in the 2013 investigation and early in the growing season in the 2014 investigation, resulting in vegetation with either an absence of or poorly preserved inflorescence, including willows. Identification of vegetation to the species level was difficult. In circumstances where identifiable characteristics were lacking, species were keyed only to the genus level. Permafrost limited

excavation of some soil pits, and, if frozen organics were present, the soil was presumed to be a histosol, based on decomposition of organic material and depth of permafrost.

3.0 RESULTS

The Study Area is comprised of 436.4 acres of potentially jurisdictional wetlands, 5.3 acres of Waters of the U.S., and 815.5 acres of uplands. Table 1 shows the acreage, MNWI classifications, and associated sample points separated by Study Area segments (highway and MS) with the combined totals.

A total of four (4) wetland habitats were encountered and documented within the study area and represent thirteen (13) Cowardin classifications. Table 2 summarizes all functions and services for each wetlands habitat type. Forested-shrub wetlands were the most common habitat type encountered, comprising 232.2 acres of the 436.4 acres of total wetlands.

During the field investigation, wetland classifications were grouped by re-occurring vegetation types and later assigned MNWI classifications during final mapping. The RWD forms and photographs contain labels based upon the first observation of a distinct vegetative community (Appendix B).

Table 1: Wetlands, Other Waters of the United States, and Uplands Acreages

Community Description	Acres	Cowardin	Viereck	Associated Sample Points
Dalton Highway MP 0 to MP 8.5				
Wetlands				
Seasonally Flooded Emergent	0.369	PEM1C	IIIA3	
Permanently Flooded Emergent	1.018	PEM1H	IIIA3	
Saturated Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous	221.701	PFO4/SS1B	IA2	003, 024, 025, 036, 038, 039, 043, 105
Seasonally Flooded Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous	10.469	PFO4/SS1C	IA2	
Temporarily Flooded Scrub-Shrub Broad-Leaved/Needle-Leaved Evergreen	8.752	PSS1/4A	IIA3	037
Saturated Scrub-Shrub Broad-Leaved Deciduous/Needle-Leaved Evergreen	7.094	PSS1/4B	IIA3	
Saturated Scrub-Shrub Broad-Leaved/Forested Needle-Leaved Evergreen	1.690	PSS1/FO4B	IA3	010, 109
Saturated Scrub-Shrub Broad-Leaved Deciduous	1.714	PSS1B	IIB1	034
Saturated Scrub-Shrub Broad-Leaved Deciduous	0.931	PSS1B	IIB2	
Saturated Scrub-Shrub Broad-Leaved Deciduous	13.495	PSS1B	IIC1	100, 107
Saturated Scrub-Shrub Broad-Leaved Deciduous	5.985	PSS1B	IIC2	
Temporarily Flooded Scrub-Shrub Broad-Leaved	2.639	PSS1C	IIB1	
Temporarily Flooded Scrub-Shrub Broad-Leaved	3.149	PSS1C	IIC1	

Community Description	Acres	Cowardin	Viereck	Associated Sample Points
Temporarily Flooded Scrub-Shrub Broad-Leaved	30.491	PSS1C	IIC2	
Saturated Scrub-Shrub Needle-Leaved Evergreen/Broad-Leaved Deciduous	115.754	PSS4/1B	IIA2	001, 007, 014, 017, 018, 026, 030, 040, 041, 046, 050, 051
Seasonally Flooded Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous	8.397	PSS4/1C	IIA2	004, 005, 048
Saturated Scrub-Shrub Needle-Leaved Evergreen/Needle-Leaved Deciduous	2.810	PSS4/2B	IIA2	028
Permanently Flooded Unconsolidated Bottom	0.034	PUBH	Open Water	
Permanently Flooded Upper Perennial Unconsolidated Bottom	5.219	R3UBH	Open Water	
Permanently Flooded Intermittent Unconsolidated Bottom	0.073	R4UBH	Open Water	
Upland	81.024	N/A	Disturbed	
Upland	394.865	N/A	IA2	027, 044, 045, 052, 102, 106
Upland	6.922	N/A	IA3	
Upland	39.952	N/A	IB1	019, 020, 022
Upland	20.364	N/A	IB2	
Upland	124.386	N/A	IC1	002, 011, 012, 013, 015, 016, 023, 029, 032, 033, 035, 047
Upland	127.277	N/A	IC2	008, 021, 031, 042, 103
Upland	0.379	N/A	IIA2	
Upland	0.083	N/A	IIA3	
Upland	2.171	N/A	IIB1	
Upland	0.603	N/A	IIB2	
Upland	7.393	N/A	IIC1	
Upland	8.551	N/A	IIC2	
Upland	1.496	N/A	IIIA1	

N/A: No vegetation data was collected

Study Area Acreage Totals		
	Dalton Highway	**Material Site**
Total Wetlands	355.744	80.715
Total Waters of the U.S.	2.577	2.750
Total Uplands	617.044	198.423
Total Acreage	**1,257.253**	

PEM1C	Palustrine, Emergent, Persistent, Seasonally Flooded
PEM1H	Palustrine, Emergent, Persistent, Permanently Flooded
PFO4/SS1B	Palustrine, Forested, Needle-Leaved Evergreen/Scrub-Shrub, Broad-Leaved Deciduous, Saturated
PFO4/SS1C	Palustrine, Forested, Needle-Leaved Evergreen/Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded
PSS1/4A	Palustrine, Scrub-Shrub, Broad-Leaved Deciduous/Needle-Leaved Evergreen, Temporarily Flooded
PSS1/4B	Palustrine, Scrub-Shrub, Broad-Leaved Deciduous/Needle-Leaved Evergreen, Saturated
PSS1/FO4B	Palustrine, Scrub-Shrub, Broad-Leaved Deciduous/Forested, Needle-Leaved Evergreen, Saturated
PSS1B	Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Saturated
PSS1C	Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded
PSS4/1B	Palustrine, Scrub-Shrub, Needle-Leaved Evergreen/Scrub-Shrub, Broad-Leaved Deciduous, Saturated
PSS4/1C	Palustrine, Scrub-Shrub, Needle-Leaved Evergreen/Broad-Leaved Deciduous, Seasonally Flooded
PSS4/2B	Palustrine, Scrub-Shrub, Needle-Leaved Evergreen/Needle-Leaved Deciduous, Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded

3.1 Wetland Cowardin Classifications

The Study Area consists of four (4) wetland types, comprising 34.7% of the total Study Area. Table 2 summarizes each wetland type and the functional value assessment. Detailed evaluations of wetland functions by habitat type are located in Appendix C.

Table 2: Wetland Functions and Values

Function and Values	Wetlands and Ponds					
	Sedge Wetland	**Forested-Shrub Wetland**	**Shrub Wetland**	**Shrub-Forested Wetland**	**Pond**	**River**
Flood-Flow Alteration	Low	Low	Low	Low	High	High
Sediment Removal	Low	Low	Low	Low	High	High
Nutrient and Toxicant Removal	Low	Low	Low	Low	High	Moderate
Erosion Control and Shoreline Stabilization	Low	Low	Low	Low	High	High
Production of Organic Matter and its Export	Low	Low	Low	Low	High	High
General Habitat Suitability	Moderate	Moderate	Moderate	Moderate	Moderate	High
General Fish Habitat	Low	Low	Low	Low	High	High
Education or Scientific Value	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Uniqueness and Heritage	Low	Low	Low	Low	Low	Low
Recreational	Moderate	Moderate	Moderate	Moderate	Moderate	Moderate
Visual Quality/Aesthetics	Low	Low	Low	Low	Low	Moderate
Threatened or Endangered Species	Low	Low	Low	Low	Low	Low
Groundwater Recharge	Low	Low	Low	Low	Low	Moderate
Overall Rating	**Low**	**Low**	**Low**	**Low**	**Moderate**	**High**
Acreage of Wetland	**1.387**	**232.170**	**201.213**	**1.690**	**0.034**	**5.292**

Waters of the U.S., excluding wetlands, contribute to 5.326 acres of the Study Area.

All vegetative species identified during field sampling, their common names, and wetland indicator status (Lichvar and Kartesz, 2009) are listed in Table 4.

3.1.1 Sedge Wetland

The sedge wetland is dominated by an herbaceous stratum and is classified as a Cowardin Palustrine emergent (PEM) wetland. This habitat at the time of the field survey was submerged in approximately two feet of water, thereby preventing a soil pit from being dug.

Sedge wetland has an overall low value, due to most functions having a low ranking, other than habitat suitability, educational or scientific value, and recreation. Sedge wetlands were generally observed in the valley bottoms, near creeks and at the toe slopes throughout the project study area.

3.1.2 Forested-Shrub Wetland

Forested wetlands were generally dominated by a tree stratum of black spruce (*Picea mariana)*, with the occasional white spruce (*Picea glauca*). The shrub layer was largely dominated by black spruce (*Picea mariana*), dwarf birch (*Betula nana*), bog blueberry (*Vaccinium uliginosum*), marsh and bog Labrador tea (*Rhododendron tomentosum* and *groenlandicum*), and *Salix* species. The Cowardin type of forested-shrub wetland is Palustrine forested/scrub-shrub (PFO/SS).

These wetlands have an overall low functional value, due to most functions having a low ranking, other than habitat suitability, educational or scientific value, and recreation. Forested-Shrub wetlands were generally observed in valley bottoms along creeks and, in some instances, close to the road near MP 6 to MP 7.

3.1.3 Shrub Wetland

Shrub wetlands were dominated by a shrub stratum of black spruce (*Picea mariana*), with the following species also present: several willow species, marsh Labrador tea, bog Labrador tea, dwarf birch (*Betula nana*), and northern mountain cranberry (*Vaccinium vitis-idaea*). The MNWI classification for this type of shrub wetland is Palustrine scrub-shrub (PSS).

Shrub wetlands have an overall low functional value, due to most functions having a low ranking, other than habitat suitability, educational or scientific value, and recreation. This type of shrub wetland was usually observed along creeks and in the valley bottoms throughout the project study area.

3.1.4 Shrub-Forested Wetland

Shrub-forested wetlands in the project study area were dominated by black spruce in the tree stratum and, generally, the same types of shrubs as mentioned previously, including willow species, bog blueberry, northern mountain cranberry, marsh Labrador tea, and bog Labrador tea. The Cowardin classification for this type of wetland is Palustrine scrub-shrub/forested (PSS/FO).

This type of wetland has an overall low functional value, due to most functions having a low ranking, other than habitat suitability, educational or scientific value, and recreation. Shrub-forested wetlands generally occurred along creeks and in valley bottoms in the project study area and near the road between MP 6 and MP 7.

3.2 Waters of the United States

Habitats identified in this report as Waters of the U.S. are unvegetated open water bodies per 33 CFR Part 328 Definition of Waters of the U.S.

Table 3: Riverine Systems Functions and Values

Functions and Values	Riverine Systems	
	Upper Perennial Streams R3UBH	**Intermittent Streams R4UBH**
Hydrology	High	Moderate
Vegetation	High	High
Erosion/Deposition	High	High
Functioning Rating	**PFC**	**PFC**
Overall Rating	**High**	**High**

3.2.1 Upper Perennial Streams

Upper perennial streams are characterized by high stream gradient with larger substrate. Flow characteristics for the West Fork Tolovana River and Lost Creek vary by levels of riffle glide intensity. All of the riverine systems are closely associated with PFO4 wetlands. The substrate of all flowing water bodies consists of sand with some large-size cobbles.

The Cowardin classification for the West Fork Tolovana River and Lost Creek is R3UBH.

These upper perennial streams are in more or less pristine condition and functioning properly with regard to criteria supporting hydrology, vegetation, and erosion/deposition and, therefore, are assigned a high functional value.

3.2.2 Intermittent Streams

Intermittent streams are characterized by high gradient with flowing water only part of the year. The intermittent streams drained wetlands upslope, and some had to overtop a roadbed to flow into the project area. The substrate consisted of vegetated concave channels with some gravels observed. The Cowardin classification for the intermittent streams is R4UBH.

3.2.3 Ponds

Ponds are depressional areas that retain water for longer periods of time. Incoming water recharges the pond mainly by overland flow or an inlet. Outlets are usually only active during higher water events such as spring melt or high-rain events.

3.3 Uplands

Upland areas comprise 64.9% of the total Study Area. Four (4) distinct upland habitats occur within the Study Area.

3.3.1 Disturbed Upland

Disturbed uplands were observed and consisted of areas where gravel had been borrowed for road construction and improvements. These areas were located mostly along the current roadway.

3.3.2 Forested Upland

The forested uplands encountered within the project study area were generally dominated by white spruce, resin birch (*Betula neoalaskana*), and quaking aspen (*Populus tremuloides*) and had an understory consisting generally of false toadflax (*Geocaulon lividum*), wintergreen (*Pyrola asarifolia*), bunchberry dogwood (*Cornus canadensis*), fireweed (*Chamerion angustifolium*), and dwarf scouringrush (*Equisetum scirpoides*). Forested upland habitat areas were generally encountered on steep hillsides within the project area.

3.3.3 Shrub Upland

Shrub upland areas in the project study area generally consisted mostly of prickly rose (*Rosa acicularis*), beauverd spirea (*Spiraea stevenii*), and squashberry (*Viburnum edule*). Shrub-dominated upland areas were usually encountered on hillsides throughout the project study area.

3.3.4 Meadow Upland

Meadow upland areas encountered in the project area were generally dominated in the herbaceous stratum by bluejoint reedgrass (*Calamagrostis canadensis)*. Other species commonly observed within the herbaceous layer included (*Cornus canadensis*), (*Geocaulon lividum*), and (*Equisetum scirpoides*). Meadow upland areas were observed on hillsides throughout the project study area.

Table 4: Vegetation in the Study Area

Scientific Name	Common Name	Wetland Indicator Status
Alnus viridis ssp. fruticosa	Sitka Alder	FAC
Andromeda polifolia	Bog-Rosemary	FACW
Arctostaphylos alpina	Alpine Bearberry	UPL
Arctostaphylos rubra	Red Bearberry	UPL
Betula glandulosa	Resin Birch	FAC
Betula nana	Swamp Birch	FAC
Betula neoalaskana	Alaska Paper Birch	FACU
Calamagrostis canadensis	Bluejoint	FAC
Carex rostrata	Swollen Beaked Sedge	OBL
Chamaedaphne calyculata	Leatherleaf	FACW
Cornus canadensis	Canadian Bunchberry	FACU
Dasiphora fruticosa	Hardhack	FAC
Dryopteris expansa	Spiny Wood Fern	FACU
Empetrum nigrum	Black Crowberry	FAC
Chamaenerion angustifolium	Fireweed	FACU
Equisetum arvense	Field Horsetail	FAC
Equisetum scirpoides	Dwarf Scouring-Rush	FACU
Equisetum sylvaticum	Woodland Horsetail	FACW
Eriophorum angustifolium	Tall Cotton-Grass	OBL
Galium triflorum	Fragrant Bedstraw	FAC
Geocaulon lividum	False Toadflax	FAC
Juniperus communis	Common Juniper	UPL
Larix laricina	Western Larch	FACW
Linnaea borealis	American Twinflower	FACU
Lycopodium clavatum	Running Ground-Pine	FACU
Mertensia paniculata	Tall Bluebells	FACU
Oplopanax horridus	Devil's-Club	FACU
Petasites frigidus	Arctic Sweet-Colt's-Foot	FACW
Picea glauca	White Spruce	FACU
Picea marinana	Black Spruce	FACW
Populus tremuloides	Quaking Aspen	FACU
Potentilla gracilis	Slender Cinquefoil	FAC
Comarum palustris	Marsh Cinquefoil	OBL
Pyrola asarifolia	Pink Wintergreen	FACU
Rhododendron groenlandicum	Rusty Labrador-Tea	FAC
Rhododendron tomentosum	Marsh Labrador-Tea	FACW
Rosa acicularis	Prickly Rose	FACU
Rubus chamaemorus	Cloudberry	FACW
Salix barclayi	Barclay's Willow	FAC
Salix bebbiana	Gray Willow	FAC
Sorbus sitchensis	Sitka Mountain-Ash	FACU
Spirawa stevenii	Steven's Meadowsweet	FACU
Stellaria calycantha	Northern Starwort	FACW
Streptopus amplexifolius	Clasping Twistedstalk	FACU
Taraxacum officinale	Common Dandelion	FACU

Scientific Name	Common Name	Wetland Indicator Status
Vaccinium oxycoccos	Small Cranberry	OBL
Vaccinium uliginosum	Alpine Blueberry	FAC
Vaccinium vitis-idaea	Northern Mountain-Cranberry	FAC
Viburnum edule	Squashberry	FACU

FAC Facultative; species equally likely to occur in wetlands and non-wetlands
FACU Facultative Upland; species usually occurs in non-wetlands
FACW Facultative Wetland; species usually occurs in wetlands
OBL Obligate; species almost always occurs in wetlands
UPL Upland; species almost always occurs in non-wetlands

3.4 Preliminary Jurisdictional Determination

Area topography around the 9-mile project corridor suggests a southward surface flow for the first seven miles and then a northward surface flow for the last 1.5 miles. Tributaries in the northern 1.5 miles of the project area intersect Erickson Creek and transport surface flow to Hess Creek; Hess Creek then flows into the Yukon River and on to the Bering Sea. Tributaries located in the south portion of the Study Area transport surface flow from wetlands and Waters of the U.S. to Lost Creek and West Fork Tolovana, which are Relatively Permanent Waterways. These then flow into the Tolovana River, which is a TNW. The Tolovana then flows west to the Tanana River, which drains into the Yukon River and ends in the Bering Sea. The Tanana, Tolovana, and Yukon are designated as TNWs; therefore, all wetland and Waters of the U.S. located within the Study Area are presumed to be jurisdictional.

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APPENDIX A

Figures

FIGURE 1

Location Vicinity Map

Dalton Highway MP 0-9

Study Area

Map Notes:
1. Image Source:Image: Esri, DigitalGlobe, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
2. Map projection NAD 83
Alaska State Plane Zone 3, Feet.

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APPENDIX A-2

Cowardin Maps

FIGURE 1

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

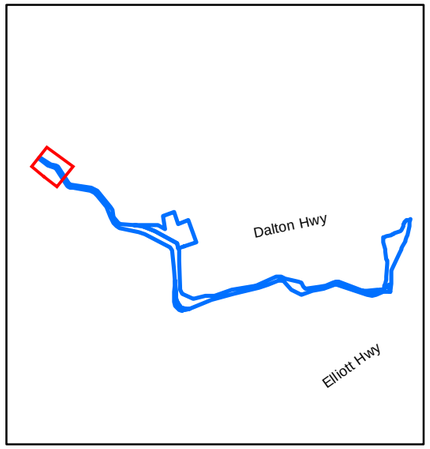
Preliminary Jursidictional Determination

Legend

- # Field Points
- # Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 2

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

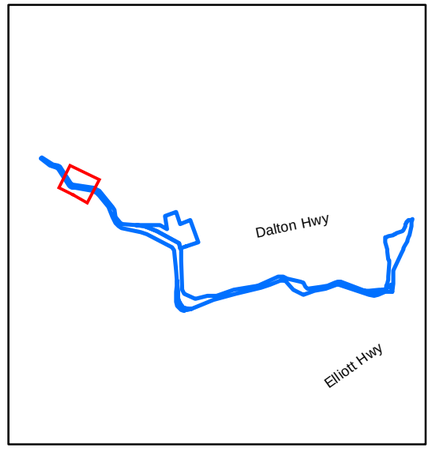
Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 3

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

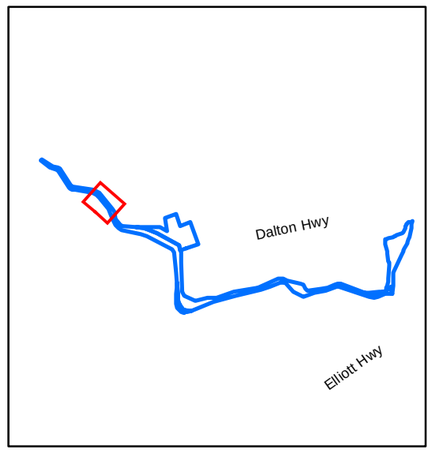
Preliminary Jurisdictional Determination

Legend

- # Field Points
- # Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 4

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

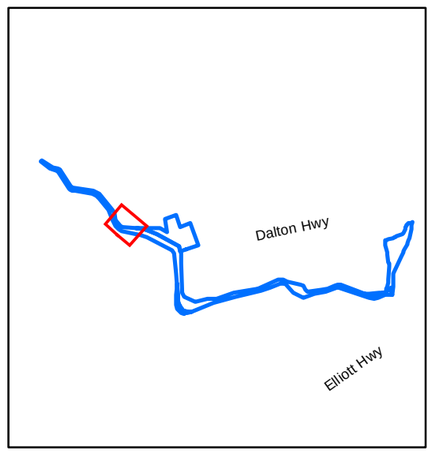
Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 5

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

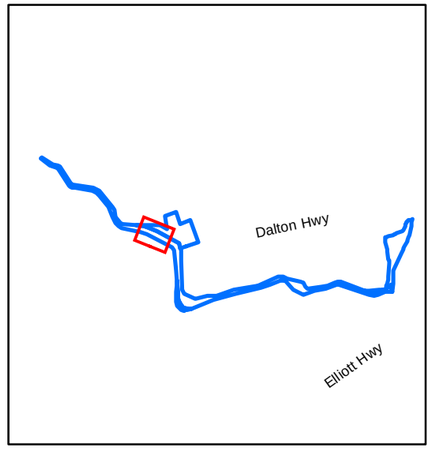
Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 6

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

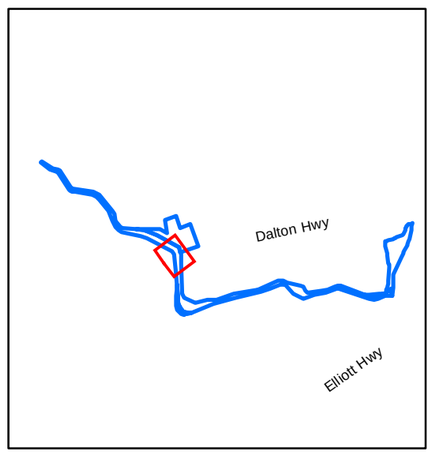
Preliminary Jurisdictional Determination

Legend

- # Field Points
- # Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 7

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

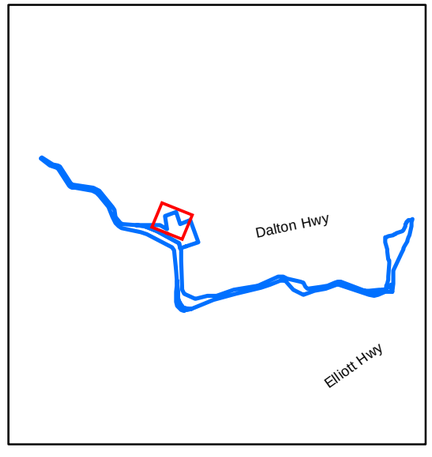
Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
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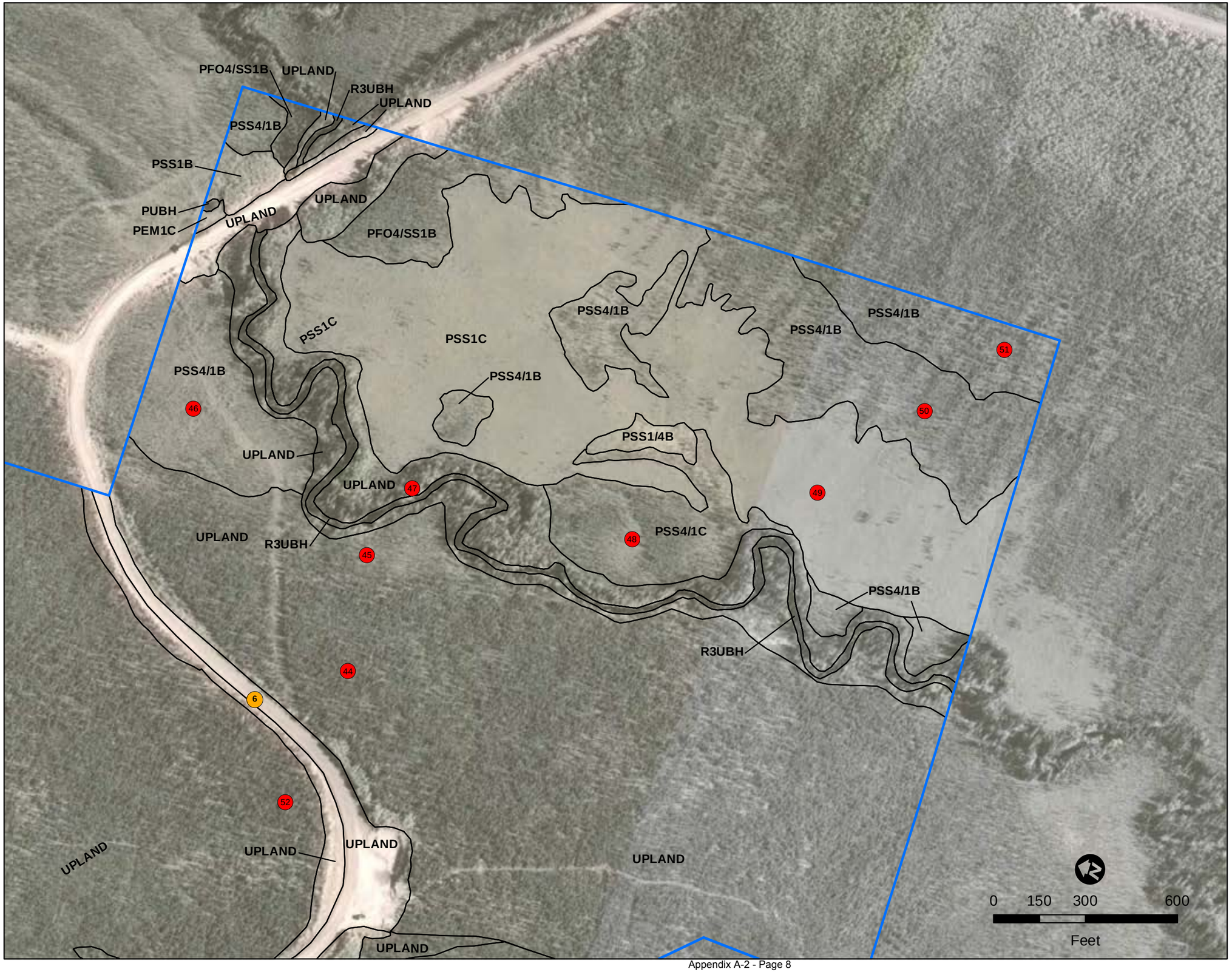


FIGURE 8

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

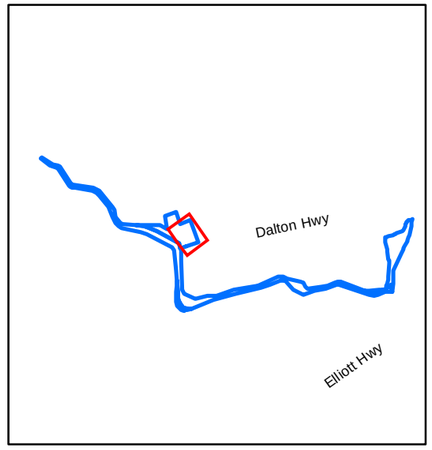
Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

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3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 9

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

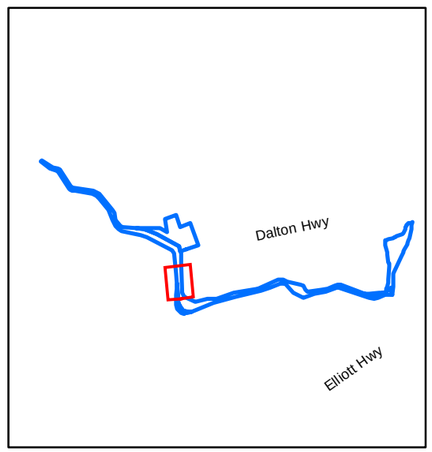
Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

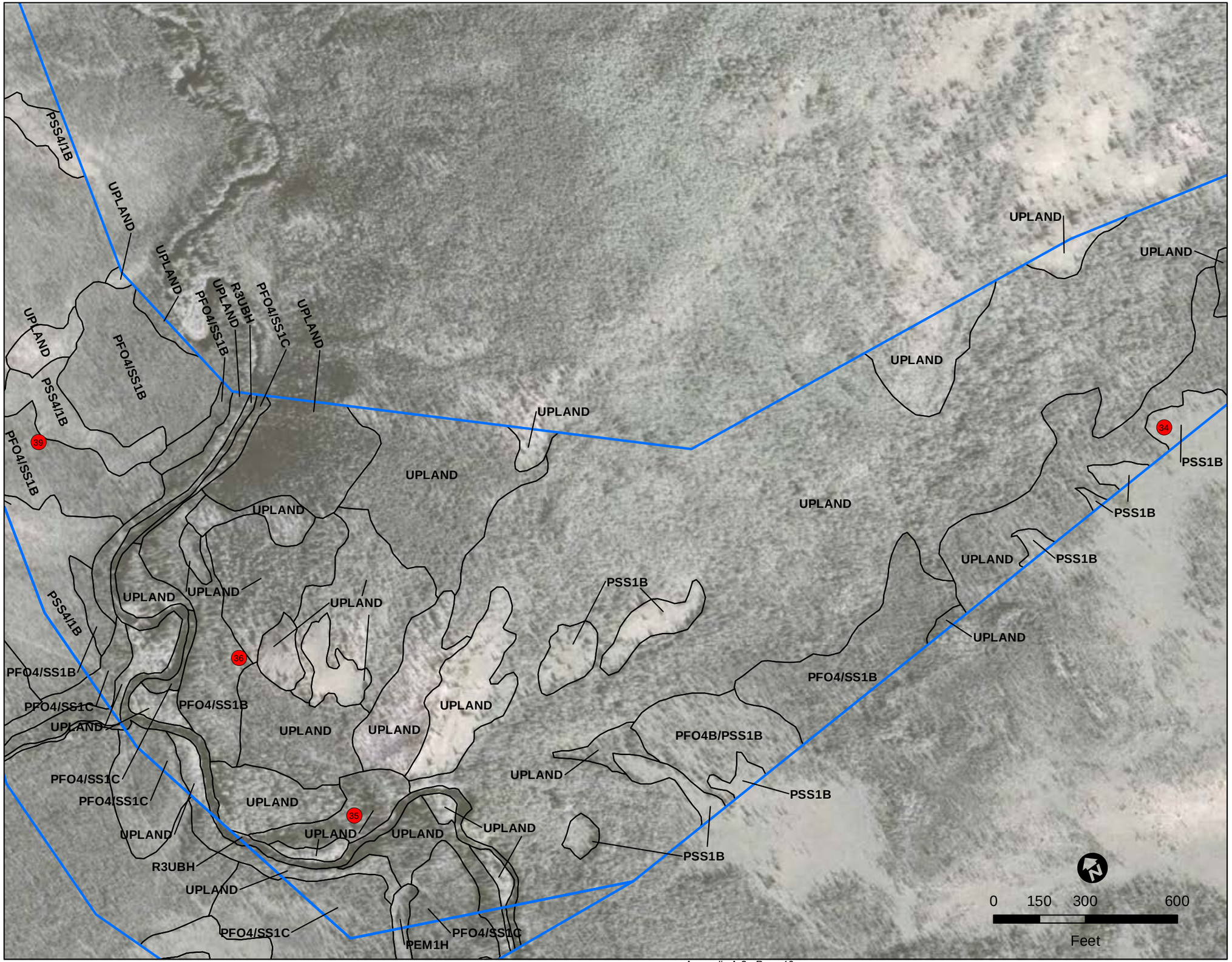


FIGURE 10

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

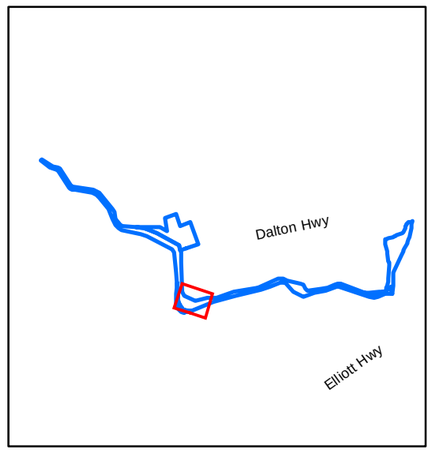
Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. Base imagery provided by Geoeye & Digital Globe 2011
2. Based on field data collected August ?? 2012
3. Map projection NAD 83 Alaska State Plane Zone 3, Feet.
4. Vegetation based on Viereck et al. (1992)
5. NWI codes based on Cowardin et al. (1979)

FIGURE 11

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

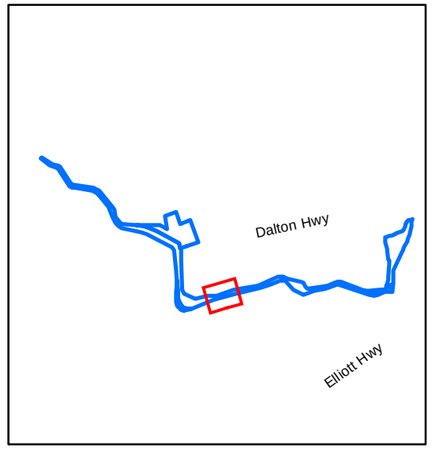
Preliminary Jurisdictional Determination

Legend

- # Field Points
- # Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 12

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

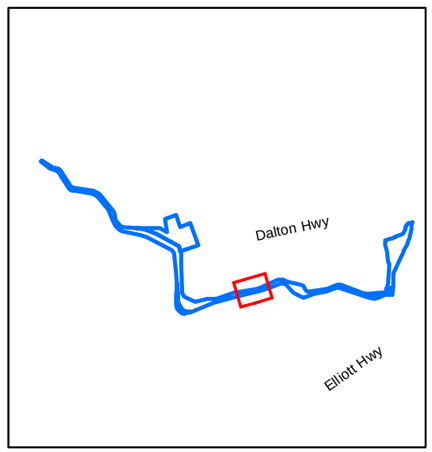
Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 13

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

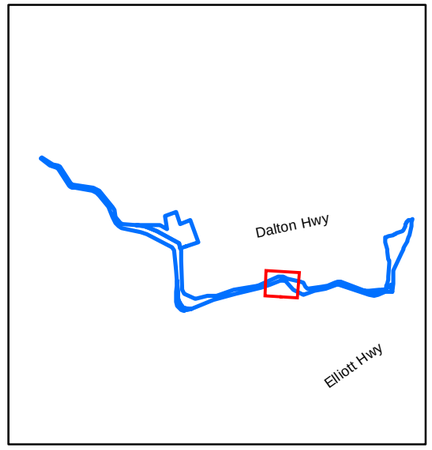
Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 14

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

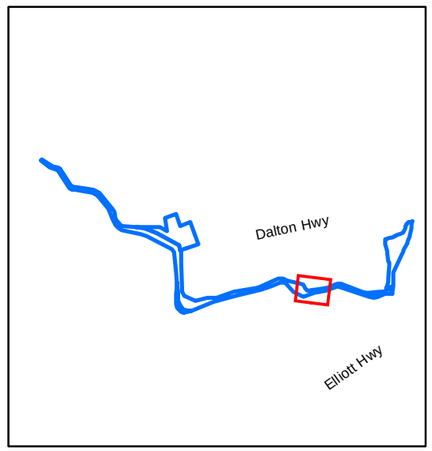
Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

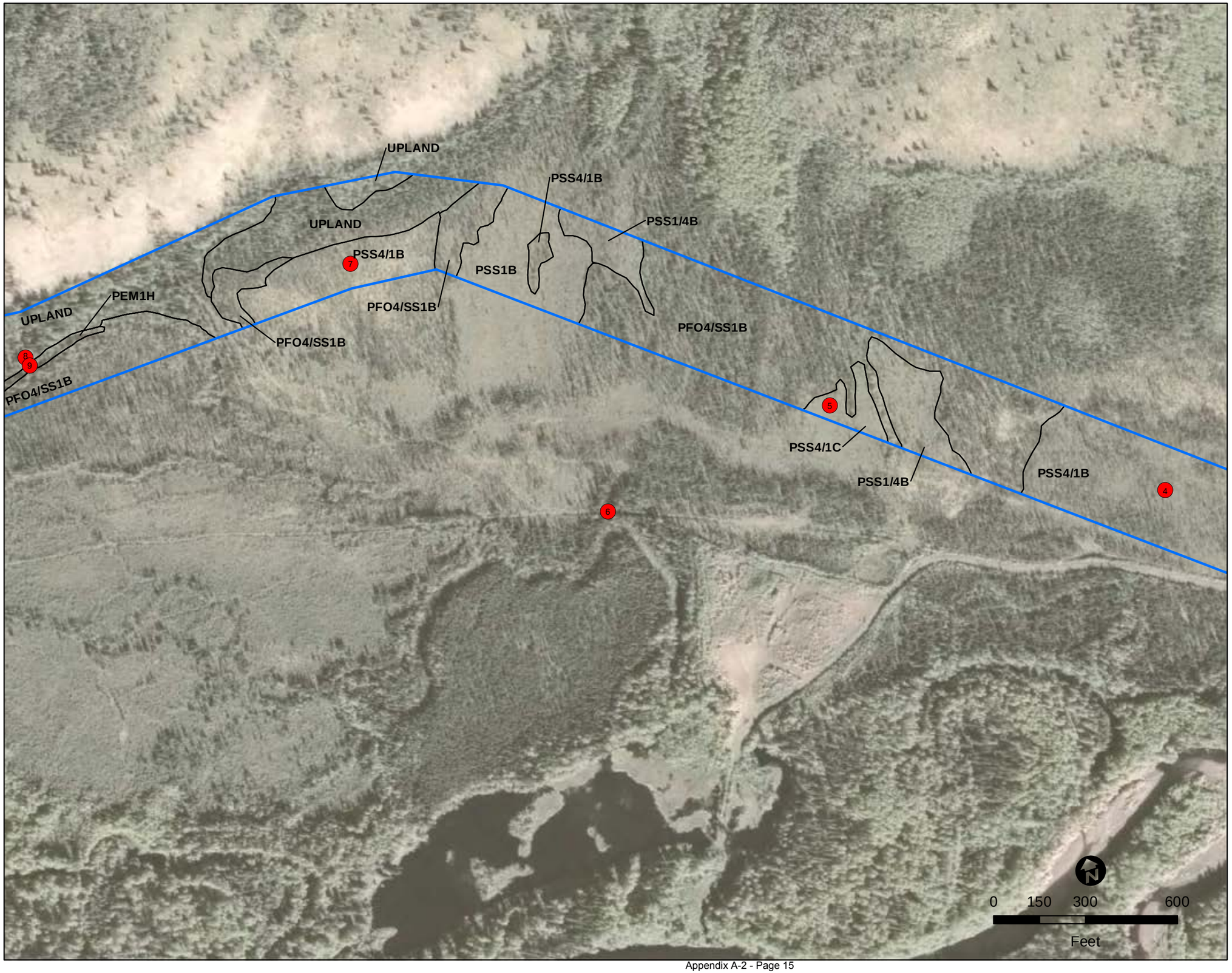


FIGURE 15

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

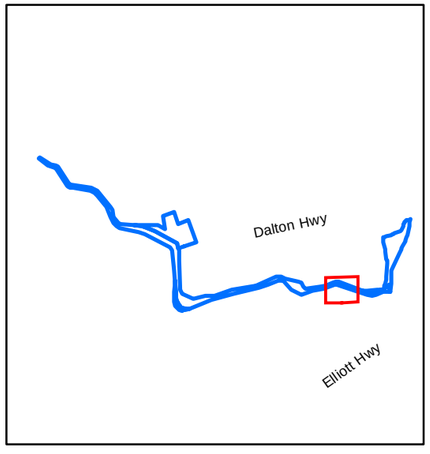
Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 16

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

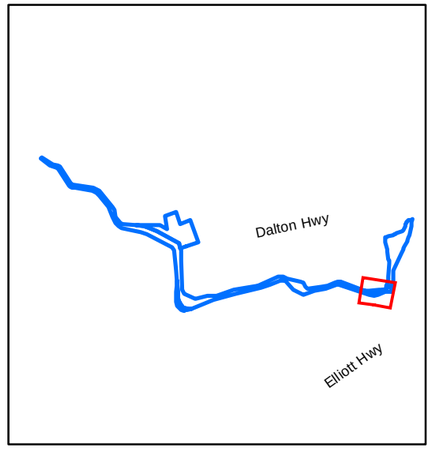
Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 17

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

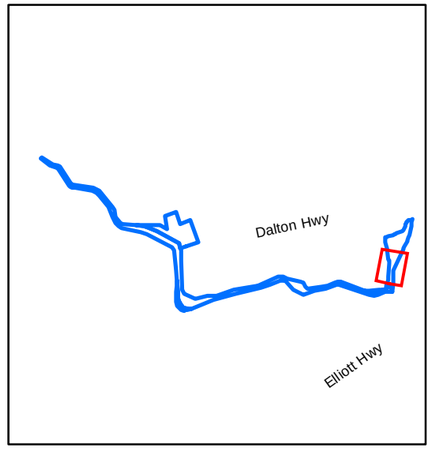
Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 18

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

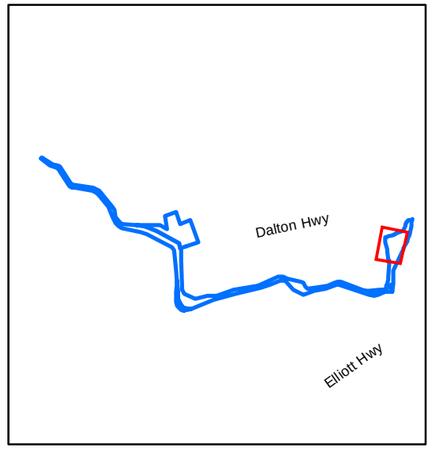
Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. Base imagery provided by Geoeye & Digital Globe 2011
2. Based on field data collected August ?? 2012
3. Map projection NAD 83 Alaska State Plane Zone 3, Feet.
4. Vegetation based on Viereck et al. (1992)
5. NWI codes based on Cowardin et al. (1979)

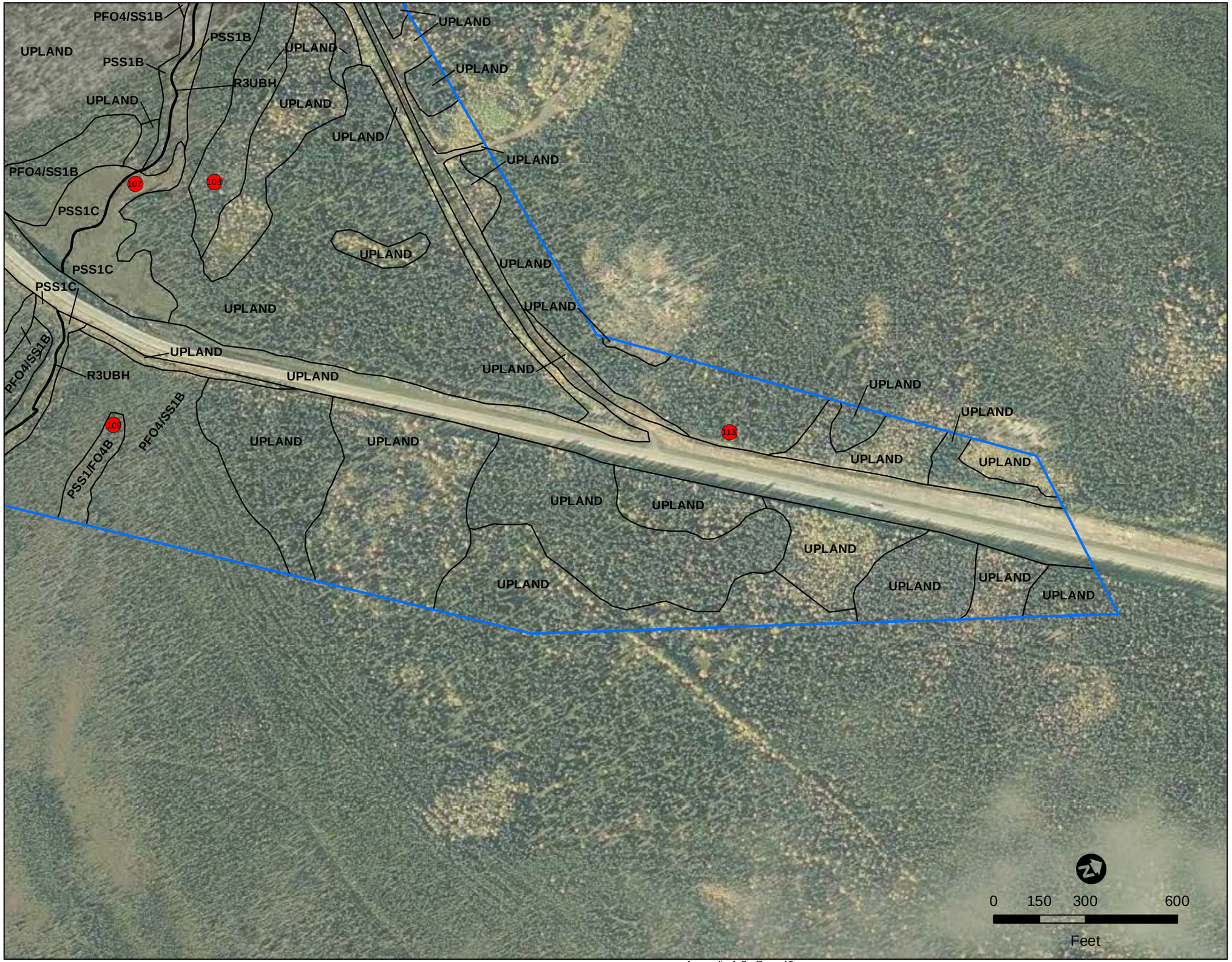


FIGURE 19

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

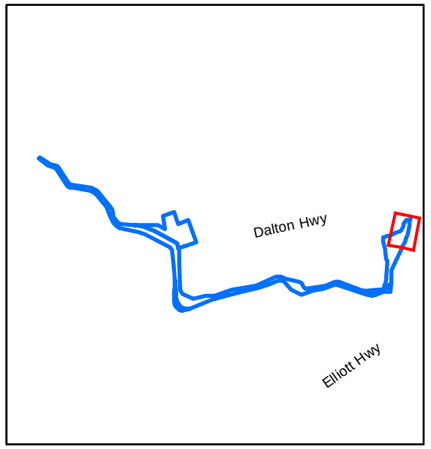
Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Cowardin Classifications

PEM1C	Palustrine Emergent Persistent Seasonally Flooded
PEM1H	Palustrine Emergent Persistent Permanently Flooded
PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4/SS1C	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS1/4A	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Temporarily Flooded
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/FO4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Forested Needle-Leaved Evergreen Saturated
PSS1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS1C	Palustrine Scrub-Shrub Broad-Leaved Deciduous Seasonally Flooded
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4/1C	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Broad-Leaved Deciduous Seasonally Flooded
PSS4/2B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Needle-Leaved Deciduous Saturated
PUBH	Palustrine, Unconsolidated Bottom, Permanently Flooded
R3UBH	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

APPENDIX A-3

Viereck Maps

FIGURE 1

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- # Field Points
- # Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 2

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- # Field Points
- # Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 3

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- # Field Points
- # Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 4

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 5

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 6

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- # Field Points
- # Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 7

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

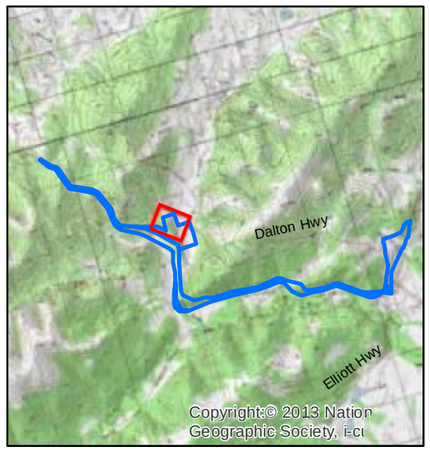
Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water



Map Notes:

1. Base imagery provided by Geoeye & Digital Globe 2011
2. Based on field data collected August ?? 2012
3. Map projection NAD 83 Alaska State Plane Zone 3, Feet.
4. Vegetation based on Viereck et al. (1992)
5. NWI codes based on Cowardin et al. (1979)

FIGURE 8

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. Base imagery provided by Geoeye & Digital Globe 2011
2. Based on field data collected August ?? 2012
3. Map projection NAD 83 Alaska State Plane Zone 3, Feet.
4. Vegetation based on Viereck et al. (1992)
5. NWI codes based on Cowardin et al. (1979)

FIGURE 9

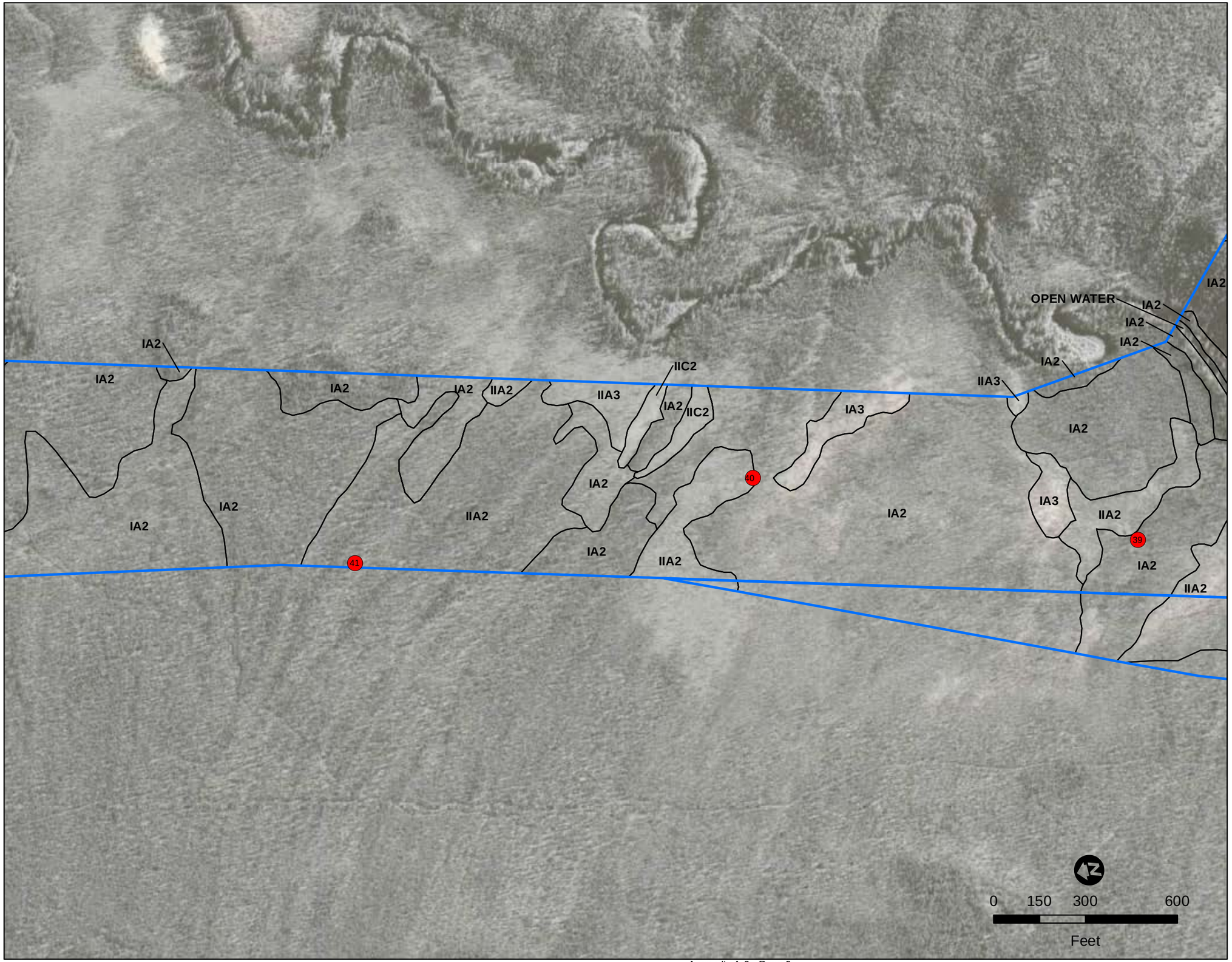
Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area



Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 10

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. Base imagery provided by Geoeye & Digital Globe 2011
2. Based on field data collected August ?? 2012
3. Map projection NAD 83 Alaska State Plane Zone 3, Feet.
4. Vegetation based on Viereck et al. (1992)
5. NWI codes based on Cowardin et al. (1979)

FIGURE 11

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- # Field Points
- # Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 12

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 13

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

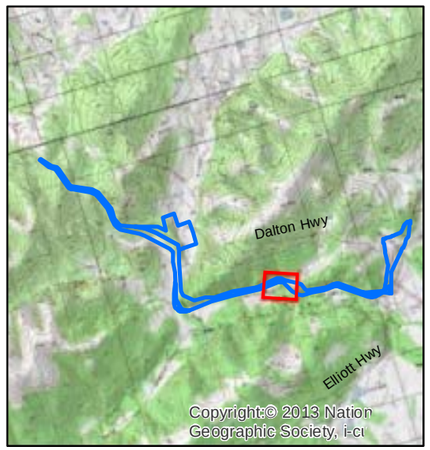
Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 14

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 15

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

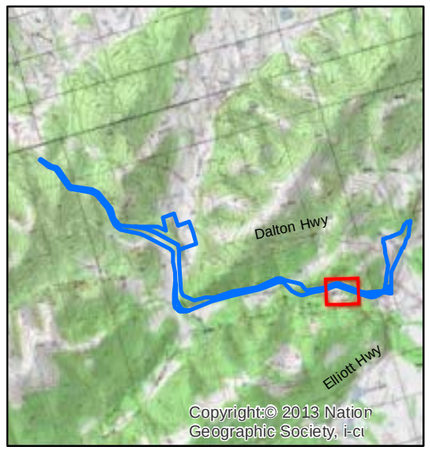
Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water



Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 16

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. Base imagery provided by Geoeye & Digital Globe 2011
2. Based on field data collected August ?? 2012
3. Map projection NAD 83 Alaska State Plane Zone 3, Feet.
4. Vegetation based on Viereck et al. (1992)
5. NWI codes based on Cowardin et al. (1979)

FIGURE 17

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 18

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- # Field Points
- # Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. Base imagery provided by Geoeye & Digital Globe 2011
2. Based on field data collected August ?? 2012
3. Map projection NAD 83 Alaska State Plane Zone 3, Feet.
4. Vegetation based on Viereck et al. (1992)
5. NWI codes based on Cowardin et al. (1979)

FIGURE 19

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- # Field Points
- # Mile Posts
- Study Area

Viereck Classifications

Disturbed	Disturbed
IA2	Open Needleleaf (Conifer) Forest
IA3	Needleleaf (Conifer) Woodland
IB1	Closed Broadleaf Forest
IB2	Open Broadleaf Forest
IC1	Closed Mixed Forest
IC2	Open Mixed Forest
IIA2	Open Dwarf Tree Scrub
IIA3	Dwarf Tree Scrub Woodland
IIB1	Closed Tall Scrub
IIB2	Open Tall Scrub
IIC1	Closed Low Scrub
IIC2	Open Low Scrub
IIIA1	Dry Graminoid Herbaceous
IIIA3	Wet Graminoid Herbaceous (Emergent)
Open Water	Open Water

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

APPENDIX A-4

National Wetlands Inventory Maps

FIGURE 1

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- # Field Points
- # Mile Posts
- Study Area
- NWI Wetlands

14

13

0 150 300 600

Feet

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 2

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 3

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- # Field Points
- # Mile Posts
- Study Area
- NWI Wetlands

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 4

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 5

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 6

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 7

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

PSS4/1B

PSS4/1B

PSS1/EM1B

46

47

45

6

44

52

0 150 300 600

Feet

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 8

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

PSS4/1B
PSS1/EM1B
PSS1/4B
PSS1/4B
PSS4/1B
46
47
45
48
49
50
51
44
6
52
0 150 300 600
Feet

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 9

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

PSS4/1B

PFO4/SS1B

40

39

41

0 150 300 600

Feet

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 10

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

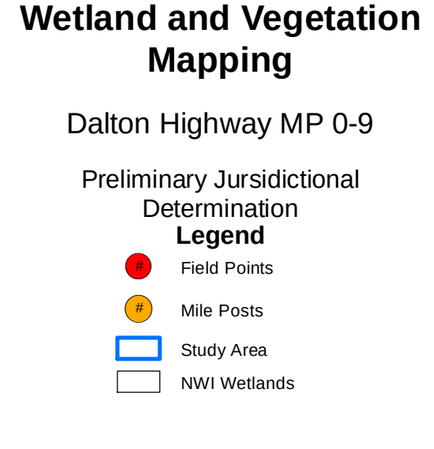
Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated



Map Notes:

1. Base imagery provided by Geoeye & Digital Globe 2011
2. Based on field data collected August ?? 2012
3. Map projection NAD 83 Alaska State Plane Zone 3, Feet.
4. Vegetation based on Viereck et al. (1992)
5. NWI codes based on Cowardin et al. (1979)

FIGURE 11

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- # Field Points
- # Mile Posts
- Study Area
- NWI Wetlands

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 12

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 13

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 14

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

PSS4B

PSS1/4B

8
9
10
11

0 150 300 600

Feet

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 15

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

PSS1/4B

0 150 300 600

Feet

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 16

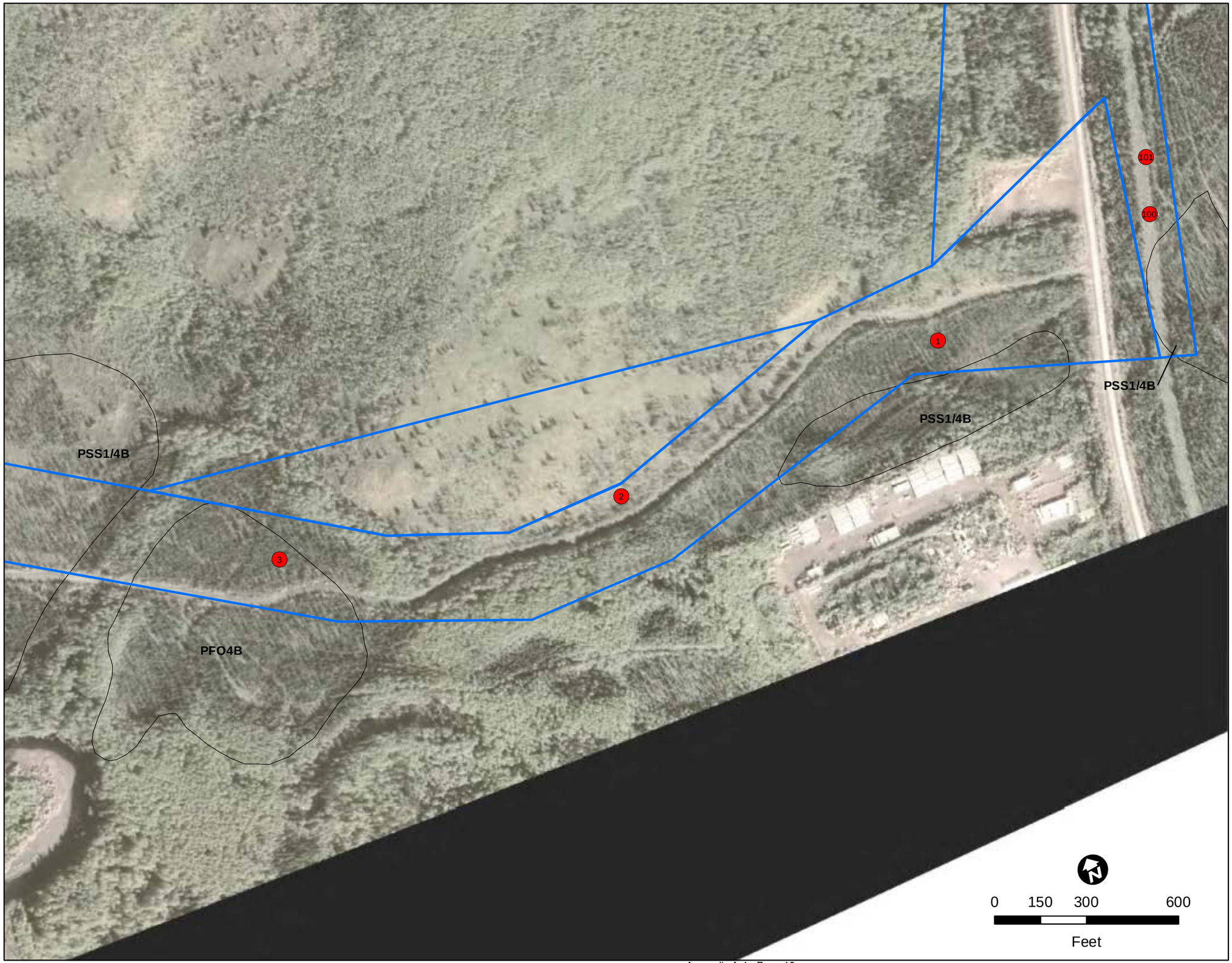
Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands



Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 17

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 18

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jursidictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

FIGURE 19

Wetland and Vegetation Mapping

Dalton Highway MP 0-9

Preliminary Jurisdictional Determination

Legend

- Field Points
- Mile Posts
- Study Area
- NWI Wetlands

Cowardin Classifications

PFO4/SS1B	Palustrine Forested Needle-Leaved Evergreen/Scrub-Shrub Broad-Leaved Deciduous Saturated
PFO4B	Palustrine Forested Needle-Leaved Evergreen Saturated
PSS1/4B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Needle-Leaved Evergreen Saturated
PSS1/EM1B	Palustrine Scrub-Shrub Broad-Leaved Deciduous/ Emergent Persistent Saturated
PSS4/1B	Palustrine Scrub-Shrub Needle-Leaved Evergreen/ Scrub-Shrub Broad-Leaved Deciduous Saturated
PSS4B	Palustrine Scrub-Shrub Needle-Leaved Evergreen Saturated

0 150 300 600

Feet

Map Notes:

1. **Base imagery provided by Geoeye & Digital Globe 2011**
2. **Based on field data collected August ?? 2012**
3. **Map projection NAD 83 Alaska State Plane Zone 3, Feet.**
4. **Vegetation based on Viereck et al. (1992)**
5. **NWI codes based on Cowardin et al. (1979)**

APPENDIX B

Wetland Determination Data Sheets and Sample Location Photographs

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APPENDIX B-1

Routine Wetland Determinations

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/09/2013
Applicant/Owner: DOT&PF Sampling Point: DAL001
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R05W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Interior Alaska Lat: 65.47655390 Long: -148.66658070 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine-Rugged Mountains NWI classification: PSS4/1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Picea mariana	50	Yes	FACW
2. Salix sp	10	No	FAC
3. Rhododendron tomentosum	5	No	FACW
4. Rhododendron groenlandicum	5	No	FAC
5. Vaccinium uliginosum	7	No	FAC
6. Vaccinium vitis-idaea	5	No	FAC
Total Cover: 82			
50% of total cover: 41 20% of total cover: 16			
Herb Stratum			
1. Mertensia paniculata	5	Yes	FACU
2. Petisites frigidus	3	Yes	FACW
3. Equisetum scirpoides	3	Yes	FACU
4. Geocaulon lividum	1	No	FACU
5. Equisetum arvense	1	No	FAC
6. Calamagrostis canadensis	1	No	FAC
7.		No	
8.			
9.			
10.			
Total Cover: 14			
50% of total cover: 7 20% of total cover: 2			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	58	x 2 =	116
FAC species	29	x 3 =	87
FACU species	9	x 4 =	36
UPL species	0	x 5 =	0
Column Totals:	96 (A)		239 (B)

Prevalence Index = B/A = 2.49

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 90 Total Cover of Bryophytes: 90
(Where applicable)

Hydrophytic Vegetation Present? Yes

Remarks: Picea mariana are close to size of trees 60% sphag 30% lichen

SOIL Sampling Point DAL001

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4		100		0				Oi Organic
4-9		100		0				Oe Organic
9-16	2.5Y3/2	100		0				Rotten Rock 3% gravels
16-21	2.5Y3/2	100		0				Rotten Rock 7% gravels

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? Yes

Remarks: Mineral soil is slightly thixotropic, Rotten rock present, saturated organics at 0", road to the north of plot.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
X Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
X Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Moderate hummocks

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/09/2013
Applicant/Owner: DOT&PF Sampling Point: DAL002
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R05W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 60
Subregion (LRR): Interior Alaska Lat: 65.47654360 Long: -148.67408160 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine-Rugged Mountains NWI classification: UPLAND
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus tremuloides	30	Yes	FACU
2. Picea glauca	30	Yes	FACU
3.			
4.			
Total Cover: 60			
50% of total cover: 30 20% of total cover: 12			
Sapling/Shrub Stratum			
1. Populus tremuloides	10	Yes	FACU
2. Rosa acicularis	25	Yes	FACU
3. Betula neoalaskana	5	No	FACU
4. Vaccinium vitis-idaea	1	No	FAC
5.			
6.			
Total Cover: 41			
50% of total cover: 20 20% of total cover: 8			
Herb Stratum			
1. Calamagrostis canadensis	20	Yes	FAC
2. Anemone sp	15	Yes	FACU
3. Geocaulon lividum	10	Yes	FACU
4. Chamerion angustifolium	2	No	FACU
5. Pyrola asarifolia	1	No	FACU
6. Equisetum sp	1	No	FAC
7.			
8.			
9.			
10.			
Total Cover: 49			
50% of total cover: 24 20% of total cover: 9			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 14 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	22	x 3 =	66
FACU species	128	x 4 =	512
UPL species	0	x 5 =	0
Column Totals:	150 (A)		578 (B)

Prevalence Index = B/A = 3.85

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 50
(Where applicable)

Hydrophytic Vegetation Present? No

Remarks: 50% Sphagnum

SOIL Sampling Point DAL002

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2		100		0				Oe
2-7	7.5yr 3/4	100		0			Silt Loam	3% Gravel
7-13	2.5y 4/3	100		0			Silt Loam	10% Gravel
13-24	10yr 3/2	100		0			Sandy Loam	80% Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: No moisture in pit. Steep slope.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: Steep slope. No residence time for water in soil. Very well drained.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/09/2013
Applicant/Owner: DOT&PF Sampling Point: DAL003
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.47751130 Long: -148.68120760 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine-Rugged Mountains NWI classification: PF04/SS1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	40	Yes	FACW
2.			
3.			
4.			
Total Cover: 40			
50% of total cover: 20 20% of total cover: 8			
Sapling/Shrub Stratum			
1. Picea mariana	20	Yes	FACW
2. Rhododendron groenlandicum	50	Yes	FAC
3. Vaccinium uliginosum	3	No	FAC
4. Vaccinium vitis-idaea	5	No	FAC
5. Rubus chamaemorus	5	No	FACW
6.			
Total Cover: 83			
50% of total cover: 41 20% of total cover: 16			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 90 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	65	x 2 =	130
FAC species	58	x 3 =	174
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	123 (A)		304 (B)

Prevalence Index = B/A = 2.47

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 15% Lichen, 75% Sphagnum

SOIL Sampling Point DAL003

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6		100		0				Oi Organic
6-11		100		0				Oe Organic
11-12	5y 3/1	85	10yr 4/4	15	C	M	Silt Loam	
12+	5y 3/1	85	10yr 4/4	15	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
X Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? Yes

Remarks: Ungulating topography. Wetland barriers road and hillside. Slope wetland.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? Yes Depth (inches): 6
Saturation Present? Yes Depth (inches): 1
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Plot between road and upland, connectivity limited.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/09/2013
Applicant/Owner: DOT&PF Sampling Point: DAL004
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.47942540 Long: -148.68743940 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine-Rugged Mountains NWI classification: PSS4/1C
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	5	Yes	FACW
2.			
3.			
4.			
Total Cover: 5			
50% of total cover: 2 20% of total cover: 1			
Sapling/Shrub Stratum			
1. Picea mariana	40	Yes	FACW
2. Betula nana	20	Yes	FAC
3. Betula glandulosa	10	No	FAC
4. Rhododendron tomentosum	10	No	FACW
5. Vaccinium uliginosum	10	No	FAC
6. Vaccinium vitis-idaea	5	No	FAC
Total Cover: 95			
50% of total cover: 47 20% of total cover: 19			
Herb Stratum			
1. Eriophorum angustifolium	10	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 10			
50% of total cover: 5 20% of total cover: 2			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	55	x 2 =	110
FAC species	45	x 3 =	135
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		255 (B)

Prevalence Index = B/A = 2.32

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 60
(Where applicable)

Hydrophytic Vegetation Present? Yes

Remarks: 30% Lichen, 30% Sphagnum. Moderate tussocks.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3		100		0				Oi Organic
3-8		100		0				Oe Organic
8-12	2.5y 3/1	80	10yr 3/6	20	C	M	Silt Loam	Slightly Thixotropic
12+	2.5y 3/1	60	10yr 3/6	40	C	M	Silt Loam	Permafrost

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
X Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
__Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 12

Hydric Soil Present? Yes

Remarks: Moderate tussocks. Organic streaking in mineral soil. No rocks/gravels.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

X Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes Depth (inches): 1
Water Table Present? Yes Depth (inches): 9
Saturation Present? Yes Depth (inches): 3
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Surface water in pockets between tussocks.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9t Borough/City: Fairbanks North Star Borough Sampling Date: 09/26/2013
Applicant/Owner: DOT&PF Sampling Point: DAL005
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.48095800 Long: -148.69389500 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS4/1C
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? No
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Picea mariana	30	Yes	FACW
2. Vaccinium uliginosum	20	No	FAC
3. Vaccinium vitis-idaea	25	Yes	FAC
4. Betula nana	20	No	FAC
5. Rhododendron tomentosum	10	No	FACW
6. Rubus chamaemorus	7	No	FACW
Total Cover: 112			
50% of total cover: 56 20% of total cover: 22			
Herb Stratum			
1. Eriophorum angustifolium	20	Yes	OBL
2. Calamagrostis canadensis	1	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 21			
50% of total cover: 10 20% of total cover: 4			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 40 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	47	x 2 =	94
FAC species	66	x 3 =	198
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	133 (A)		312 (B)

Prevalence Index = B/A = 2.35

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 30% Sphagnum, 10% Lichen. Large tussocks.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4		100		0			Oi	Organic
4-9		100		0			Oe	Organic
9-17	5y 3/1	75	10yr 3/6	25	C	M	Silt Loam	
17+	5y 3/1	60	10yr 3/6	40	C	M	Silt Loam	Permafrost

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
X Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 17

Hydric Soil Present? Yes

Remarks: No gravels. Old road west of plot 500 feet now an ATV trail.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

X Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
X Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
X Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes Depth (inches): 1
Water Table Present? Yes Depth (inches): 8
Saturation Present? Yes Depth (inches): 1
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Surface water between tussocks. Saturation in the organic material.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9t Borough/City: Fairbanks North Star Borough Sampling Date: 09/26/2013
Applicant/Owner: DOT&PF Sampling Point: DAL006
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Interior Alaska Lat: 65.48057800 Long: -148.69909800 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: R3UBH
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? No
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 0 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A = 0.00

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
X Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? No

Remarks:

SOIL Sampling Point DAL006

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type:
Depth (inches): 0

Hydric Soil Present? No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9t Borough/City: Fairbanks North Star Borough Sampling Date: 09/26/2013
Applicant/Owner: DOT&PF Sampling Point: DAL007
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.48331900 Long: -148.70299800 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS4/1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? No
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Picea mariana	40	Yes	FACW
2. Rhododendron tomentosum	40	Yes	FACW
3. Vaccinium uliginosum	10	No	FAC
4. Alnus viridis	7	No	FAC
5. Salix sp	5	No	FAC
6. Larix laricina	5	No	FACW
Total Cover: 107			
50% of total cover: 53 20% of total cover: 21			
Herb Stratum			
1. Carex rostrata	15	Yes	OBL
2. Calamagrostis canadensis	10	Yes	FAC
3. Geocaulon lividum	1	No	FACU
4. Petasites frigidus	3	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 29			
50% of total cover: 14 20% of total cover: 5			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 80
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	88	x 2 =	176
FAC species	32	x 3 =	96
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	136 (A)		291 (B)

Prevalence Index = B/A = 2.14

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 50% Sphagnum, 30% Lichen. OBS woodland. Moderate hummocks. Bottom of steep slope.

SOIL Sampling Point DAL007

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12		100		0			Oi	Organic
12-18		100		0			Oe	Organic
18+		100		0			Oe	Permafrost

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol or Histel(A1)
- __Histic Epipedon (A2)
- __Hydrogen Sulfide (A4)
- __Thick Dark Surface (A12)
- __Alaska Gleyed (A13)
- __Alaska Redox (A14)
- __Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- __Alaska Color Change (TA4)[4]
- __Alaska Alpine Swales (TA5)
- __Alaska Redox With 2.5Y Hue
- ___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- __Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 18

Hydric Soil Present? Yes

Remarks: Saturated organic material. Frozen organics.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- __Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- __Water Marks (B1)
- __Sediment Deposits (B2)
- __Drift Deposits (B3)
- __Algal Mat or Crust (B4)
- __Iron Deposits (B5)
- __Surface Soil Cracks (B6)
- __Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __Marl Deposits (B15)
- __Hydrogen Sulfide Odor (C1)
- __Dry Season Water Table (C2)
- __Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __Water-stained Leaves (B9)
- __Drainage Patterns (B10)
- __Oxidized Rhizospheres along Living Roots (C3)
- __Presence of Reduced Iron (C4)
- __Salt Deposits (C5)
- __Stunted or Stressed Plants (D1)
- __Geomorphic Position (D2)
- __Shallow Aquitard (D3)
- __Microtopographic Relief (D4)
- __FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches): 0
Water Table Present? Yes Depth (inches): 0
Saturation Present? Yes Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Hummock slope wetland.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/09/2013
Applicant/Owner: DOT&PF Sampling Point: DAL008
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 35
Subregion (LRR): Interior Alaska Lat: 65.48328410 Long: -148.71025910 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine-Rugged Mountains NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? Yes Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea glauca	30	Yes	FACU
2. Betula neoalaskana	10	Yes	FACU
3.			
4.			
Total Cover: 40			
50% of total cover: 20 20% of total cover: 8			
Sapling/Shrub Stratum			
1. Betula neoalaskana	15	No	FACU
2. Salix sp	20	Yes	FAC
3. Rosa acicularis	20	Yes	FACU
4. Alnus viridis	10	No	FAC
5. Vaccinium vitis-idaea	30	Yes	FAC
6. Rhododendron groenlandicum	10	No	FAC
Total Cover: 105			
50% of total cover: 52 20% of total cover: 21			
Herb Stratum			
1. Equisetum arvense	10	Yes	FAC
2. Geocaulon lividum	7	Yes	FACU
3. Calamagrostis canadensis	3	No	FAC
4. Equisetum sylvaticum	3	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 23			
50% of total cover: 11 20% of total cover: 4			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 42 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	86	x 3 =	258
FACU species	82	x 4 =	328
UPL species	0	x 5 =	0
Column Totals:	168 (A)		586 (B)

Prevalence Index = B/A = 3.49

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 20
(Where applicable)

Hydrophytic Vegetation Present? No

Remarks: 20% Sphagnum. Pit is upslope of water body/PEM1H. OMF.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7		100		0				Oi Organic
7-15		100		0				Oe Organic
15-19		100		0				Oe Frozen
19-21	5y 2.5/1	100		0			Silt Loam	Frozen

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

X Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 19

Hydric Soil Present? Yes

Remarks: No hydrology present or saturation in organics. Seems this area is a transitional zone from true upland and wetlands. Surface water downslope ~ 4 feet elevation difference. No residence tone in mineral soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: No moveable water in area. Permafrost is only water.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9t Borough/City: Fairbanks North Star Borough Sampling Date: 09/26/2013
Applicant/Owner: DOT&PF Sampling Point: DAL009
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Interior Alaska Lat: 65.48320900 Long: -148.71021900 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PEM1H
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? No
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Plot size (radius, or length x width): 0	% Bare ground: 0		
% Cover of Wetland Bryophytes: 0 (Where applicable)	Total Cover of Bryophytes: 0		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	0 (A)	0 (B)

Prevalence Index = B/A = 0.00

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
X Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? No

Remarks:

SOIL Sampling Point DAL009

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type:
Depth (inches): 0

Hydric Soil Present? No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/09/2013
Applicant/Owner: DOT&PF Sampling Point: DAL010
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.48330740 Long: -148.71812000 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine-Rugged Mountains NWI classification: SS1B/PF04
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	20	Yes	FACW
2.			
3.			
4.			
Total Cover: 20			
50% of total cover: 10 20% of total cover: 4			
Sapling/Shrub Stratum			
1. Rhododendron groenlandicum	10	Yes	FAC
2. Salix sp	10	Yes	FAC
3. Larix laricina	5	No	FACW
4. Arctostaphylos rubra	10	Yes	FAC
5. Empetrum nigrum	3	No	FAC
6. Rubus chamaemorus	7	No	FACW
Total Cover: 45			
50% of total cover: 22 20% of total cover: 9			
Herb Stratum			
1. Equisetum scirpoides	10	Yes	FACU
2. Calamagrostis canadensis	5	No	FAC
3. Equisetum arvense	3	No	FAC
4. Chamerion angustifolium	1	No	FACU
5. Geocaulon lividum	1	No	FACU
6. Petasites frigidus	1	No	FACW
7. Eriophorum angustifolium	1	No	OBL
8.			
9.			
10.			
Total Cover: 22			
50% of total cover: 11 20% of total cover: 4			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 80
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	1	x 1 = 1
FACW species	33	x 2 = 66
FAC species	41	x 3 = 123
FACU species	12	x 4 = 48
UPL species	0	x 5 = 0
Column Totals:	87 (A)	238 (B)

Prevalence Index = B/A = 2.74

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 80% Sphagnum. Bottom of toe slope from upland. Moderate hummocks.

SOIL Sampling Point DAL010

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6		100		0			Oi	Organic
6-12		100		0			Oe	Organic
12-24	5y 3/1	80	10yr 3/6	20	C	M	Silt Loam	Seasonal Frost

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
X Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
__Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type:
Depth (inches): 0

Hydric Soil Present? Yes

Remarks: No permafrost pushed shovel to 30 inches. Water moving from upland. Seasonal frost at 17 inches.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? Yes Depth (inches): 8
Saturation Present? Yes Depth (inches): 2
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/09/2013
Applicant/Owner: DOT&PF Sampling Point: DAL011
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 50
Subregion (LRR): Interior Alaska Lat: 65.48422260 Long: -148.72867500 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine-Rugged Mountains NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea glauca	30	Yes	FACU
2. Populus tremuloides	10	Yes	FACU
3. Betula neoalaskana	5	No	FACU
4.			
Total Cover: 45			
50% of total cover: 22 20% of total cover: 9			
Sapling/Shrub Stratum			
1. Juniperus comminus	7	Yes	UPL
2. Viburnum edule	5	Yes	FACU
3. Populus tremuloides	5	Yes	FACU
4. Rosa acicularis	3	No	FACU
5. Vaccinium uliginosum	3	No	FAC
6. Linnaea borealis	3	No	FACU
Total Cover: 26			
50% of total cover: 13 20% of total cover: 5			
Herb Stratum			
1. Mertensia paniculata	5	Yes	FACU
2. Galium triflorum	5	Yes	FAC
3. Chamerion angustifolium	3	No	FACU
4. Geocaulon lividum	3	No	FACU
5. Anemone sp	1	No	FACU
6.			
7.			
8.			
9.			
10.			
Total Cover: 17			
50% of total cover: 8 20% of total cover: 3			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 20
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 14 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	8	x 3 =	24
FACU species	73	x 4 =	292
UPL species	7	x 5 =	35
Column Totals:	88 (A)		351 (B)

Prevalence Index = B/A = 3.99

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? No

Remarks: 20% Sphagnum. Very well drained. Steep terrain.

SOIL Sampling Point DAL011

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2		100		0			Oe	Organic
2-10	7.5yr 3/4	100		0			Silt Loam	5% Gravel
10-16	2.5y 4/3	100		0			Silt Loam	50% Gravel
16-24	2.5y 4/4	100		0			Silt Loam	70% Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Lots of gravels. Good borrow site.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: No water residence time.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9t Borough/City: Fairbanks North Star Borough Sampling Date: 09/26/2013
Applicant/Owner: DOT&PF Sampling Point: DAL012
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.48553100 Long: -148.73531700 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? No
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea glauca	40	Yes	FACU
2. Betula neoalaskana	25	Yes	FACU
3.			
4.			
Total Cover: 65			
50% of total cover: 32 20% of total cover: 13			
Sapling/Shrub Stratum			
1. Alnus viridis	35	Yes	FAC
2. Picea glauca	15	Yes	FACU
3. Salix sp	15	No	FAC
4. Rosa acicularis	10	No	FACU
5. Betula neoalaskana	5	No	FACU
6. Viburnum edule	5	No	FACU
Total Cover: 85			
50% of total cover: 42 20% of total cover: 17			
Herb Stratum			
1. Calamagrostis canadensis	15	Yes	FAC
2. Chamaedaphne calyculata	1	No	FACW
3. Equisetum arvense	20	Yes	FAC
4. Geocaulon lividum	5	No	FACU
5. Anemone sp	3	No	FACU
6.			
7.			
8.			
9.			
10.			
Total Cover: 44			
50% of total cover: 22 20% of total cover: 8			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	85	x 3 =	255
FACU species	108	x 4 =	432
UPL species	0	x 5 =	0
Column Totals:	194 (A)		689 (B)

Prevalence Index = B/A = 3.55

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 15
(Where applicable)

Hydrophytic Vegetation Present? No

Remarks: Wetland plants surrounding area. Riverine area could have resident water in soils.

SOIL Sampling Point DAL012

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2		100		0				Organic
2-8	5y 3/1	50		0			Silt Loam	50% Organic

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Soil is damp but not saturated. Water table is dependent on creeks. Very well drained. Sheet flow to plot.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

X Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes Depth (inches): 24
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Creek floodplain water surround plot.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9t Borough/City: Fairbanks North Star Borough Sampling Date: 09/26/2013
Applicant/Owner: DOT&PF Sampling Point: DAL013
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R07W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 15
Subregion (LRR): Interior Alaska Lat: 65.54881000 Long: -148.89861200 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? No
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula neoalaskana	40	Yes	FACU
2. Picea mariana	15	Yes	FACW
3.			
4.			
Total Cover: 55			
50% of total cover: 27 20% of total cover: 11			
Sapling/Shrub Stratum			
1. Alnus viridis	30	Yes	FAC
2. Rosa acicularis	30	Yes	FACU
3. Viburnum edule	15	No	FACU
4. Vaccinium vitis-idaea	5	No	FAC
5. Picea mariana	15	No	FACW
6.			
Total Cover: 95			
50% of total cover: 47 20% of total cover: 19			
Herb Stratum			
1. Calamagrostis canadensis	5	Yes	FAC
2. Equisetum arvense	10	Yes	FAC
3. Mertensia paniculata	5	Yes	FACU
4. Streptopus amplexifolius	5	Yes	FACU
5. Oplopanax horridus	3	No	FACU
6.			
7.			
8.			
9.			
10.			
Total Cover: 28			
50% of total cover: 14 20% of total cover: 5			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 0
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	50	x 3 =	150
FACU species	98	x 4 =	392
UPL species	0	x 5 =	0
Column Totals:	178 (A)		602 (B)

Prevalence Index = B/A = 3.38

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? No

Remarks: OMF. Road toe of slope ~75 feet. ATV trail between plot and road. Lots of fallen leaves.

SOIL Sampling Point DAL013

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2		100		0				Oe Organic
2-3	10yr 2/1	100		0			Silt Loam	A Horizon
3-24	5yr 4/2	100		0			Silt Loam	Organic material within horizon

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Packed Silt/Frozen
Depth (inches): 24

Hydric Soil Present? No

Remarks: No moisture in soil. Upland area upslope of road.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: No hydrology present. Soil was dry.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/10/2013
Applicant/Owner: DOT&PF Sampling Point: DAL014
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R07W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 5
Subregion (LRR): Interior Alaska Lat: 65.54613640 Long: -148.89197100 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine-Rugged Mountains NWI classification: PSS4/1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	10	Yes	FACW
2. Betula neoalaskana	5	Yes	FACU
3.			
4.			
Total Cover: 15			
50% of total cover: 7 20% of total cover: 3			
Sapling/Shrub Stratum			
1. Picea mariana	40	Yes	FACW
2. Rosa Acicularis	10	No	FACU
3. Rhododendron groenlandicum	7	No	FAC
4. Spiraea Stevenii	5	No	FACU
5. Alnus viridis	5	No	FAC
6.			
Total Cover: 67			
50% of total cover: 33 20% of total cover: 13			
Herb Stratum			
1. Petasites frigidus	20	Yes	FACW
2. Equisetum arvense	15	Yes	FAC
3. Calamagrostis canadensis	3	No	FAC
4. Mertensia paniculata	1	No	FACU
5. Streptopus amplexifolius	1	No	FACU
6. Cornus canadensis	1	No	FACU
7. Oplopanax horridus	1	No	FACU
8.			
9.			
10.			
Total Cover: 42			
50% of total cover: 21 20% of total cover: 8			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	30	x 3 =	90
FACU species	24	x 4 =	96
UPL species	0	x 5 =	0
Column Totals:	124 (A)		326 (B)

Prevalence Index = B/A = 2.63

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 0
(Where applicable)

Hydrophytic Vegetation Present? Yes

Remarks: Dead Betula neoalaskana snags trail along road and another trail by plot. Trail is overgrown.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7		100		0			Oi	Organic
7-10		100		0			Oe	Organic
10-17	2.5y 3/1	80	10yr 4/4	20	C	M	Silt Loam	
17+	2.5y 3/1	90	10yr 4/4	10	C	M	Silt Loam	Permafrost Ice Lens

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 17

Hydric Soil Present? Yes

Remarks: Saturated organics. Moderately hummocky. Pit by old trail grown over. Small frost layer on top of permafrost less than 1/2 inch thick.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? Yes Depth (inches): 10
Saturation Present? Yes Depth (inches): 9
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/10/2013
Applicant/Owner: DOT&PF Sampling Point: DAL015
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R07W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 5
Subregion (LRR): Interior Alaska Lat: 65.54164910 Long: -148.88850520 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula neoalaskana	50	Yes	FACU
2. Picea glauca	25	Yes	FACU
3.			
4.			
Total Cover: 75			
50% of total cover: 37 20% of total cover: 15			
Sapling/Shrub Stratum			
1. Alnus viridis	7	No	FAC
2. Viburnum edule	15	Yes	FACU
3. Rosa acicularis	7	No	FACU
4. Vaccinium vitis-idaea	10	Yes	FAC
5. Spiraea stevenii	3	No	FACU
6.			
Total Cover: 42			
50% of total cover: 21 20% of total cover: 8			
Herb Stratum			
1. Calamagrostis canadensis	15	Yes	FAC
2. Equisetum arvense	25	Yes	FAC
3. Cornus canadensis	10	Yes	FACU
4. Mertensia paniculata	1	No	FACU
5. Streptopus amplexifolius	1	No	FACU
6. Pyrola asarifolia	1	No	FACU
7.			
8.			
9.			
10.			
Total Cover: 53			
50% of total cover: 26 20% of total cover: 10			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 42 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	57	x 3 =	171
FACU species	113	x 4 =	452
UPL species	0	x 5 =	0
Column Totals:	170 (A)		623 (B)

Prevalence Index = B/A = 3.66

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 5
(Where applicable)

Hydrophytic Vegetation Present? No

Remarks: OMF. 2 small channels by plot (seasonal). 5% Sphagnum. Ungulating terrain.

SOIL Sampling Point DAL015

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2		100		0			Oi	Organic
2-5		100		0			Oe	Organic
5-12	10yr 4/4	60		0			Silt Loam	
	10yr 3/2	40		0			Silt Loam	
12-24	2.5y 3/2	100		0			Silt Loam	CWD

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Dry soil. Loose, almost like loess.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: Seasonal creeks next to plot.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/10/2013
Applicant/Owner: DOT&PF Sampling Point: DAL016
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R07W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 15
Subregion (LRR): Interior Alaska Lat: 65.53852280 Long: -148.87821020 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula neoalaskana	50	Yes	FACU
2. Picea glauca	20	Yes	FACU
3.			
4.			
Total Cover: 70			
50% of total cover: 35 20% of total cover: 14			
Sapling/Shrub Stratum			
1. Alnus viridis	20	Yes	FAC
2. Vaccinium vitis-idaea	7	Yes	FAC
3. Viburnum edule	5	No	FACU
4. Salix bebbiana	5	No	FAC
5. Picea glauca	3	No	FACU
6. Betula neoalaskana	3	No	FACU
Total Cover: 43			
50% of total cover: 21 20% of total cover: 8			
Herb Stratum			
1. Equisetum arvense	15	Yes	FAC
2. Calamagrostis canadensis	5	No	FAC
3. Geocaulon lividum	5	No	FACU
4. Mertensia paniculata	3	No	FACU
5. Pyrola asarifolia	1	No	FACU
6. Chamerion angustifolium	1	No	FACU
7.			
8.			
9.			
10.			
Total Cover: 30			
50% of total cover: 15 20% of total cover: 6			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	52	x 3 =	156
FACU species	91	x 4 =	364
UPL species	0	x 5 =	0
Column Totals:	143 (A)		520 (B)

Prevalence Index = B/A = 3.64

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 25
(Where applicable)

Hydrophytic Vegetation Present? No

Remarks: 25% Sphagnum. Lots of CWD. 50 feet away from clearing on road.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3		100		0			Oe	Organic
3-24	2.5y 3/1	90		0				
	2.5y 2.5/1	10		0				Possible organic streak
24+	2.5y 2.5/1	100		0				Permafrost

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 24

Hydric Soil Present? No

Remarks: Not saturated. Road and slope vegetation clearing 50 feet.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: Upslope at road is water collection ditch.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9t Borough/City: Fairbanks North Star Borough Sampling Date: 09/26/2013
Applicant/Owner: DOT&PF Sampling Point: DAL017
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 5
Subregion (LRR): Interior Alaska Lat: 65.53855200 Long: -148.87820500 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS4/1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? No
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Picea mariana	40	Yes	FACW
2. Vaccinium uliginosum	20	Yes	FAC
3. Rhododendron tomentosum	15	No	FACW
4. Betula neoalaskana	10	No	FACU
5. Alnus viridis	7	No	FAC
6. Spiraea stevenii	5	No	FACU
Total Cover: 97			
50% of total cover: 48 20% of total cover: 19			
Herb Stratum			
1. Calamagrostis canadensis	5	Yes	FAC
2. Petasites frigidus	5	Yes	FACW
3. Equisetum sylvaticum	1	No	FAC
4. Carex rostrata	3	Yes	OBL
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 14			
50% of total cover: 7 20% of total cover: 2			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 90 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species	60	x 2 =	120
FAC species	33	x 3 =	99
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	111 (A)		282 (B)

Prevalence Index = B/A = 2.54

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 90% Sphagnum. Stunted Bet Pap and Pic Mar.

SOIL Sampling Point DAL017

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12		100		0			Oi	Organic
12+		100		0			Oi	Permafrost, Ice lenses

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol or Histel(A1)
- __Histic Epipedon (A2)
- __Hydrogen Sulfide (A4)
- __Thick Dark Surface (A12)
- __Alaska Gleyed (A13)
- __Alaska Redox (A14)
- __Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- __Alaska Color Change (TA4)[4]
- __Alaska Alpine Swales (TA5)
- __Alaska Redox With 2.5Y Hue
- ___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- __Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 12

Hydric Soil Present? Yes

Remarks: Saturated organics. No mineral soil.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- __High Water Table (A2)
- X Saturation (A3)
- __Water Marks (B1)
- __Sediment Deposits (B2)
- __Drift Deposits (B3)
- __Algal Mat or Crust (B4)
- __Iron Deposits (B5)
- __Surface Soil Cracks (B6)
- __Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __Marl Deposits (B15)
- __Hydrogen Sulfide Odor (C1)
- __Dry Season Water Table (C2)
- __Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __Water-stained Leaves (B9)
- __Drainage Patterns (B10)
- __Oxidized Rhizospheres along Living Roots (C3)
- __Presence of Reduced Iron (C4)
- __Salt Deposits (C5)
- __Stunted or Stressed Plants (D1)
- __Geomorphic Position (D2)
- __Shallow Aquitard (D3)
- __Microtopographic Relief (D4)
- __FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes Depth (inches): 2
Water Table Present? No Depth (inches): 0
Saturation Present? Yes Depth (inches): 2
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Drainage ditch to the SE of plot. Flowing water from culvert on road. Broad swale, upper area of drainage. Road is 60 feet upslope of point. Flat wetland, road cuts off upper wetland.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/10/2013
Applicant/Owner: DOT&PF Sampling Point: DAL018
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 4
Subregion (LRR): Interior Alaska Lat: 65.53598430 Long: -148.86993180 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS4/1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula neoalaskana	5	Yes	FACU
2.			
3.			
4.			
Total Cover: 5			
50% of total cover: 2 20% of total cover: 1			
Sapling/Shrub Stratum			
1. Picea mariana	30	Yes	FACW
2. Vaccinium uliginosum	25	Yes	FAC
3. Rhododendron tomentosum	13	No	FACW
4. Spiraea stevenii	10	No	FACU
5. Alnus viridis	20	Yes	FAC
6. Betula neoalaskana	5	No	FACU
Total Cover: 103			
50% of total cover: 51 20% of total cover: 20			
Herb Stratum			
1. Calamagrostis canadensis	7	Yes	FAC
2. Petasites frigidus	5	Yes	FACW
3. Equisetum sylvaticum	5	Yes	FAC
4. Carex rostrata	3	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 20			
50% of total cover: 10 20% of total cover: 4			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 90
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species	48	x 2 =	96
FAC species	57	x 3 =	171
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	128 (A)		350 (B)

Prevalence Index = B/A = 2.73

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 80% Sphagnum, 10% Lichen. Clearing limits of road 30 feet. Probable mature forest just stunted.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5		100		0				Organic
5-8		100		0				Organic
8-16	2.5y 4/1	70	7.5yr 4/6	30	C	M	Silt Loam	Slightly Thixotropic, 7% Gravel
16-23	2.5y 3/1	60	10yr 4/6	40	C	M	Silt Loam	Ice lens, Gravel 15%

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 23

Hydric Soil Present? Yes

Remarks: No perched water table due to permafrost. Area impacted from road clearing of vegetation ~30 feet could influence hydrology. Organics werent saturated.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 8
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Thicksotropic soil saturated at 8 inches. Most trees in plot under 15 feet. Moderately hummocky.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/10/2013
Applicant/Owner: DOT&PF Sampling Point: DAL019
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 45
Subregion (LRR): Interior Alaska Lat: 65.53407920 Long: -148.86570140 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea glauca	10	No	FACU
2. Betula neoalaskana	60	Yes	FACU
3.			
4.			
Total Cover: 70			
50% of total cover: 35 20% of total cover: 14			
Sapling/Shrub Stratum			
1. Picea glauca	5	No	FACU
2. Populus tremuloides	10	No	FACU
3. Rosa acicularis	5	No	FACU
4. Viburnum edule	7	No	FACU
5. Spiraea stevenii	7	No	FACU
6. Vaccinium vitis-idaea	45	Yes	FAC
Total Cover: 79			
50% of total cover: 39 20% of total cover: 15			
Herb Stratum			
1. Cornus canadensis	5	Yes	FACU
2. Equisetum sylvaticum	3	Yes	FAC
3. Calamagrostis canadensis	10	Yes	FAC
4. Stellaria calycantha	1	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 19			
50% of total cover: 9 20% of total cover: 3			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 0
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	58	x 3 =	174
FACU species	109	x 4 =	436
UPL species	0	x 5 =	0
Column Totals:	168 (A)		612 (B)

Prevalence Index = B/A = 3.64

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: CDF. Toe of slope from road 40 feet upslope. Possible disturbance for original road.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4		100		0			Oe	Organic
4-8	2.5y 4/4	100		0			Silt Loam	1% Gravel
8-14	10yr 4/4	100		0			Silt Loam	15% Gravel
14-24	10yr 4/4	100		0			Silt Loam	40% Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Close to disturbed roadway clearing.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: Steep slope. Very well drained. Very little residence time for water in soil. Large culvert drainage downhill on the road.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/10/2013
Applicant/Owner: DOT&PF Sampling Point: DAL020
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 3
Subregion (LRR): Interior Alaska Lat: 65.53014930 Long: -148.86165260 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix pulchra	40	Yes	FACW
2. Betula neoalaskana	25	Yes	FACU
3.			
4.			
Total Cover: 65			
50% of total cover: 32 20% of total cover: 13			
Sapling/Shrub Stratum			
1. Salix pulchra	30	Yes	FACW
2. Rosa acicularis	1	No	FACU
3. Alnus viridis	7	No	FAC
4. Viburnum edule	3	No	FACU
5.			
6.			
Total Cover: 41			
50% of total cover: 20 20% of total cover: 8			
Herb Stratum			
1. Calamagrostis canadensis	50	Yes	FAC
2. Equisetum sylvaticum	1	No	FAC
3. Stellaria calycantha	3	No	FACW
4. Taraxacum officinale	1	No	FACU
5. Chamerion angustifolium	1	No	FACU
6. Streptopus amplexifolius	1	No	FACU
7.			
8.			
9.			
10.			
Total Cover: 57			
50% of total cover: 28 20% of total cover: 11			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	73	x 2 =	146
FAC species	58	x 3 =	174
FACU species	32	x 4 =	128
UPL species	0	x 5 =	0
Column Totals:	163 (A)		448 (B)

Prevalence Index = B/A = 2.75

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 10
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 0
(Where applicable)

Hydrophytic Vegetation Present? Yes

Remarks: Roadside disturbed area from previous road construction. Mature Betula neoalaskana and tall Sal Pul in plot.

SOIL Sampling Point DAL020

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3		100		0			Oe	Organic
3-17	10yr 3/3	90		0			Silt Loam	20% gravel
	10yr 3/4	10		0				pockets
17-22	10yr 3/1	100		0			Silt Loam	60% gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Very well drained roadside disturbance. Unconsolidated gravels.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
X Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: Road runoff runs through plot. The area is where the road water disperses into forested area. Lots of woody debris to control sediment runoff.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/26/2013
Applicant/Owner: DOT&PF Sampling Point: DAL021
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 15
Subregion (LRR): Interior Alaska Lat: 65.52565800 Long: -148.85923700 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	40	Yes	FACW
2. Betula neoalaskana	10	Yes	FACU
3.			
4.			
Total Cover: 50			
50% of total cover: 25 20% of total cover: 10			
Sapling/Shrub Stratum			
1. Vaccinium vitis-idaea	20	Yes	FAC
2. Picea mariana	20	Yes	FACW
3. Spiraea stevenii	15	Yes	FACU
4. Viburnum edule	10	No	FACU
5. Vaccinium uliginosum	5	No	FAC
6. Alnus viridis	5	No	FAC
Total Cover: 75			
50% of total cover: 37 20% of total cover: 15			
Herb Stratum			
1. Cornus canadensis	7	Yes	FACU
2. Stellaria calycantha	1	No	FACW
3. Geocaulon lividum	5	Yes	FACU
4. Calamagrostis canadensis	3	Yes	FAC
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 16			
50% of total cover: 8 20% of total cover: 3			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 90
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	61	x 2 =	122
FAC species	33	x 3 =	99
FACU species	47	x 4 =	188
UPL species	0	x 5 =	0
Column Totals:	141 (A)		409 (B)

Prevalence Index = B/A = 2.90

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
X Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 70% Sphagnum, 20% Lichen. OBSF.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4		100		0			Oe	Organic
4-19	10yr 3/3	100		0			Very Gravelly Silty Loam	40% Gravels
19-23	10yr 3/3	100		0			Very Gravelly Silty Loam	80% Gravels

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Very well drained. No resident water time.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: Borrow pit downslope of pit.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/10/2013
Applicant/Owner: DOT&PF Sampling Point: DAL022
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 20
Subregion (LRR): Interior Alaska Lat: 65.52287840 Long: -148.85707310 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula neoalaskana	70	Yes	FACU
2. Picea glauca	10	No	FACU
3.			
4.			
Total Cover: 80			
50% of total cover: 40 20% of total cover: 16			
Sapling/Shrub Stratum			
1. Alnus viridis	10	No	FAC
2. Rosa acicularis	30	Yes	FACU
3. Viburnum edule	45	Yes	FACU
4. Vaccinium vitis-idaea	15	No	FAC
5. Linnaea borealis	1	No	FACU
6.			
Total Cover: 101			
50% of total cover: 50 20% of total cover: 20			
Herb Stratum			
1. Equisetum sylvaticum	5	Yes	FAC
2. Cornus canadensis	3	Yes	FACU
3. Calamagrostis canadensis	1	No	FAC
4. Lycopodium clavatum	1	No	FACU
5. Streptopus amplexifolius	1	No	FACU
6. Mertensia paniculata	1	No	FACU
7.			
8.			
9.			
10.			
Total Cover: 12			
50% of total cover: 6 20% of total cover: 2			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 60
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	31	x 3 =	93
FACU species	162	x 4 =	648
UPL species	0	x 5 =	0
Column Totals:	193 (A)		741 (B)

Prevalence Index = B/A = 3.84

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? No

Remarks: Mature CDF. More WSF to the north.

SOIL Sampling Point DAL022

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3		100		0			Organic	Oe
3-7	10yr 3/3	100		0			Silt Loam	Gravels 10%
7-14	2.5y 4/3	100		0			Silt Loam	Gravels 50%
14-17	2.5y 4/3	100		0			Silt Loam	Gravels 70%

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type:
Depth (inches): 0

Hydric Soil Present? No

Remarks: Very well drained. Limited residence time. Restrictive digging layer of gravels and cobbles at 17 inches.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: Dry Birch forest. ungulating topography. Road below approx. 100 feet. No residence time for moisture with slope.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/10/2013
Applicant/Owner: DOT&PF Sampling Point: DAL023
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Interior Alaska Lat: 65.51998780 Long: -148.84750700 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula neoalaskana	60	Yes	FACU
2. Picea glauca	15	Yes	FACU
3.			
4.			
Total Cover: 75			
50% of total cover: 37 20% of total cover: 15			
Sapling/Shrub Stratum			
1. Rosa acicularis	50	Yes	FACU
2. Vaccinium uliginosum	25	Yes	FAC
3. Viburnum edule	10	No	FACU
4. Picea glauca	10	No	FACU
5. Salix pulchra	3	No	FACW
6.			
Total Cover: 98			
50% of total cover: 49 20% of total cover: 19			
Herb Stratum			
1. Cornus canadensis	5	Yes	FACU
2. Calamagrostis canadensis	1	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 6			
50% of total cover: 3 20% of total cover: 1			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	3	x 2 =	6
FAC species	26	x 3 =	78
FACU species	150	x 4 =	600
UPL species	0	x 5 =	0
Column Totals:	179 (A)		684 (B)

Prevalence Index = B/A = 3.82

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 10
(Where applicable)

Hydrophytic Vegetation Present? No

Remarks: CMF. 10% Sphagnum. Lots of leaf litter.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4		100		0			Oe	Organic
4-6	10r 6/2	100		0			Silt Loam	
6-22	2.5yr 5/4	80		0			Silt Loam	
	10yr 4/6	20		0			Silt Loam	
22-26	2.5y 4/1	60		0			Silt Loam	Charcoal present
	10yr 4/6	40		0			Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Dry loose mineral soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: No water in plot. Dry soil. Ungulating/small hummocks.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/10/2013
Applicant/Owner: DOT&PF Sampling Point: DAL024
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 10
Subregion (LRR): Interior Alaska Lat: 65.52020490 Long: -148.84139340 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PF04/SS1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	35	Yes	FACW
2.			
3.			
4.			
Total Cover: 35			
50% of total cover: 17 20% of total cover: 7			
Sapling/Shrub Stratum			
1. Vaccinium vitis-idaea	15	Yes	FAC
2. Picea mariana	10	Yes	FACW
3. Salix sp	15	Yes	FAC
4. Rhododendron tomentosum	5	No	FACW
5. Rhododendron groenlandicum	3	No	FAC
6. Alnus viridis	3	No	FAC
Total Cover: 51			
50% of total cover: 25 20% of total cover: 10			
Herb Stratum			
1. Cornus canadensis	3	Yes	FACU
2. Geocaulon lividum	2	No	FACU
3. Calamagrostis canadensis	3	Yes	FAC
4. Carex sp	5	Yes	FACW
5. Mertensia paniculata	1	No	FACU
6. Chamerion angustifolium	1	No	FACU
7.			
8.			
9.			
10.			
Total Cover: 15			
50% of total cover: 7 20% of total cover: 3			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 90
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 85 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	55	x 2 =	110
FAC species	39	x 3 =	117
FACU species	7	x 4 =	28
UPL species	0	x 5 =	0
Column Totals:	101 (A)		255 (B)

Prevalence Index = B/A = 2.52

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 60% Sphagnum, 30% Lichen. Hillside ungulating.

SOIL Sampling Point DAL024

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6		100		0			Oi	
6-8		100		0			Oe	
8-16	2.5y 4/1	70	10yr 4/6	30	C	M	Silt Loam	Thixotropic
16-18	2.5y 4/3	100		0			Silt Loam	35% Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Frost/Gravels
Depth (inches): 18

Hydric Soil Present? Yes

Remarks: Saturation measured from organic surface.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
X Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 11
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Saturation measured at organic surface. Hummocky area. Road ~ 100 feet downslope.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/10/2013
Applicant/Owner: DOT&PF Sampling Point: DAL025
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 10
Subregion (LRR): Interior Alaska Lat: 65.51707770 Long: -148.83485030 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PF04/SS1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	50	Yes	FACW
2. Betula neoalaskana	1	No	FACU
3.			
4.			
Total Cover: 51			
50% of total cover: 25 20% of total cover: 10			
Sapling/Shrub Stratum			
1. Rosa acicularis	5	No	FACU
2. Rhododendron groenlandicum	20	Yes	FAC
3. Vaccinium vitis-idaea	10	Yes	FAC
4. Vaccinium uliginosum	5	No	FAC
5. Spiraea stevenii	5	No	FACU
6. Rhododendron tomentosum	5	No	FACW
Total Cover: 50			
50% of total cover: 25 20% of total cover: 10			
Herb Stratum			
1. Equisetum sylvaticum	10	Yes	FAC
2. Carex sp	5	Yes	FACW
3. Geocaulon lividum	1	No	FACU
4. Calamagrostis canadensis	3	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 19			
50% of total cover: 9 20% of total cover: 3			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 90 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	48	x 3 =	144
FACU species	12	x 4 =	48
UPL species	0	x 5 =	0
Column Totals:	120 (A)		312 (B)

Prevalence Index = B/A = 2.60

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 80% Shagnum, 10% Lichen.

SOIL Sampling Point DAL025

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10		100		0			Oi	Organic
10-12		100		0			Oe	Organic
12+	2.5y 4/1	100		0			Silt Loam	Permafrost Ice Lens

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol or Histel(A1)
- __Histic Epipedon (A2)
- __Hydrogen Sulfide (A4)
- __Thick Dark Surface (A12)
- __Alaska Gleyed (A13)
- __Alaska Redox (A14)
- __Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- __Alaska Color Change (TA4)[4]
- __Alaska Alpine Swales (TA5)
- __Alaska Redox With 2.5Y Hue
- ___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- __Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 12

Hydric Soil Present? Yes

Remarks: Saturated organics

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- __Surface Water (A1)
- __High Water Table (A2)
- X Saturation (A3)
- __Water Marks (B1)
- __Sediment Deposits (B2)
- __Drift Deposits (B3)
- __Algal Mat or Crust (B4)
- __Iron Deposits (B5)
- __Surface Soil Cracks (B6)
- __Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __Marl Deposits (B15)
- __Hydrogen Sulfide Odor (C1)
- __Dry Season Water Table (C2)
- __Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __Water-stained Leaves (B9)
- __Drainage Patterns (B10)
- __Oxidized Rhizospheres along Living Roots (C3)
- __Presence of Reduced Iron (C4)
- __Salt Deposits (C5)
- __Stunted or Stressed Plants (D1)
- __Geomorphic Position (D2)
- __Shallow Aquitard (D3)
- __Microtopographic Relief (D4)
- __FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 8
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Saturated organics. Moderate hummocks.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/11/2013
Applicant/Owner: DOT&PF Sampling Point: DAL026
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 3
Subregion (LRR): Interior Alaska Lat: 65.48819090 Long: -148.73859850 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS4/1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	5	Yes	FACW
2.			
3.			
4.			
Total Cover: 5			
50% of total cover: 2 20% of total cover: 1			
Sapling/Shrub Stratum			
1. Picea mariana	40	Yes	FACW
2. Salix barclayi	15	Yes	FAC
3. Vaccinium vitis-idaea	10	No	FAC
4. Rhododendron groenlandicum	5	No	FAC
5. Chamaedaphne calyculata	5	No	FACW
6. Rubus chamaemorus	3	No	FACW
Total Cover: 78			
50% of total cover: 39 20% of total cover: 15			
Herb Stratum			
1. Equisetum scirpoides	3	No	FACU
2. Petasites frigidus	10	Yes	FACW
3. Eriophorum angustifolium	15	Yes	OBL
4. Calamagrostis canadensis	5	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 33			
50% of total cover: 16 20% of total cover: 6			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	63	x 2 =	126
FAC species	35	x 3 =	105
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	116 (A)		258 (B)

Prevalence Index = B/A = 2.22

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 90
(Where applicable)

Hydrophytic Vegetation Present? Yes

Remarks: 80% Sphagnum, 10% Lichen. Large hummocks. Some tussock grasses. Salix is being browsed by moose.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9		100		0				Organic
9-13		100		0				Organic
13-17	5y 3/1	80	10yr 4/4	20	C	M	Silt Loam	Thixotropic
17+	5y 3/1	90	10yr 4/4	10	C	M	Silt Loam	Permafrost Ice Lens

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 17

Hydric Soil Present? Yes

Remarks: Dark layer. Reduction occurring closer to horizon tops.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
X Stunted or Stressed Plants (D1)
X Geomorphic Position (D2)
__Shallow Aquitard (D3)
X Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 8
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Swale feature pumping water in to beating during high water events. Intermittent stream from road towards point. Majority of spruce are stunted. Slope wetland releases water to creek.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/26/2013
Applicant/Owner: DOT&PF Sampling Point: DAL027
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 10
Subregion (LRR): Interior Alaska Lat: 65.49010900 Long: -148.74482400 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	40	Yes	FACW
2. Populus tremuloides	1	No	FACU
3.			
4.			
Total Cover: 41			
50% of total cover: 20 20% of total cover: 8			
Sapling/Shrub Stratum			
1. Picea mariana	10	Yes	FACW
2. Salix bebbiana	7	No	FAC
3. Rosa acicularis	10	Yes	FACU
4. Vaccinium vitis-idaea	5	No	FAC
5. Rhododendron groenlandicum	5	No	FAC
6. Rhododendron tomentosum	3	No	FACW
Total Cover: 40			
50% of total cover: 20 20% of total cover: 8			
Herb Stratum			
1. Equisetum arvense	40	Yes	FAC
2. Equisetum scirpoides	3	No	FACU
3. Calamagrostis canadensis	3	No	FAC
4. Geocaulon lividum	1	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 47			
50% of total cover: 23 20% of total cover: 9			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 80
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	53	x 2 =	106
FAC species	60	x 3 =	180
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	128 (A)		346 (B)

Prevalence Index = B/A = 2.70

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 60% Sphagnum, 20% Lichen. Tall spruce with open pockets of shrubs. Populus tremuloides in the area noticed more on foot slope of hill.

SOIL Sampling Point DAL027

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5		100		0			Oi	Organic
5-7		100		0			Oe	Organic
7-24	2.5y 3/2	100		0				Rotten Rock, 10% Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: No moisture in the soil. Transitional area.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: No moisture in plot. Consistent slope and no drainages observed in area. Tussocks forming.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/11/2013
Applicant/Owner: DOT&PF Sampling Point: DAL028
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.48992260 Long: -148.75652870 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS4/2B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Picea mariana	25	Yes	FACW
2. Larix laricina	20	Yes	FACW
3. Rhododendron tomentosum	30	Yes	FACW
4. Betula nana	3	No	FAC
5. Vaccinium vitis-idaea	4	No	FAC
6. Rhododendron groenlandicum	3	No	FAC
Total Cover: 85			
50% of total cover: 42 20% of total cover: 17			
Herb Stratum			
1. Carex rostrata	10	No	OBL
2. Calamagrostis canadensis	3	No	FAC
3. Eriophorum angustifolium	1	No	OBL
4. Geocaulon lividum	1	No	FACU
5. Equisetum scirpoides	5	No	FACU
6.			
7.			
8.			
9.			
10.			
Total Cover: 20			
50% of total cover: 10 20% of total cover: 4			
Plot size (radius, or length x width): 0	% Bare ground: 0		
% Cover of Wetland Bryophytes: 0 (Where applicable)	Total Cover of Bryophytes: 80		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	11	x 1 =	11
FACW species	75	x 2 =	150
FAC species	13	x 3 =	39
FACU species	6	x 4 =	24
UPL species	0	x 5 =	0
Column Totals:	105 (A)		224 (B)

Prevalence Index = B/A = 2.13

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 60% Sphagnum, 30% Lichen. Stunted trees in plot. Water in some depressional areas between plot.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20		100		0				Oi Organic
20+		100		0				Oi Organic

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol or Histel(A1)
- __Histic Epipedon (A2)
- X Hydrogen Sulfide (A4)
- __Thick Dark Surface (A12)
- __Alaska Gleyed (A13)
- __Alaska Redox (A14)
- __Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- __Alaska Color Change (TA4)[4]
- __Alaska Alpine Swales (TA5)
- __Alaska Redox With 2.5Y Hue
- ___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- __Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 20

Hydric Soil Present? Yes

Remarks: No mineral soil in pit. Saturated organics present.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- __Water Marks (B1)
- __Sediment Deposits (B2)
- __Drift Deposits (B3)
- __Algal Mat or Crust (B4)
- __Iron Deposits (B5)
- __Surface Soil Cracks (B6)
- __Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __Marl Deposits (B15)
- __Hydrogen Sulfide Odor (C1)
- __Dry Season Water Table (C2)
- __Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __Water-stained Leaves (B9)
- __Drainage Patterns (B10)
- __Oxidized Rhizospheres along Living Roots (C3)
- __Presence of Reduced Iron (C4)
- __Salt Deposits (C5)
- X Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- __Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- __FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes Depth (inches): 1
Water Table Present? Yes Depth (inches): 10
Saturation Present? Yes Depth (inches): 3
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Broad flood plain. Steep slope to plot from upland.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/11/2013
Applicant/Owner: DOT&PF Sampling Point: DAL029
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.48975410 Long: -148.76524340 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus tremuloides	40	Yes	FACU
2. Picea glauca	20	Yes	FACU
3.			
4.			
Total Cover: 60			
50% of total cover: 30 20% of total cover: 12			
Sapling/Shrub Stratum			
1. Picea glauca	10	Yes	FACU
2. Vaccinium vitis-idaea	10	Yes	FAC
3. Rhododendron groenlandicum	5	No	FAC
4. Alnus viridis	5	No	FAC
5. Populus tremuloides	1	No	FACU
6. Empetrum nigrum	15	Yes	FAC
Total Cover: 46			
50% of total cover: 23 20% of total cover: 9			
Herb Stratum			
1. Geocaulon lividum	3	No	FACU
2. Equisetum arvense	1	Yes	FAC
3. Pyrola asarifolia	1	Yes	FACU
4. Stellaria calycantha	1	Yes	FACW
5. Streptopus amplexifolius	1	Yes	FACU
6. Cornus canadensis	1	Yes	FACU
7.			
8.			
9.			
10.			
Total Cover: 8			
50% of total cover: 4 20% of total cover: 1			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	36	x 3 =	108
FACU species	77	x 4 =	308
UPL species	0	x 5 =	0
Column Totals:	114 (A)		418 (B)

Prevalence Index = B/A = 3.67

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 10 Total Cover of Bryophytes: 90
(Where applicable)

Hydrophytic Vegetation Present? No

Remarks: 70% Sphagnum, 20% Lichen. CMF. Flat bench then to a steep slope towards creek. Mature trees.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1		100		0			Oe	Organic
1-2	2.5y 5-1	100		0				Bhs
2-6	10yr 4-4	100		0				20% Gravel
6-15	10yr 3/6	100		0				20% Gravel, Large roots
15-24	10yr 3/4	100		0				40% Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Very well drained gravels throughout mineral soil. No restrictive layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: No moisture in soil. Very well drained gravelly soils.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/11/2013
Applicant/Owner: DOT&PF Sampling Point: DAL030
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.49000210 Long: -148.77415700 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS4/1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Picea mariana	45	Yes	FACW
2. Salix barclayi	30	Yes	FAC
3. Rododendron tomentosum	5	No	FACW
4. Vaccinium vitis-idaea	10	No	FAC
5. Rubus chamaemorus	5	No	FACW
6. Arctostaphylos rubra	3	No	FACW
Total Cover: 98			
50% of total cover: 49 20% of total cover: 19			
Herb Stratum			
1. Eriophorum angustifolium	5	Yes	OBL
2. Carex rostrata	3	Yes	OBL
3. Calamagrostis canadensis	3	Yes	FAC
4. Geocaulon lividum	1	No	FACU
5. Petasites frigidus	1	No	FACW
6. Equisetum scirpoides	1	No	FACU
7.			
8.			
9.			
10.			
Total Cover: 14			
50% of total cover: 7 20% of total cover: 2			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	8	x 1 =	8
FACW species	59	x 2 =	118
FAC species	43	x 3 =	129
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	112 (A)		263 (B)

Prevalence Index = B/A = 2.35

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 70
(Where applicable)

Hydrophytic Vegetation Present? Yes

Remarks: 50% Sphagnum, 20% Lichen. Toe slope off upland 150 feet. Stunted Spruce forest. Tussock forming grasses in plot.

SOIL Sampling Point DAL030

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6		0		0			Oi	
6-11		0		0			Oe	
11-15	5y 3/1	80	10yr 3/6	20	C	M	Silt Loam	Slightly Thixotropic
15-20	5y 3/1	90	Organic	10			Silt Loam	Organics 10%, Gravel 1%
20+	5y 3/1	95	10yr 3/6	5	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
X Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Frost
Depth (inches): 20

Hydric Soil Present? Yes

Remarks: Dark organic in mineral. Saturated organics.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 6
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Saturated but no water table. Some pockets of Sphagnum with water at surface or within 1 inch of surface.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/26/2013
Applicant/Owner: DOT&PF Sampling Point: DAL031
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 5
Subregion (LRR): Interior Alaska Lat: 65.49048000 Long: -148.78224100 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? No
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks: Fire scars on down trees. All ground is vegetated.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Bet Pap	40	Yes	
2. Pic Gla	20	Yes	
3.			
4.			
Total Cover: 60			
50% of total cover: 30 20% of total cover: 12			
Sapling/Shrub Stratum			
1. Alnus viridis	5	Yes	FAC
2. Picea glauca	5	Yes	FACU
3. Salix pulchra	1	No	FACW
4. Rhododendron tomentosum	1	No	FACW
5. Rosa acicularis	1	No	FACU
6. Vaccinium uliginosum	1	No	FAC
Total Cover: 14			
50% of total cover: 7 20% of total cover: 2			
Herb Stratum			
1. Geocaulon lividum	3	Yes	FACU
2. Pyrola asarifolia	1	No	FACU
3. Empetrum nigrum	1	No	FAC
4. Equisetum scirpoides	1	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 6			
50% of total cover: 3 20% of total cover: 1			
Plot size (radius, or length x width): 0	% Bare ground: 0		
% Cover of Wetland Bryophytes: 0 (Where applicable)	Total Cover of Bryophytes: 80		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	2	x 2 = 4
FAC species	7	x 3 = 21
FACU species	11	x 4 = 44
UPL species	0	x 5 = 0
Column Totals:	20 (A)	69 (B)

Prevalence Index = B/A = 3.45

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? No

Remarks: 70% Sphagnum, 10% Lichen. Mature forest. CMF.

SOIL Sampling Point DAL031

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4		0		0				
4-13	2.5y 4/1	100		0			Silt Loam	20% Gravel
13-21	2.5y 4/1	100		0			Silt Loam	70% Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Dry soils, very well drained. No residence time for water.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: No hydrology indicators. Dry mineral soil.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/11/2013
Applicant/Owner: DOT&PF Sampling Point: DAL032
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 5
Subregion (LRR): Interior Alaska Lat: 65.49057110 Long: -148.79137220 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks: Toeslope-Lichen cover on steep slope.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula neoalaskana	40	Yes	FACU
2. Picea glauca	20	Yes	FACU
3.			
4.			
Total Cover: 60			
50% of total cover: 30 20% of total cover: 12			
Sapling/Shrub Stratum			
1. Alnus viridis	5	Yes	FAC
2. Picea glauca	5	Yes	FACU
3. Salix pulchra	1	No	FACW
4. Rhododendron tomentosum	1	No	FACW
5. Rosa acicularis	1	No	FACU
6. Vaccinium uliginosum	1	No	FAC
Total Cover: 14			
50% of total cover: 7 20% of total cover: 2			
Herb Stratum			
1. Geocaulon lividum	3	Yes	FACU
2. Pyrola asarifolia	1	No	FACU
3. Empetrum nigrum	1	No	FAC
4. Equisetum scirpoides	1	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 6			
50% of total cover: 3 20% of total cover: 1			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	2	x 2 =	4
FAC species	7	x 3 =	21
FACU species	71	x 4 =	284
UPL species	0	x 5 =	0
Column Totals:	80 (A)		309 (B)

Prevalence Index = B/A = 3.86

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 80
(Where applicable)

Hydrophytic Vegetation Present? No

Remarks: 70% Sphagnum, 10% Lichen. Mature forest. CMF.

SOIL Sampling Point DAL032

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4		0		0				
4-13	2.5y 4/1	100		0			Silt Loam	20% Gravel
13-21	2.5y 4/1	100		0			Silt Loam	70% Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Dry soils. Very well drained. No residence time for water.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: No hydrology indicators. Dry mineral soil.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/11/2013
Applicant/Owner: DOT&PF Sampling Point: DAL033
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 15
Subregion (LRR): Interior Alaska Lat: 65.49043150 Long: -148.80018040 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks: Fire in area killed trees, removed organics. Regrowth occurring.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus tremuloides	40	Yes	FACU
2. Picea glauca	20	Yes	FACU
3.			
4.			
Total Cover: 60			
50% of total cover: 30 20% of total cover: 12			
Sapling/Shrub Stratum			
1. Populus tremuloides	10	Yes	FACU
2. Vaccinium vitis-idaea	5	Yes	FAC
3. Picea glauca	1	No	FACU
4. Juniperus communis	3	No	UPL
5. Salix bebbiana	3	No	FAC
6. Rosa acicularis	1	No	FACU
Total Cover: 23			
50% of total cover: 11 20% of total cover: 4			
Herb Stratum			
1. Empetrum nigrum	5	Yes	FAC
2. Chamerion angustifolium	1	No	FACU
3. Geocaulon lividum	3	Yes	FACU
4. Dryopteris expansa	1	No	FACU
5. Stellaria calycantha	1	No	FACW
6. Mertensia paniculata	1	No	FACU
7. Streptopus amplexifolius	1	No	FACU
8.			
9.			
10.			
Total Cover: 13			
50% of total cover: 6 20% of total cover: 2			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 0
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	13	x 3 =	39
FACU species	79	x 4 =	316
UPL species	3	x 5 =	15
Column Totals:	96 (A)		372 (B)

Prevalence Index = B/A = 3.88

Hydrophytic Vegetation Indicators:
___ Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? No

Remarks: Fire Scars. Thin organic layer, Fire burned most of it.

SOIL Sampling Point DAL033

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2		0		0				Oe
2-8	10yr 4/3	100		0			Silt Loam	5% Gravel
8-17	10yr 4/4	100		0			Silt Loam	60% Gravel
17-24	10yr 4/4	100		0			Silt Loam	80% Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Lots of gravels. Very well drained. No indicators. No moisture.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: No hydrology indicators. Fire scars on trees. Burnt organics.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/11/2013
Applicant/Owner: DOT&PF Sampling Point: DAL034
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 2
Subregion (LRR): Interior Alaska Lat: 65.48977660 Long: -148.80637000 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Betula nana	80	Yes	FAC
2. Vaccinium vitis-idaea	40	Yes	FAC
3. Rhododendron groenlandicum	15	No	FAC
4. Salix pulchra	10	No	FACW
5. Picea mariana	5	No	FACW
6. Vaccinium uliginosum	3	No	FAC
Total Cover: 153			
50% of total cover: 76 20% of total cover: 30			
Herb Stratum			
1. Rubus chamaemorus	5	No	FACW
2. Chamerion angustifolium	60	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 65			
50% of total cover: 32 20% of total cover: 13			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	138	x 3 =	414
FACU species	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	218 (A)		694 (B)

Prevalence Index = B/A = 3.18

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
___ Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 40
(Where applicable)

Hydrophytic Vegetation Present? Yes

Remarks: 40% Sphagnum. Large tussocks in plot. Surrounded by OBSF/DBLS with tussocks. Lichen and Aspen upslope.

SOIL Sampling Point DAL034

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5		0		0				Oi
5-9		0		0				Oe
9-16	2.5y 3/1	100		0			Silt Loam	
16+	2.5y 3/1	100		0			Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 16

Hydric Soil Present? Yes

Remarks: No concentrations. High organics.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
X Stunted or Stressed Plants (D1)
X Geomorphic Position (D2)
__Shallow Aquitard (D3)
X Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? Yes Depth (inches): 12
Saturation Present? Yes Depth (inches): 8
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Moisture coming from upslope hill. Point is just below toe of slope. Perched water table on permafrost.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/11/2013
Applicant/Owner: DOT&PF Sampling Point: DAL035
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.49082330 Long: -148.82546940 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	50	Yes	FACW
2. Betula neoalaskana	15	Yes	FACU
3. Populus balsamifera	5	No	FACU
4.			
Total Cover: 70			
50% of total cover: 35 20% of total cover: 14			
Sapling/Shrub Stratum			
1. Alnus viridis	40	Yes	FAC
2. Rosa acicularis	30	Yes	FACU
3. Betula neoalaskana	10	No	FACU
4. Picea glauca	5	No	FACU
5. Vaccinium vitis-idaea	15	No	FAC
6. Linaea borealis	5	No	FACU
Total Cover: 105			
50% of total cover: 52 20% of total cover: 21			
Herb Stratum			
1. Calamagrostis canadensis	50	Yes	FAC
2. Equisetum arvense	15	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 65			
50% of total cover: 32 20% of total cover: 13			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 60
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	120	x 3 =	360
FACU species	70	x 4 =	280
UPL species	0	x 5 =	0
Column Totals:	240 (A)		740 (B)

Prevalence Index = B/A = 3.08

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 60% Sphagnum. Creek within 100 feet of plot. Mature forest. River recessed 5 feet below terrace.

SOIL Sampling Point DAL035

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2		100		0			Oe	Organic
2-24	2.5y 3/2	100		0			Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: No hydrology present. Well drained soils. River is lower than pit influenced water table.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
X Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: Surface water from creek. Thick spruce stand closer to upland slope has drainage and sediment deposits. Very well drained soils.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/11/2013
Applicant/Owner: DOT&PF Sampling Point: DAL036
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 5
Subregion (LRR): Interior Alaska Lat: 65.49265820 Long: -148.82556820 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PFO4/SS1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**

Remarks: Surface water creek channel. Steep lichen slope 70% with rock showing. This point should be boundary of wetland. Pictures taken to document.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	50	Yes	FACW
2. Betula neoalaskana	10	No	FACU
3.			
4.			
Total Cover: 60			
50% of total cover: 30 20% of total cover: 12			
Sapling/Shrub Stratum			
1. Rosa acicularis	1	No	FACU
2. Rhododendron tomentosum	5	Yes	FACW
3. Rhododendron groenlandicum	7	Yes	FAC
4. Alnus viridis	10	Yes	FAC
5. Spiraea stevenii	3	No	FACU
6. Rubus chamaemorus	3	No	FACW
Total Cover: 29			
50% of total cover: 14 20% of total cover: 5			
Herb Stratum			
1. Calamagrostis canadensis	40	Yes	FAC
2. Petasites frigidus	5	No	FACW
3. Carex sp	1	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 46			
50% of total cover: 23 20% of total cover: 9			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 80
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	64	x 2 =	128
FAC species	57	x 3 =	171
FACU species	14	x 4 =	56
UPL species	0	x 5 =	0
Column Totals:	135 (A)		355 (B)

Prevalence Index = B/A = 2.63

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 70% Lichen, 10% Sphagnum. Floodplain creek overflow/ponding water.

SOIL Sampling Point DAL036

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6		100		0				Oi Organic
6-10		100		0				Oe Organic
10-12	2.5y 3/1	70	10yr 4/6	30	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 12

Hydric Soil Present? Yes

Remarks: Saturated organics. Water table same elevation as surface water. Perched hydrology.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

X Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
X Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
X Geomorphic Position (D2)
__Shallow Aquitard (D3)
X Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes Depth (inches): 4
Water Table Present? Yes Depth (inches): 3
Saturation Present? Yes Depth (inches): 12
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Creek floodplain. Surfacewater. Alder growth over water. Perched water table due to permafrost.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/12/2013
Applicant/Owner: DOT&PF Sampling Point: DAL037
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 5
Subregion (LRR): Interior Alaska Lat: 65.51459760 Long: -148.82734970 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS1/4C
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks: Swale is full of sedimentation. Area is being revegetated. Sediment deposits through obst wetlands.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	3	Yes	FACW
2.			
3.			
4.			
Total Cover: 3			
50% of total cover: 1 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Picea mariana	20	Yes	FACW
2. Salix bebbiana	30	Yes	FAC
3. Alnus viridis	3	No	FAC
4. Rhododendron tomentosum	3	No	FACW
5. Vaccinium uliginosum	1	No	FAC
6. Rosa acicularis	1	No	FACU
Total Cover: 58			
50% of total cover: 29 20% of total cover: 11			
Herb Stratum			
1. Petasites frigidus	3	No	FACW
2. Equisetum sylvaticum	1	No	FAC
3. Mertensia paniculata	1	No	FACU
4. Equisetum arvense	3	No	FAC
5. Calamagrostis canadensis	60	Yes	FAC
6. Equisetum scirpoides	1	No	FACU
7.			
8.			
9.			
10.			
Total Cover: 69			
50% of total cover: 34 20% of total cover: 13			

Plot size (radius, or length x width): 0 % Bare ground: 10
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 0
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	29	x 2 =	58
FAC species	98	x 3 =	294
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	130 (A)		364 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: Drainage patterns all over site. Drainage possibly from road.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1		100		0			Oe	Organic
1-16	5y 3/1	85	10yr 4/4	15	C	M	Silt Loam	
16-24	5y 3/1	70	10yr 4/4	30	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
X Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
__Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? Yes

Remarks: Buried CWD in mineral horizon. Very consistent soil until water table, then more redox occurring.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

X Surface Water (A1)
__High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
X Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
X Stunted or Stressed Plants (D1)
X Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes Depth (inches): 2
Water Table Present? Yes Depth (inches): 17
Saturation Present? Yes Depth (inches): 10
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Site is in a swale between 2 wetland OBSF stands. Road drainage runs through obst and in the drainage swales. Recent rain possibly responsible for surface water.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/12/2013
Applicant/Owner: DOT&PF Sampling Point: DAL038
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 10
Subregion (LRR): Interior Alaska Lat: 65.51210520 Long: -148.82168630 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PFO4/SS1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks: Area has small benches, starting to be footslope of hillside.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	30	Yes	FACW
2.			
3.			
4.			
Total Cover: 30			
50% of total cover: 15 20% of total cover: 6			
Sapling/Shrub Stratum			
1. Picea mariana	20	Yes	FACW
2. Alnus viridis	3	No	FAC
3. Salix sp	7	No	FAC
4. Rhododendron tomentosum	5	No	FACW
5. Rhododendron groenlandicum	15	Yes	FAC
6. Vaccinium uliginosum	3	No	FAC
Total Cover: 53			
50% of total cover: 26 20% of total cover: 10			
Herb Stratum			
1. Geocaulon lividum	3	Yes	FACU
2. Petasites frigidus	1	No	FACW
3. Equisetum scirpoides	5	Yes	FACU
4. Calamagrostis canadensis	1	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 10			
50% of total cover: 5 20% of total cover: 2			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 90 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	56	x 2 =	112
FAC species	29	x 3 =	87
FACU species	8	x 4 =	32
UPL species	0	x 5 =	0
Column Totals:	93 (A)		231 (B)

Prevalence Index = B/A = 2.48

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 70% Lichen, 20% Sphagnum. OBSF. Lots of CWD in plot. Recent fallen trees.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5		100		0			Oi	Organic
5-8		100		0			Oe	Organic
8-15	5y 3/1	40	10yr 4/6	60	C	M	Silt Loam	Slightly Thixotropic
15-24	2.5y 3/1	70	10yr 4/6	30	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
X Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 24

Hydric Soil Present? Yes

Remarks: Saturated organics. Lots of concentrations in the first mineral horizon.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 4
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Large hummocks in area. Slow moving water through system.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/12/2013
Applicant/Owner: DOT&PF Sampling Point: DAL039
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Interior Alaska Lat: 65.49522460 Long: -148.82667880 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PFO4/SS1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks: Edge of Spruce bog. Very wet. Surface water.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	40	Yes	FACW
2.			
3.			
4.			
Total Cover: 40			
50% of total cover: 20 20% of total cover: 8			
Sapling/Shrub Stratum			
1. Rhododendron tomentosum	40	Yes	FACW
2. Vaccinium vitis-idaea	25	Yes	FAC
3. Picea mariana	20	No	FACW
4. Salix bebbiana	10	No	FAC
5. Rhododendron groenlandicum	5	No	FAC
6. Rubus chamaemorus	15	No	FACW
Total Cover: 115			
50% of total cover: 57 20% of total cover: 23			
Herb Stratum			
1. Carex rostrata	3	Yes	OBL
2. Eriophorum angustifolium	10	Yes	OBL
3. Petasites frigidus	1	No	FACW
4. Calamagrostis canadensis	3	Yes	FAC
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 17			
50% of total cover: 8 20% of total cover: 3			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 80 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	13	x 1 =	13
FACW species	116	x 2 =	232
FAC species	43	x 3 =	129
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	172 (A)		374 (B)

Prevalence Index = B/A = 2.17

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 60% Lichen, 20% Sphagnum. Bordered on both sides by PSS4 towards the river "C"

SOIL Sampling Point DAL039

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5		100		0				Oi Organic
5-12		100		0				Oe Organic
12+		100		0				Oe Organic

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol or Histel(A1)
- __Histic Epipedon (A2)
- __Hydrogen Sulfide (A4)
- __Thick Dark Surface (A12)
- __Alaska Gleyed (A13)
- __Alaska Redox (A14)
- __Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- __Alaska Color Change (TA4)[4]
- __Alaska Alpine Swales (TA5)
- __Alaska Redox With 2.5Y Hue
- ___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- __Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 12

Hydric Soil Present? Yes

Remarks: Saturated organics to permafrost. Perched water.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- __Water Marks (B1)
- __Sediment Deposits (B2)
- __Drift Deposits (B3)
- __Algal Mat or Crust (B4)
- __Iron Deposits (B5)
- __Surface Soil Cracks (B6)
- __Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __Marl Deposits (B15)
- __Hydrogen Sulfide Odor (C1)
- __Dry Season Water Table (C2)
- __Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __Water-stained Leaves (B9)
- __Drainage Patterns (B10)
- __Oxidized Rhizospheres along Living Roots (C3)
- __Presence of Reduced Iron (C4)
- __Salt Deposits (C5)
- X Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- __Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- __FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes Depth (inches): 8
Water Table Present? Yes Depth (inches): 6
Saturation Present? Yes Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Open water towards stream. Stunted groves of spruce in area. Moderate tussocks/hummocks in plot.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/12/2013
Applicant/Owner: DOT&PF Sampling Point: DAL040
Investigator(s): LG, CH Section, Township, Range: Livengood B-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.49846420 Long: -148.82391970 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS4/1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks: Large low land area close to creek.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Vaccinium oxycoccos	7	No	OBL
2. Vaccinium vitis-idaea	40	Yes	FAC
3. Rhododendron tomentosum	10	No	FACW
4. Picea mariana	50	Yes	FACW
5. Rubus chamaemorus	10	No	FACW
6. Empetrum nigrum	5	No	FAC
Total Cover: 122			
50% of total cover: 61 20% of total cover: 24			
Herb Stratum			
1. Eriophorum angustifolium	15	Yes	OBL
2. Carex rostrata	3	No	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 18			
50% of total cover: 9 20% of total cover: 3			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 90 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	70	x 2 =	140
FAC species	45	x 3 =	135
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	140 (A)		300 (B)

Prevalence Index = B/A = 2.14

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 90% Sphagnum. Most woody plats growing on hummocks. Some tussocks forming through Sphagnum mat.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12		100		0				Oi Organic
12+		100		0				Oi Organic

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol or Histel(A1)
- __Histic Epipedon (A2)
- __Hydrogen Sulfide (A4)
- __Thick Dark Surface (A12)
- __Alaska Gleyed (A13)
- __Alaska Redox (A14)
- __Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- __Alaska Color Change (TA4)[4]
- __Alaska Alpine Swales (TA5)
- __Alaska Redox With 2.5Y Hue
- ___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- __Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 12

Hydric Soil Present? Yes

Remarks: No mineral soil above permafrost.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- __Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- __Water Marks (B1)
- __Sediment Deposits (B2)
- __Drift Deposits (B3)
- __Algal Mat or Crust (B4)
- __Iron Deposits (B5)
- __Surface Soil Cracks (B6)
- __Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __Marl Deposits (B15)
- __Hydrogen Sulfide Odor (C1)
- __Dry Season Water Table (C2)
- __Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __Water-stained Leaves (B9)
- __Drainage Patterns (B10)
- __Oxidized Rhizospheres along Living Roots (C3)
- __Presence of Reduced Iron (C4)
- __Salt Deposits (C5)
- X Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- __Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- __FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? Yes Depth (inches): 4
Saturation Present? Yes Depth (inches): 3
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Stunted spruce ~15 feet tall. Large hummocks/tussocks in plot. Perched water table. Water can be heard when walking.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/12/2013
Applicant/Owner: DOT&PF Sampling Point: DAL041
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 4
Subregion (LRR): Interior Alaska Lat: 65.50212430 Long: -148.82408560 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS4/1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? No**
Remarks: Heavily browsed Salix area is tussocks/lichen/tussock understory below OBSF. Alternates between lichen/tussocks. More tussocks towards the river.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	5	Yes	FACW
2.			
3.			
4.			
Total Cover: 5			
50% of total cover: 2 20% of total cover: 1			
Sapling/Shrub Stratum			
1. Picea mariana	40	Yes	FACW
2. Salix sp	10	No	FAC
3. Rhododendron tomentosum	5	No	FACW
4. Vaccinium uliginosum	3	No	FAC
5. Vaccinium vitis-idaea	3	No	FAC
6. Empetrum nigrum	3	No	FAC
Total Cover: 64			
50% of total cover: 32 20% of total cover: 12			
Herb Stratum			
1. Calamagrostis canadensis	1	Yes	FACW
2. Carex sp	1	Yes	FAC
3. Equisetum scirpoides	1	Yes	FACU
4. Petasites frigidus	3	Yes	FACW
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 6			
50% of total cover: 3 20% of total cover: 1			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 90 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 83 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	54	x 2 =	108
FAC species	20	x 3 =	60
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	75 (A)		172 (B)

Prevalence Index = B/A = 2.29

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 80% Lichen, 10% Sphagnum. Most spruce in area are stunted.

SOIL Sampling Point DAL041

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4		100		0				Oi Organic
4-5		100		0				Oe Organic
5-13	2.5y 3/1	70	10yr 4/4	30	C	M	Silt Loam	Slightly Thixotropic
13-24	5y 2.5/1	95		0			Silt Loam	Slightly Thixotropic, 5% Organics
24+	2.5y 4/2	97	10yr 4/4	3	C	M	Silt Loam	Permafrost

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
X Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 24

Hydric Soil Present? Yes

Remarks: No saturation in organics but very close. Mineral was slightly thixotropic. Season has been dry, otherwise probable saturation. Problematic soils.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
X Geomorphic Position (D2)
__Shallow Aquitard (D3)
X Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Small drainage next to plot that is dry.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/25/2013
Applicant/Owner: DOT&PF Sampling Point: DAL042
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.50593100 Long: -148.82086700 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? No
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**

Remarks: River may flood but sandy soils let water go out fast. Wetland upslope 30 feet.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Populus balsamifera	15	Yes	FACU
2. Picea glauca	30	Yes	FACU
3.			
4.			
Total Cover: 45			
50% of total cover: 22 20% of total cover: 9			
Sapling/Shrub Stratum			
1. Alnus viridis	30	Yes	FAC
2. Vaccinium vitis-idaea	40	Yes	FAC
3. Picea glauca	5	No	FACU
4. Rhododendron groenlandicum	5	No	FAC
5. Vaccinium uliginosum	3	No	FAC
6. Rosa acicularis	3	No	FACU
Total Cover: 86			
50% of total cover: 43 20% of total cover: 17			
Herb Stratum			
1. Calamagrostis canadensis	5	No	FAC
2. Equisetum arvense	50	Yes	FAC
3. Petasites frigidus	1	No	FACW
4. Dryopteris expansa	1	No	FACU
5. Geocaulon lividum	1	No	FACU
6. Equisetum scirpoides	1	No	FACU
7.			
8.			
9.			
10.			
Total Cover: 59			
50% of total cover: 29 20% of total cover: 11			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 10
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	133	x 3 =	399
FACU species	56	x 4 =	224
UPL species	0	x 5 =	0
Column Totals:	190 (A)		625 (B)

Prevalence Index = B/A = 3.29

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? No

Remarks: 10% Sphagnum. OMF. Riverine area. No hydrology or moisture residence time.

SOIL Sampling Point DAL042

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2		100		0				
2-7	5y 3/2	50		0			Silt Loam	50% Organics
7-24	2.5y 3/1	100		0			Sandy Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Lots of gravels at the bottom of pit. Very well drained soils. 35 feet towards spruce is about the transition point and wetland other side of river appears wet closer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: No hydrology in plot. River next to plot is heavily recessed about 3 feet elevation difference. Approximately 10' x 2' deep.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/12/2013
Applicant/Owner: DOT&PF Sampling Point: DAL043
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 6
Subregion (LRR): Interior Alaska Lat: 65.50922030 Long: -148.81777500 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PFO4/SS1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**

Remarks: Sand and Gravel band saturated below organics. Site is downslope of road. ATV trail 30 feet east.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	30	Yes	FACW
2.			
3.			
4.			
Total Cover: 30			
50% of total cover: 15 20% of total cover: 6			
Sapling/Shrub Stratum			
1. Rhododendron groenlandicum	15	Yes	FAC
2. Vaccinium vitis-idaea	20	Yes	FAC
3. Vaccinium uliginosum	10	Yes	FAC
4. Rosa acicularis	3	No	FACU
5. Spiraea stevenii	5	No	FACU
6. Rubus chamaemorus	3	No	FACW
Total Cover: 56			
50% of total cover: 28 20% of total cover: 11			
Herb Stratum			
1. Cornus canadensis	3	Yes	FACU
2. Geocaulon lividum	3	Yes	FACU
3. Petasites frigidus	1	No	FACW
4. Equisetum scirpoides	1	No	FACU
5. Equisetum sylvaticum	1	No	FAC
6. Calamagrostis canadensis	1	No	FAC
7.			
8.			
9.			
10.			
Total Cover: 10			
50% of total cover: 5 20% of total cover: 2			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 90
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	34	x 2 = 68
FAC species	47	x 3 = 141
FACU species	15	x 4 = 60
UPL species	0	x 5 = 0
Column Totals:	96 (A)	269 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 70% Lichen, 20% Sphagnum.

SOIL Sampling Point DAL043

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5		100		0				Oi Organic
5-9		100		0				Oe Organic
9-13		100		0			VGSa	90% Gravels
13-24	5y 3/1	60	7.5yr 4/6	40	C	M	Silt	Slightly thixotropic

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 24

Hydric Soil Present? Yes

Remarks: 9-13 inch layer has no fines for coloring. Horizon is saturated. Sand and gravel band in pit separation from freeze/thaw of movement at permafrost.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
X Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 9
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Saturated sands and gravels, moisture in organics, but not enough. Permafrost making sand and gravel band consolidated. Small pockets from ungulating.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/25/2013
Applicant/Owner: DOT&PF Sampling Point: DAL044
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 25
Subregion (LRR): Interior Alaska Lat: 65.51486000 Long: -148.81247800 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? No
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks: Some birch mixed in the stand. Lots of lichen.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea Mariana	45	Yes	
2.			
3.			
4.			
Total Cover: 45			
50% of total cover: 22 20% of total cover: 9			
Sapling/Shrub Stratum			
1. Picea mariana	10	Yes	FACW
2. Rhododendron tomentosum	5	No	FACW
3. Vaccinium uliginosum	15	Yes	FAC
4. Rosa acicularis	1	No	FACU
5. Vaccinium vitis-idaea	10	Yes	FAC
6. Rhododendron groenlandicum	5	No	FAC
Total Cover: 46			
50% of total cover: 23 20% of total cover: 9			
Herb Stratum			
1. Cornus canadensis	5	Yes	FACU
2. Carex sp	1	No	FACW
3. Geocaulon lividum	3	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 9			
50% of total cover: 4 20% of total cover: 1			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 90 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	16	x 2 =	32
FAC species	30	x 3 =	90
FACU species	9	x 4 =	36
UPL species	0	x 5 =	0
Column Totals:	55 (A)		158 (B)

Prevalence Index = B/A = 2.87

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
X Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 60% Lichen, 30% Sphagnum. Sparse shrub/herb layers.

SOIL Sampling Point DAL044

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2		100		0				Oe Organic
2-6	10yr 4/4	100		0			Very Gravelly Sand	40% Gravels
6-23	10yr 4/6	100		0			Very Gravelly Sand	80% Gravels

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Not much fines for coloring in mineral horizons. Very well drained soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: Gravel soils. Steep slope. Very well drained soils. No residence time for water.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/12/2013
Applicant/Owner: DOT&PF Sampling Point: DAL045
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 15
Subregion (LRR): Interior Alaska Lat: 65.51489680 Long: -148.81009830 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? No Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? No**
Remarks: Lots of water running in area possible concern for material site. Steep slope to creek.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	10	Yes	FACW
2.			
3.			
4.			
Total Cover: 10			
50% of total cover: 5 20% of total cover: 2			
Sapling/Shrub Stratum			
1. Picea mariana	30	Yes	FACW
2. Salix sp	15	Yes	FAC
3. Rhododendron tomentosum	5	No	FACW
4. Vaccinium uliginosum	3	No	FAC
5. Vaccinium vitis-idaea	5	No	FAC
6. Empetrum nigrum	5	No	FAC
Total Cover: 63			
50% of total cover: 31 20% of total cover: 12			
Herb Stratum			
1. Carex sp	1	No	FACW
2. Petasites frigidus	1	No	FACW
3. Geocaulon lividum	3	Yes	FACU
4. Calamagrostis canadensis	3	Yes	FAC
5. Equisetum sylvaticum	1	No	FAC
6. Eriophorum angustifolium	1	No	OBL
7.			
8.			
9.			
10.			
Total Cover: 10			
50% of total cover: 5 20% of total cover: 2			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species	47	x 2 =	94
FAC species	32	x 3 =	96
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	83 (A)		203 (B)

Prevalence Index = B/A = 2.45

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 0
(Where applicable)

Hydrophytic Vegetation Present? Yes

Remarks: Stunted spruce in plot. Mixed area with some tussocks and surface water.

SOIL Sampling Point DAL045

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4		100		0				Oi Organic
4-7		100		0				Oe Organic
7-22	2.5y 4/3	100		0			VGSa	80% Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Mineral soil is damp, but not saturated. Hard to dig through. Lots of gravels in mineral soil.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

X Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
X Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
X Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
X Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes Depth (inches): 1
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Steep slope, water moving quickly, seeps in area by saturation. Stream below plot. Steep banks.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/12/2013
Applicant/Owner: DOT&PF Sampling Point: DAL046
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 5
Subregion (LRR): Interior Alaska Lat: 65.51689370 Long: -148.80830430 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS4/1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Picea mariana	30	Yes	FACW
2. Salix sp	20	Yes	FAC
3. Chamaedaphne calyculata	15	No	FACW
4. Rhododendron tomentosum	10	No	FACW
5. Betula nana	10	No	FAC
6. Vaccinium vitis-idaea	5	No	FAC
Total Cover: 90			
50% of total cover: 45 20% of total cover: 18			
Herb Stratum			
1. Eriophorum angustifolium	35	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 35			
50% of total cover: 17 20% of total cover: 7			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 60 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	35	x 1 =	35
FACW species	55	x 2 =	110
FAC species	35	x 3 =	105
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	125 (A)		250 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 60% Sphagnum. Stunted spruce and tussocks.

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12		100		0				Oi Organic
12+		100		0				Oi permafrost

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- X Histosol or Histel(A1)
- __Histic Epipedon (A2)
- X Hydrogen Sulfide (A4)
- __Thick Dark Surface (A12)
- __Alaska Gleyed (A13)
- __Alaska Redox (A14)
- __Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- __Alaska Color Change (TA4)[4]
- __Alaska Alpine Swales (TA5)
- __Alaska Redox With 2.5Y Hue
- ___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- __Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 12

Hydric Soil Present? Yes

Remarks: Moderate tussocks. No mineral soil present in pit. Permafrost layer.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

- X Surface Water (A1)
- __High Water Table (A2)
- X Saturation (A3)
- __Water Marks (B1)
- __Sediment Deposits (B2)
- __Drift Deposits (B3)
- __Algal Mat or Crust (B4)
- __Iron Deposits (B5)
- __Surface Soil Cracks (B6)
- __Inundation Visible on Aerial Imagery (B7)
- __ Sparsely Vegetated Concave Surface (B8)
- __Marl Deposits (B15)
- __Hydrogen Sulfide Odor (C1)
- __Dry Season Water Table (C2)
- __Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __Water-stained Leaves (B9)
- X Drainage Patterns (B10)
- __Oxidized Rhizospheres along Living Roots (C3)
- __Presence of Reduced Iron (C4)
- __Salt Deposits (C5)
- X Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- __Shallow Aquitard (D3)
- X Microtopographic Relief (D4)
- __FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes Depth (inches): 3
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 2
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Road upslope, creek downslope and trail vegetation cleared many several years prior.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/13/2013
Applicant/Owner: DOT&PF Sampling Point: DAL047
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.51486230 Long: -148.80832770 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**

Remarks: Area looks to be transitional from wetland to riverine upland. Permafrost and sandy soils present.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea glauca	50	Yes	FACU
2. Betula neoalaskana	20	No	FACU
3.			
4.			
Total Cover: 70			
50% of total cover: 35 20% of total cover: 14			
Sapling/Shrub Stratum			
1. Spiraea stevenii	10	Yes	FACU
2. Alnus viridis	7	Yes	FAC
3. Betula neoalaskana	5	No	FACU
4. Rosa acicularis	3	No	FACU
5. Viburnum edule	3	No	FACU
6. Rhododendron groenlandicum	3	No	FAC
Total Cover: 31			
50% of total cover: 15 20% of total cover: 6			
Herb Stratum			
1. Equisetum arvense	40	Yes	FAC
2. Calamagrostis canadensis	20	Yes	FAC
3. Cornus canadensis	3	No	FACU
4. Equisetum scirpoides	1	No	FACU
5. Geocaulon lividum	1	No	FACU
6.			
7.			
8.			
9.			
10.			
Total Cover: 65			
50% of total cover: 32 20% of total cover: 13			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 0
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	70	x 3 =	210
FACU species	96	x 4 =	384
UPL species	0	x 5 =	0
Column Totals:	166 (A)		594 (B)

Prevalence Index = B/A = 3.58

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: Mix of plants from wetland uplsope to upland.

SOIL Sampling Point DAL047

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2		100		0			Oi	Organic
2-4		100		0			Oe	Organic
4-9	2.5y 4/2	50		0			Very Fine Sandy Loam	50% Organics
9-20	2.5y 3/2	80		0			Very Fine Sandy Loam	20% Organics
20+	2.5y 3/2	0		0				Permafrost, Some Organics

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 20

Hydric Soil Present? No

Remarks: Transitional area upslope DBLS/TS/OBSF wetlands. Creek downslope. Sandy soils with organics probably from previous flood events. Very well drained.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? Yes Depth (inches): 19
Saturation Present? Yes Depth (inches): 18
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: Creek next to plot recessed channel. Very well drained, short residence time for redox to occur. Not enough organics and saturation too low for redox.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/13/2013
Applicant/Owner: DOT&PF Sampling Point: DAL048
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.51282600 Long: -148.80771170 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS4/1C
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**

Remarks: Plot is part of a large wetland complex with many pockets of spruce and TS channelized water from wetland to river through upland.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	1	Yes	FACW
2.			
3.			
4.			
Total Cover: 1			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Picea mariana	30	Yes	FACW
2. Salix sp	15	Yes	FAC
3. Vaccinium vitis-idaea	10	No	FAC
4. Vaccinium uliginosum	7	No	FAC
5. Chamaedaphne calyculata	3	No	FACW
6. Empetrum nigrum	3	No	FAC
Total Cover: 68			
50% of total cover: 34 20% of total cover: 13			
Herb Stratum			
1. Eriophorum angustifolium	50	Yes	OBL
2. Petasites frigidus	3	No	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 53			
50% of total cover: 26 20% of total cover: 10			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 35
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	50	x 1 =	50
FACW species	37	x 2 =	74
FAC species	35	x 3 =	105
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	122 (A)		229 (B)

Prevalence Index = B/A = 1.88

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 20% Sphagnum, 15% Lichen. OBSF around plot and the river vegetation.

SOIL Sampling Point DAL048

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5		100		0				Oi Organic
5-13		100		0				Oe Organic
13+	5y 3/1	90	7.5yr 3/3	10	C	M	Silt Loam	Permafrost

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 13

Hydric Soil Present? Yes

Remarks: Saturated organics, large tussocks in area. Stunted spruce.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

X Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
X Stunted or Stressed Plants (D1)
X Geomorphic Position (D2)
__Shallow Aquitard (D3)
X Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes Depth (inches): 2
Water Table Present? Yes Depth (inches): 3
Saturation Present? Yes Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Large tussock wetland with stunted spruce. Surface water between tussocks.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/13/2013
Applicant/Owner: DOT&PF Sampling Point: DAL049
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.51140850 Long: -148.80551060 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS1C
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks: Channel flowing from wetland to river. Spotly spruce groves. Mix of vegetation in wetland.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Picea mariana	3	No	FACW
2. Vaccinium uliginosum	10	No	FAC
3. Betula nana	30	Yes	FAC
4. Rhododendron tomentosum	10	No	FACW
5. Vaccinium vitis-idaea	15	Yes	FAC
6. Salix sp	7	No	FAC
Total Cover: 75			
50% of total cover: 37 20% of total cover: 15			
Herb Stratum			
1. Eriophorum angustifolium	70	Yes	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 70			
50% of total cover: 35 20% of total cover: 14			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 30 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	70	x 1 =	70
FACW species	13	x 2 =	26
FAC species	62	x 3 =	186
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	145 (A)		282 (B)

Prevalence Index = B/A = 1.94

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 20% Sphagnum, 10% Lichen.

SOIL Sampling Point DAL049

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2		100		0				Oe Organic
2-16	5y 4/1	85	10yr 4/6	5	C	RC	Silt Loam	
		0	10yr 4/6	10	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
X Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
__Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 16

Hydric Soil Present? Yes

Remarks: Oxidized rhizospheres. Soil was moist. Most water seems to sit above mineral in organics.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

X Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
X Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
X Stunted or Stressed Plants (D1)
X Geomorphic Position (D2)
__Shallow Aquitard (D3)
X Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? Yes Depth (inches): 7
Water Table Present? Yes Depth (inches): 2
Saturation Present? Yes Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Large tussock wetland interspersed with moss between tussocks. Very wet between tussocks. Surface water between tussocks.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/13/2013
Applicant/Owner: DOT&PF Sampling Point: DAL050
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 5
Subregion (LRR): Interior Alaska Lat: 65.51073650 Long: -148.80307340 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS4/1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks: Footslope about 100 feet above wetland. Moose tracks.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	5	Yes	FACW
2.			
3.			
4.			
Total Cover: 5			
50% of total cover: 2 20% of total cover: 1			
Sapling/Shrub Stratum			
1. Picea mariana	45	Yes	FACW
2. Vaccinium vitis-idaea	15	No	FAC
3. Vaccinium uliginosum	10	No	FAC
4. Salix sp	7	No	FAC
5. Rhododendron tomentosum	5	No	FACW
6. Rubus chamaemorus	5	No	FACW
Total Cover: 87			
50% of total cover: 43 20% of total cover: 17			
Herb Stratum			
1. Petasites frigidus	3	Yes	FACW
2. Equisetum sylvaticum	5	Yes	FAC
3. Calamagrostis canadensis	1	No	FAC
4. Eriophorum angustifolium	3	Yes	OBL
5. Lycopodium clavatum	1	No	FACU
6.			
7.			
8.			
9.			
10.			
Total Cover: 13			
50% of total cover: 6 20% of total cover: 2			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 90 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species	63	x 2 =	126
FAC species	38	x 3 =	114
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	105 (A)		247 (B)

Prevalence Index = B/A = 2.35

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 80% Sphagnum, 10% Lichen. Thick stand of stunted spruce.

SOIL Sampling Point DAL050

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3		100		0			Oi	Organic
3-5		100		0			Oe	Organic
5-12	2.5y 3/2	100		0			Very Gravelly Sandy	80% Gravel
12-22	5y 4/1	70	7.5yr 4/6	30	C	M	Loam	
							Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
X Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
__Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 22

Hydric Soil Present? Yes

Remarks: Hard to color first mineral horizon due to sands and gravels. Saturated mineral soil gravels concentrated to first mineral horizon. Freeze thaw cycle.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
X High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
X Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
X Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? Yes Depth (inches): 5
Saturation Present? Yes Depth (inches): 4
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Pit walls slough in with high moisture content. Spruce primarily under 15 feet. Hummocky to ungulating topography.

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WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/13/2013
Applicant/Owner: DOT&PF Sampling Point: DAL051
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 5
Subregion (LRR): Interior Alaska Lat: 65.51485830 Long: -148.81549330 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: PSS4/1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? No
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks: Moose tracks. Lots of gravels in pit with redox occurring.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	5	Yes	FACW
2.			
3.			
4.			
Total Cover: 5			
50% of total cover: 2 20% of total cover: 1			
Sapling/Shrub Stratum			
1. Picea mariana	60	Yes	FACW
2. Rhododendron tomentosum	30	Yes	FACW
3. Vaccinium vitis-idaea	20	No	FAC
4. Salix sp	10	No	FAC
5. Vaccinium uliginosum	10	No	FAC
6. Rhododendron groenlandicum	5	No	FAC
Total Cover: 135			
50% of total cover: 67 20% of total cover: 27			
Herb Stratum			
1. Calamagrostis canadensis	5	Yes	FAC
2. Equisetum sylvaticum	10	Yes	FAC
3. Petasites frigidus	1	No	FACW
4. Lycopodium clavatum	1	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 17			
50% of total cover: 8 20% of total cover: 3			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 80 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	96	x 2 =	192
FAC species	60	x 3 =	180
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	157 (A)		376 (B)

Prevalence Index = B/A = 2.39

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: Thick spruce shrub layer. Moderate hummocks.

SOIL Sampling Point DAL051

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4		100		0			Oi	Organic
4-8		100		0			Oe	Organic
8-14	10yr 4/4	100		0			Very Gravelly Sand	50% Gravel, 5% Cobble, 10% Silt
14-17	5y 4/1	60	10yr 4/4	40	C	M	Very Gravelly Sand	60% Gravel
17-20		100		0				Buried Organics
20+	5y 4/1	80	10yr 4/4	20	C	M	Very Gravelly Sand	Permafrost, 40% Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: Permafrost
Depth (inches): 20

Hydric Soil Present? Yes

Remarks: Lots of saturated gravels. Mineral had redox conditions. Well defined buried organic layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
X Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
X Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches): 0
Water Table Present? Yes Depth (inches): 19
Saturation Present? Yes Depth (inches): 4
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks: Footslope, perched water table. Hummock topography.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Dalton Hwy MP0-9 Borough/City: Fairbanks North Star Borough Sampling Date: 09/25/2013
Applicant/Owner: DOT&PF Sampling Point: DAL052
Investigator(s): LG, CH Section, Township, Range: Livengood C-4, T08N, R06W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 20
Subregion (LRR): Interior Alaska Lat: 65.51499500 Long: -148.81557500 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands-Boreal Upland and Alpine- NWI classification: Upland
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks: Huge collection of nuts from squirrels. Side slope above road.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	50	Yes	FACW
2.			
3.			
4.			
Total Cover: 50			
50% of total cover: 25 20% of total cover: 10			
Sapling/Shrub Stratum			
1. Picea mariana	15	Yes	FACW
2. Alnus viridis	10	Yes	FAC
3. Vaccinium uliginosum	1	No	FAC
4. Vaccinium vitis-idaea	3	No	FAC
5.			
6.			
Total Cover: 29			
50% of total cover: 14 20% of total cover: 5			
Herb Stratum			
1. Geocaulon lividum	10	Yes	FACU
2. Calamagrostis canadensis	1	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 11			
50% of total cover: 5 20% of total cover: 2			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 90 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	65	x 2 =	130
FAC species	15	x 3 =	45
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	90 (A)		215 (B)

Prevalence Index = B/A = 2.39

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: 70% Sphagnum, 20% Lichen. Steep slope. Lots of CWD on the ground. Primarily Betula neoalaskana.

SOIL Sampling Point DAL052

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2		100		0			Oe	Organic
2-3		100		0				O/A
3-5	10yr 3/3	100		0			Silt Loam	10% Gravels
5-8	10yr 4/4	100		0			Very Gravelly Sand	50% Gravels
8-24	10yr 4/4	100		0			Very Gravelly Sand	70% Gravels, 2% CO

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: N/A
Depth (inches): 0

Hydric Soil Present? No

Remarks: Sandy Gravels in pit. Some cobbles.

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks: No indicators present. Steep gravel slopes. No residence time for water.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: 60708 Borough/City: Fairbanks North Star Borough Sampling Date: 06/02/2014
Applicant/Owner: LKG Sampling Point: DAL100
Investigator(s): LG, AM Section, Township, Range: Livengood B-4, T08N, R05W
Landform (hillslope, terrace, etc.): _ Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.47678690 Long: -148.66132440 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands NWI classification: PSS1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks: clearcut utility corridor shrub layer 6 foot tall	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Alnus crispa	25	Yes	FAC
2. Betula papyrifera	20	Yes	FACU
3. Rhododendron groenlandicum	15	Yes	FAC
4. Salix alaxensis	10	Yes	FAC
5. Rosa acicularis	5	Yes	FACU
6. Picea mariana	10	Yes	FACW
Total Cover: 85			
50% of total cover: 42 20% of total cover: 17			
Herb Stratum			
1. Calamagrostis canadensis	75	Yes	FAC
2. Chamaenerion angustifolium	3	Yes	FACU
3. Rubus pubescens	8	Yes	FACW
4. Cornus canadensis	5	Yes	FACU
5. carex spp	10	Yes	
6.			
7.			
8.			
9.			
10.			
Total Cover: 101			
50% of total cover: 50 20% of total cover: 20			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 30 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 54 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	18	x 2 =	36
FAC species	125	x 3 =	375
FACU species	33	x 4 =	132
UPL species	0	x 5 =	0
Column Totals:	176 (A)		543 (B)

Prevalence Index = B/A = 3.09

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
___ Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks: sphagnum 30%.

SOIL Sampling Point DAL100

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2	organics	0		0				
2-7	10YR 4/2	70	7.5YR 4/6	30	C	M	Silt Loam	rotten rock
7-9	organics	0		0				saturated
9-13	buried	70	10YR 4/6	30				
13-17	2.5Y 4/2	70	10YR 4/6	30	C	M	Silt Loam	permafrost
	2.5Y 4/2							

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
X Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
__Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: permafrost
Depth (inches): 13

Hydric Soil Present? Yes

Remarks: within a utility corridor.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
X Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
X Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? Yes Depth (inches): 13
Saturation Present? Yes Depth (inches): 7
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: 60708 Borough/City: Fairbanks North Star Borough Sampling Date: 06/02/2014
Applicant/Owner: LKG Sampling Point: DAL102
Investigator(s): LG, AM Section, Township, Range: Livengood B-4, T08N, R05W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): none Slope (%): 3
Subregion (LRR): Interior Alaska Lat: 65.48329990 Long: -148.65567190 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands NWI classification: UPLAND
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? No Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	40	Yes	FACW
2. Betula papyrifera	5	Yes	FACU
3.			
4.			
Total Cover: 45			
50% of total cover: 22 20% of total cover: 9			
Sapling/Shrub Stratum			
1. Picea mariana	30	Yes	FACW
2. Rosa acicularis	20	Yes	FACU
3. Rhododendron groenlandicum	45	Yes	FAC
4. Vaccinium vitis-idaea	30	Yes	FAC
5. Spiraea stevenii	10	Yes	FACU
6.			
Total Cover: 135			
50% of total cover: 67 20% of total cover: 27			
Herb Stratum			
1. Cornus canadensis	10	Yes	FACU
2. Poa palustris	10	Yes	FAC
3. Equisetum sylvaticum	10	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 30			
50% of total cover: 15 20% of total cover: 6			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)
Total Number of Dominant Species Across All Strata: 10 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	95	x 3 =	285
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	210 (A)		605 (B)

Prevalence Index = B/A = 2.88

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 85
(Where applicable)

Hydrophytic Vegetation Present? Yes

Remarks: sphagnum 55%, lichen 25%, pelt lichen 5%.

SOIL Sampling Point DAL102

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	organics	0		0				
7-9	10YR 2/2	100		0				Oa, frozen
9-13	2.5Y 4/2	40		0				2.5Y 4/1, 10% gravel
9-13	2.5Y 4/4	60		0				10% gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: permafrost
Depth (inches): 13

Hydric Soil Present? No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
X Shallow Aquitard (D3)
__Microtopographic Relief (D4)
X FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: 60708 Borough/City: Fairbanks North Star Borough Sampling Date: 06/02/2014
Applicant/Owner: LKG Sampling Point: DAL103
Investigator(s): LG, AM Section, Township, Range: Livengood B-4, T08N, R05W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR): Interior Alaska Lat: 65.48688520 Long: -148.65335250 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands NWI classification: UPLAND
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	30	Yes	FACW
2. Betula papyrifera	15	Yes	FACU
3.			
4.			
Total Cover: 45			
50% of total cover: 22 20% of total cover: 9			
Sapling/Shrub Stratum			
1. Alnus viridis	10	Yes	FAC
2. Rhododendron groenlandicum	55	Yes	FAC
3. Spiraea stevenii	20	Yes	FACU
4. Rosa acicularis	5	Yes	FACU
5. Salix alaxensis	10	Yes	FAC
6. Vaccinium uliginosum	10	Yes	FAC
Total Cover: 110			
50% of total cover: 55 20% of total cover: 22			
Herb Stratum			
1. Cornus canadensis	5	Yes	FACU
2. Equisetum scirpoides	5	Yes	FACU
3. Geocaulon lividum	5	Yes	FACU
4. Festuca rubra	3	Yes	FAC
5. Poa palustris	10	Yes	FAC
6.			
7.			
8.			
9.			
10.			
Total Cover: 28			
50% of total cover: 14 20% of total cover: 5			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 13 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 53 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	98	x 3 =	294
FACU species	55	x 4 =	220
UPL species	0	x 5 =	0
Column Totals:	183 (A)		574 (B)

Prevalence Index = B/A = 3.14

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
___ Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 0
(Where applicable)

Hydrophytic Vegetation Present? No

Remarks:

SOIL Sampling Point DAL103

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	organics	0		0				
5-12	2.5Y 4/3	70		0			Silt Loam	5% gravels
5-12	10YR 4/4	30		0			Silt Loam	5% gravels

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: permafrost
Depth (inches): 6

Hydric Soil Present? No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
__Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: 60708 Borough/City: Fairbanks North Star Borough Sampling Date: 06/03/2014
Applicant/Owner: LKG Sampling Point: DAL105
Investigator(s): LG, AM Section, Township, Range: Livengood B-4, T08N, R05W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR): Interior Alaska Lat: 65.49243990 Long: -148.65224400 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands NWI classification: PSS4/1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	25	Yes	FACW
2.			
3.			
4.			
Total Cover: 25			
50% of total cover: 12 20% of total cover: 5			
Sapling/Shrub Stratum			
1. Picea mariana	30	Yes	FACW
2. Rhododendron groenlandicum	25	Yes	FAC
3. Vaccinium vitis-idaea	20	Yes	FAC
4. Vaccinium uliginosum	15	Yes	FAC
5. Salix alaxensis	5	Yes	FAC
6. Rosa acicularis	1	Yes	FACU
Total Cover: 96			
50% of total cover: 48 20% of total cover: 19			
Herb Stratum			
1. Glyceria grandis	10	Yes	OBL
2. Equisetum scirpoides	5	Yes	FACU
3. Mertensia paniculata	4	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 19			
50% of total cover: 9 20% of total cover: 3			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 10 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 70 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	55	x 2 =	110
FAC species	65	x 3 =	195
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	140 (A)		355 (B)

Prevalence Index = B/A = 2.54

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 0
(Where applicable)

Hydrophytic Vegetation Present? Yes

Remarks: 50% sphagnum, lichen 35%, pelt lichen 5%.

SOIL Sampling Point DAL105

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	oraginics	0		0				
5-10	frozen	0		0				
10-11	organics 10YR 3/2	100		0			Silt Loam	15% gravel permafrost

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
X Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type:
Depth (inches): 0

Hydric Soil Present? Yes

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
X Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
X Shallow Aquitard (D3)
__Microtopographic Relief (D4)
X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: 60708 Borough/City: Fairbanks North Star Borough Sampling Date: 06/03/2014
Applicant/Owner: LKG Sampling Point: DAL106
Investigator(s): LG, AM Section, Township, Range: Livengood B-4, T08N, R05W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): convex Slope (%): 5
Subregion (LRR): Interior Alaska Lat: 65.49083350 Long: -148.65315490 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands NWI classification: UPLAND
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland? No**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	40	Yes	FACW
2. Betula papyrifera	5	Yes	FACU
3.			
4.			
Total Cover: 45			
50% of total cover: 22 20% of total cover: 9			
Sapling/Shrub Stratum			
1. Alnus viridis	8	Yes	FAC
2. Vaccinium uliginosum	15	Yes	FAC
3. Vaccinium vitis-idaea	20	Yes	FAC
4. Rosa acicularis	10	Yes	FACU
5. Spiraea stevenii	10	Yes	FACU
6. Salix alaxensis	3	Yes	FAC
Total Cover: 66			
50% of total cover: 33 20% of total cover: 13			
Herb Stratum			
1. Cornus canadensis	10	Yes	FACU
2. Carex rostrata	10	Yes	OBL
3. Equisetum sylvaticum	3	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 23			
50% of total cover: 11 20% of total cover: 4			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 11 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 63 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	40	x 2 =	80
FAC species	49	x 3 =	147
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column Totals:	134 (A)		377 (B)

Prevalence Index = B/A = 2.81

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 0
(Where applicable)

Hydrophytic Vegetation Present? Yes

Remarks: sphagnum 55%, lichen 30%, pelt lichen 5%

SOIL Sampling Point DAL106

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	organic	0		0				
4-10	10YR 4/2	70		0			Silt Loam	5% gravels
4-10	10YR 4/4	30		0			Silt Loam	5% gravels frozen

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: permafrost
Depth (inches): 5

Hydric Soil Present? No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
X Shallow Aquitard (D3)
__Microtopographic Relief (D4)
__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: 60708 Borough/City: Fairbanks North Star Borough Sampling Date: 06/03/2014
Applicant/Owner: LKG Sampling Point: DAL107
Investigator(s): LG, AM Section, Township, Range: Livengood B-4, T08N, R05W
Landform (hillslope, terrace, etc.): Flood plain Local relief (concave, convex, none): concave Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.49096430 Long: -148.64793660 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands NWI classification: PSS1C
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks:	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Salix barclayi	75	Yes	FAC
2. Salix glauca	8	Yes	FAC
3. Dasiphora fruticosa	15	Yes	FAC
4.			
5.			
6.			
Total Cover: 98			
50% of total cover: 49 20% of total cover: 19			
Herb Stratum			
1. Viola palustris	10	Yes	FACW
2. Rubus pubescens	5	Yes	FACW
3. Calamagrostis canadensis	20	Yes	FAC
4. Ranunculus sceleratus	2	Yes	OBL
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 37			
50% of total cover: 18 20% of total cover: 7			
Plot size (radius, or length x width): 0	% Bare ground: 0		
% Cover of Wetland Bryophytes: 0 (Where applicable)	Total Cover of Bryophytes: 0		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	15	x 2 =	30
FAC species	118	x 3 =	354
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	135 (A)		386 (B)

Prevalence Index = B/A = 2.86

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks:

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	organics	50		0				
0-8	10YR 3/1	50		0			Silt Loam	
8-11	10YR 3/1	100		0			Silt Loam	frozen

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:	**Indicators for Problematic Hydric Soils[3]:**	
__Histosol or Histel(A1)	__Alaska Color Change (TA4)[4]	___Alaska Gleyed Without Hue 5Y or Redder
X Histic Epipedon (A2)	__Alaska Alpine Swales (TA5)	Underlying Layer
__Hydrogen Sulfide (A4)	__Alaska Redox With 2.5Y Hue	__Other (Explain in Remarks)
__Thick Dark Surface (A12)	[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.	
__Alaska Gleyed (A13)	[4]Give details of color change in Remarks.	
__Alaska Redox (A14)		
__Alaska Gleyed Pores (A15)		

Restrictive Layer (if present):
Type: seasonal frost
Depth (inches): 8

Hydric Soil Present? Yes

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)
__Surface Water (A1)	__Inundation Visible on Aerial Imagery (B7)	X Water-stained Leaves (B9)
__High Water Table (A2)	__ Sparsely Vegetated Concave Surface (B8)	X Drainage Patterns (B10)
__Saturation (A3)	__Marl Deposits (B15)	__Oxidized Rhizospheres along Living Roots (C3)
X Water Marks (B1)	__Hydrogen Sulfide Odor (C1)	__Presence of Reduced Iron (C4)
__Sediment Deposits (B2)	__Dry Season Water Table (C2)	__Salt Deposits (C5)
X Drift Deposits (B3)	__Other (Explain in Remarks)	__Stunted or Stressed Plants (D1)
__Algal Mat or Crust (B4)		X Geomorphic Position (D2)
__Iron Deposits (B5)		__Shallow Aquitard (D3)
__Surface Soil Cracks (B6)		__Microtopographic Relief (D4)
		__FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: 60708 Borough/City: Fairbanks North Star Borough Sampling Date: 06/03/2014
Applicant/Owner: LKG Sampling Point: DAL109
Investigator(s): LG, AM Section, Township, Range: Livengood B-4, T08N, R05W
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): convex Slope (%): 1
Subregion (LRR): Interior Alaska Lat: 65.48981180 Long: -148.64360570 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands NWI classification: PSS1/FO4B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks: hummocky	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Picea mariana	20	Yes	FACW
2.			
3.			
4.			
Total Cover: 20			
50% of total cover: 10 20% of total cover: 4			
Sapling/Shrub Stratum			
1. Picea mariana	25	Yes	FACW
2. Rhododendron groenlandicum	25	Yes	FAC
3. Vaccinium vitis-idaea	40	Yes	FAC
4. Betula nana	10	Yes	FAC
5. Dasiphora fruticosa	5	Yes	FAC
6. Salix pulchra	8	Yes	FACW
Total Cover: 113			
50% of total cover: 56 20% of total cover: 22			
Herb Stratum			
1. Glyceria grandis	13	Yes	OBL
2. Eriophorum vaginatum	20	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 33			
50% of total cover: 16 20% of total cover: 6			

Plot size (radius, or length x width): 0 % Bare ground: 0
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 0
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 9 (A)

Total Number of Dominant Species Across All Strata: 9 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	13	x 1 =	13
FACW species	73	x 2 =	146
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	166 (A)		399 (B)

Prevalence Index = B/A = 2.40

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks:

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	organics	0		0				
4-8	organics	0		0				frozen
8-10	2.5Y 4/1	70	10YR 4/3	30	C	M	Silt Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: permafrost
Depth (inches): 8

Hydric Soil Present? Yes

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:
Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
X Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
X Shallow Aquitard (D3)
__Microtopographic Relief (D4)
X FAC-Neutral Test (D5)

Field Observations:
Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 4
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: 60708 Borough/City: Fairbanks North Star Borough Sampling Date: 06/03/2014
Applicant/Owner: LKG Sampling Point: DAL112
Investigator(s): LG, AM Section, Township, Range: Livengood B-4, T08N, R05W
Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): convex Slope (%): 3
Subregion (LRR): Interior Alaska Lat: 65.48838740 Long: -148.64649290 Datum: WGS84
Soil Map Unit Name: Interior Alaska Highlands NWI classification: PSS1B
Are climatic/hydrologic conditions on the site typical for this time of year? yes (if no, explain in Remarks.)
Are Vegetation ___ , Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
Are Vegetation ___, Soil ___ , or Hydrology ___ naturally problematic? (if needed explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland? Yes**
Remarks: hummocks 9-12 inches tall by 12 inches wide	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: 0 20% of total cover: 0			
Sapling/Shrub Stratum			
1. Betula nana	40	Yes	FAC
2. Rhododendron tomentosum	40	Yes	FACW
3. Vaccinium uliginosum	30	Yes	FAC
4. Salix barclayi	2	Yes	FAC
5. Picea mariana	15	Yes	FACW
6.			
Total Cover: 127			
50% of total cover: 63 20% of total cover: 25			
Herb Stratum			
1. Eriophorum vaginatum	55	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 55			
50% of total cover: 27 20% of total cover: 11			
Plot size (radius, or length x width): 0 % Bare ground: 0			
% Cover of Wetland Bryophytes: 0 Total Cover of Bryophytes: 0 (Where applicable)			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	110	x 2 =	220
FAC species	72	x 3 =	216
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	182 (A)		436 (B)

Prevalence Index = B/A = 2.40

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0
X Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes

Remarks:

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

	Matrix		Redox Features					
Depth (in.)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	organics	0		0				
7-12	organics	0		0				frozen

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

__Histosol or Histel(A1)
__Histic Epipedon (A2)
__Hydrogen Sulfide (A4)
__Thick Dark Surface (A12)
__Alaska Gleyed (A13)
__Alaska Redox (A14)
__Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

__Alaska Color Change (TA4)[4]
__Alaska Alpine Swales (TA5)
__Alaska Redox With 2.5Y Hue
___Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
__Other (Explain in Remarks)

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

Restrictive Layer (if present):
Type: permafrost
Depth (inches): 7

Hydric Soil Present? Yes

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

__Surface Water (A1)
__High Water Table (A2)
__Saturation (A3)
__Water Marks (B1)
__Sediment Deposits (B2)
__Drift Deposits (B3)
__Algal Mat or Crust (B4)
__Iron Deposits (B5)
__Surface Soil Cracks (B6)
__Inundation Visible on Aerial Imagery (B7)
__ Sparsely Vegetated Concave Surface (B8)
__Marl Deposits (B15)
__Hydrogen Sulfide Odor (C1)
__Dry Season Water Table (C2)
__Other (Explain in Remarks)

Secondary Indicators (2 or more required)

__Water-stained Leaves (B9)
__Drainage Patterns (B10)
__Oxidized Rhizospheres along Living Roots (C3)
__Presence of Reduced Iron (C4)
__Salt Deposits (C5)
__Stunted or Stressed Plants (D1)
__Geomorphic Position (D2)
X Shallow Aquitard (D3)
X Microtopographic Relief (D4)
X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

APPENDIX B-2

Sample Location Photographs

PHOTOGRAPHIC LOG

State of Alaska **DOT & PF**	**Wetland Delineation** Dalton Highway MP 0-9	**DOWL HKM Project No.** 60708

Site Number: 1 **Date:** 09/09/2013 **Investigators:** LG, CH	**Notes:**	Black spruce (*Picea mariana*) forested wetland with slightly thixotropic mineral soil observed.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 2 **Date:** 09/09/2013 **Investigators:** LG, CH	**Notes:**	Steep forested hillside consisting of quaking aspen (*Populus tremuloides*) and white spruce (*Picea glauca*).

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 3 **Date:** 09/09/2013 **Investigators:** LG, CH	**Notes:**	Black spruce *(Picea mariana)* forested wetland with ungulating topography. The wetland is situated between the road and the hillside.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project **No.** 60708

Site Number: 4 **Date:** 09/09/2013 **Investigators:** LG, CH	**Notes:**	Scrub shrub wetland dominated by black spruce (*Picea mariana*) and dwarf birch (*Betula nana*). Surface water was observed between tussocks.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 5 **Date:** 09/09/2013 **Investigators:** LG, CH	**Notes:**	Black spruce (*Picea mariana*) and northern mountain cranberry (*Vaccinium vitis-idaea*) dominated scrub shrub wetland with an atv trail present approximately 500 feet west of the sample point.

PHOTOGRAPHIC LOG

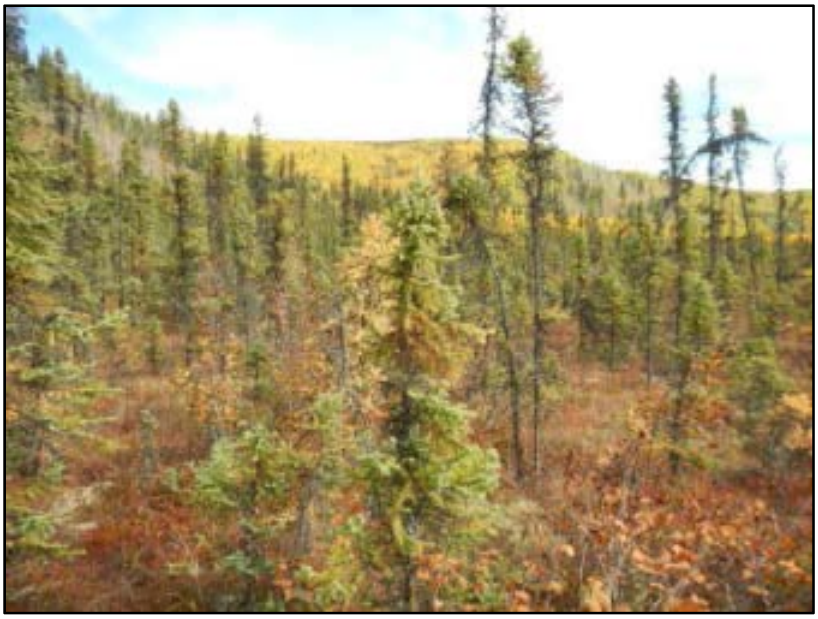
State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

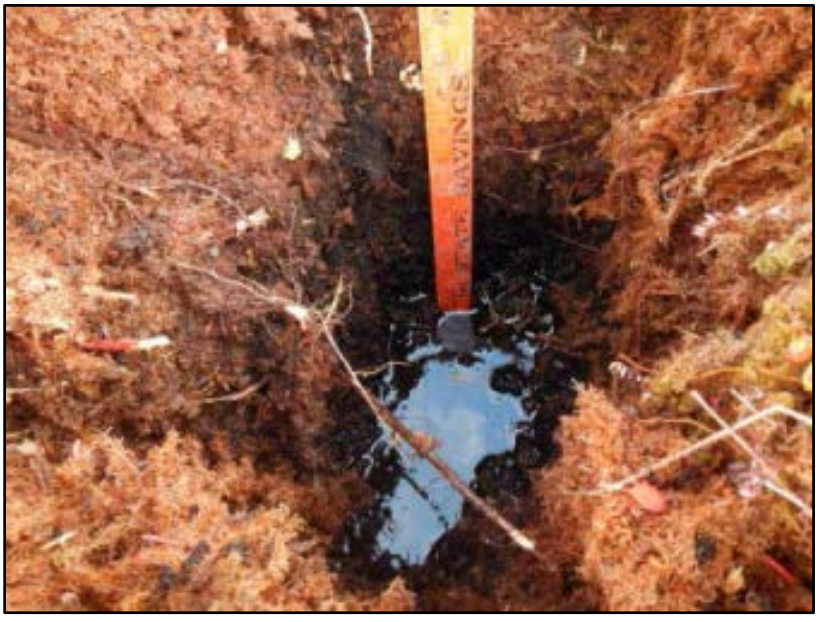
Site Number: 6 **Date:** 09/09/2013 **Investigators:** LG, CH	**Notes:**	Surface water observed near sample point number 5.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project **No.** 60708

Site Number: 7 **Date:** 09/09/2013 **Investigators:** LG, CH	**Notes:**	Scrub shrub wetland with hummocks at bottom of slope consisting largely of black spruce (*Picea mariana)* and marsh labrador tea (*Rhododendron tomentosum)*.





PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 8 **Date:** 09/09/2013 **Investigators:** LG, CH	**Notes:**	White spruce (*Picea glauca*), resin birch (*Betula neoalaskana*), prickly rose (*Rosa acicularis)* and *Salix* upland.

PHOTOGRAPHIC LOG

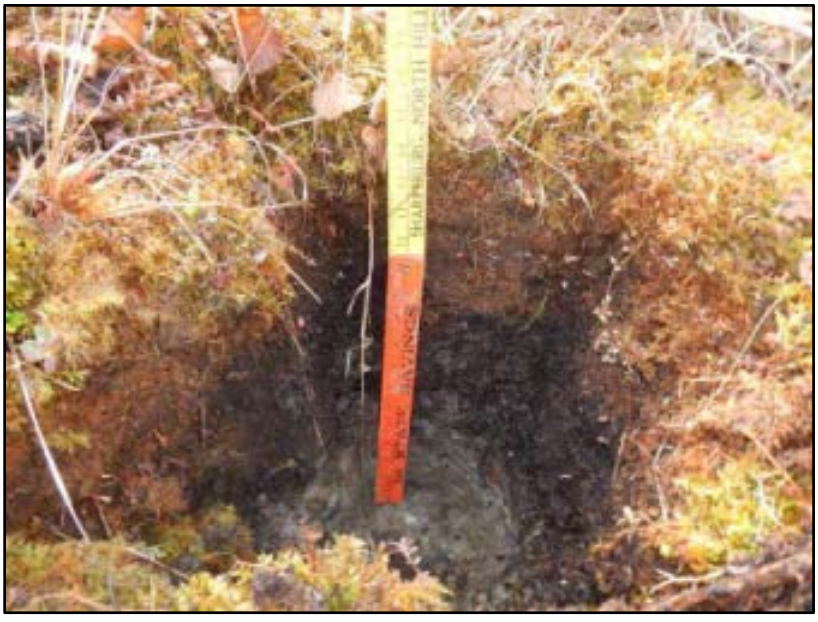
State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 9 **Date:** 09/09/2013 **Investigators:** LG, CH	**Notes:**	Surface water present downslope of sample point 8.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 10 **Date:** 09/09/2013 **Investigators:** LG, CH	**Notes:**	Black spruce (*Picea mariana*) scrub shrub wetland at bottom of toe slope with moderate hummocks.



PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 11 **Date:** 09/09/2013 **Investigators:** LG, CH	**Notes:**	Steep, well drained hillside with white spruce (*Picea glauca*) and quaking aspen (*Populus tremuloides*).

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 11 **Date:** 09/09/2013 **Investigators:** LG, CH	**Notes:**	Riverine area present between sample point 11 and 12.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 12 **Date:** 09/09/2013 **Investigators:** LG, CH	**Notes:**	White spruce (*Picea glauca*), resin birch (*Betula neoalaskana*) and green alder (*Alnus viridis*) upland with creek floodplain water surrounding plot.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 12 **Date:** 09/09/2013 **Investigators:** LG, CH	**Notes:**	ATV trail between sample point 12 and sample point 13.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 13 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Resin birch (*Betula neoalaskana*), green alder (*Alnus viridis*) and prickly rose (*Rosa acicularis*) hillside.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 14 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Scrub shrub wetland dominated by black spruce (*Picea mariana*) in the tree and shrub layer.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 14 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Dalton highway observed between sample points 14 and 15.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project **No.** 60708

Site Number: 15 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Upland point with resin birch (*Betula neoalaskana*) and white spruce (*Picea glauca*). Two small dry seasonal channels located near sample plot.

PHOTOGRAPHIC LOG

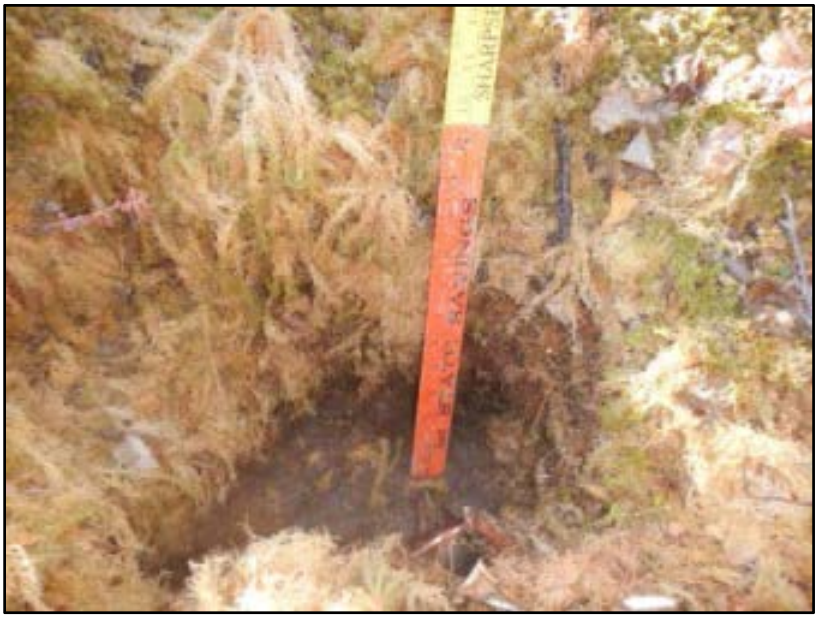
State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 16 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Hillside consisting of mostly resin birch (*Betula neoalaskana*) and green alder (*Alnus viridis*). Sample point located approximately 50 feet away from road clearing.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

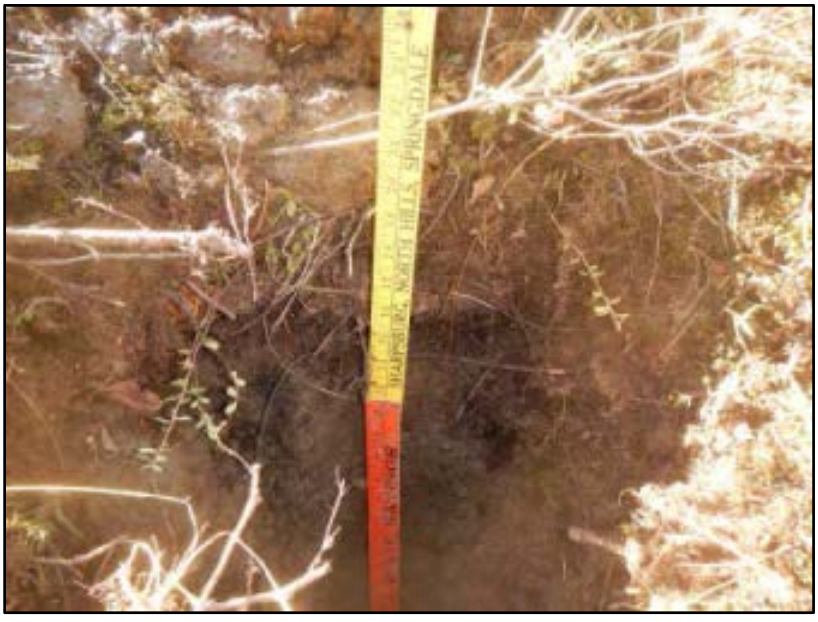
Site Number: 17 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Black spruce (*Picea mariana*), blueberry (*Vaccinium uliginosum*), and resin birch (*Betula neoalaskana*) scrub shrub wetland. Many of the black spruce and resin birch are stunted. Road is about 60 feet upslope of point.



PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project **No.** 60708

Site Number: 18 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Most trees in plot under 15 feet tall. Tree layer of resin birch (*Betula neoalaskana)* with shrub layer dominated by black spruce (*Picea mariana*) and blueberry (*Vaccinium uliginosum*).



PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 19 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Upland point dominated by resin birch (*Betula neoalaskana*). Sample point located approximately 40 feet downslope of disturbed road clearing.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 19 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Large culvert drainage from roadway upslope of sample point 19.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 20 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Upland point dominated by tealeaf willow (*Salix pulchra*). Sample point near roadside disturbance with roadway runoff dispersing into forested area.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 21 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Well drained forested hillside consisting of primarily black spruce (*Picea mariana*) in the tree and shrub layer.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 21 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Gravel borrow pit downslope of sample point 21.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 22 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Dry resin birch (*Betula neoalaskana*) forest with ungulating topography. Shrub layer consisted largely of squashberry (*Viburnum edule*). Road present approximately 100 feet below sample point.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 23 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Upland point consisting of resin birch (*Betula neoalaskana*), white spruce (*Picea glauca*) and prickly rose (*Rosa acicularis*). Lots of leaf litter present.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 24 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Black spruce (*Picea mariana*) forested wetland with hummocks. Road is approximately 100 feet downslope of the sample point.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 25 **Date:** 09/10/2013 **Investigators:** LG, CH	**Notes:**	Predominantly Black spruce (*Picea mariana*) forested hillside.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 26 **Date:** 09/11/2013 **Investigators:** LG, CH	**Notes:**	Toe slope with black spruce (*Picea mariana*) and Barclay's willow (*Salix barclayi*). Large hummocks present at sample point and willows browsed by moose.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 27 **Date:** 09/11/2013 **Investigators:** LG, CH	**Notes:**	Black spruce (*Picea mariana*) woodland with open pockets of shrubs.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 28 **Date:** 09/11/2013 **Investigators:** LG, CH	**Notes:**	Broad flood plain with sparsely dispersed black spruce (*Picea mariana*) below steep slope from upland area. Stunted trees present within the sample plot.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 29 **Date:** 09/11/2013 **Investigators:** LG, CH	**Notes:**	Quaking aspen (*Populus tremuloides*) and white spruce (*Picea glauca*) forested flat bench area leading to a steep slope heading towards a creek.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project **No.** 60708

Site Number: 30 **Date:** 09/11/2013 **Investigators:** LG, CH	**Notes:**	Black spruce (*Picea mariana*) and Barclay's willow (*Salix barclayi*) on saturated toe slope leading to upland approximately 150 feet away.

PHOTOGRAPHIC LOG

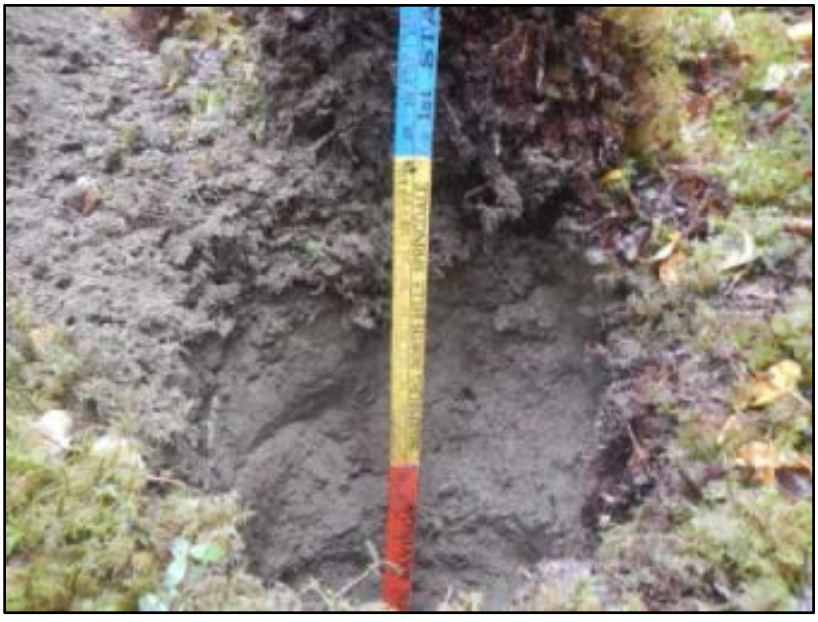
State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 31 **Date:** 09/11/2013 **Investigators:** LG, CH	**Notes:**	Previously burned upland area with quaking aspen (*Populus tremuloides*), white spruce (*Picea glauca*) and lichen species.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 32 **Date:** 09/11/2013 **Investigators:** LG, CH	**Notes:**	Sample point 32 consisted of mature resin birch (*Betula neoalaskana*) and white spruce (*Picea glauca*) forest located on a toeslope.



PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project **No.** 60708

Site Number: 33 **Date:** 09/11/2013 **Investigators:** LG, CH	**Notes:**	Quaking aspen (*Populus tremuloides*) and white spruce (*Picea glauca*) forested hillside with evidence of fire previously in area observed.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 34 **Date:** 09/11/2013 **Investigators:** LG, CH	**Notes:**	Scrub shrub wetland with large tussocks. Predominantly covered by dwarf birch (*Betula nana*).

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 34 **Date:** 09/11/2013 **Investigators:** LG, CH	**Notes:**	Creek observed between points 34 and 35. The creek is recessed 5 feet below terrace.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 35 **Date:** 09/11/2013 **Investigators:** LG, CH	**Notes:**	Mature spruce forest with alder (*Alnus viridis*) and prickly rose (*Rosa acicularis*).

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 35 **Date:** 09/11/2013 **Investigators:** LG, CH	**Notes:**	Steep and rocky, lichen covered slope located between sample point 35 and 36.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 36 **Date:** 09/11/2013 **Investigators:** LG, CH	**Notes:**	Sample point located on a steep lichen slope dominated by black spruce (*Picea mariana*), resin birch (*Betula neoalaskana*) and green alder (*Alnus viridis*). Surface water present in small creek channel.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 37 **Date:** 09/12/2013 **Investigators:** LG, CH	**Notes:**	Black spruce (*Picea mariana*) and bebb willow (*Salix bebbiana*) swale with drainage patterns present all over the sample area.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 37 **Date:** 09/12/2013 **Investigators:** LG, CH	**Notes:**	Drainage ditch and sediment deposits within wetland area at sample point 37.

PHOTOGRAPHIC LOG

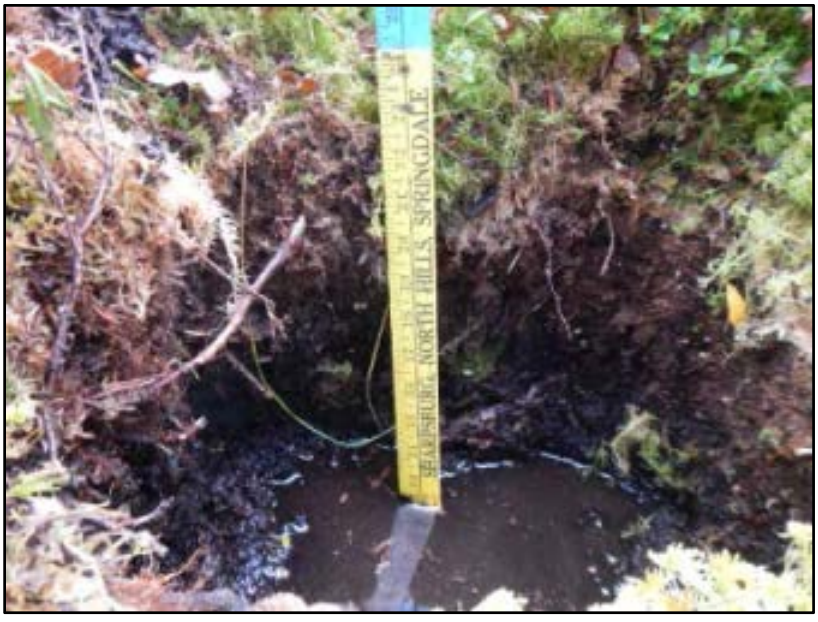
State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 38 **Date:** 09/12/2013 **Investigators:** LG, CH	**Notes:**	Sample point consisted of mostly black spruce (*Picea mariana*) with small benches and large hummocks present.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

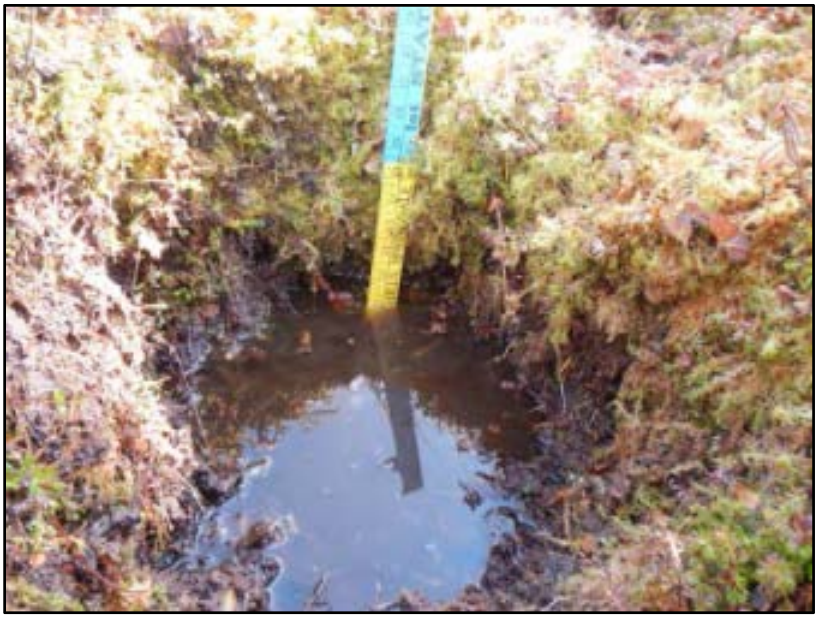
Site Number: 39 **Date:** 09/12/2013 **Investigators:** LG, CH	**Notes:**	Sample point 39 was taken at the edge of a very wet black spruce (*Picea mariana*) bog with surface water present. Saturated black spruce groves.



PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 40 **Date:** 09/12/2013 **Investigators:** LG, CH	**Notes:**	Flat area with stunted black spruce (*Picea mariana*) and hummocks near a creek. Perched water table present.



PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 41 **Date:** 09/12/2013 **Investigators:** LG, CH	**Notes:**	Black spruce (*Picea mariana*) and willow (*Salix*) area with lichen and tussocks understory. Willows heavily browsed by moose.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 41 **Date:** 09/12/2013 **Investigators:** LG, CH	**Notes:**	Surface water observed between sample points 41 and 42.

PHOTOGRAPHIC LOG

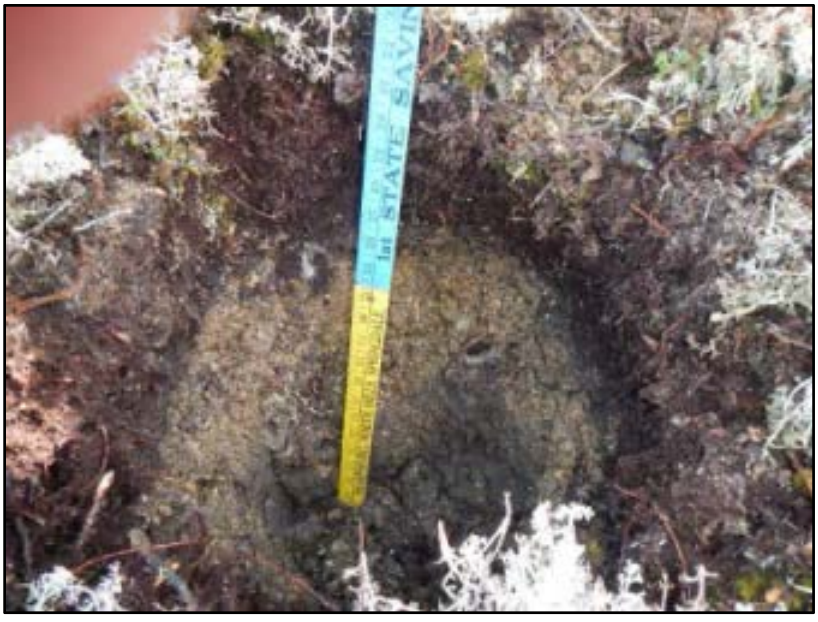
State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project **No.** 60708

Site Number: 42 **Date:** 09/12/2013 **Investigators:** LG, CH	**Notes:**	White spruce (*Picea glauca*) and balsam poplar (*Populus balsamifera*) upland. Transition point with wetland on other side of river.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 43 **Date:** 09/12/2013 **Investigators:** LG, CH	**Notes:**	Sample point is located downslope of road with an ATV trail 30 feet to the east. Black spruce (*Picea mariana*) is dominant vegetation species.



PHOTOGRAPHIC LOG

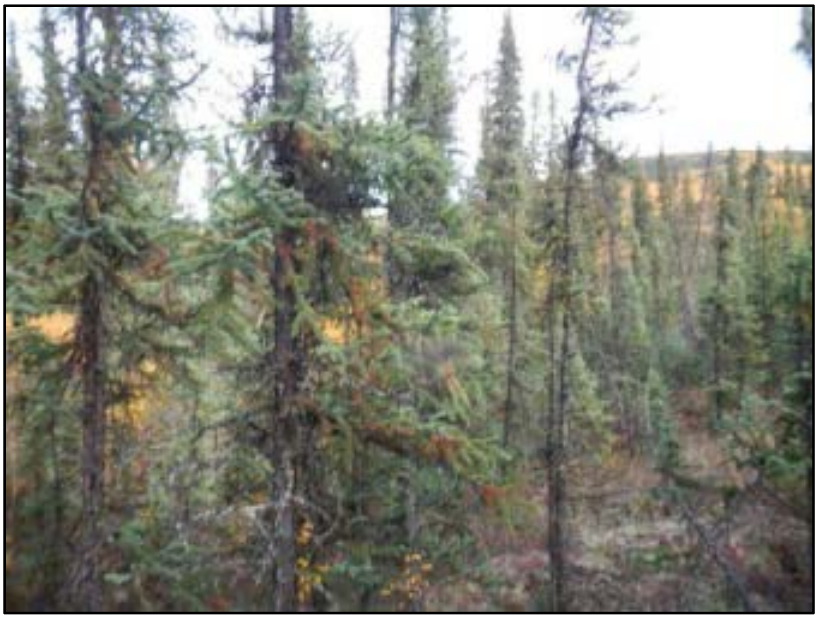
State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 44 **Date:** 09/12/2013 **Investigators:** LG, CH	**Notes:**	Black spruce (*Picea mariana*) forested upland with some birch mixed in and lots of lichen present.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

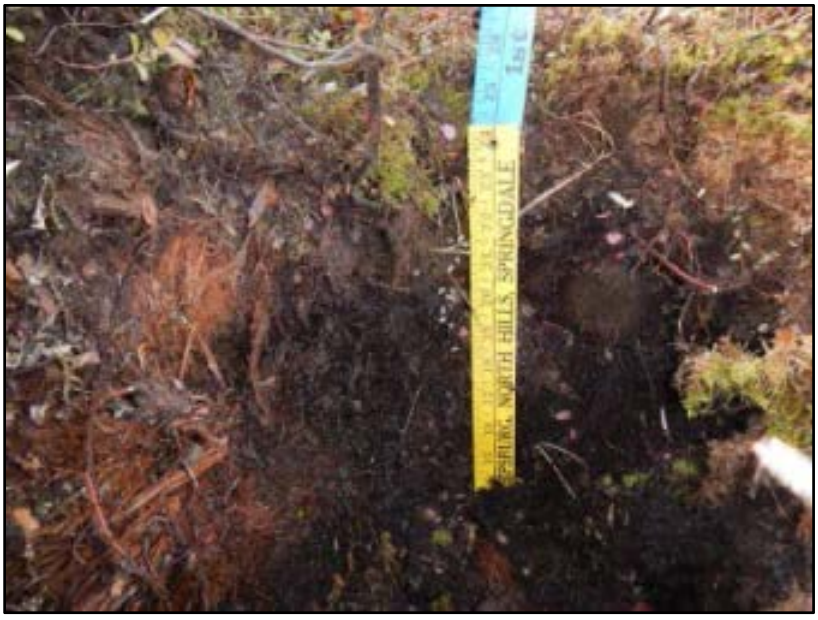
Site Number: 45 **Date:** 09/12/2013 **Investigators:** LG, CH	**Notes:**	Steep black spruce (*Picea mariana*) forested slope with stunted spruce present and some surface water and tussocks observed.



PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 46 **Date:** 09/12/2013 **Investigators:** LG, CH	**Notes:**	Road is upslope of sample point and there is a creek present downslope. Stunted black spruce (*Picea mariana*) and tussocks were observed.



PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 47 **Date:** 09/13/2013 **Investigators:** LG, CH	**Notes:**	White spruce (*Picea glauca*) forested area seems to be transitional zone from wetland to riverine upland.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 48 **Date:** 09/13/2013 **Investigators:** LG, CH	**Notes:**	Sample point located within large wetland complex with stunted black spruce (*Picea mariana*) and pockets of surface water present between tussocks.

PHOTOGRAPHIC LOG

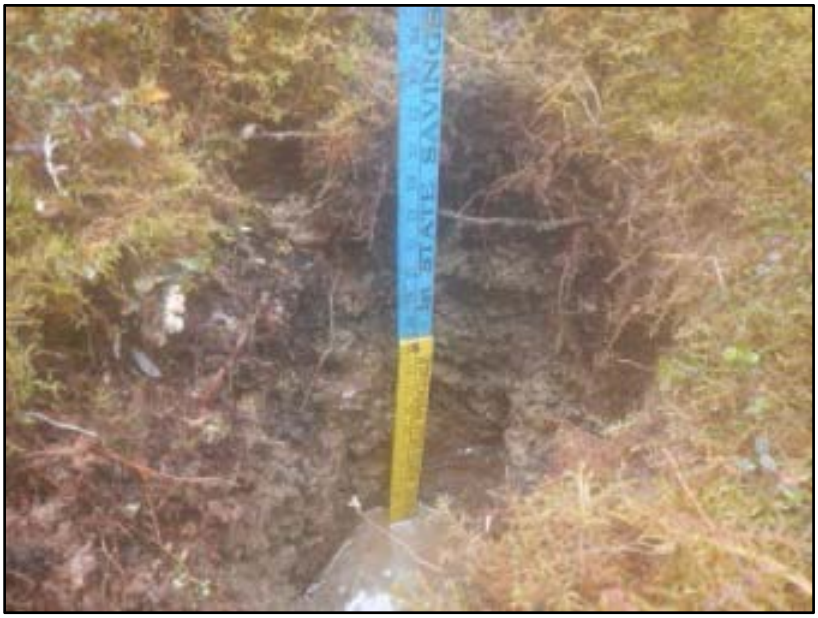
State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 49 **Date:** 09/13/2013	**Notes:**	Large tussock wetland interspersed with moss and surface water and sparse spruce trees present.
Investigators: LG, CH		

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

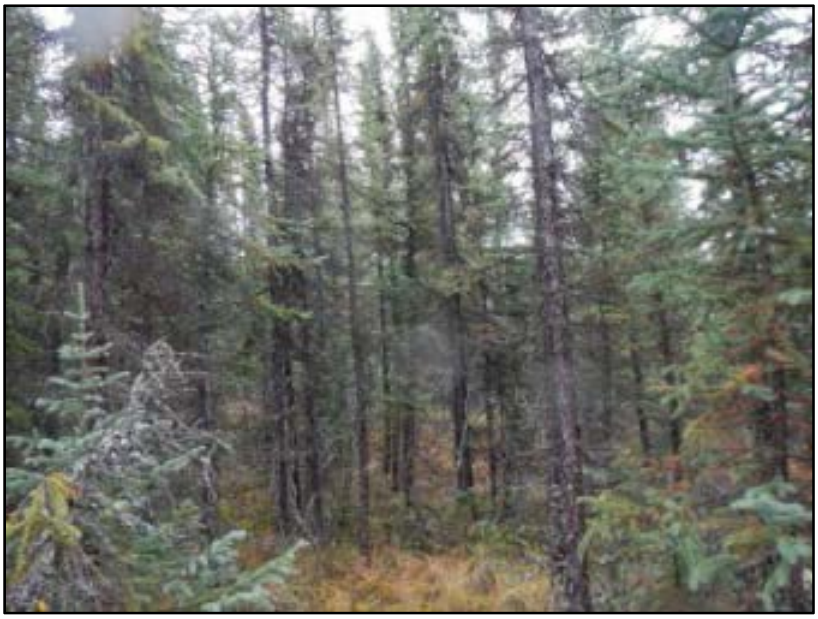
Site Number: 50 **Date:** 09/13/2013 **Investigators:** LG, CH	**Notes:**	Black spruce (*Picea mariana*) forested footslope located about 100 feet above wetland. Moose tracks were observed at sample point.

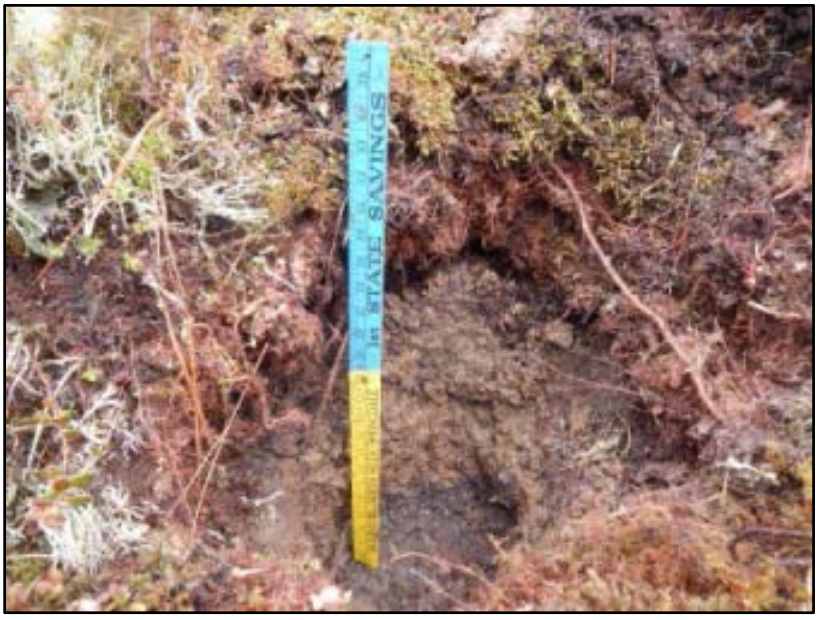


PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 51 **Date:** 09/13/2013	**Notes:**	Black spruce (*Picea mariana*) forested area with moderate hummocks.
Investigators: LG, CH		





PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway MP 0-9	DOWL HKM Project No. 60708

Site Number: 52 **Date:** 09/13/2013 **Investigators:** LG, CH	**Notes:**	Sample point located on a side slope above road within a black spruce (*Picea mariana*) forest.

2014

Photographic Log

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway Mile Posts 0-9	DOWL HKM Project No. 60708

Site Number: 100 **Date:** 6/2/2014 **Investigators:** LG, AM	**Notes:**	Sample location taken within clearcut utility corridor with 6 foot tall shrub layer. Vegetation dominated by *Alnus crispa* and *Calamagrostis canadensis*. Observation view point is oriented to the west.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway Mile Posts 0-9	DOWL HKM Project **No.** 60708

Site Number:101 **Date:** 6/2/2014 **Investigators:** LG, AM	**Notes:**	Photo point taken within the utility corridor. Observation view points are oriented to the south and west.

PHOTOGRAPHIC LOG

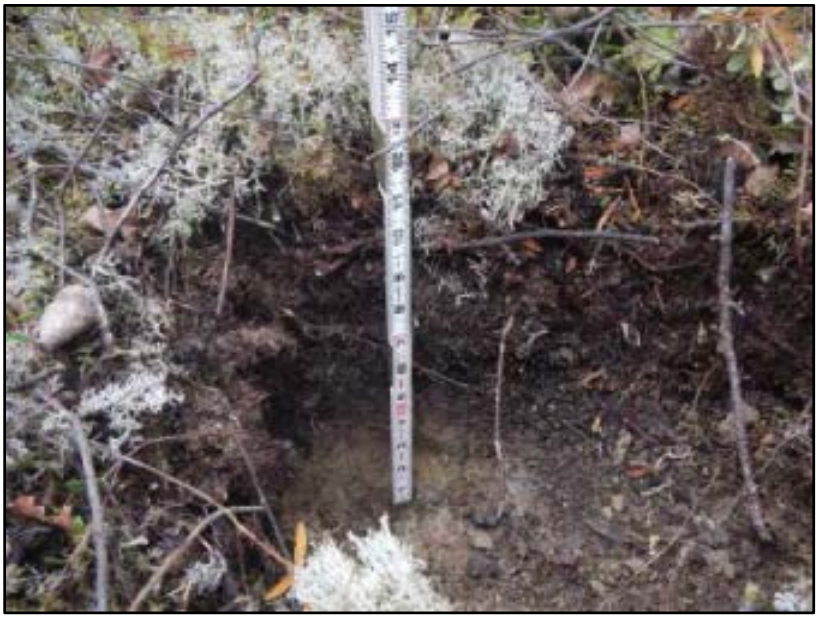
State of Alaska DOT & PF	Wetland Delineation Dalton Highway Mile Posts 0-9	DOWL HKM Project No. 60708

Site Number: 102 **Date:** 6/2/2014 **Investigators:** LG, AM	**Notes:**	Sample point taken within an upland. Vegetation dominated by *Picea mariana* in the tree layer and *Rhododendron groenlandicum* in the shrub layer. Observation view point is oriented to the east.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway Mile Posts 0-9	DOWL HKM Project No. 60708

Site Number: 103 **Date:** 6/2/2014	**Notes:**	Sample point taken in an upland with vegetation dominated by *Picea mariana* in the tree layer, *Rhododendron groenlandicum* in the shrub layer and *Poa palustris* in the herbaceous layer. Observation view point is oriented to the east.
Investigators: LG, AM		



PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway Mile Posts 0-9	DOWL HKM Project No. 60708

Site Number: 104 **Date:** 6/3/2014 **Investigators:** LG, AM	**Notes:**	Photo point taken of pond within the Study Area. Observation view points oriented to the north and south.

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway Mile Posts 0-9	DOWL HKM Project No. 60708

Site Number: 105 **Date:** 6/3/2014	**Notes:**	Sample point taken within a scrub shrub wetland with vegetation dominated by *Picea mariana* in the tree layer and shrub layer and *Glyceria grandis* in the herbaceous layer. Observation view point is oriented to the south.
Investigators: LG, AM		

PHOTOGRAPHIC LOG

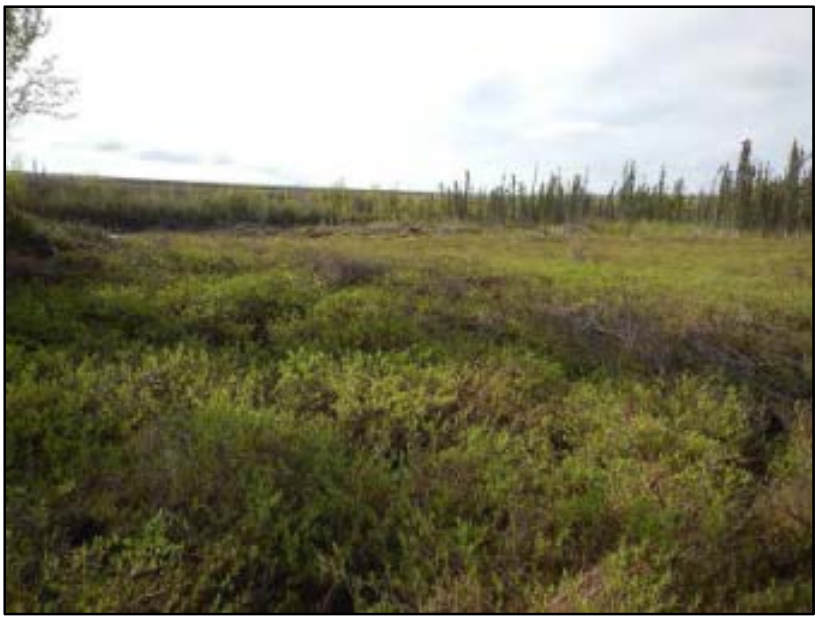
State of Alaska DOT & PF	Wetland Delineation Dalton Highway Mile Posts 0-9	DOWL HKM Project No. 60708

Site Number: 106 **Date:** 6/3/2014	**Notes:**	Sample point taken within an upland dominated in the tree layer by *Picea mariana*, the shrub layer by *Vaccinium vitis-idaea*, and the herbaceous layer by *Cornus canadensis* and *Carex rostrata*. Observation view point is oriented to the south.
Investigators: LG, AM		

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway Mile Posts 0-9	DOWL HKM Project **No.** 60708

Site Number: 107 **Date:** 6/3/2014	**Notes:**	Sample point taken within a scrub shrub wetland with vegetation dominated by *Salix barclayi* in the shrub layer and *Calamagrostis canadensis* in the herbaceous layer. Observation view point is oriented to the south.
Investigators: LG, AM		



PHOTOGRAPHIC LOG

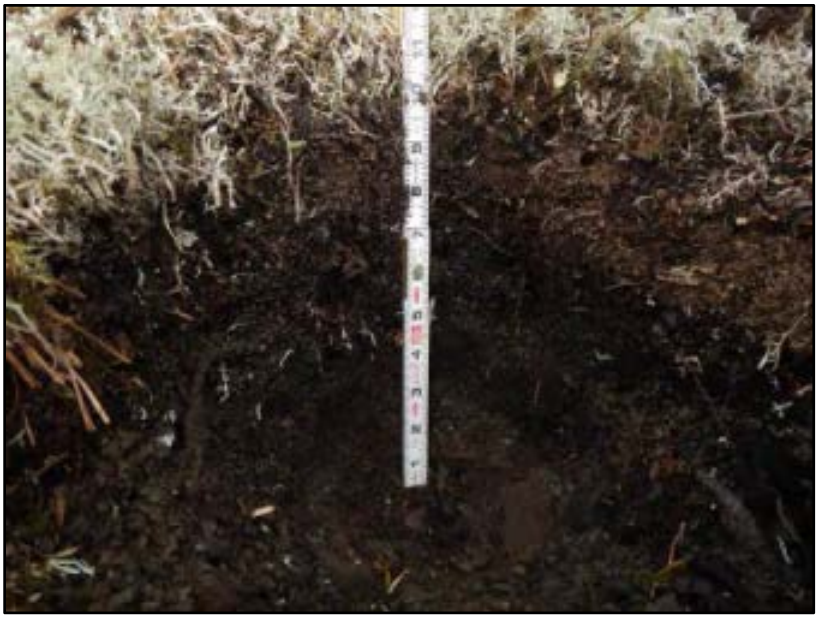
State of Alaska DOT & PF	Wetland Delineation Dalton Highway Mile Posts 0-9	DOWL HKM Project No. 60708

Site Number: 108 **Date:** 6/3/2014	**Notes:**	Photo point with observation view points oriented to the north and the south.
Investigators: LG, AM		

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway Mile Posts 0-9	DOWL HKM Project **No.** 60708

Site Number: 109 **Date:** 6/3/2014	**Notes:**	Sample location taken in a hummocky scrub shrub wetland. Vegetation was dominated by *Picea mariana* in the tree layer, *Vaccinium vitis-idaea* in the shrub layer and *Eriophorum vaginatum* in the herbaceous layer. Observation view point is oriented to the south.
Investigators: LG, AM		



PHOTOGRAPHIC LOG

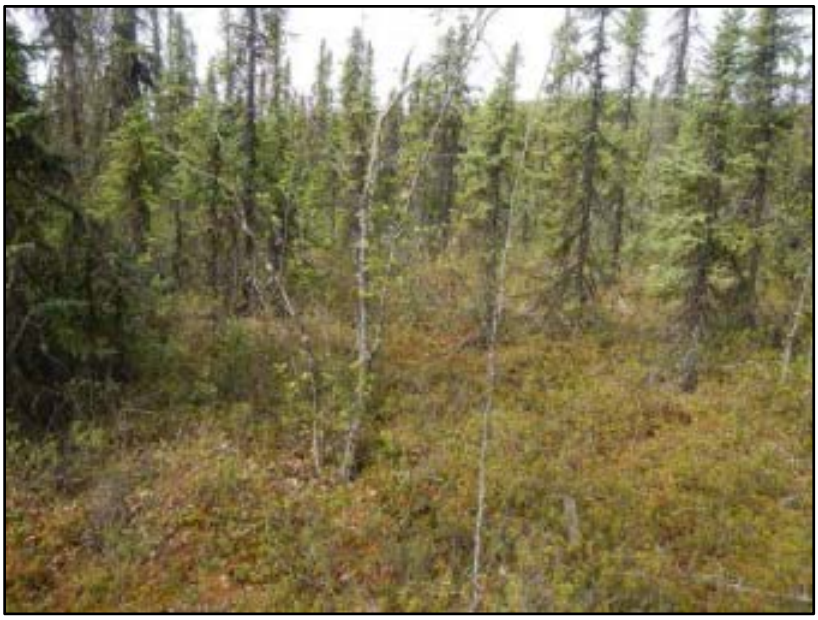
State of Alaska DOT & PF	Wetland Delineation Dalton Highway Mile Posts 0-9	DOWL HKM Project **No.** 60708

Site Number: 110 **Date:** 6/3/2014	**Notes:**	Photo point with observation view points oriented to the north and west.
Investigators: LG, AM		

PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway Mile Posts 0-9	DOWL HKM Project No. 60708

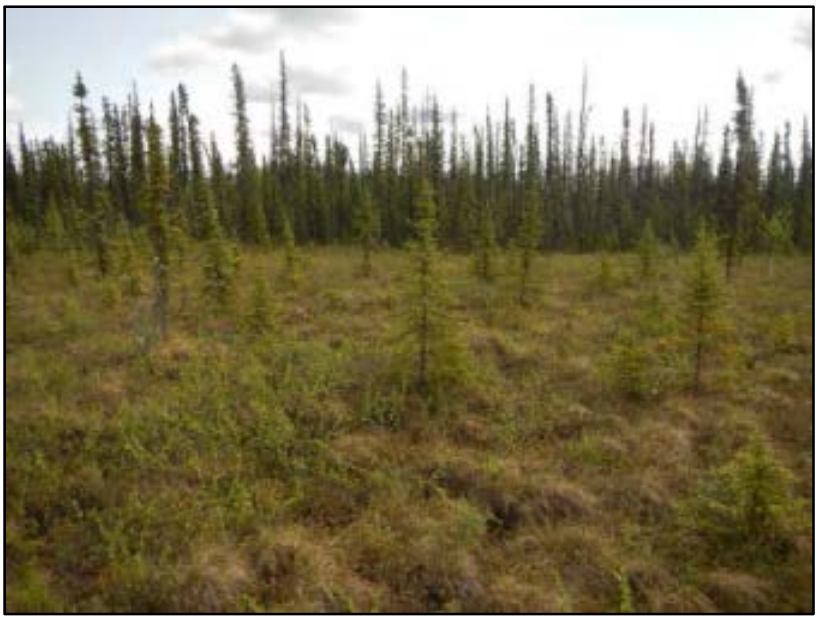
Site Number: 111 **Date:** 6/3/2014 **Investigators:** LG, AM	**Notes:**	Photo point with observation view points oriented to the south and the west.



PHOTOGRAPHIC LOG

State of Alaska DOT & PF	Wetland Delineation Dalton Highway Mile Posts 0-9	DOWL HKM Project No. 60708

Site Number: 112 **Date:** 6/3/2014	**Notes:**	Sample point taken within a scrub shrub wetland with hummocks 9-12 inches tall by 12 inches wide. Vegetation dominated by *Betula nana* and *Rhododendron tomentosum* in the shrub layer and *Eriophorum vaginatum* in the herbaceous layer. Observation view point is oriented to the east.
Investigators: LG, AM		



APPENDIX C

Functions and Values

APPENDIX C-1

Functions and Values Forms

Wetland Function and Services Assessment Form

Project/Site **(#60913)**	**Dalton Highway MP 0-9 Realignment**	Wetland IDs: 3,24,25,36,38,39,43	Estimated Wetland Impact Type: **Forested-Shrub Wetland**
Applicant/Owner	Alaska DOT&PF		
Dominant Cowardin Classification?	**PFO4/SS1C, PFO4/SS1B**	Lat 65.513°N / Long -148.791°W	Potential Impact Acres: 199.8 acres
Wetland Acres	199.8 acres	Prepared by: Luke Gasek	Evaluation based on:
Adjacent Land use	undeveloped land	Date Sep-13	Office [ ] [x] Field
Distance to nearest road or development:	Adjacent, to 1 mile to Dalton Highway	Borough/City FNSB	Corps Manual Wetland Delineation Complete?
		Subregion Interior	Yes [x] [ ] No

Hydrology	Yes	No
Is wetland a separate hydraulic system?		x
If not where is location in drainage basin?	Lost Creek, West Fork	
# of tributaries contributing to wetland	Tolovana River	

Habitat	Yes	No
Is this wetland part of wildlife corridor or habitat island?		x
Does wetland have a contiguous undeveloped buffer?	x	
Is there evidence of substantial disturbance?		x

Comments: These wetland bogs are dominated by black spruce, with white spruce interspersed. Shrub layer consists of willows, black spruce, dwarf birch, bog blueberry and Labrador tea.

Comments: Wildlife movements are dispersed in these wetlands. Wetland buffers are mostly contiguous, undeveloped, and undisturbed.

Function/Service	**Function/Value Notably Present?** Yes*	No	**Degree Present** *	* H=High, M=Moderate, L=Low **Rationale/Comments**
Groundwater Recharge		x	L	Limited contribution, permafrost common
Flood flow Alteration		x	L	Absorbs & releases water, limited capacity, limited or no downstream development
Fish and Shellfish Habitat		x	L	Wetland provides no fish habitat or direct buffer to fish-bearing waters
Sediment/Toxicant Reduction		x	L	Upgradient watershed natural, with little sediment contribution
Nutrient Removal		x	L	Upgradient watershed natural, with no apparent adverse nutrient contribution
Production Export		x	L	Wetlands shed some leafy debris, distant from any potentially benefiting stream
Sediment/Shoreline Stability		x	L	Wetlands not in areas susceptible to shoreline erosion
Wildlife Habitat	x		M	Provides habitat for moose, furbearers, upland birds. Similar habitat is common in area.
Recreation	x		M	Wetlands of minimal recreational use; some hunting popular in this region
Education/Scientific Value	x		M	Similar wetlands are present in more readily reachable locations for study
Uniqueness/Heritage		x	L	Wetland type common and abundant in the region
Visual Quality/Aesthetics		x	L	Wetlands are not readily visible from nearby roads or paths; wetland type common
Endangered Species Habitat		x	L	No listed or proposed species documented in area
Other:		x	L	No substantial known contribution to subsistence provision

OVERALL Assessment Rating **Low-Category III** Rationale: Wetland has no elevated specific functions or values. Similar habitats and wetland values are abundant in the area.

Wetland Function and Services Assessment Form

Project/Site **(#60913)**	**Dalton Highway MP 0-9 Realignment**	Wetland IDs: 9	Estimated Wetland Impact Type: **Sedge Wetland**
Applicant/Owner	Alaska DOT&PF		
Dominant Cowardin Classification?	**PEM1C, PEM1H**	Lat 65.513°N / Long -148.791°W	Potential Impact Acres: 1.0 acres
Wetland Acres	1.0 acres	Prepared by: Luke Gasek	Evaluation based on:
Adjacent Land use	undeveloped land	Date Sep-13	Office [ ] [x] Field
Distance to nearest road or development:	1/2 to 1 mile to Dalton Highway	Borough/City FNSB	Corps Manual Wetland Delineation Complete?
		Subregion Interior	Yes [x] [ ] No

Hydrology	Yes	No
Is wetland a separate hydraulic system?		x
If not where is location in drainage basin?	Lost Creek, West Fork	
# of tributaries contributing to wetland	Tolovana River	

Habitat	Yes	No
Is this wetland part of wildlife corridor or habitat island?		x
Does wetland have a contiguous undeveloped buffer?	x	
Is there evidence of substantial disturbance?		x

Comments: These wetland bogs are dominated by emergent sedge (Carex spp.) and grass growth.

Comments: Wildlife movements are dispersed in these wetlands. Wetland buffers are mostly contiguous, undeveloped, and undisturbed.

Function/Service	**Function/Value Notably Present?** Yes*	No	**Degree Present** *	* H=High, M=Moderate, L=Low **Rationale/Comments**
Groundwater Recharge		x	L	Limited contribution, permafrost common
Flood flow Alteration		x	L	Absorbs & releases water, limited capacity, limited or no downstream development
Fish and Shellfish Habitat		x	L	Wetland provides no fish habitat or direct buffer to fish-bearing waters
Sediment/Toxicant Reduction		x	L	Upgradient watershed natural, with little sediment contribution
Nutrient Removal		x	L	Upgradient watershed natural, with no apparent adverse nutrient contribution
Production Export		x	L	Wetlands shed some leafy debris, distant from any potentially benefiting stream
Sediment/Shoreline Stability		x	L	Wetlands not in areas susceptible to shoreline erosion
Wildlife Habitat	x		M	Provides habitat for moose, furbearers, upland birds. Similar habitat is common in area.
Recreation	x		M	Wetlands of minimal recreational use; some hunting popular in this region
Education/Scientific Value	x		M	Similar wetlands are present in more readily reachable locations for study
Uniqueness/Heritage		x	L	Wetland type common and abundant in the region
Visual Quality/Aesthetics		x	L	Wetlands are not readily visible from nearby roads or paths; wetland type common
Endangered Species Habitat		x	L	No listed or proposed species documented in area
Other:		x	L	No substantial known contribution to subsistence provision

OVERALL Assessment Rating **Low-Category III** Rationale: Wetland has no elevated specific functions or values. Similar habitats and wetland values are abundant in the area.

Wetland Function and Services Assessment Form

Project/Site **(#60913)**	**Dalton Highway MP 0-9 Realignment**	Wetland IDs: 1,4,7,26,30,41,46,48,49	Estimated Wetland Impact
Applicant/Owner	Alaska DOT&PF		Type: **Shrub Wetland**
Dominant Cowardin Classification?	**PSS1*, PSS4***	Lat 65.513°N / Long -148.791°W	Potential Impact Acres: 185.3 acres
Wetland Acres	185.3 acres	Prepared by: Luke Gasek	Evaluation based on:
Adjacent Land use	undeveloped land	Date Sep-13	Office [ ] [x] Field
Distance to nearest road or development:	Adjacent, to 1 mile from Dalton Highway	Borough/City FNSB	Corps Manual Wetland Delineation Complete?
		Subregion Interior	Yes [x] [ ] No

Hydrology	Yes	No
Is wetland a separate hydraulic system?		x
If not where is location in drainage basin?	Lost Creek, West Fork	
# of tributaries contributing to wetland	Tolovana River	

Habitat	Yes	No
Is this wetland part of wildlife corridor or habitat island?		x
Does wetland have a contiguous undeveloped buffer?	x	
Is there evidence of substantial disturbance?		x

Comments:
These wetland bogs are dominated by shrub-level black spruce, with various willow species, Labrador tea, dwarf birch, and northern cranberry or lingonberry (Vaccinium vitis-idaea).

Comments: Wildlife movements are dispersed in these wetlands. Wetland buffers are mostly contiguous, undeveloped, and undisturbed.

Function/Service	**Function/Value Notably Present?** Yes*	No	**Degree Present** *	* H=High, M=Moderate, L=Low **Rationale/Comments**
Groundwater Recharge		x	L	Limited contribution, permafrost common
Flood flow Alteration		x	L	Absorbs & releases water, limited capacity, limited or no downstream development
Fish and Shellfish Habitat		x	L	Wetland provides no fish habitat or direct buffer to fish-bearing waters
Sediment/Toxicant Reduction		x	L	Upgradient watershed natural, with little sediment contribution
Nutrient Removal		x	L	Upgradient watershed natural, with no apparent adverse nutrient contribution
Production Export		x	L	Wetlands shed some leafy debris, distant from any potentially benefiting stream
Sediment/Shoreline Stability		x	L	Wetlands not in areas susceptible to shoreline erosion
Wildlife Habitat	x		M	Provides habitat for moose, furbearers, upland birds. Similar habitat is common in area.
Recreation	x		M	Wetlands of minimal recreational use; some hunting popular in this region
Education/Scientific Value	x		M	Similar wetlands are present in more readily reachable locations for study
Uniqueness/Heritage		x	L	Wetland type common and abundant in the region
Visual Quality/Aesthetics		x	L	Wetlands are not readily visible from nearby roads or paths; wetland type common
Endangered Species Habitat		x	L	No listed or proposed species documented in area
Other:		x	L	No substantial known contribution to subsistence provision

OVERALL Assessment Rating **Low-Category III** Rationale: Wetland has no elevated specific functions or values. Similar habitats and wetland values are abundant in the area.

Wetland Function and Services Assessment Form

Project/Site **(#60913)**	**Dalton Highway MP 0-9 Realignment**	Wetland IDs: 10	Estimated Wetland Impact Type: **Shrub-Forested Wetland**
Applicant/Owner	Alaska DOT&PF		
Dominant Cowardin Classification?	**PSS1/FO4B**	Lat 65.513°N / Long -148.791°W	Potential Impact Acres: 1.0 acres
Wetland Acres	1.0 acres	Prepared by: Luke Gasek	Evaluation based on:
Adjacent Land use	undeveloped land	Date Sep-13	Office [ ] [x] Field
Distance to nearest road or development:	1 mile from Dalton Highway	Borough/City FNSB	Corps Manual Wetland Delineation Complete?
		Subregion Interior	Yes [x] [ ] No

Hydrology	Yes	No
Is wetland a separate hydraulic system?		x
If not where is location in drainage basin?	Lost Creek, West Fork	
# of tributaries contributing to wetland	Tolovana River	

Comments:
These wetland bogs have a sparse tree layer of black spruce, with a shrub layer of black spruce, willows, bog blueberry, lingonberry and Labrador tea.

Habitat	Yes	No
Is this wetland part of wildlife corridor or habitat island?		x
Does wetland have a contiguous undeveloped buffer?	x	
Is there evidence of substantial disturbance?		x

Comments: Wildlife movements are dispersed in these wetlands. Wetland buffers are mostly contiguous, undeveloped, and undisturbed.

Function/Service	**Function/Value Notably Present?** Yes*	No	**Degree Present** *	* H=High, M=Moderate, L=Low **Rationale/Comments**
Groundwater Recharge		x	L	Limited contribution, permafrost common
Flood flow Alteration		x	L	Absorbs & releases water, limited capacity, limited or no downstream development
Fish and Shellfish Habitat		x	L	Wetland provides no fish habitat or direct buffer to fish-bearing waters
Sediment/Toxicant Reduction		x	L	Upgradient watershed natural, with little sediment contribution
Nutrient Removal		x	L	Upgradient watershed natural, with no apparent adverse nutrient contribution
Production Export		x	L	Wetlands shed some leafy debris, distant from any potentially benefiting stream
Sediment/Shoreline Stability		x	L	Wetlands not in areas susceptible to shoreline erosion
Wildlife Habitat	x		M	Provides habitat for moose, furbearers, upland birds. Similar habitat is common in area.
Recreation	x		M	Wetlands of minimal recreational use; some hunting popular in this region
Education/Scientific Value	x		M	Similar wetlands are present in more readily reachable locations for study
Uniqueness/Heritage		x	L	Wetland type common and abundant in the region
Visual Quality/Aesthetics		x	L	Wetlands are not readily visible from nearby roads or paths; wetland type common
Endangered Species Habitat		x	L	No listed or proposed species documented in area
Other:		x	L	No substantial known contribution to subsistence provision

OVERALL Assessment Rating **Low-Category III** Rationale: Wetland has no elevated specific functions or values. Similar habitats and wetland values are abundant in the area.

Standard Checklist

Name of Riparian-Wetland Area: R3UBH

Date: September 2013 Segment/Reach ID: Lost Creek, West Fork Tolovana

Miles: XX Acres: 4.719ac

ID Team Observers: LG, CH

Yes	No	N/A	HYDROLOGY
X			1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X			4) Riparian-wetland area is widening or has achieved potential extent
X			5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high-streamflow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate riparian-wetland vegetative cover is present to protect banks and dissipate energy during high flows
X			12) Plant communities are an adequate source of coarse and/or large woody material (for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
X			13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
		X	14) Point bars are revegetating with riparian-wetland vegetation
X			15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

(Revised 1998)

Remarks

Summary Determination

Functional Rating:

Proper Functioning Condition	X
Functional—At Risk	
Nonfunctional	
Unknown	

Trend for Functional—At Risk:

Upward	
Downward	
Not Apparent	X

Are factors contributing to unacceptable conditions outside the control of the manager?

Yes	
No	X

If yes, what are those factors?

___ Flow regulations ___ Mining activities ___ Upstream channel conditions
___ Channelization ___ Road encroachment ___ Oil field water discharge
___ Augmented flows ___ Other (specify)_____

Standard Checklist

Name of Riparian-Wetland Area: R4UBH

Date: June 2014 Segment/Reach ID:

Miles: XX Acres: 0.073

ID Team Observers: LG, AM

Yes	No	N/A	HYDROLOGY
	X		1) Floodplain above bankfull is inundated in "relatively frequent" events
		X	2) Where beaver dams are present they are active and stable
X			3) Sinuosity, width/depth ratio, and gradient are in balance with the landscape setting (i.e., landform, geology, and bioclimatic region)
X			4) Riparian-wetland area is widening or has achieved potential extent
X			5) Upland watershed is not contributing to riparian-wetland degradation

Yes	No	N/A	VEGETATION
X			6) There is diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)
X			7) There is diverse composition of riparian-wetland vegetation (for maintenance/recovery)
X			8) Species present indicate maintenance of riparian-wetland soil moisture characteristics
X			9) Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high-streamflow events
X			10) Riparian-wetland plants exhibit high vigor
X			11) Adequate riparian-wetland vegetative cover is present to protect banks and dissipate energy during high flows
	X		12) Plant communities are an adequate source of coarse and/or large woody material (for maintenance/recovery)

Yes	No	N/A	EROSION/DEPOSITION
	X		13) Floodplain and channel characteristics (i.e., rocks, overflow channels, coarse and/or large woody material) are adequate to dissipate energy
	X		14) Point bars are revegetating with riparian-wetland vegetation
	X		15) Lateral stream movement is associated with natural sinuosity
X			16) System is vertically stable
X			17) Stream is in balance with the water and sediment being supplied by the watershed (i.e., no excessive erosion or deposition)

(Revised 1998)

Remarks

Summary Determination

Functional Rating:

Proper Functioning Condition	X
Functional—At Risk	
Nonfunctional	
Unknown	

Trend for Functional—At Risk:

Upward	
Downward	
Not Apparent	X

Are factors contributing to unacceptable conditions outside the control of the manager?

Yes	
No	X

If yes, what are those factors?

___ Flow regulations ___ Mining activities ___ Upstream channel conditions
___ Channelization ___ Road encroachment ___ Oil field water discharge
___ Augmented flows ___ Other (specify)_____

APPENDIX C-2

Criteria Used to Evaluate Wetland and Riverine Habitats

Criteria Used to Evaluate Wetland and Riverine Habitats

(WSDOT. 2000. *Wetland Functions Characterization Tool for Linear Projects*, and USDOI. 1998. Bureau of Land Management. *Riparian Area Management: A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas*.)

Wetland and riverine functions are self-sustaining properties of an ecosystem that exist in the absence of society. Their functions result from both biotic and abiotic components. These functions are valuable to society, and it is important to compensate for wetland or riverine loss based on the functional value of an impacted area. Wetland and riverine systems may perform vastly different functions due to their differing characteristics and properties. As such, different criteria are used to evaluate the two types of systems. Wetland and riverine systems were grouped into categories for evaluation, based on similar functions, to accurately relate the contributions to the environment. Wetland or riverine areas with significantly different functions were evaluated independently.

Wetland functional values are based on physical, chemical, biological, and social attributes of a system. The relative condition or presence of 14 different processes and attributes associated with each wetland function is evaluated for each wetland in the study area. These criteria are as described by *Wetland Functions Characterization Tool for Linear Projects,* (WSDOT, 2000) and encompass hydrological, water quality, ecological, and social parameters. Based on these criteria, wetlands are assigned a functional of high, medium, or low.

Riverine systems are evaluated based on the provision or absence of 17 functions outlined in *Riparian Area Management: A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas (*USDOI, 1998). This qualitative approach assesses the condition of riverine systems as functioning properly, functioning at risk, non-functional, or unknown. If a system is functioning at risk, an estimation is made as to whether the function is trending upward, downward, or if the trend is not apparent.

Wetland Functions

Each category of wetlands was evaluated on 14 functions, and their characteristics, listed below (WSDOT. 2000). Using best professional judgment a yes/no determination was evaluated for each function. In general, a wetland that fulfilled many characteristics of a function is evaluated as possessing that function. In the overall study area, wetlands of different categories were ranked into categories of low, medium, and high value based on the number of functions an individual wetland contains. Explanations for each yes/no determination were noted in the Wetland Function Form.

14 Wetland Functions (and their characteristics)

PHYSICAL/CHEMICAL/BIOLOGICAL FUNCTIONS

Flood Flow Alteration (Storage and Desynchronization)

1. Wetland occurs in the upper portion of its watershed.
2. Wetland is in a relatively flat area and is capable of retaining higher volumes of water during storm events, than under normal rainfall conditions.
3. Wetland is a closed (depressional) system.
4. If flowthrough, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris.
5. Wetland has dense woody vegetation.
6. Wetland receives floodwater from an adjacent water course.
7. Floodwaters come as sheet flow rather than channel flow.

Sediment Removal

1. Sources of excess sediment (from tillage or construction) are present upgradient of the wetland.
2. Slow-moving water and/or a deepwater habitat are present in the wetland.
3. Dense herbaceous vegetation is present.
4. Interspersion of vegetation and water is high in wetland.
5. Ponding of water occurs in the wetland.
6. Sediment deposits are present in wetland.

Nutrient and Toxicant Removal

1. Sources of excess nutrients (fertilizers) and toxicants (pesticides and heavy metals) are present upgradient of the wetland.
2. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season.
3. Wetland provides long duration for water detention.
4. Wetland has at least 30% areal cover of live dense herbaceous vegetation.
5. Fine-grained mineral or organic soils are present in the wetland.

Erosion Control and Shoreline Stabilization

If associated with water course or shoreline.
1. Wetland has dense, energy absorbing vegetation bordering the water course and no evidence of erosion.
2. An herbaceous layer is part of this dense vegetation.
3. Trees and shrubs able to withstand erosive flood events are also part of this dense vegetation.

Production of Organic Matter and its Export

1. Wetland has at least 30% areal cover of dense herbaceous vegetation.
2. Woody plants in wetland are mostly deciduous.
3. High degree of plant community structure, vegetation density, and species richness present.
4. Interspersion of vegetation and water is high in wetland.
5. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season.
6. Wetland has outlet from which organic matter is flushed.

General Habitat Suitability

1. Wetland is not fragmented by development.
2. Upland surrounding wetland is undeveloped.
3. Wetland has connectivity with other habitat types.
4. Diversity of plant species is high.
5. Wetland has more than one Cowardin Class, i.e.,(PFO, PSS, PEM, PAB, POW, etc.)
6. Has high degree of Cowardin Class interspersion.
7. Evidence of wildlife use, e.g., tracks, scat, gnawed stumps, etc., is present.

Habitat for Aquatic Invertebrates

Wetland must have permanent or evidence of seasonal inundation for this function to be provided.
1. Various water depths present in wetland
2. Aquatic bed vegetation present.
3. Emergent vegetation present within ponded area.
4. Cover (i.e., woody debris, rocks, and leaf litter) present within in the standing water area.
5. A stream or another wetland within 2 km (1.2 mi) of wetland.

Habitat for Amphibians

1. Wetland contains areas of seasonal and/or permanent standing water in most years. (*Must be present for this function to be provided*)
2. Thin-stemmed emergent and/or floating aquatic vegetation present within areas of seasonal and/or perennial standing water.
3. Wetland buffer < 40% developed, i.e., by pavement and/or buildings.
4. Woody debris present within wetland.

5. Lands within 1 km (0.6 mi) of wetland are greater than or equal to 40% undeveloped (e.g., green belts, forest, grassland, agricultural).
6. Other wetlands and/or an intermittent or perennial stream within 1 km (0.6 mi) of wetland.

Habitat for Wetland-Associated Mammals

1. Permanent water present within the wetland. (*Must be present for this function to be provided*)
2. Presence of emergent vegetation in areas of permanent water.
3. Areas containing dense shrubs and/or trees are present within wetland or its buffer.
4. Interspersion between different strata of vegetation.
5. Interspersion between permanent open water (without vegetation) and permanent water with vegetation.
6. Presence of banks suitable for denning.
7. Evidence of wildlife use, e.g., dens, tracks, scat, gnawed stumps, etc., is present.

Habitat for Wetland-Associated Birds

1. Wetland has 30 to 50% shallow open water and/or aquatic bed classes present within the wetland.
2. Emergent vegetation class present within the wetland.
3. Forested and scrub-shrub classes present within the wetland or its buffer.
4. Snags present in wetland or its buffer.
5. Sand bars and/or mud flats present within the wetland.
6. Wetland contains invertebrates, amphibians, and/or fish.
7. Buffer contains relatively undisturbed grassland shrub and/or forest habitats.
8. Lands within 1 km (0.6 mi) of the wetland are greater than or equal to 40% undeveloped (e.g., green belts, forest, grassland, agricultural).

General Fish Habitat

(*Must be associated with fish-bearing water*)
1. Wetland has a perennial or intermittent surface-water connection to a fish-bearing water body
2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter.
3. Observation of fish.
4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter.
5. Spawning areas are present (aquatic vegetation and/or gravel beds).

Native Plant Richness

1. Dominant and co-dominant plants are native.
2. Wetland contains two or more Cowardin Classes.
3. Wetland has three or more strata of vegetation.
4. Wetland has mature trees.

SOCIAL FUNCTIONS and VALUES

The methodology identified in the main body of the report and used to evaluate the biological and chemical functions of wetlands is limited as a method for assessing social values. The criteria to assess social functions and values are: Educational or Scientific Value and Uniqueness and Heritage. Such an approach is not applicable or very helpful in Alaska as these criteria were developed in areas of the Lower 48 states where development, pollution and exotic species are direct threats to wetlands.

To better assess and more accurately identify a wetland habitats social functions and values, two categories are used in which wetlands are useful to humans: consumptive uses and non-consumptive uses. These two categories are described in R.A. Post's 1996 'Functional Profile of Black Spruce Wetlands in Alaska.'

Consumptive

Subsistence and personal uses of wetland resources include harvests of fuel, food, and other plant and animal materials largely for direct consumption, distribution, or barter.

Non-consumptive

Active and passive recreation, nature education, appreciation of geomorphic features and preservation of scarce space.