

Appendix C

Wetlands Reports

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**WETLANDS DETERMINATION, FUNCTIONAL ASSESSMENT AND
HABITAT ASSESSMENT FOR PROPOSED KIANA AIRSTRIP
IMPROVEMENTS, ALASKA**

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INTRODUCTION

The Northern Region Alaska Department of Transportation & Public Facilities is proposing improvements to the Kiana Airstrip, including lengthening the runway and upgrading or relocating the apron. A material site located approximately 2.5 miles northwest of the airport may be used as a gravel source for these efforts. To satisfy permitting requirements associated with the project, ABR, Inc.—Environmental Research & Services (ABR) performed a wetlands assessment, wetland functional assessment, and wildlife habitat assessment in support of the U.S. Army Corps of Engineers (USACE) Section 404 wetland permit application process.

The study area for the project is nearly 320 acres in size, comprising a 100-ft buffer around the proposed material site (T19N, R8W, Section 31, and T18N, R8W Section 6, Kateel River Meridian, -160.504° 67.000° WGS 1984) and airstrip improvements (T18N, R8W, Sections 8 and 9, Kateel River Meridian, -160.443° 66.976° WGS 1984, Figure 1). Kiana is located in the Northwest Arctic Borough, approximately 57 miles east of Kotzebue. Kiana is located on a bluff overlooking the confluence of the Kobuk and Squirrel rivers, within the Interior Forested Lowlands and Uplands ecoregion (Gallant et al. 1995). This ecoregion has a continental climate, with undifferentiated alluvium and slope deposits over primarily sedimentary rocks (Gallant et al. 1995). Kiana is located in the western portion of the ecoregion, which is underlain by thin to thick permafrost, and dominated by spruce and hardwood forests.

METHODS

FIELD SURVEY

Routine wetland determinations were performed following the USACE three-parameter approach (Environmental Laboratory 1987, USACE 2007) at each wetland determination plot. To be classified as a wetland, a site must be dominated by hydrophytic plants, have hydric soils, and show evidence of a wetland hydrologic regime. A mobile *Trimble® Nomad™* series GIS unit recorded the wetlands data (using the *WetForm* database) and GPS location, and provided field access to aerial imagery. *WetForm* is a proprietary relational database used to enter wetlands site data in the field, and facilitates the preparation of electronic copies of the USACE (2007) Regional Supplement dataform for each wetland determination plot (Appendix A).

Wetland determination plots consisted of a 10-m radius of homogenous vegetation, as specified by the 1987 Manual, although size and dimensions were modified as necessary to accurately characterize the plant community (e.g. a narrow plot to capture a riparian system). The absolute cover of each vascular plant species within the plot was visually estimated and the presence of hydrophytic vegetation was determined using the Dominance Test (ratio of wetland versus upland dominant plants) and/or the Prevalence Index (weighted average of all species present), using the wetland indicator status per the *2012 National Wetland Plant List: Alaska* (Lichvar and Karsetz 2012).

Hydric soils form under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper 12 inches of the soil. Hydric soils often have thick organic deposits (histosols, histels, or histic epipedons) or have a low-chroma mineral soil matrix color with redoximorphic features, indicating a reducing environment. Soil pits were excavated to approximately 18 inches or to the depth of the active layer, if shallower, and the soil profile was described. Key characteristics, including color (*Munsell Soil Color Charts* 2009) and abundance of redoximorphic features were recorded. Soil profile descriptions also were compared with hydric soil criteria in the most current version of the *Field Indicators of Hydric Soils in the United States* (USDA NRCS 2010).

Wetland hydrology is defined as the presence of flooded or ponded surface water or saturation within the upper 12-inches of the soil profile, for at least 14 consecutive days during the growing season at a minimum frequency of 5 years out of 10. Surface and subsurface direct and indirect indicators of wetland hydrology were recorded at each site, including surface water, saturated soils, presence of and depth to water table, drift or sediment deposits, drainage patterns, and geomorphic position, as summarized in the standard USACE wetland determination dataform (USACE 2007).

Photos of soils and vegetation were taken at each plot (Appendix B). Additional information collected at each wetland determination plot included physiography, surface form, Viereck Level IV (Viereck et al. 1992) vegetation class, and observations of wildlife use (e.g. dens, browse, scat) or human activity (e.g. fish racks, ATV trails).

In some cases, rapid verification plots also were sampled to help map wetlands, vegetation, and wildlife habitats. On field verification plots the dominant plant species, Cowardin et al. (1979) code, and Viereck et al. (1992) Level IV vegetation class were recorded, in addition to site photographs and GPS location. Verification plots were typically sampled in areas where the wetland or upland status was well documented in the data from formal wetland determination plots. The data from verification plots were used to improve map accuracy by increasing the number of documented wetland ecotypes tagged to particular aerial photosignatures (Appendix A).

WETLANDS MAPPING AND CLASSIFICATION

Wetland boundaries were mapped on-screen using heads-up digitizing in ArcGIS software, the predominant approach employed by the U.S. Fish and Wildlife Service's National Wetlands Inventory program (NWI) (Dahl et al. 2009). Wetlands and waters were mapped at a scale of 1:2,000. Wetlands and waters were categorized per Cowardin et al. (1979) using NWI annotation, which describes the dominant vegetation and water regime.

In addition to assigning Cowardin codes, each wetland polygon was assigned a physiography and Level IV (Viereck et al. 1992) vegetation code. Physiography codes are generalized geomorphologic features used to describe landscape position. Viereck Level IV vegetation classification uses plant species composition and community structure to classify common plant communities in Alaska. We combined the three mapped categories (Physiography, Cowardin code and Viereck code) to produce a set of unique land-cover types and then aggregated these distinct landcover types into broader ecologically related categories. For the purposes of this study, we aggregated the Cowardin Classes into Wetland Functional Classes for descriptive and functional assessment purposes (as described in the Functional Assessment methodology below).

No NWI maps, digital or non-digital, were available for the study area in Kiana (USFWS 2012). Thus, the mapping inputs were limited to aerial imagery, topographic contours, and field data.

Wetlands and waters within the study area were assessed to determine if they met the definition of a water of the U.S., subject to jurisdiction under Section 404 of the Clean Water

Act, and a navigable water of the U.S., which is also subject to jurisdiction under Section 10 of the Rivers and Harbors Act. Navigable waters of the U.S. are defined as “those waters subject to the ebb and flow of the tide shoreward to the mean high water mark and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity” (33 CFR 329). Waters of the U.S. are defined as navigable waters of the U.S.; tributaries to navigable waters of the U.S.; wetlands, lakes, and ponds adjacent to navigable waters or their tributaries; and other waters of the U.S. whose degradation or destruction could affect interstate or foreign commerce (40 CFR 230.3[s])

FUNCTIONAL ASSESSMENT

A functional assessment was performed for each Wetland Functional Class using a rapid assessment procedure based on the *Literature Review and Evaluation Rationale of the Wetland Evaluation Technique* (Adamus et al. 1991), the *Rapid Procedure for Assessing Wetland Functional Capacity* (Magee 1998), and recommendations summarized in a recent *Regulatory Guidance Letter* (RGL 09-01) (USACE 2009). This guidance includes a dataform for objectively evaluating wetland functions and values, using HGM principles. These criteria facilitate rapid assessment of the many landscape functions that are necessary for wetland ecosystem maintenance, including hydrology, water quality, wildlife and fisheries habitat, productivity, and supporting public needs, such as subsistence (Appendix C).

Hydrologic, water quality, ecologic, and sociologic functions performed by wetlands and waters in the project area were assessed through a combination of interpreting satellite imagery, reviewing field data, and examining local topography. These sources were used to inform environmental conditions and characteristics for each Wetland Functional Class, including the size, landscape position, fish and wildlife use, plant community structure, and hydrologic regime, and used to rate each Wetland Functional Class as low, moderate, or high, reflecting both the capability and opportunity for a given function to be performed.

Hydrologic functions assess the ability of a wetland to interact with surface and/or groundwater. Two general processes were evaluated:

- Flood Flow Regulation – detention of surface water (and to some degree groundwater) flow and consequential moderation of downstream flooding.
- Erosion Control and Shoreline Stabilization – degree to which the wetland can reduce erosion.

Water quality functions include the ability of a wetland to detain sediments, toxicants, and nutrients, and to export organic matter. Two general processes were evaluated:

- Sediment, Nitrogen and Toxicant Removal – retention of suspended sediment and associated toxicants, and the detention and transformation of nitrogen and phosphorus, from surface water entering the wetland.
- Organic Matter Production & Export – production of organic matter (primarily through plant growth) and contribution of organic matter to the food web.

Ecological functions assess the relative ability of a wetland to support fish and wildlife populations and provide species and habitat diversity. Three general characteristics of each Wetland Functional Class were assessed:

- General Habitat Suitability – direct support of mammals and birds.
- Fish Habitat – direct support of fish.
- Native Plant Richness – direct support of vascular plant species diversity.

Sociological functions assessed ecological services under two broad categories:

- Subsistence/Recreational/Educational/Scientific use – direct support of hunting and gathering activities, travel, and/or education including scientific research.
- Uniqueness and Special Status – support of state or federally listed species, high quality habitat, presence of rare features, and/or support of functions not commonly provided within the watershed.

Based on the functional assessment outputs, wetlands and waters within the project area were categorized following the guidelines outlined in Appendix A of RGL 09-01:

Category I – High functioning wetlands – Uncommon wetlands that: 1) provide a documented life support function for threatened or endangered species; 2) represent a high

quality example of a rare wetland; 3) are rare within a given region; or, 4) are undisturbed and contain ecological attributes that are impossible or difficult to replace within a generation, if at all.

Category II – High to moderate functioning wetlands – Wetlands that: 1) provide habitat for very sensitive or important wildlife or plants; 2) are difficult to replace (such as bogs); or 3) provide very high functions, particularly for wildlife habitat.

Category III – Moderate to low functioning wetlands —Wetlands that are important for a variety of wildlife species and can provide watershed protection functions depending on where they are located. Generally these wetlands will be smaller and/or less diverse in the landscape than Category II wetlands. These wetlands may have experienced some form of degradation, but to a lesser degree than Category IV wetlands.

Category IV – Degraded or low functioning wetlands —The smallest, most isolated and least diverse wetlands that have likely been degraded by human activities.

HABITAT ASSESSMENT

Wildlife habitats were derived by integrating information from Cowardin et al. (1979) codes, Viereck (et al. 1992) Level IV vegetation classifications, and landscape characteristics (physiography). This process is similar to that used for classifying Wetland Functional Classes, except that upland vegetation types are included and the wildlife habitat classification aggregates vegetation and landscape data by characteristics considered important to wildlife, such as food availability, security (or escape), and shelter. These factors may be directly related to vegetation structure, forage quality or quantity, soils, hydrology, microtopography, and/or microclimate.

Incidental observations of wildlife were recorded during the wetland field survey in August. We conducted a literature review to identify the wildlife species likely to occur in the area, to summarize available information about wildlife-habitat relationships in the region, and to identify the wildlife habitats that may be important for each species. The importance of a habitat to a species may be a function of the seasonal availability of food or cover, the physical structure of vegetation, landscape physiography, or the spatial and temporal arrangement of habitat (Adamus et al. 1991). Habitats may be seasonally important for foraging; nesting, denning, or calving; predator protection or escape terrain; or for other important behavioral or life-history

functions. The habitat assessment identified the wildlife habitats important for each species present.

RESULTS

FIELD SURVEY

One team of two scientists (Susan Ives and Erin Johnson [ABR]) collected wetlands, vegetation, and wildlife habitat field data from 20 to 23 August 2012. Survey dates were selected to be well within the median dates of the onset of vegetation green-up in spring and vegetation senescence in fall, as specified in the 2007 Regional Supplement. Standard USACE field determinations were completed at 48 sites and verifications (rapid assessment technique to confirm previously documented conditions) were completed at 21 sites (Appendices A and B).

The Bureau of Land Management maintains a Remote Automated Weather Station (RAWS) in Kiana (WRCC 2012), with limited data available from April 1988 to October 2012. August air temperature in 2012 (56.2 °F) was slightly above the 10-year mean (54.6 ± 3.1 °F, $\bar{X} \pm 1SD$) for August, while total precipitation for August (5.35 inches) was 2.36 inches greater than the monthly 10-year mean (2.99 ± 1.55). The bulk of this precipitation, 3.68 inches, fell on or before August 23. Many waters were at flood stage during the field effort, and understory vegetation in riparian communities is likely underestimated due to the volume of water. All wetland sites showed direct indicators of wetland hydrology (A1: Surface Water, A2: High Water Table, and/or A3: Saturation), giving confident determinations of this ephemeral parameter.

WETLANDS MAPPING AND CLASSIFICATION

We identified 15 Cowardin classes in the study area, 2 of which were considered Waters of the U.S. (non-navigable), 11 vegetated wetland types, and 2 non-wetland types (uplands). All wetlands and waters within the study area are likely jurisdictional due to their direct downstream connection to the Kobuk River.

CONNECTION TO NAVIGABLE WATERS

The Kobuk River is a navigable water in the vicinity of Kiana (ADNR 2012), subject to Section 10 of the Rivers and Harbors Act. ADNR (2012) lists the navigability of the Squirrel River, a tributary to the Kobuk River, as unknown, although it is large enough that it is likely

navigable in-fact and thus also under the aegis of Section 10 of the Rivers and Harbors Act. The average annual flow for the Kobuk River near Kiana ranged from 10,020 to 24,960 cubic feet per second from 1977–1999 (Brabets 2001). Late October to late May are low flow periods, with flow rapidly increasing in late June due to snowmelt. Flow for the remainder of the summer on the Kobuk River varies with precipitation, but generally decreases in October with the onset of winter (Brabets 2001). The Kobuk and Squirrel rivers are outside of the Kiana airport study area but mapped wetlands are all directly connected to smaller connected tributaries.

WATERS

Waters within the study area comprised Upper Perennial Streams (R3UBH) and Permanently Flooded Ponds (PUBH). An Upper Perennial Stream that runs along the eastern boundary of the Material Site flows north through a series of ponds, then connects to the Squirrel River, a tributary to the Kobuk River (Figure 1). Of the two Upper Perennial Streams mapped in the vicinity of the Kiana Airstrip, one is located west of the existing Kiana Airstrip, and flows south into the Kobuk River. The second stream flows east into a pond that is directly connected to Squirrel River through a series of saturated wetlands. The USGS topographic map (1:63,360) shows two additional streams west of the Kiana Airstrip, however no channel morphology (bed and banks) was observed in the field and thus, these features were mapped as vegetated seasonally flooded Cowardin classes.

Two Permanently Flooded Ponds were mapped: one small portion of a pond in the Material Site study area, and one moderately sized pond west of the Airstrip. The pond in the Material Site study area is associated with the Upper Perennial Stream flowing into the Squirrel River.

The two larger perennial streams within the overall study area effectively connect all adjacent wetlands to the nearest Traditional Navigable Water [(TNW) Kobuk River]. While the small pond to the west of the runway is not connected to the Upper Perennial River via a visible surface connection it is completely surrounded by vegetated wetlands that are directly adjacent. We consider all of the mapped Upper Perennial Streams to be Relatively Permanent Waters (RPW), with constant flow throughout the growing season.

WETLANDS

Emergent and shrub-dominated wetlands are the most common types found in the Airport and Material site study areas, although the emergent classes are confined to the Airport study area. Emergent wetlands range in hydrologic regime from saturated to permanently flooded (PEM1H, PEM1F, PEM1E, and PEM1B), with Saturated Emergent Meadow (PEM1B) being the most prevalent (3.19 acres, 1.51%). This wetland type was primarily associated with disturbed surfaces alongside the existing airport runway and consisted primarily of *Calamagrostis canadensis* (bluejoint grass) (Table 1, Figure 2.1 and 2.2). The permanently flooded, semi-permanently flooded and seasonally flooded saturated emergent types reflect a lacustrine fringe gradient associated with the larger pond west of the airport. Combined, they account for 4.34 acres (2.05%) (Table 1). Common species include *Eriophorum angustifolium* (tall cottongrass), *Carex utriculata* (Northwest Territory sedge), *Arctophila fulva* (pendantgrass), *Equisetum fluviatile* (water horsetail), and *Comarum palustre* (purple marshlocks). Surface water (A1 hydrology indicator) is present throughout. Additional PEM1H and PEM1F wetlands occur as small depressions north of the runway and within a drainage feature connected to the stream running west of the airport (Figure 2.1 and 2.2).

Deciduous shrub-dominated Cowardin Classes were the most commonly occurring wetland types throughout both the airstrip and the material site. Five Cowardin deciduous shrub dominated classes (PSS1C, PSS1B, PSS3/1B, PSS1/3B and PSS1/4B) were identified in the field survey. The combined map percentages for the shrub classes are 61.43 % (129.90 acres) of the airport area and 69.31 % (74.47 acres) of the material site area. The PSS1C class describes the riparian area bordering the two Upper Perennial Streams detailed above. The dominant willow species in these areas was *Salix richardsonii*, with an understory often supporting a thick emergent layer of *Calamagrostis canadensis* and *Carex aquatilis*. During the field visit these areas were inundated due to recent rain events, but the soils were presumed to be hydric. The remaining 4 Cowardin shrub classes describe the range of species variability seen in the needleleaf woodland wetlands that dominate the area surrounding Kiana. These wetland communities generally occur in a water-shedding, convex, sloping landscape positions, and comprise open canopy and woodland white spruce forests and dwarf white spruce woodlands. *Picea glauca* (white spruce) tall and dwarf trees are a defining component of these communities

(PSS4), often with co-dominant *Salix* spp. (willows), *Betula glandulosa* (resin birch), and *Vaccinium uliginosum* (bog blueberry) shrubs. The herb layer was typically species-poor, but generally included *Carex bigelowii* (Bigelow's sedge). All soils were saturated within the upper 12 inches (A3: Saturation), and ranged from Histosols (A1: Histosol or Histel) to silty clay loam meeting the hydric soil requirement A14:Alaska Redox.

One forested wetland (PFO4B) was identified at two field sites (K_01 and K_V01). This wetland was between the airport runway and the town site, and includes a mixed stand of black spruce and white spruce with a similar understory to the needleleaf woodland classes described above. Forested wetlands were uncommon in the Airport study area, although several forested upland habitats are present.

UPLANDS

Both naturally occurring uplands (U, 36.44 acres, 17.23 % of the study area) and fill or urbanized uplands (Us, 32.89 acres, 15.55 % of the study area) were mapped within the airport study area. The material site includes only undisturbed uplands (32.61 acres, 30.25 % of the study area)(Table 1). Fill or urbanized areas (Us) comprise the existing Airstrip, apron, roads, cemetery, and residential areas within the study area. Naturally occurring uplands (U) were predominantly non-wetland needleleaf forest and woodland or low and tall willow scrub communities located on steep slopes and bluffs, as well as smaller rounded knobs. Uplands disturbed by Airstrip construction, but that appeared fully revegetated, were also mapped as naturally occurring uplands (U).

FUNCTIONAL ASSESSMENT

The 15 Cowardin Classes were aggregated into 9 Wetland Functional Classes. The Wetland Functional Classes are intended to represent groups of functionally similar wetlands suitable for individual evaluation using the USACE recommended RGL 09 data sheet. Aggregations were made based on similarities in landscape position or physiography, hydrology and plant species composition (Table 2).

The wetland functional assessment evaluated the hydrologic, water quality, ecologic, and sociologic functions of each Wetland Functional Class and is ultimately used to classify Wetland Functional Classes into Categories II–III (Table 3) for use in permitting and compensatory

mitigation negotiations. No federally listed endangered species have been documented within the study area, and no designated critical habitat is present within the study area. No wetlands within the study area have been granted a special managerial or conservation status, or have rare or scarce biologic, geologic, or functional features been documented within the study area. Thus, no wetlands were included in Category I. No wetlands were severely degraded, so no wetlands were included in Category IV.

Most Wetland Functional Classes within the study area ranked high for Educational, Scientific, Recreational, or Subsistence Use due to public ownership and evidence of ATV access. While it is possible that some study area wetlands are used for subsistence activities, there was no direct observation of consumptive use during the field visit.

With the exception of the Upper Perennial Stream, the seasonally flooded to permanently flooded Wetland Functional Classes scored highest (Table 3). These classes were generally higher functioning for hydrologic (Flood Flow Regulation; Erosion Control and Shoreline Stabilization) and water quality (Sediment, Nutrient, and Toxicant Removal, and Organic Matter Production and Export) functions. Palustrine Flooded Wet Emergent Meadow and Lacustrine Flooded Sedge-Grass Marsh occupy depressional features, whose greater retention times indicate a high level of functioning for water quality features. Riverine Seasonally Flooded Wet Sedge Meadow indicated a greater likelihood of providing fish habitat, and the dense herbaceous and woody vegetation characteristic of this wetland class, indicated a high level of functioning for Erosion Control and Shoreline Stabilization.

Saturated palustrine systems were ranked lower functioning for hydrologic and water quality functions due to their typical landscape positions (slopes and swales) and lack of direct connections to surface water features. Flood Flow Regulation was considered negligible in these communities due to a shallow active layer. The most common Wetland Functional Type, Palustrine Saturated Needleleaf-Shrub Birch Woodland, was ranked high for General Habitat Suitability as it was relatively undisturbed by development, included moderate vegetation interspersed and a relatively high evenness of cover, and moose and caribou sign were observed at multiple locations within this wetland type.

The Upper Perennial Stream, by definition, cannot perform Flood Flow Regulation, Erosion Control and Shoreline Stabilization, or contribute to Native Plant Richness. The lack of numerous velocity breaks (e.g. beaded streams) indicated that sediment, nutrient, and toxicant removal would only be performed at a low level. While we did not see any fish in the streams during our survey and the streams are not part of the Alaska Department of Fish & Game anadromous fish catalog, they likely support populations of resident fish. These streams connect to either the Squirrel or Kobuk Rivers, which are known to support populations of chum, Chinook, and pink salmon as well as Dolly Varden, sheefish, and whitefish (ADF&G 2012).

HABITAT ASSESSMENT

Eleven wildlife habitats were identified in the study area. At least 28 bird and 11 mammal species commonly occur in the study area (Table 4). No federally protected threatened or endangered species are likely to occur in the study area or in the Kiana region. The study area is outside the known nesting range for Bald Eagles, which also are federally protected, and no Bald Eagle nesting habitat is present. Most of the wildlife habitat in the study area is immediately adjacent to an existing airstrip and near the village of Kiana, and wildlife species with a low tolerance for human disturbance (e.g., wolves, wolverines) are likely to avoid the site.

Needleleaf Forest and Woodland is the dominant wildlife habitat at both the airport and material sites (192.12 acres). At the material site, only small areas of other wildlife habitats occur. Large tracts of forest are generally highly productive habitats because they provide forage and cover for a variety of wildlife species. Needleleaf Forest and Woodland supports numerous landbird species and almost all of the mammal species listed in Table 4. Signs of moose and caribou were observed within Needleleaf Forest and Woodland during the field investigation. Upland Broadleaf Forest is equally valuable to a high number of wildlife species, but is less common in the study area (2.71 acres), occurring only at the airport site.

Low Birch-Ericaceous Scrub and Low and Tall Willow Scrub are the second and third most common wildlife habitats in the study area (41.14 and 38.09 acres, respectively). These habitats support similar assemblages and a relatively high diversity of wildlife species. Numerous passerine bird species are associated with Low and Tall Willow Scrub and this habitat provides

valuable cover for a variety of small mammals. Tall Alder Scrub is similarly productive for wildlife, but is uncommon in the study area (0.99 acres).

A small amount of Bluejoint Meadow (2.98 acres) occurs in the study area, primarily in proximity to the existing airstrip infrastructure. Bluejoint Meadow supports a few of the common avian species and most of the mammals listed in Table 4. Due to the association of this habitat with human disturbance, however, the number of wildlife species using it is expected to be low. Similarly, Human Disturbed Barrens (0.96 acres) provide low quality habitat for only a few wildlife species that are tolerant of human disturbance.

Wet and aquatic habitats occur primarily in the western portion of the airport site and along a small stream bordering the mine site. The wildlife habitats in wetlands areas, Wet Sedge Meadow, Fresh Herb Marsh, Fresh Water Pond, and Upper Perennial Stream, are similarly attractive to wildlife because of the presence of riparian and aquatic vegetation. The importance of these habitats to wildlife in the study area is disproportional to the relatively small land area they occupy (7.02 acres combined). Fresh Water Pond may support up to four species of waterfowl and adjacent Fresh Herb Marsh and Wet Sedge Meadow may serve as nesting habitats for waterfowl and other species not common to more abundant, drier sites. Although these habitat types are less important for most mammals, moose are highly dependent on these areas in the summer for browse, temperature regulation, and mosquito avoidance.

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Table 1. Area of Waters of the U.S., wetlands, and uplands within the study area, Kiana, Alaska, 2012.

Cowardin Class	NWI ^a Code	Airport Area (Acres)	% of Airport Study Area	Material Site Area (Acres)	% of Material Site Study Area
NON-NAVIGABLE WATERS OF THE U.S.					
Upper Perennial Stream	R3UBH	0.39	0.18	0.35	0.33
Permanently Flooded Pond	PUBH	1.72	0.81	0.01	0.01
	Total	2.11	0.99	0.36	0.34
WETLANDS					
Permanently Flooded Emergent Marsh	PEM1H	1.76	0.83		
Semi-permanently Flooded Emergent Meadow	PEM1F	0.18	0.09		
Seasonally Flooded Saturated Emergent Meadow	PEM1E	2.40	1.14		
Saturated Emergent Meadow	PEM1B	3.19	1.51		
Seasonally Flooded Deciduous Shrub Scrub	PSS1C	3.91	1.85	3.07	2.86
Saturated Deciduous Shrub Scrub	PSS1B	81.55	38.56	28.32	26.35
Saturated Broadleaf Evergreen/Deciduous Shrub Scrub	PSS3/1B	11.30	5.34		
Saturated Deciduous Shrub/Broadleaf Evergreen Scrub	PSS1/3B			25.67	23.90
Saturated Deciduous Shrub/Needleleaf Evergreen Scrub	PSS1/4B	33.15	15.68	17.41	16.20
Saturated Needleleaf Evergreen Forest	PFO4B	2.59	1.22		
	Total	140.03	66.22	74.47	69.31
NON-WETLANDS					
Upland	U	36.44	17.24	32.61	30.35
Upland Fill	Us	32.89	15.55		
	Total	69.33	32.79	32.61	30.35
	Grand Total	211.47	100.00	107.44	100.00

^a National Wetland Inventory (NWI) annotation based on the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979).

Table 2. Wetland Functional Class Descriptions for the Kiana airport improvements project area and proposed material site area, Kiana Alaska.

Wetland Functional Class	Description
Upper Perennial Stream	Two unnamed streams flow through the study area. One flows north through the proposed material site connecting directly to Squirrel River and the other one flows south through the airport area to the Kobuk River. Upper Perennial Streams were mapped as Cowardin Class, R3UBH. They are narrow channels with small riparian areas composed of wet shrub scrub wetland types.
Permanently Flooded Pond	There are two Permanently Flooded Ponds in the study area. The larger pond is located west of the airport runway and the smaller one is an impoundment in the stream flowing through the proposed material site. Ponds were mapped as Cowardin Class, PUBH. They consist of shallow open water and in the case of the margins of the larger pond a littoral fringe has developed.
Palustrine Flooded Wet Emergent Meadow	Occur in small depressional features surrounded by saturated tundra types north of the airport runway. Mapped as Cowardin Classes PEM1H and PEM1F. Permanently flooded with a variety of obligate wetland emergent plants including <i>Eriophorum angustifolium</i> , <i>Comarum palustre</i> , <i>Equisetum fluviatile</i> and <i>Carex utriculata</i> .
Lacustrine Flooded Sedge-Grass Marsh	Describes a series of lacustrine fringe wetland types at the edge of the larger Permanently Flooded Pond west of the runway. Mapped as Cowardin Classes PEM1E and PEM1H. Communities are dominated by obligate wetland emergent plants such as <i>Arctophila fulva</i> , <i>Equisetum fluviatile</i> , <i>Carex utriculata</i> and <i>Eleocharis palustris</i> . Surface water is present throughout.

Table 2. Continued.

Wetland Functional Class	Description
Riverine Seasonally Flooded Wet Sedge Meadow	Occur along one drainage feature connected to the stream in the airport site. Mapped as Cowardin Class PEM1E. The predominant sedge type is <i>Carex aquatilis</i> ; deciduous shrubs including <i>Salix richardsonii</i> and <i>Salix reticulata</i> are present in small amounts. Running surface water was present at the time of sampling and the presence of hydric soils was assumed.
Palustrine Saturated Graminoid Meadow	Primarily a disturbed type found along the north edge of the airport runway. Mapped as Cowardin Class PEM1B. The dominant graminoid species is <i>Calamagrostis canadensis</i> . Histic epipedon (A2) and Alaska Redox (A14) hydric soil conditions were met with saturated soils and patches of surface water.
Riverine Seasonally Flooded Low and Tall Willow Scrub	Found bordering the stream west of the runway and the material site stream. Mapped as Cowardin Class PSS1C. Mixture of low and tall willow communities dominated by <i>Salix richardsonii</i> . The understory is often high cover of emergent graminoids including <i>Calamagrostis canadensis</i> and <i>Carex aquatilis</i> . At the time of the field survey all sites had surface water and hydric soils were assumed.
Palustrine Saturated Deciduous Shrub Scrub	Disturbance type found along the airport runway and surrounding the pond. Mapped as Cowardin Class PSS1B. Sites are dominated by a variety of willow species including <i>Salix richardsonii</i> , <i>Salix alaxensis</i> , and <i>Salix arbusculoides</i> with co-dominant shrubs including <i>Betula glandulosa</i> and <i>Alnus viridis</i> ssp. <i>crispa</i> . At the time of the site visit these willow communities had surface water, soils were histic epipedons.
Palustrine Needleleaf-Shrub Birch Woodland	Widespread woodland forest and low birch ericaceous slope wetlands characteristic of the majority of the local Kiana area. Mapped as a variety of Cowardin Classes including PSS1B, PSS3/1B and PSS1/4B. Needleleaf components are a mixture <i>Picea glauca</i> and <i>Picea mariana</i> ranging from stunted shrubby growth forms to upright trees. The understory is typically composed of <i>Betula glandulosa</i> , <i>Vaccinium uliginosum</i> and <i>Ledum groenlandicum</i> .

Table 3. Functional performance rankings and categories for Wetland Functional Classes within the proposed airstrip improvements, Kiana, Alaska, 2012.

Wetland Functional Class	Category	Flood Flow Regulation	Sediment, Nutrient, & Toxicant Removal	Erosion Control and Shoreline Stabilization	Organic Matter Production & Export	General Habitat Suitability	Fish Habitat	Native Plant Richness	Educational, Scientific, Recreational, or Subsistence Use	Uniqueness & Special Status
Upper Perennial Stream (R3UBH)	III	N/A	Low	N/A	Medium	Medium	High	N/A	Medium	Low
Permanently Flooded Pond (PUBH)	III	High	Medium	N/A	Low	Medium	High	Low	Medium	Low
Palustrine Flooded Wet Emergent Meadow (PEM1H, PEM1F)	III	Medium	Medium	High	Low	Low	N/A	Low	High	Low
Lacustrine Flooded Sedge-Grass Marsh (PEM1E, PEM1H)	II	High	High	High	High	High	High	Medium	Medium	Low
Riverine Seasonally Flooded Wet Sedge Meadow (PEM1E)	III	Medium	Medium	Low	High	Medium	Low	Low	High	Low
Palustrine Saturated Graminoid Meadow (PEM1B)	III	Low	Medium	N/A	N/A	Low	N/A	Low	High	Low

Table 3. Continued.

Wetland Functional Class	Category	Flood Flow Regulation	Sediment, Nutrient, & Toxicant Removal	Erosion Control and Shoreline Stabilization	Organic Matter Production & Export	General Habitat Suitability	Fish Habitat	Native Plant Richness	Educational, Scientific, Recreational, or Subsistence Use	Uniqueness & Special Status
Riverine Seasonally Flooded Low and Tall Willow Scrub (PSS1C)	II	High	Medium	High	High	Medium	Medium	Low	High	Low
Palustrine Saturated Low and Tall Willow Scrub (PSS1B, PSS1E)	III	N/A	Medium	N/A	High	Medium	N/A	Medium	High	Low
Palustrine Saturated Needleleaf-Shrub Birch Woodland (PFO4B, PSS1/3B, PSS1/4B, PSS1B)	III	N/A	Medium	N/A	N/A	Medium	N/A	Medium	High	Low

Table 4. Habitat assessment for common birds and mammals likely to occur in the Kiana proposed airstrip improvement study area, Alaska, 2012 (x indicates a wildlife habitat considered important for a species).

		Wildlife Habitat (acres)											
		Upper Perennial Stream (0.74)	Fresh Water Pond (1.73)	Fresh Herb Marsh (1.76)	Wet Sedge Meadow (2.79)	Bluejoint Meadow (2.98)	Low Birch-Ericaceous Scrub (41.14)	Low and Tall Willow Scrub (38.90)	Tall Alder Scrub (0.99)	Needleleaf Forest and Woodland (192.12)	Upland Broadleaf Forest (2.71)	Human Disturbed Barrens (0.96)	Fill (not assessed) (32.88)
BIRDS													
Canada Goose	<i>Branta canadensis</i>		x	x	x								x
Green-winged Teal	<i>Anas crecca</i>	x	x	x	x								
Northern Pintail	<i>Anas acuta</i>	x	x	x	x								
Long-tailed Duck	<i>Clangula hyemalis</i>		x	x	x								
American Wigeon	<i>Anas americana</i>		x										
Northern Harrier	<i>Circus cyaneus</i>			x	x	x	x			x			x
Willow Ptarmigan	<i>Lagopus lagopus</i>						x	x	x	x	x		
Alder Flycatcher	<i>Empidonax alnorum</i>							x	x		x		
Gray Jay	<i>Perisoreus canadensis</i>						x			x	x		
Common Raven	<i>Corvus corax</i>					x	x			x	x		x
Boreal Chickadee	<i>Parus hudsonicus</i>									x	x		
Gray-cheeked Thrush	<i>Catharus minimus</i>						x	x	x	x	x		
American Robin	<i>Turdus migratorius</i>					x	x	x	x	x	x		x

Table 4. Continued.

		Wildlife Habitat (acres)											
		Upper Perennial Stream (0.74)	Fresh Water Pond (1.73)	Fresh Herb Marsh (1.76)	Wet Sedge Meadow (2.79)	Bluejoint Meadow (2.98)	Low Birch-Ericaceous Scrub (41.14)	Low and Tall Willow Scrub (38.90)	Tall Alder Scrub (0.99)	Needleleaf Forest and Woodland (192.12)	Upland Broadleaf Forest (2.71)	Human Disturbed Barrens (0.96)	Fill (not assessed) (32.88)
Yellow Warbler	<i>Dendroica petechia</i>							x	x		x		
Yellow-rumped Warbler	<i>Dendroica coronata</i>						x	x	x	x	x		
Blackpoll Warbler	<i>Dendroica striata</i>						x	x	x	x	x		
Northern Waterthrush	<i>Seiurus noveboracensis</i>	x	x	x	x		x	x	x	x	x		
American Tree Sparrow	<i>Spizella arborea</i>				x	x	x	x	x	x			
Savannah Sparrow	<i>Passerculus sandwichensis</i>				x	x	x					x	
Fox Sparrow	<i>Passerella iliaca</i>						x	x	x	x	x		
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>				x	x	x	x	x	x	x		
Common Redpoll	<i>Carduelis flammea</i>					x	x	x	x	x	x		
Hoary Redpoll	<i>Carduelis hornemanni</i>					x	x	x	x	x	x		
MAMMALS													
American Martin	<i>Martes americana</i>									x	x		
American Mink	<i>Neovison vison</i>	x		x	x	x	x	x	x	x	x		
North American Porcupine	<i>Erethizon dorsatum</i>	x					x	x	x	x	x		

Table 4. Continued.

		Wildlife Habitat (acres)											
		Upper Perennial Stream (0.74)	Fresh Water Pond (1.73)	Fresh Herb Marsh (1.76)	Wet Sedge Meadow (2.79)	Bluejoint Meadow (2.98)	Low Birch-Ericaceous Scrub (41.14)	Low and Tall Willow Scrub (38.90)	Tall Alder Scrub (0.99)	Needleleaf Forest and Woodland (192.12)	Upland Broadleaf Forest (2.71)	Human Disturbed Barrens (0.96)	Fill (not assessed) (32.88)
Arctic Ground Squirrel	<i>Spermophilus parryii</i>					x	x	x	x	x	x	x	
Barren-ground Caribou	<i>Rangifer tarandus</i>					x	x						
American Black Bear	<i>Ursus americana</i>	x				x	x	x	x	x	x	x	
Brown (Grizzly) Bear	<i>Ursus arctos</i>	x				x	x	x	x	x	x	x	
Moose	<i>Alces alces</i>	x	x	x	x	x	x	x	x	x	x		
Red Fox	<i>Vulpes vulpes</i>	x				x	x	x	x	x	x	x	
Red Squirrel	<i>Tamiasciurus hudsonicus</i>							x	x	x	x		
Tundra Vole	<i>Microtus oeconomus</i>					x		x	x	x	x		
Gray Wolf	<i>Canis lupus</i>	x				x	x			x	x		
Wolverine	<i>Gulo gulo</i>	x				x	x			x	x		

^a Listed are those species likely to occur commonly during some portion of their life history (e.g., breeding/mating, migration, staging, etc.), but is not intended as an exhaustive list. Uncommon or rare species that could occur sporadically are not listed. Habitat use for birds and mammals was determined from field observations in the study area in June 2012 and from available literature (AKNHP 2012, Armstrong 1995, Cook and MacDonald 2006, Schroeder 1996).

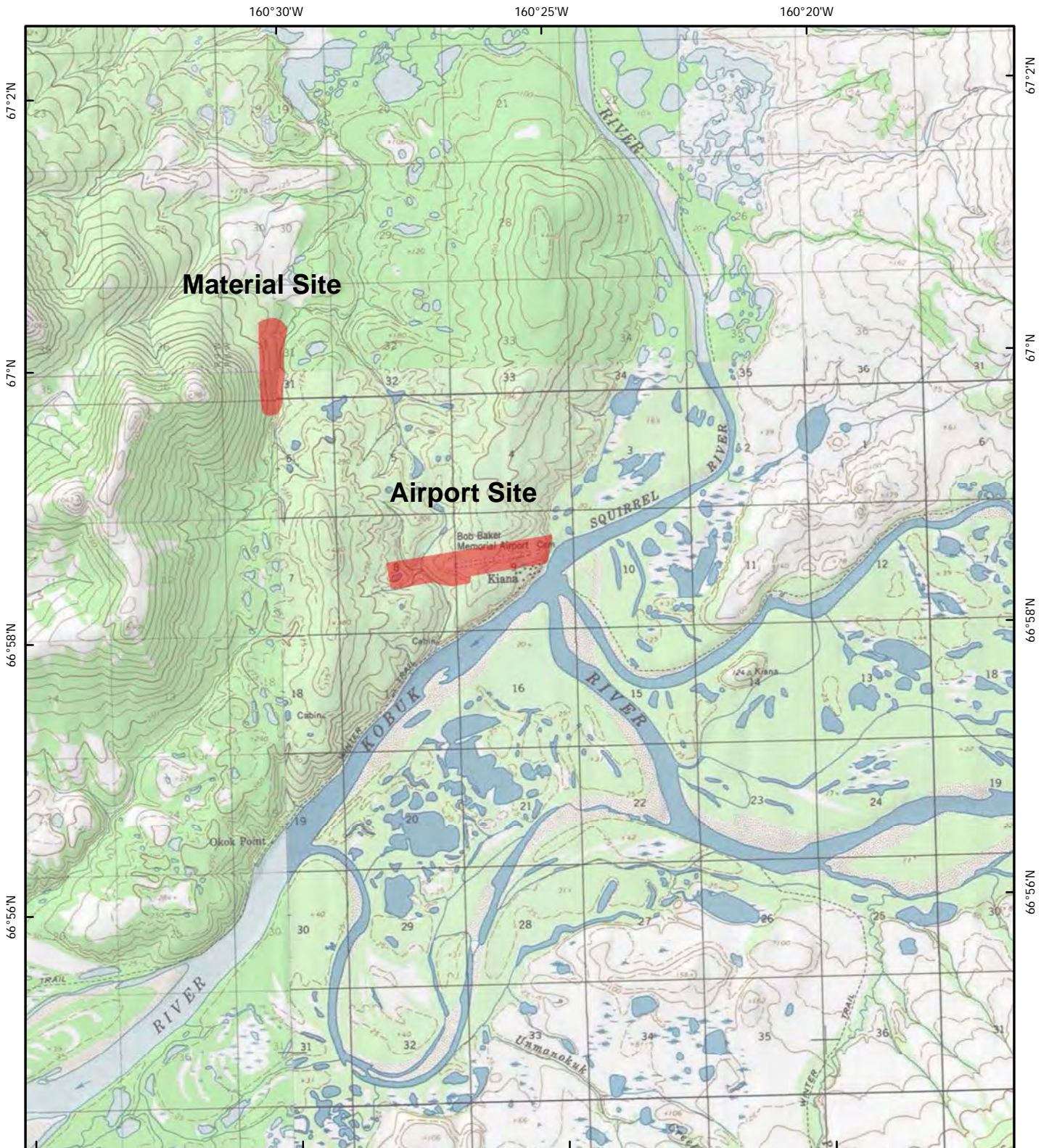
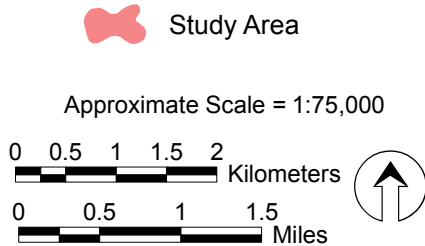
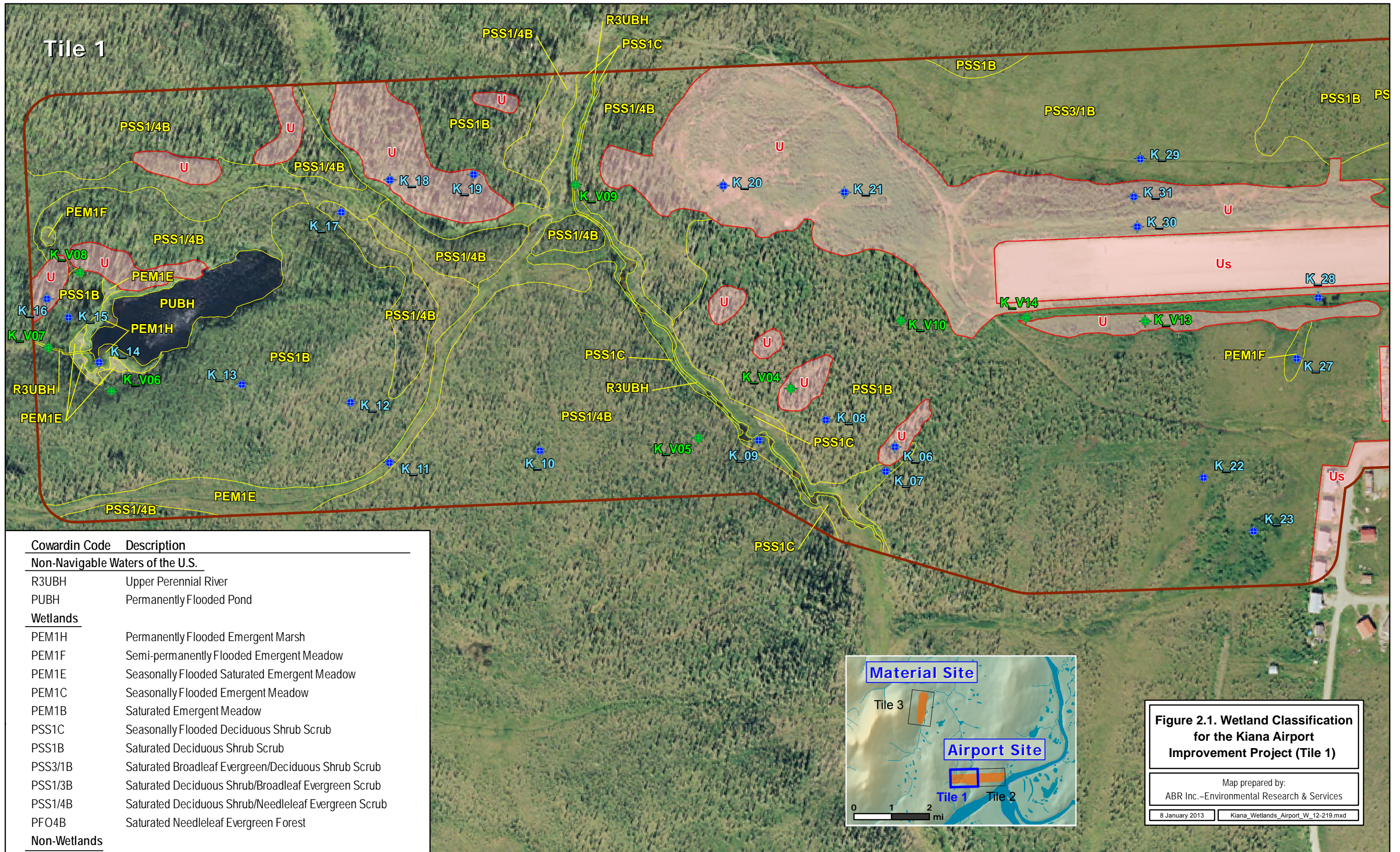


Figure 1.
Study area for the Kiana
Airport Improvements Project

Map prepared by:
 ABR Inc. - Environmental Research & Services

17 October 2012 Kiana_Wetlands_SA_12-219.mxd





Cowardin Code	Description
Non-Navigable Waters of the U.S.	
R3UBH	Upper Perennial River
PUBH	Permanently Flooded Pond
Wetlands	
PEM1H	Permanently Flooded Emergent Marsh
PEM1F	Semi-permanently Flooded Emergent Meadow
PEM1E	Seasonally Flooded Saturated Emergent Meadow
PEM1C	Seasonally Flooded Emergent Meadow
PEM1B	Saturated Emergent Meadow
PSS1C	Seasonally Flooded Deciduous Shrub Scrub
PSS1B	Saturated Deciduous Shrub Scrub
PSS3/1B	Saturated Broadleaf Evergreen/Deciduous Shrub Scrub
PSS1/3B	Saturated Deciduous Shrub/Broadleaf Evergreen Scrub
PSS1/4B	Saturated Deciduous Shrub/Needleleaf Evergreen Scrub
PFO4B	Saturated Needleleaf Evergreen Forest
Non-Wetlands	
U	Upland
Us	Upland Fill

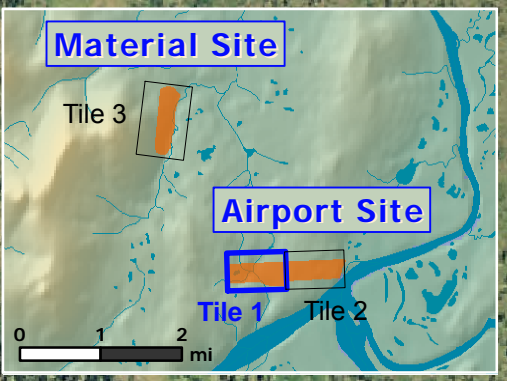


Figure 2.1. Wetland Classification for the Kiana Airport Improvement Project (Tile 1)

Map prepared by:
ABR Inc.-Environmental Research & Services

8 January 2013 | Kiana_Wetlands_Airport_W_12-219.mxd

¹ Follows National Wetlands Inventory (NWI) map conventions and Cowardin et al. (1979) classification system.

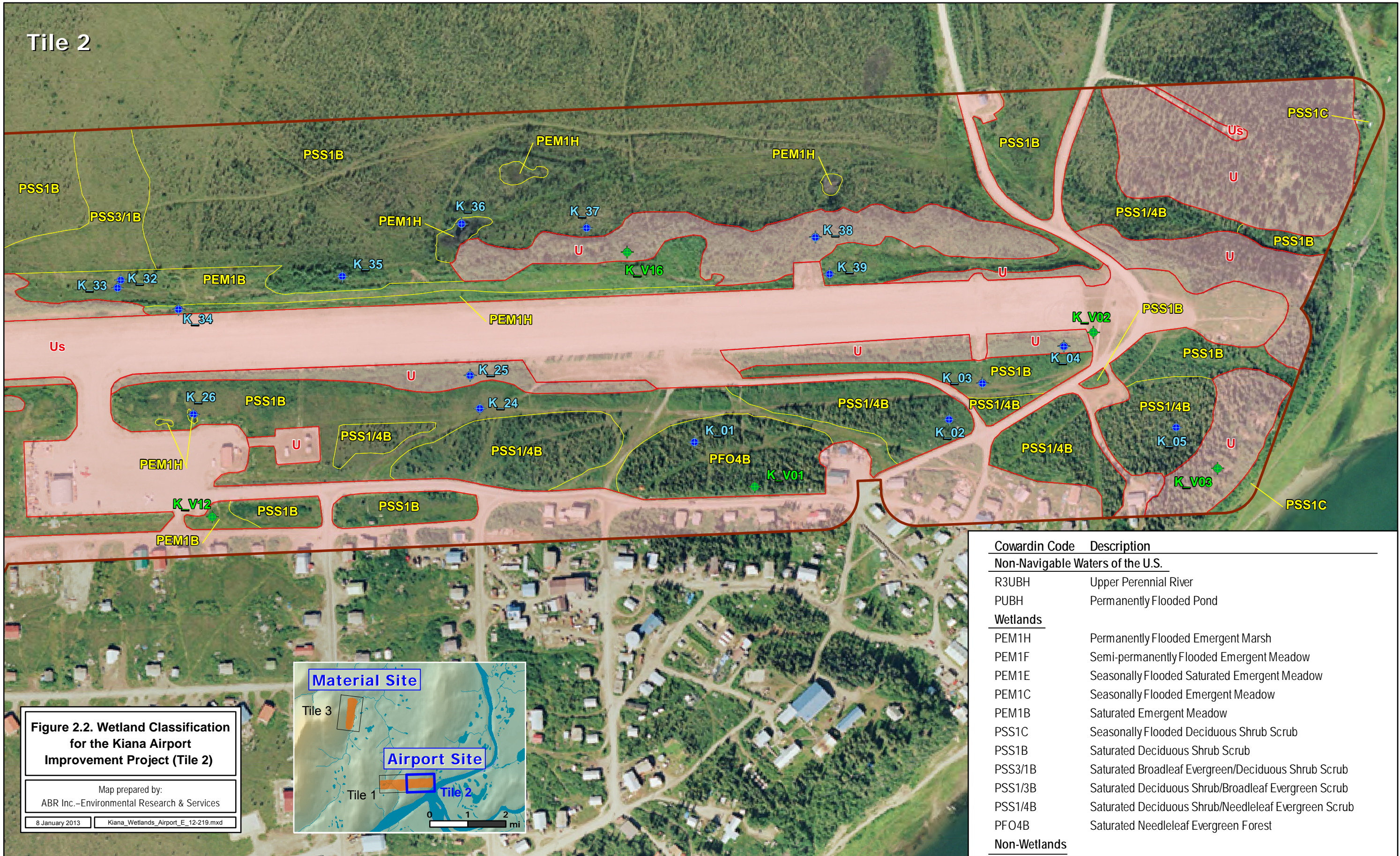
Wetland

+ Wetland Determination Plot

+ Verification Plot

Notes: Mapping by ABR, Inc. Color aerial orthorectified photography by Kodiak Mapping, Inc. at a nominal scale of 1:18,000; pixel resolution 4 feet. Map projection: Alaska Albers, NAD 1983, meters. Map scale when printed at 11"x17" is 1:3,000 or 1"=250'.

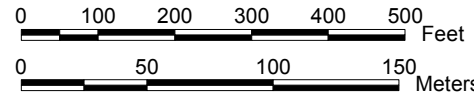
Tile 2



Cowardin Code	Description
Non-Navigable Waters of the U.S.	
R3UBH	Upper Perennial River
PUBH	Permanently Flooded Pond
Wetlands	
PEM1H	Permanently Flooded Emergent Marsh
PEM1F	Semi-permanently Flooded Emergent Meadow
PEM1E	Seasonally Flooded Saturated Emergent Meadow
PEM1C	Seasonally Flooded Emergent Meadow
PEM1B	Saturated Emergent Meadow
PSS1C	Seasonally Flooded Deciduous Shrub Scrub
PSS1B	Saturated Deciduous Shrub Scrub
PSS3/1B	Saturated Broadleaf Evergreen/Deciduous Shrub Scrub
PSS1/3B	Saturated Deciduous Shrub/Broadleaf Evergreen Scrub
PSS1/4B	Saturated Deciduous Shrub/Needleleaf Evergreen Scrub
PFO4B	Saturated Needleleaf Evergreen Forest
Non-Wetlands	
U	Upland
Us	Upland Fill

Notes: Mapping by ABR, Inc. Color aerial orthorectified photography by Kodiak Mapping, Inc. at a nominal scale of 1:18,000; pixel resolution 4 feet. Map projection: Alaska Albers, NAD 1983, meters. Map scale when printed at 11"x17" is 1:3,000 or 1"=250'.

Study Area Boundary

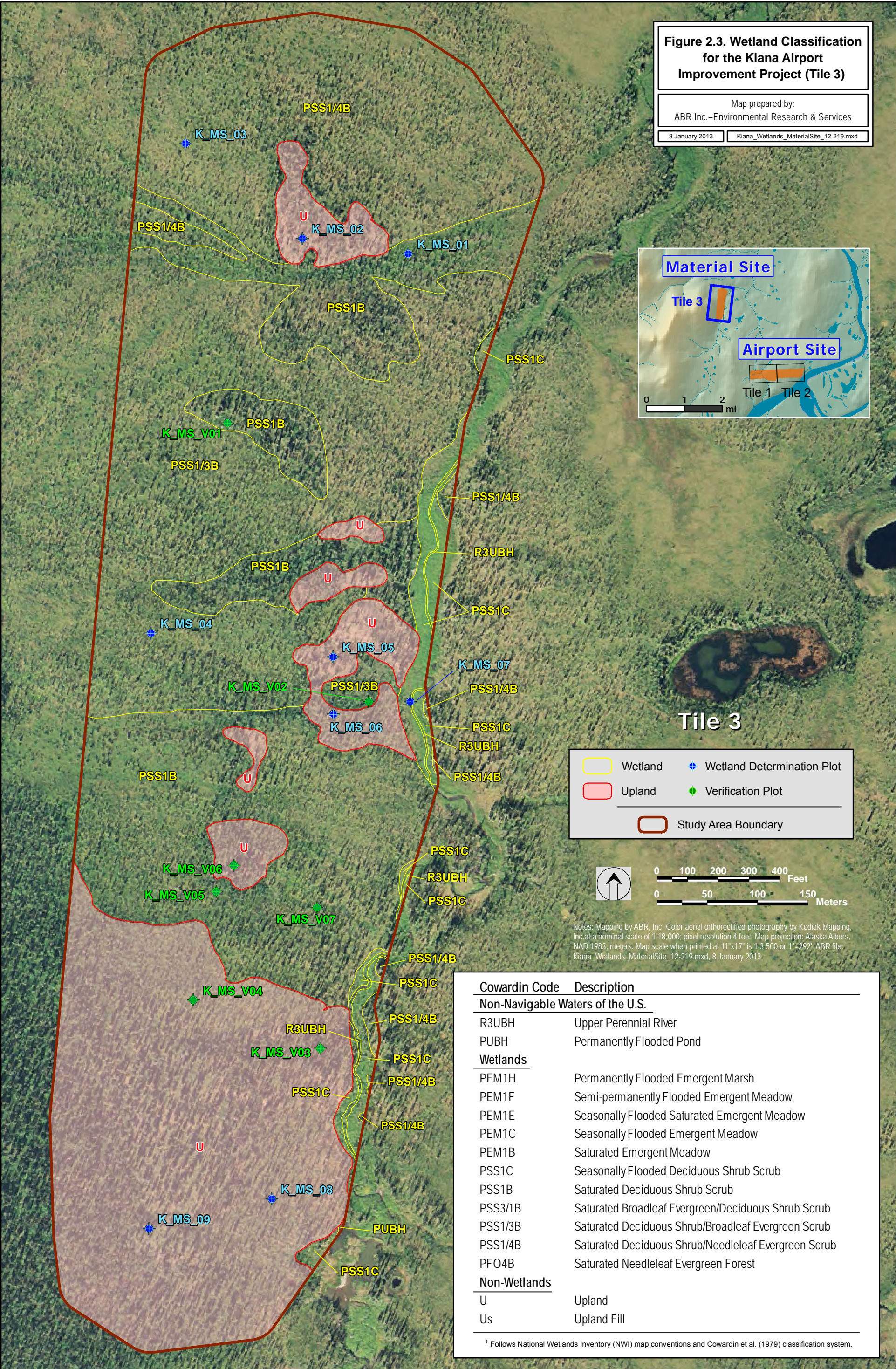
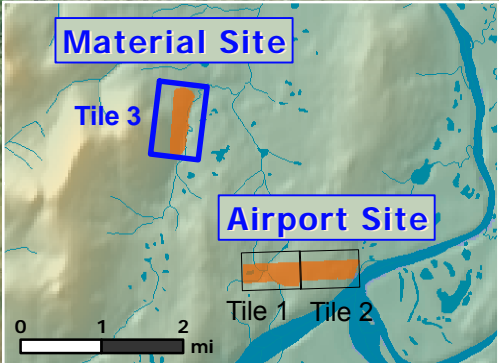


- Wetland
- Upland
- + Wetland Determination Plot
- + Verification Plot

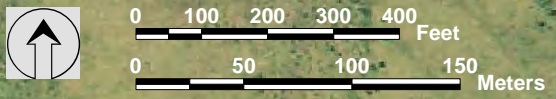
Figure 2.3. Wetland Classification for the Kiana Airport Improvement Project (Tile 3)

Map prepared by:
ABR Inc. - Environmental Research & Services

8 January 2013 Kiana_Wetlands_MaterialSite_12-219.mxd



Wetland
 + Wetland Determination Plot
 Upland
 + Verification Plot
 Study Area Boundary

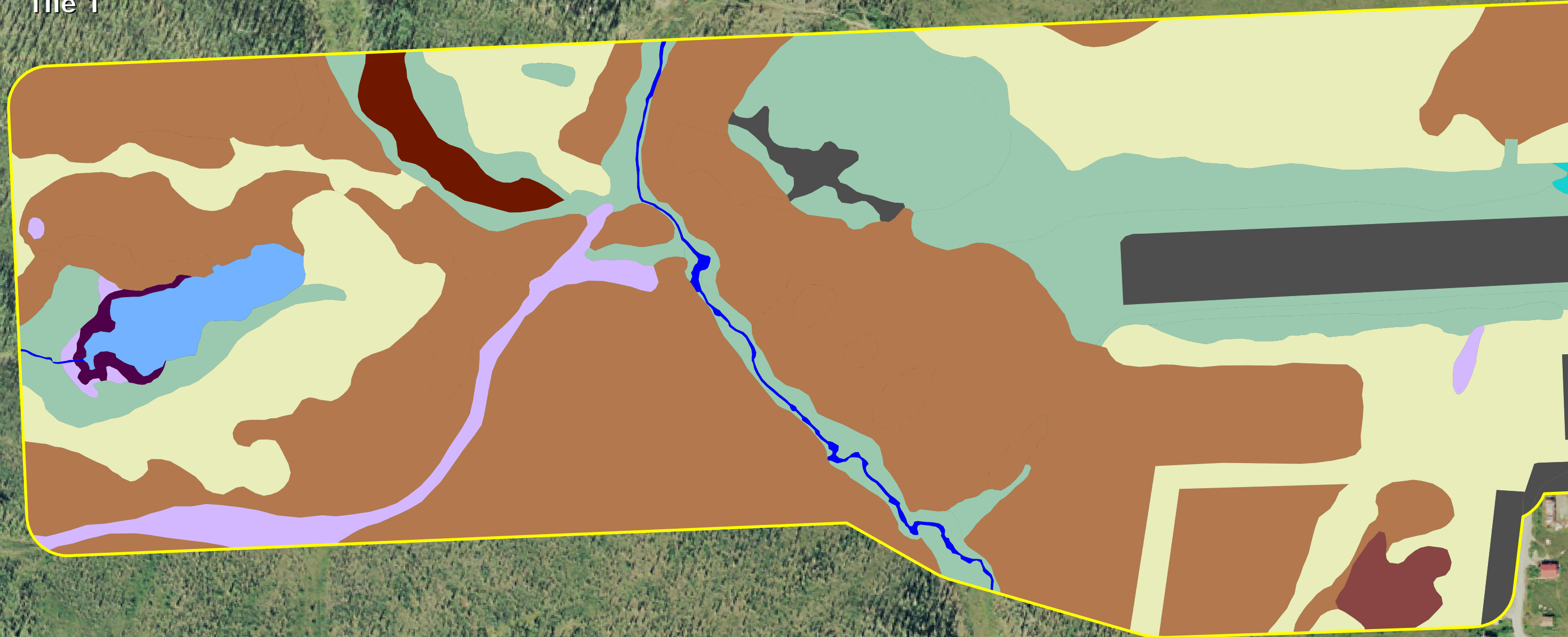


Notes: Mapping by ABR, Inc. Color aerial orthorectified photography by Kodiak Mapping, Inc. at a nominal scale of 1:18,000; pixel resolution 4 feet. Map projection: Alaska Albers, NAD 1983, meters. Map scale when printed at 11"x17" is 1:3,500 or 1"=292'. ABR file: Kiana_Wetlands_MaterialSite_12-219.mxd, 8 January 2013







Cowardin Code	Description
Non-Navigable Waters of the U.S.	
R3UBH	Upper Perennial River
PUBH	Permanently Flooded Pond
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PEM1B	Saturated Emergent Meadow
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PSS1B	Saturated Deciduous Shrub Scrub
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PSS1/3B	Saturated Deciduous Shrub/Broadleaf Evergreen Scrub
PSS1/4B	Saturated Deciduous Shrub/Needleleaf Evergreen Scrub
PFO4B	Saturated Needleleaf Evergreen Forest
Non-Wetlands	
U	Upland
Us	Upland Fill

¹ Follows National Wetlands Inventory (NWI) map conventions and Cowardin et al. (1979) classification system.

Tile 1



Wildlife Habitat Type

	Upper Perennial Stream		Low and Tall Willow Scrub
	Fresh Water Pond		Tall Alder Scrub
	Fresh Herb Marsh		Needleleaf Forest and Woodland
	Wet Sedge Meadow		Upland Broadleaf Forest
	Bluejoint Meadow		Human Disturbed Barrens
	Low Birch-Ericaceous Scrub		Study Area Boundary

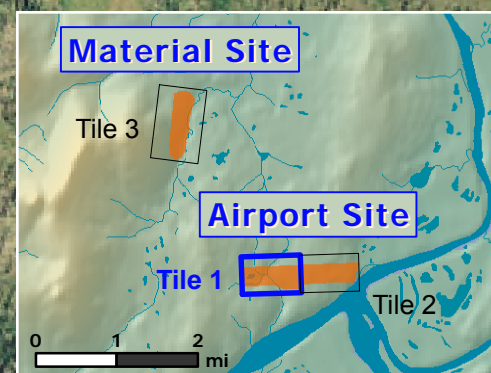
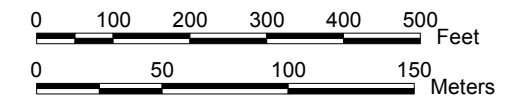


Figure 3.1. Wildlife Habitat Types for the Kiana Airport Improvement Project (Tile 1)

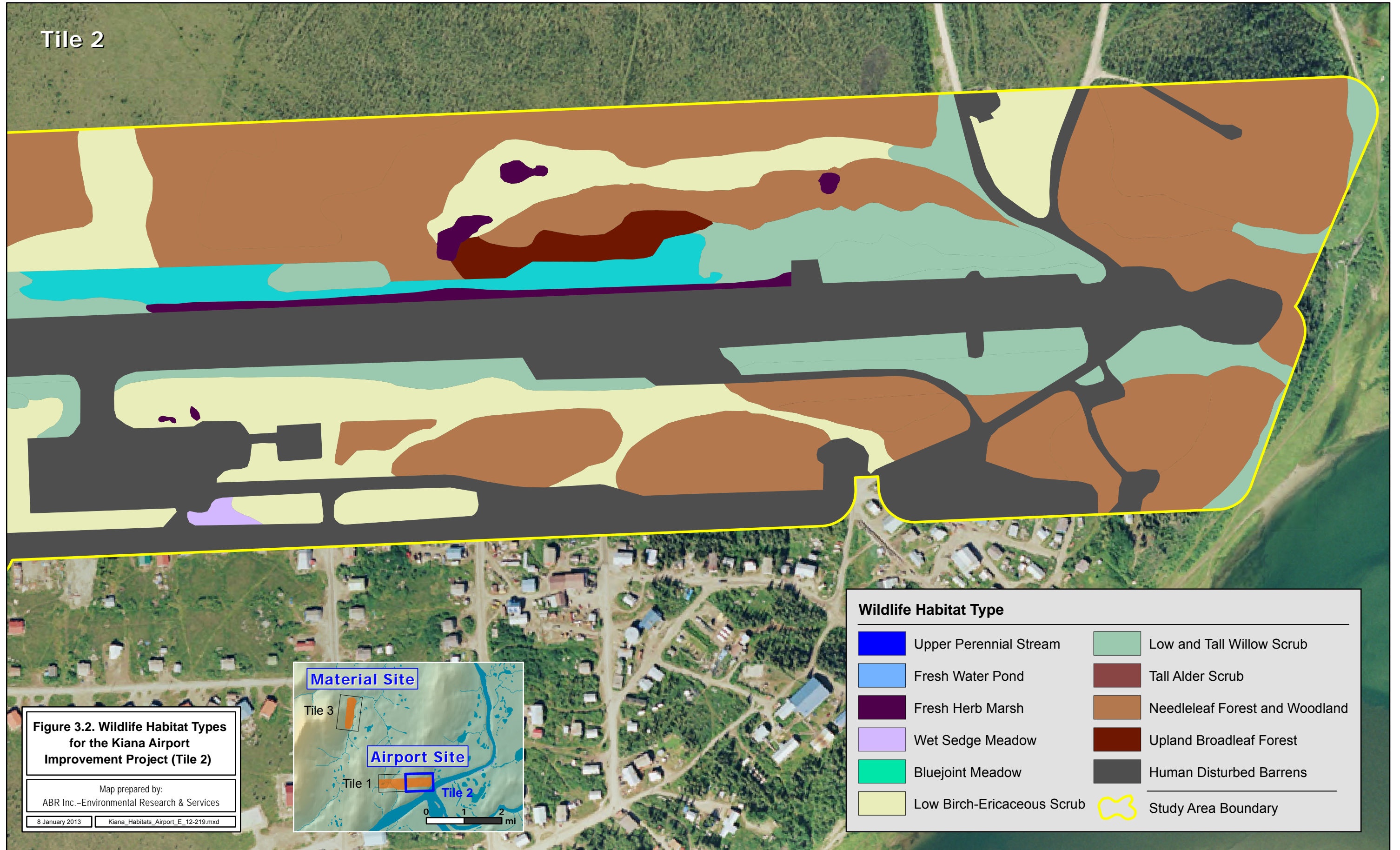
Map prepared by:
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8 January 2013 Kiana_Habitats_Airport_W_12-219.mxd



Notes: Mapping by ABR, Inc. Color aerial orthorectified photography by Kodiak Mapping, Inc. at a nominal scale of 1:18,000; pixel resolution 4 feet. Map projection: Alaska Albers, NAD 1983, meters. Map scale when printed at 11"x17" is 1:3,000 or 1"=250'. Page 32 of 201

Tile 2















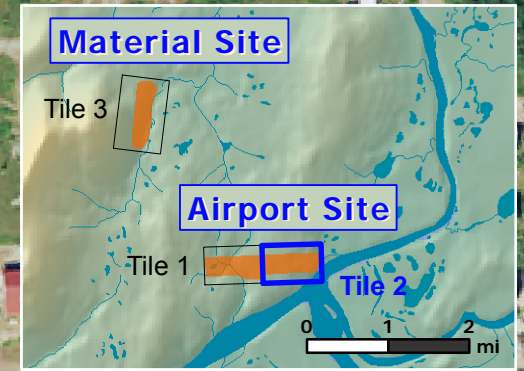
Wildlife Habitat Type			
	Upper Perennial Stream		Low and Tall Willow Scrub
	Fresh Water Pond		Tall Alder Scrub
	Fresh Herb Marsh		Needleleaf Forest and Woodland
	Wet Sedge Meadow		Upland Broadleaf Forest
	Bluejoint Meadow		Human Disturbed Barrens
	Low Birch-Ericaceous Scrub		Study Area Boundary

Figure 3.2. Wildlife Habitat Types for the Kiana Airport Improvement Project (Tile 2)

Map prepared by:
 ABR Inc.-Environmental Research & Services
 8 January 2013 Kiana_Habitats_Airport_E_12-219.mxd



Notes: Mapping by ABR, Inc. Color aerial orthorectified photography by Kodiak Mapping, Inc. at a nominal scale of 1:18,000; pixel resolution 4 feet. Map projection: Alaska Albers, NAD 1983, meters. Map scale when printed at 11"x17" is 1:3,000 or 1"=250'.

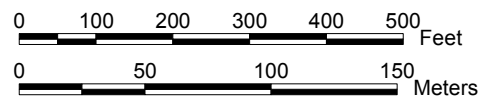
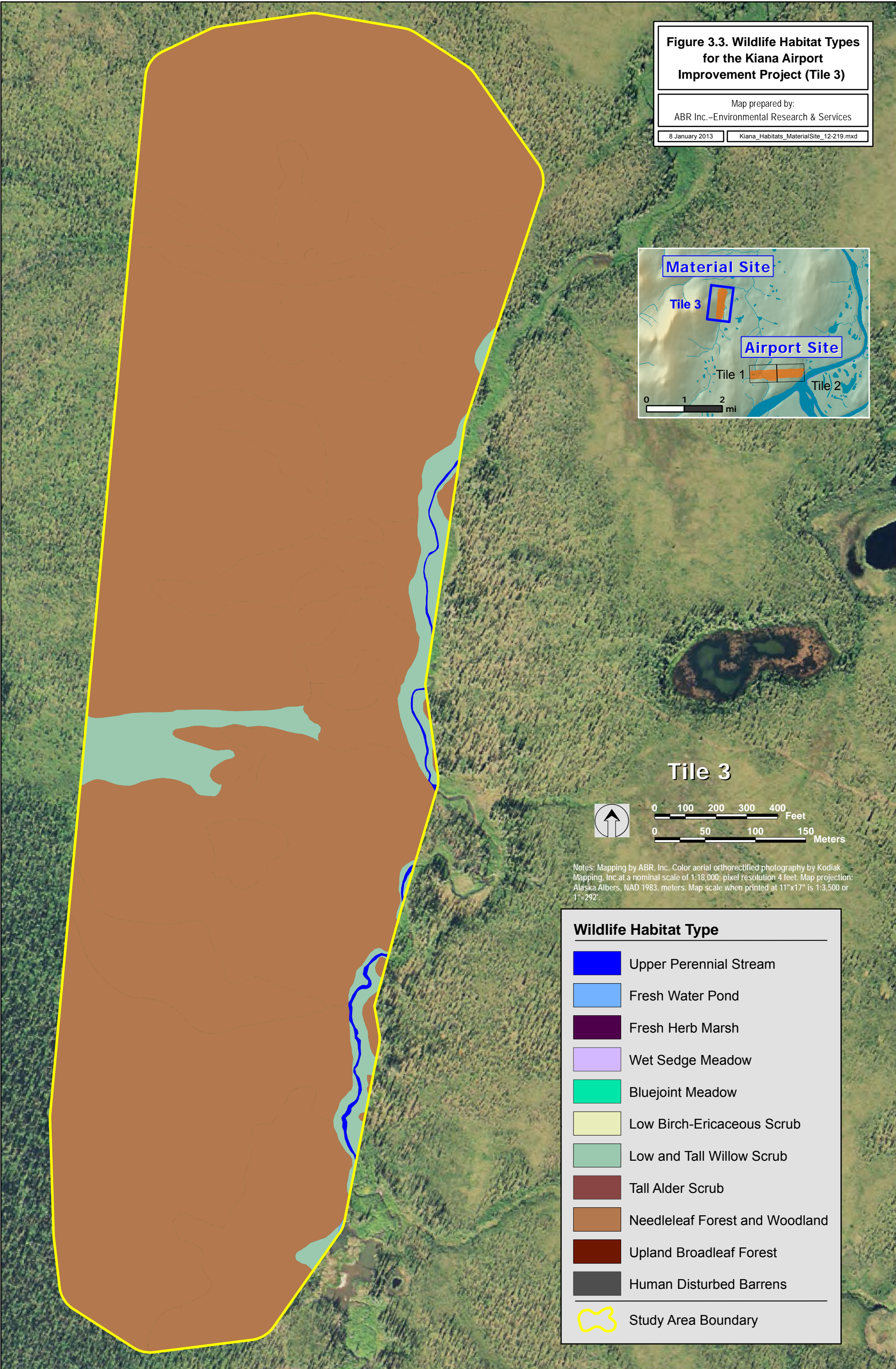
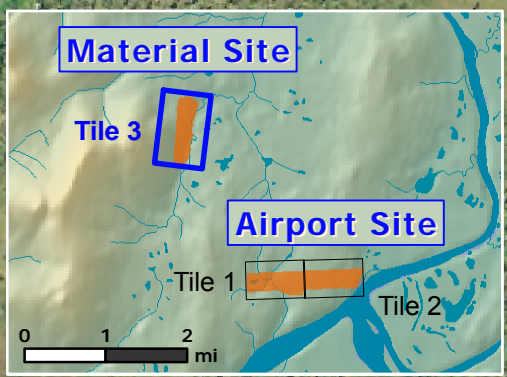


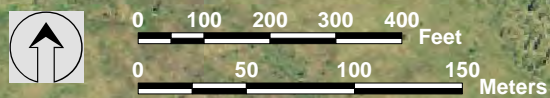
Figure 3.3. Wildlife Habitat Types for the Kiana Airport Improvement Project (Tile 3)

Map prepared by:
ABR Inc.-Environmental Research & Services


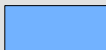
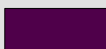
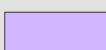

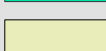






8 January 2013 Kiana_Habitats_MaterialSite_12-219.mxd



Tile 3



Notes: Mapping by ABR, Inc. Color aerial orthorectified photography by Kodiak Mapping, Inc. at a nominal scale of 1:18,000; pixel resolution 4 feet. Map projection: Alaska Albers, NAD 1983, meters. Map scale when printed at 11"x17" is 1:3,500 or 1"=292'.

Wildlife Habitat Type	
	Upper Perennial Stream
	Fresh Water Pond
	Fresh Herb Marsh
	Wet Sedge Meadow
	Bluejoint Meadow
	Low Birch-Ericaceous Scrub
	Low and Tall Willow Scrub
	Tall Alder Scrub
	Needleleaf Forest and Woodland
	Upland Broadleaf Forest
	Human Disturbed Barrens
	Study Area Boundary

Appendix A. Wetland Determination Data Forms and Verification Sites

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 20-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_01
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Terrace
 Local relief (concave, convex, none): flat Slope: 8.7 % / 5.0 ° Elevation: 140
 Subregion: Northern Alaska Lat.: 66.9753983333333 Long.: -160.429963333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PFO4B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>FNOWS interlaced w ATV trails. Moose scat. Physio upland, geomorph fto, non-patterned.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	10	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>71.4%</u> (A/B)
2. <u>Picea mariana</u>	5	<input checked="" type="checkbox"/>	FACW	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>15</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>6</u> x 1 = <u>6</u> FACW species <u>6.5</u> x 2 = <u>13</u> FAC species <u>89</u> x 3 = <u>267</u> FACU species <u>38</u> x 4 = <u>152</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>139.5</u> (A) <u>438</u> (B) Prevalence Index = B/A = <u>3.140</u>
Sapling/Shrub Stratum	50% of Total Cover: <u>7.5</u>	20% of Total Cover: <u>3</u>		
1. <u>Picea glauca</u>	25	<input checked="" type="checkbox"/>	FACU	
2. <u>Betula glandulosa</u>	20	<input checked="" type="checkbox"/>	FAC	
3. <u>Vaccinium uliginosum</u>	20	<input checked="" type="checkbox"/>	FAC	
4. <u>Salix reticulata</u>	7	<input type="checkbox"/>	FAC	
5. <u>Dasiphora fruticosa</u>	5	<input type="checkbox"/>	FAC	
6. <u>Andromeda polifolia</u>	1	<input type="checkbox"/>	FACW	
7. <u>Salix bebbiana</u>	7	<input type="checkbox"/>	FAC	
8. <u>Dryas integrifolia</u>	3	<input type="checkbox"/>	FACU	
9. <u>Empetrum nigrum</u>	2	<input type="checkbox"/>	FAC	
10. <u>Arctostaphylos rubra</u>	7	<input type="checkbox"/>	FAC	
Total Cover: <u>97</u>				
Herb Stratum	50% of Total Cover: <u>48.5</u>	20% of Total Cover: <u>19.4</u>		
1. <u>Ranunculus lapponicus</u>	1	<input type="checkbox"/>	OBL	
2. <u>Equisetum arvense</u>	7	<input checked="" type="checkbox"/>	FAC	
3. <u>Carex bigelowii</u>	10	<input checked="" type="checkbox"/>	FAC	
4. <u>Festuca rubra</u>	1	<input type="checkbox"/>	FAC	
5. <u>Deschampsia caespitosa</u>	3	<input type="checkbox"/>	FAC	
6. <u>Parnassia palustris</u>	0.5	<input type="checkbox"/>	FACW	
7. <u>Carex vaginata</u>	5	<input type="checkbox"/>	OBL	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>27.5</u>				
50% of Total Cover: <u>13.75</u>	20% of Total Cover: <u>5.5</u>			

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

Plot size (radius, or length x width) 10m
 % Cover of Wetland Bryophytes (Where applicable) _____
 % Bare Ground 5
 Total Cover of Bryophytes 90

Hydrophytic Vegetation Present? Yes No

Remarks: picgla stunted, look almost like picmar. sedges and grasses collected for id. bare ground includes ATV trail.

SOIL

Sampling Point: K_01

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-6							Fibric Organics		
6-10							Hemic Organics		
10-22	5Y	3+/1	85	5Y	4/3	15	C	PL	Silty Clay Loam

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):
 Type: silt clay loam
 Depth (inches): 10

Hydric Soil Present? Yes No

Remarks:
 water and air bubbling up from bottom of pit. Believe scl qualifies as a restrictive layer. 10-22: redox features increase towards bottom of pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): 0
 Water Table Present? Yes No Depth (inches): 16
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWS Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 20-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_02
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Terrace
 Local relief (concave, convex, none): flat Slope: 8.7 % / 5.0 ° Elevation: 110
 Subregion: Northern Alaska Lat.: 66.9757616666667 Long.: -160.425191666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1/4B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>SFWWS. Physio upland, geomorph old terrace, nonpatterned. Robust healthy picgla.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>7</u>	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>6</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>8</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>75.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>7</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>3.5</u>	20% of Total Cover: <u>1.4</u>		Prevalence Index worksheet:
1. <u>Betula glandulosa</u>	<u>15</u>	<input checked="" type="checkbox"/>	FAC	Total % Cover of: _____ Multiply by: _____
2. <u>Picea glauca</u>	<u>15</u>	<input checked="" type="checkbox"/>	FACU	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Salix pulchra</u>	<u>20</u>	<input checked="" type="checkbox"/>	FACW	FACW species <u>35</u> x 2 = <u>70</u>
4. <u>Salix richardsonii</u>	<u>10</u>	<input type="checkbox"/>	FACW	FAC species <u>59</u> x 3 = <u>177</u>
5. <u>Vaccinium uliginosum</u>	<u>10</u>	<input type="checkbox"/>	FAC	FACU species <u>23</u> x 4 = <u>92</u>
6. <u>Dasiphora fruticosa</u>	<u>5</u>	<input type="checkbox"/>	FAC	UPL species <u>0</u> x 5 = <u>0</u>
7. <u>Arctostaphylos rubra</u>	<u>3</u>	<input type="checkbox"/>	FAC	Column Total s: <u>117</u> (A) <u>339</u> (B)
8. <u>Salix bebbiana</u>	<u>15</u>	<input checked="" type="checkbox"/>	FAC	Prevalence Index = B/A = <u>2.897</u>
9. <u>Vaccinium vitis-idaea</u>	<u>5</u>	<input type="checkbox"/>	FAC	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>98</u>				
Herb Stratum	50% of Total Cover: <u>49</u>	20% of Total Cover: <u>19.6</u>		Hydrophytic Vegetation Indicators:
1. <u>Equisetum arvense</u>	<u>3</u>	<input checked="" type="checkbox"/>	FAC	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Solidago multiradiata</u>	<u>0.5</u>	<input type="checkbox"/>	FACU	<input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0
3. <u>Arctagrostis latifolia</u>	<u>5</u>	<input checked="" type="checkbox"/>	FACW	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Mertensia paniculata</u>	<u>0.5</u>	<input type="checkbox"/>	FACU	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Carex bigelowii</u>	<u>3</u>	<input checked="" type="checkbox"/>	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	Plot size (radius, or length x width) <u>10m</u>
7. _____	_____	<input type="checkbox"/>	_____	% Cover of Wetland Bryophytes (Where applicable) _____
8. _____	_____	<input type="checkbox"/>	_____	% Bare Ground <u>3</u>
9. _____	_____	<input type="checkbox"/>	_____	Total Cover of Bryophytes <u>95</u>
10. _____	_____	<input type="checkbox"/>	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Total Cover: <u>12</u>				
50% of Total Cover: <u>6</u>	20% of Total Cover: <u>2.4</u>			

Remarks: arclat id basedon wide lvs and large nodes, no inflorescence. solmul is unidentified solidago.

SOIL

Sampling Point: K_02

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks		
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²				
0-3							Fibric Organics			
3-4							Hemic Organics			
4-7							Hemic Organics	w pockets of 5YR2.5/2 sandy loam		
7-10	10YR	3/2	70	5YR	3/4	30	C	PL	Silt Loam	3% oxidized rhizospheres around living roots
10-19	5Y	4/1	85	7.5YR	4/6	15	C	PL	Silty Clay Loam	

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: silty clay loam
 Depth (inches): 10

Hydric Soil Present? Yes No

Remarks:

10-19: C includes 2% oxidized rhizospheres around living roots.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 10

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

water in pit appears to be coming in from above, related to recent precipitation rather than water table. Assume silty clay loam is sufficiently fine to qualify as a restrictive layer.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 20-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_03
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Terrace
 Local relief (concave, convex, none): rolling Slope: 5.2 % / 3.0 ° Elevation: 130
 Subregion: Northern Alaska Lat.: 66.97608 Long.: -160.424551666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: SLOBW, physio upland, geomorph fto, nonpatterned. Scattered erivag tussocks, but not a tussock community. Disturbed, between atv trails and runway, soils appear almost compressed organics.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>85.7%</u> (A/B)
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>14.5</u> x 2 = <u>29</u> FAC species <u>53.5</u> x 3 = <u>160.5</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>78</u> (A) <u>229.5</u> (B) Prevalence Index = B/A = <u>2.942</u>
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		
1. <u>Betula glandulosa</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	
2. <u>Vaccinium uliginosum</u>	<u>7</u>	<input checked="" type="checkbox"/>	FAC	
3. <u>Arctostaphylos rubra</u>	<u>2</u>	<input type="checkbox"/>	FAC	
4. <u>Dasiphora fruticosa</u>	<u>5</u>	<input type="checkbox"/>	FAC	
5. <u>Salix bebbiana</u>	<u>7</u>	<input checked="" type="checkbox"/>	FAC	
6. <u>Picea glauca</u>	<u>7</u>	<input checked="" type="checkbox"/>	FACU	
7. <u>Rosa acicularis</u>	<u>0.5</u>	<input type="checkbox"/>	FACU	
8. <u>Salix reticulata</u>	<u>3</u>	<input type="checkbox"/>	FAC	
9. <u>Salix richardsonii</u>	<u>3</u>	<input type="checkbox"/>	FACW	
10. <u>Dryas integrifolia</u>	<u>1</u>	<input type="checkbox"/>	FACU	
Total Cover: <u>45.5</u>				
Herb Stratum	50% of Total Cover: <u>22.75</u>	20% of Total Cover: <u>9.1</u>		
1. <u>Chamerion angustifolium</u>	<u>1</u>	<input type="checkbox"/>	FACU	
2. <u>Festuca rubra</u>	<u>5</u>	<input type="checkbox"/>	FAC	
3. <u>Carex bigelowii</u>	<u>7</u>	<input checked="" type="checkbox"/>	FAC	
4. <u>Mertensia paniculata</u>	<u>0.5</u>	<input type="checkbox"/>	FACU	
5. <u>Rubus chamaemorus</u>	<u>0.5</u>	<input type="checkbox"/>	FACW	
6. <u>Eriophorum vaginatum</u>	<u>3</u>	<input type="checkbox"/>	FACW	
7. <u>Bistorta vivipara</u>	<u>0.5</u>	<input type="checkbox"/>	FAC	
8. <u>Saxifraga hirculus</u>	<u>1</u>	<input type="checkbox"/>	FACW	
9. <u>Deschampsia caespitosa</u>	<u>7</u>	<input checked="" type="checkbox"/>	FAC	
10. <u>Arctagrostis latifolia</u>	<u>7</u>	<input checked="" type="checkbox"/>	FACW	
Total Cover: <u>32.5</u>				
50% of Total Cover: <u>16.25</u>	20% of Total Cover: <u>6.5</u>			

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

Plot size (radius, or length x width) 10m
 % Cover of Wetland Bryophytes (Where applicable) _____
 % Bare Ground 10
 Total Cover of Bryophytes 85

Hydrophytic Vegetation Present? Yes No

Remarks: all shrubs, even salbeb, are <1m tall. bare ground includes ATV trails. graminoid veg in ATV/trail appears to be a mix of descae and arclat based on lvs, no inflorescences. trace horjub, pedic

SOIL

Sampling Point: K_03

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-1							Fibric Organics		
1-7							Hemic Organics		
7-8	5YR	3/3	50				Sandy Loam		
8-9	7.5YR	4/3	100				Loam		
9-14							Hemic Organics		
14-16							Sapric Organics	w 5% 2.5Y4/1 and 5% 7.5Y/R sandy loam in	
16-20	2.5Y	4/1	90	7.5YR	3/4	5	C	PL	Silty Clay Loam

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):
 Type: active layer (frozen)
 Depth (inches): 23

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches): 17
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 3

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 20-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_04
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Terrace
 Local relief (concave, convex, none): flat Slope: 12.2 % / 7.0 ° Elevation: 125
 Subregion: Northern Alaska Lat.: 66.9763966666667 Long.: -160.4230716666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: tall willow community on steep slope, adjacent to runway. STCW, physio upland (disturbed-fill), geomorph fto, non-patterned.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Prevalence Index worksheet:
1. <u>Salix alaxensis</u>	<u>80</u>	<input checked="" type="checkbox"/>	FAC	Total % Cover of: _____ Multiply by: _____
2. <u>Picea glauca</u>	<u>3</u>	<input type="checkbox"/>	FACU	OBL species <u>0</u> x 1 = <u>0</u>
3. _____	_____	<input type="checkbox"/>	_____	FACW species <u>15</u> x 2 = <u>30</u>
4. _____	_____	<input type="checkbox"/>	_____	FAC species <u>80</u> x 3 = <u>240</u>
5. _____	_____	<input type="checkbox"/>	_____	FACU species <u>11</u> x 4 = <u>44</u>
6. _____	_____	<input type="checkbox"/>	_____	UPL species <u>0</u> x 5 = <u>0</u>
7. _____	_____	<input type="checkbox"/>	_____	Column Total s: <u>106</u> (A) <u>314</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>2.962</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>83</u>				
Herb Stratum	50% of Total Cover: <u>41.5</u>	20% of Total Cover: <u>16.6</u>		Hydrophytic Vegetation Indicators:
1. <u>Chamerion angustifolium</u>	<u>7</u>	<input checked="" type="checkbox"/>	FACU	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Equisetum pratense</u>	<u>15</u>	<input checked="" type="checkbox"/>	FACW	<input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0
3. <u>Artemisia tilesii</u>	<u>1</u>	<input type="checkbox"/>	FACU	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	<input type="checkbox"/>	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	_____	<input type="checkbox"/>	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>23</u>				
50% of Total Cover: <u>11.5</u>	20% of Total Cover: <u>4.6</u>			Plot size (radius, or length x width) <u>5m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground <u>95</u>
				Total Cover of Bryophytes <u>0</u>
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks:				

SOIL

Sampling Point: K_04

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix			Redox Features				Texture	Remarks	
	Color (moist)	%		Color (moist)	%	Type ¹	Loc ²			
0-1								Fibric Organics		
1-20	2.5Y	3/2	94	7.5YR	4/6	1	C	PL	Loamy Sand	5% rounded-semiang gravel and coarse san

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWS Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 no wetland hydrology indicators

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 20-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_05
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Terrace
 Local relief (concave, convex, none): flat Slope: 12.2 % / 7.0 ° Elevation: 100
 Subregion: Northern Alaska Lat.: 66.97589 Long.: -160.420711666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1/4B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>FNWWS, physio upland, geomorph fto, non-patterned flat slope.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	10	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)
2. <u>Picea mariana</u>	5	<input checked="" type="checkbox"/>	FACW	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>15</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>16</u> x 2 = <u>32</u> FAC species <u>64.5</u> x 3 = <u>193.5</u> FACU species <u>25.5</u> x 4 = <u>102</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>106</u> (A) <u>327.5</u> (B) Prevalence Index = B/A = <u>3.090</u>
Sapling/Shrub Stratum	50% of Total Cover: <u>7.5</u>	20% of Total Cover: <u>3</u>		
1. <u>Picea glauca</u>	15	<input checked="" type="checkbox"/>	FACU	
2. <u>Betula glandulosa</u>	7	<input type="checkbox"/>	FAC	
3. <u>Alnus viridis ssp. sinuata</u>	10	<input checked="" type="checkbox"/>	FAC	
4. <u>Salix richardsonii</u>	7	<input type="checkbox"/>	FACW	
5. <u>Salix bebbiana</u>	3	<input type="checkbox"/>	FAC	
6. <u>Vaccinium uliginosum</u>	15	<input checked="" type="checkbox"/>	FAC	
7. <u>Vaccinium vitis-idaea</u>	5	<input type="checkbox"/>	FAC	
8. <u>Empetrum nigrum</u>	5	<input type="checkbox"/>	FAC	
9. <u>Salix glauca</u>	2	<input type="checkbox"/>	FAC	
10. <u>Arctostaphylos rubra</u>	5	<input type="checkbox"/>	FAC	
Total Cover: <u>74</u>				
Herb Stratum	50% of Total Cover: <u>37</u>	20% of Total Cover: <u>14.8</u>		
1. <u>Petasites frigidus</u>	2	<input type="checkbox"/>	FACW	
2. <u>Carex bigelowii</u>	10	<input checked="" type="checkbox"/>	FAC	
3. <u>Arctagrostis latifolia</u>	1	<input type="checkbox"/>	FACW	
4. <u>Equisetum arvense</u>	1	<input type="checkbox"/>	FAC	
5. <u>Mertensia paniculata</u>	0.5	<input type="checkbox"/>	FACU	
6. <u>Polemonium acutiflorum</u>	0.5	<input type="checkbox"/>	FAC	
7. <u>Tofieldia pusilla</u>	0.5	<input type="checkbox"/>	FAC	
8. <u>Juncus castaneus</u>	1	<input type="checkbox"/>	FACW	
9. <u>Bistorta vivipara</u>	0.5	<input type="checkbox"/>	FAC	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>17</u>				
	50% of Total Cover: <u>8.5</u>	20% of Total Cover: <u>3.4</u>		

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

Plot size (radius, or length x width) 10m
 % Cover of Wetland Bryophytes (Where applicable) _____
 % Bare Ground 3
 Total Cover of Bryophytes 90

Hydrophytic Vegetation Present? Yes No

Remarks: trace salret, leddec, dryint, andpol

SOIL

Sampling Point: K_05

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6		100					Fibric Organics	
6-14		100%					Hemic Organics	
14-18		95					Sapric Organics	5% 5YR2.5/2 loamy sand inclusions

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):
 Type: active layer (frozen)
 Depth (inches): 17

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches): 10
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 2

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_06
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): convex Slope: 17.6 % / 10.0 ° Elevation: 145
 Subregion: Northern Alaska Lat.: 66.97369 Long.: -160.452115 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>upland ridge adjacent to drainage. distinguishable in aerial by light color tall trees, use lidar to call out. SLOW, physio upland, geomorph fto.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	15	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>6</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>10</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>60.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>15</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>7.5</u>	20% of Total Cover: <u>3</u>		Prevalence Index worksheet:
1. <u>Salix pulchra</u>	1	<input type="checkbox"/>	FACW	Total % Cover of: _____ Multiply by: _____
2. <u>Vaccinium uliginosum</u>	10	<input checked="" type="checkbox"/>	FAC	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Vaccinium vitis-idaea</u>	30	<input checked="" type="checkbox"/>	FAC	FACW species <u>1</u> x 2 = <u>2</u>
4. <u>Rosa acicularis</u>	1	<input type="checkbox"/>	FACU	FAC species <u>64</u> x 3 = <u>192</u>
5. <u>Empetrum nigrum</u>	10	<input checked="" type="checkbox"/>	FAC	FACU species <u>28</u> x 4 = <u>112</u>
6. <u>Picea glauca</u>	10	<input checked="" type="checkbox"/>	FACU	UPL species <u>0</u> x 5 = <u>0</u>
7. <u>Betula glandulosa</u>	10	<input checked="" type="checkbox"/>	FAC	Column Total s: <u>93</u> (A) <u>306</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>3.290</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>72</u>				
Herb Stratum	50% of Total Cover: <u>36</u>	20% of Total Cover: <u>14.4</u>		Hydrophytic Vegetation Indicators:
1. <u>Mertensia paniculata</u>	1	<input checked="" type="checkbox"/>	FACU	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Deschampsia caespitosa</u>	3	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Prevalence Index is ≤3.0
3. <u>Equisetum arvense</u>	1	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Chamerion angustifolium</u>	1	<input checked="" type="checkbox"/>	FACU	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	_____	<input type="checkbox"/>	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>6</u>				
50% of Total Cover: <u>3</u>	20% of Total Cover: <u>1.2</u>			Plot size (radius, or length x width) <u>10m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground <u>10</u>
				Total Cover of Bryophytes <u>30</u>
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>heavy lichen cover, ca 50%</u>				

SOIL

Sampling Point: K_06

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-1		100					Hemic Organics		
1-2	10YR	3/2	100				Loam		
2-4	2.5Y	4/3	100				Sandy Loam		
4-5	5Y	5/1	100				Sandy Loam		
5-9	2.5Y	4/3	100				Sandy Loam		
9-10	10YR	4/6	100				Sandy Loam		
10-24	10Y	4/2	85	2.5Y	4/4	15	C	M	Sandy Loam

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 no wetland hydrology indicators

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_07
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Swale
 Local relief (concave, convex, none): concave Slope: 17.6 % / 10.0 ° Elevation: 85
 Subregion: Northern Alaska Lat.: 66.9735983333333 Long.: -160.452188333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1C

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: drainage feature w shallow flowing water. SLOW, physio upland, geomorph fto.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>1</u> x 1 = <u>1</u> FACW species <u>35</u> x 2 = <u>70</u> FAC species <u>48</u> x 3 = <u>144</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>84</u> (A) <u>215</u> (B) Prevalence Index = B/A = <u>2.560</u>
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		
1. <u>Salix richardsonii</u>	<u>20</u>	<input checked="" type="checkbox"/>	FACW	
2. <u>Dasiphora fruticosa</u>	<u>1</u>	<input type="checkbox"/>	FAC	
3. <u>Betula glandulosa</u>	<u>2</u>	<input type="checkbox"/>	FAC	
4. <u>Salix alaxensis</u>	<u>10</u>	<input type="checkbox"/>	FAC	
5. <u>Salix arbusculoides</u>	<u>5</u>	<input type="checkbox"/>	FACW	
6. <u>Salix glauca</u>	<u>25</u>	<input checked="" type="checkbox"/>	FAC	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>63</u>				
Herb Stratum	50% of Total Cover: <u>31.5</u>	20% of Total Cover: <u>12.6</u>		
1. <u>Calamagrostis canadensis</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	
2. <u>Carex membranacea</u>	<u>5</u>	<input checked="" type="checkbox"/>	FACW	
3. <u>Equisetum pratense</u>	<u>3</u>	<input type="checkbox"/>	FACW	
4. <u>Petasites frigidus</u>	<u>1</u>	<input type="checkbox"/>	FACW	
5. <u>Eriophorum scheuchzeri</u>	<u>1</u>	<input type="checkbox"/>	OBL	
6. <u>Juncus castaneus</u>	<u>1</u>	<input type="checkbox"/>	FACW	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>21</u>				
50% of Total Cover: <u>10.5</u>	20% of Total Cover: <u>4.2</u>			
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 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) <u>2m x 5m</u> % Cover of Wetland Bryophytes (Where applicable) _____ % Bare Ground <u>95</u> Total Cover of Bryophytes <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>				
Remarks: trace gallium sp, poa sp. petfri is pethyp per hulten (not in wetform).				

SOIL

Sampling Point: K_07

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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

⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

assume hydric soils due to hydrophytic vegetation and flowing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)	Secondary Indicators (two or more are required)
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input checked="" type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input checked="" type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Water Stained Leaves (B9) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Salt Deposits (C5) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes No Depth (inches): 2

Water Table Present? Yes No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

flowing water in drainage, ca 2 in deep. possible only flowing during heavy precip events. sediment deposits (silts-fine sands) throughout. iron floc in other portions of drainage where water pools.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_08
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: 8.7 % / 5.0 ° Elevation: 60
 Subregion: Northern Alaska Lat.: 66.973885 Long.: -160.453478333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: scattered small upl ridges as characterized by K_06 within this community, if visible in aerial/topo pull out separately. FNWWS, physio U, non-patterned	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	7	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A)
2. <u>Picea mariana</u>	3	<input checked="" type="checkbox"/>	FACW	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>83.3%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>10</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>5</u>	20% of Total Cover: <u>2</u>		Prevalence Index worksheet:
1. <u>Picea glauca</u>	5	<input type="checkbox"/>	FACU	Total % Cover of: _____ Multiply by: _____
2. <u>Dasiphora fruticosa</u>	3	<input type="checkbox"/>	FAC	OBL species <u>0.5</u> x 1 = <u>0.5</u>
3. <u>Betula glandulosa</u>	7	<input checked="" type="checkbox"/>	FAC	FACW species <u>7.5</u> x 2 = <u>15</u>
4. <u>Salix reticulata</u>	5	<input type="checkbox"/>	FAC	FAC species <u>46.5</u> x 3 = <u>139.5</u>
5. <u>Arctostaphylos rubra</u>	3	<input type="checkbox"/>	FAC	FACU species <u>13</u> x 4 = <u>52</u>
6. <u>Vaccinium uliginosum</u>	7	<input checked="" type="checkbox"/>	FAC	UPL species <u>0</u> x 5 = <u>0</u>
7. <u>Salix bebbiana</u>	10	<input checked="" type="checkbox"/>	FAC	Column Total s: <u>67.5</u> (A) <u>207</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>3.067</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>40</u>				
Herb Stratum	50% of Total Cover: <u>20</u>	20% of Total Cover: <u>8</u>		Hydrophytic Vegetation Indicators:
1. <u>Carex bigelowii</u>	10	<input checked="" type="checkbox"/>	FAC	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Polemonium acutiflorum</u>	0.5	<input type="checkbox"/>	FAC	<input type="checkbox"/> Prevalence Index is ≤ 3.0
3. <u>Equisetum arvense</u>	1	<input type="checkbox"/>	FAC	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Saxifraga hirculus</u>	0.5	<input type="checkbox"/>	OBL	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Petasites frigidus</u>	1	<input type="checkbox"/>	FACW	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. <u>Mertensia paniculata</u>	1	<input type="checkbox"/>	FACU	
7. <u>Ranunculus macounii</u>	0.5	<input type="checkbox"/>	FACW	
8. <u>Deschampsia caespitosa</u>	2	<input type="checkbox"/>	FACW	
9. <u>Equisetum variegatum</u>	1	<input type="checkbox"/>	FACW	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>17.5</u>				
50% of Total Cover: <u>8.75</u>	20% of Total Cover: <u>3.5</u>			Plot size (radius, or length x width) <u>10m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground <u>0</u>
				Total Cover of Bryophytes <u>80</u>
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>

Remarks: ranmac unid ranunculus (no flowers). Descae as collected at K_06. ca 15% lichen cover.

SOIL

Sampling Point: K_08

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)	%		Color (moist)	%	Type ¹	Loc ²		
0-3								Fibric Organics	
3-6								Hemic Organics	
6-8								Sapric Organics	
8-12	5Y	4/1	85	5Y	4/2	10	C	M	Silty Clay Loam 5% 10YR3/4 C PL and 2.5Y3/3 root casts
12-22	5Y	4/1	100						Silty Clay Loam thin organic layers

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen), si cl lo
 Depth (inches): 22, 8

Hydric Soil Present? Yes No

Remarks:

thixotropic soils - sides of pit continuously sloughing, cannot excavate clean pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches): 4
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 2

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_09
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Channel (active)
 Local relief (concave, convex, none): none Slope: 5.2 % / 3.0 ° Elevation: 80
 Subregion: Northern Alaska Lat.: 66.97375 Long.: -160.45482 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1C

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>wet sedge/willow meadow SLOBW. Physio riverine, geomorph active channel, nonpatterned.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Prevalence Index worksheet:
1. <u>Betula glandulosa</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	Total % Cover of: _____ Multiply by: _____
2. <u>Dasiphora fruticosa</u>	<u>2</u>	<input type="checkbox"/>	FAC	OBL species <u>49</u> x 1 = <u>49</u>
3. <u>Salix richardsonii</u>	<u>10</u>	<input checked="" type="checkbox"/>	FACW	FACW species <u>13</u> x 2 = <u>26</u>
4. <u>Chamaedaphne calyculata</u>	<u>3</u>	<input type="checkbox"/>	FACW	FAC species <u>52</u> x 3 = <u>156</u>
5. <u>Vaccinium uliginosum</u>	<u>5</u>	<input type="checkbox"/>	FAC	FACU species <u>3</u> x 4 = <u>12</u>
6. <u>Arctostaphylos rubra</u>	<u>5</u>	<input type="checkbox"/>	FAC	UPL species <u>0</u> x 5 = <u>0</u>
7. <u>Picea glauca</u>	<u>1</u>	<input type="checkbox"/>	FACU	Column Total s: <u>117</u> (A) <u>243</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>2.077</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>36</u>				
Herb Stratum	50% of Total Cover: <u>18</u>	20% of Total Cover: <u>7.2</u>		Hydrophytic Vegetation Indicators:
1. <u>Comarum palustre</u>	<u>5</u>	<input type="checkbox"/>	OBL	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Calamagrostis canadensis</u>	<u>30</u>	<input checked="" type="checkbox"/>	FAC	<input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0
3. <u>Carex aquatilis</u>	<u>40</u>	<input checked="" type="checkbox"/>	OBL	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Eriophorum scheuchzeri</u>	<u>2</u>	<input type="checkbox"/>	OBL	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Eriophorum angustifolium</u>	<u>2</u>	<input type="checkbox"/>	OBL	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. <u>Equisetum scirpoides</u>	<u>2</u>	<input type="checkbox"/>	FACU	
7. _____	_____	<input type="checkbox"/>	_____	Plot size (radius, or length x width) <u>10m</u>
8. _____	_____	<input type="checkbox"/>	_____	% Cover of Wetland Bryophytes (Where applicable) _____
9. _____	_____	<input type="checkbox"/>	_____	% Bare Ground _____
10. _____	_____	<input type="checkbox"/>	_____	Total Cover of Bryophytes _____
Total Cover: <u>81</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
50% of Total Cover: <u>40.5</u>	20% of Total Cover: <u>16.2</u>			
Remarks: <u>bryophyte layer submerged. trace unidentified herbs.</u>				

SOIL

Sampling Point: K_09

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 assume hydric soil due to hydrophytic vegetation and flowing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are 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 No Depth (inches): 4
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 small creek has topped banks and flooded entire willow/carex community. 4-12 in water through willows/carex.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_10
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: 17.6 % / 10.0 ° Elevation: 140
 Subregion: Northern Alaska Lat.: 66.97348 Long.: -160.4589 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1/4B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>SFWWS, physio upland, geomorph fto, nonpatterned.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>7</u>	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>7</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>3.5</u>	20% of Total Cover: <u>1.4</u>		Prevalence Index worksheet:
1. <u>Picea glauca</u>	<u>15</u>	<input checked="" type="checkbox"/>	FACU	Total % Cover of: _____ Multiply by: _____
2. <u>Betula glandulosa</u>	<u>7</u>	<input type="checkbox"/>	FAC	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Salix bebbiana</u>	<u>7</u>	<input type="checkbox"/>	FAC	FACW species <u>5</u> x 2 = <u>10</u>
4. <u>Vaccinium vitis-idaea</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	FAC species <u>73</u> x 3 = <u>219</u>
5. <u>Vaccinium uliginosum</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	FACU species <u>22</u> x 4 = <u>88</u>
6. <u>Empetrum nigrum</u>	<u>2</u>	<input type="checkbox"/>	FAC	UPL species <u>0</u> x 5 = <u>0</u>
7. <u>Arctostaphylos rubra</u>	<u>5</u>	<input type="checkbox"/>	FAC	Column Total s: <u>100</u> (A) <u>317</u> (B)
8. <u>Ledum decumbens</u>	<u>5</u>	<input type="checkbox"/>	FACW	Prevalence Index = B/A = <u>3.170</u>
9. <u>Salix reticulata</u>	<u>3</u>	<input type="checkbox"/>	FAC	
10. <u>Betula nana</u>	<u>3</u>	<input type="checkbox"/>	FAC	
Total Cover: <u>67</u>				
Herb Stratum	50% of Total Cover: <u>33.5</u>	20% of Total Cover: <u>13.4</u>		Hydrophytic Vegetation Indicators:
1. <u>Calamagrostis canadensis</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Carex bigelowii</u>	<u>7</u>	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Prevalence Index is ≤ 3.0
3. <u>Carex microchaeta</u>	<u>1</u>	<input type="checkbox"/>	FAC	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Equisetum arvense</u>	<u>5</u>	<input type="checkbox"/>	FAC	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Deschampsia caespitosa</u>	<u>3</u>	<input type="checkbox"/>	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	Plot size (radius, or length x width) <u>10m</u>
7. _____	_____	<input type="checkbox"/>	_____	% Cover of Wetland Bryophytes (Where applicable) _____
8. _____	_____	<input type="checkbox"/>	_____	% Bare Ground <u>0</u>
9. _____	_____	<input type="checkbox"/>	_____	Total Cover of Bryophytes <u>45</u>
10. _____	_____	<input type="checkbox"/>	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Total Cover: <u>26</u>				
50% of Total Cover: <u>13</u>	20% of Total Cover: <u>5.2</u>			

Remarks: carmic no infl, but strongly tristichous, low to ground leaves. descae as collected earlier today. ca 45% lichen.

SOIL

Sampling Point: K_10

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)	%		Color (moist)	%	Type ¹	Loc ²		
0-2								Hemic Organics	
2-3								Sapric Organics	
3-9	5Y	4/1	85	10YR	4/4	15	C	PL	Silty Clay Loam
9-15	5Y	4/1	85	2.5Y	4/4	15	C	M	Silty Clay Loam >2% oxidized rhizospheres around living roo
15-16									Sapric Organics buried O horizon
16-20	5Y	4/1	50	10YR	5/6	50	C	PL	Silty Clay Loam

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: silty clay loam
 Depth (inches): 3

Hydric Soil Present? Yes No

Remarks:

16-20: redox features in bands and waves (M) in addition to PL. Throughout profile, C are a mix of 4/3 and 4/4. multiple C colors indicate contemporary (not relict) features. Thixotropic soils, sloughing in from side of pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches): 19
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 1

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

soils very cold, but not frozen. water pooling in bottom of pit, considering this water table.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_11
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Swale
 Local relief (concave, convex, none): _____ Slope: 12.2 % / 7.0 ° Elevation: 150
 Subregion: Northern Alaska Lat.: 66.9733083333333 Long.: -160.461875 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: emergent swale used as ATV trail (tracks visible onsite and in aerial). flowing water at time of site visit, likely due to recent heavy precip. physio riverine, geomorph ft. HGWSL.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>73.5</u> x 1 = <u>73.5</u> FACW species <u>6.5</u> x 2 = <u>13</u> FAC species <u>12</u> x 3 = <u>36</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>92</u> (A) <u>122.5</u> (B) Prevalence Index = B/A = <u>1.332</u>
Sapling/Shrub Stratum 50% of Total Cover: <u>0</u> 20% of Total Cover: <u>0</u>				
1. <u>Salix reticulata</u>	<u>3</u>	<input checked="" type="checkbox"/>	FAC	
2. <u>Salix richardsonii</u>	<u>3</u>	<input checked="" type="checkbox"/>	FACW	
3. <u>Dasiphora fruticosa</u>	<u>2</u>	<input checked="" type="checkbox"/>	FAC	
4. <u>Betula glandulosa</u>	<u>2</u>	<input checked="" type="checkbox"/>	FAC	
5. <u>Andromeda polifolia</u>	<u>1</u>	<input type="checkbox"/>	FACW	
6. <u>Chamaedaphne calyculata</u>	<u>1</u>	<input type="checkbox"/>	FACW	
7. <u>Vaccinium uliginosum</u>	<u>2</u>	<input checked="" type="checkbox"/>	FAC	
8. <u>Vaccinium oxycoccos</u>	<u>0.5</u>	<input type="checkbox"/>	OBL	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>14.5</u>				
Herb Stratum 50% of Total Cover: <u>7.25</u> 20% of Total Cover: <u>2.9</u>				
1. <u>Carex aquatilis</u>	<u>70</u>	<input checked="" type="checkbox"/>	OBL	
2. <u>Eriophorum angustifolium</u>	<u>3</u>	<input type="checkbox"/>	OBL	
3. <u>Carex bigelowii</u>	<u>2</u>	<input type="checkbox"/>	FAC	
4. <u>Arctagrostis latifolia</u>	<u>1</u>	<input type="checkbox"/>	FACW	
5. <u>Parnassia palustris</u>	<u>0.5</u>	<input type="checkbox"/>	FACW	
6. <u>Polemonium acutiflorum</u>	<u>0.5</u>	<input type="checkbox"/>	FAC	
7. <u>Iris setosa</u>	<u>0.5</u>	<input type="checkbox"/>	FAC	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>77.5</u>				
50% of Total Cover: <u>38.75</u> 20% of Total Cover: <u>15.5</u>				

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

Plot size (radius, or length x width) 2m x 5m
 % Cover of Wetland Bryophytes (Where applicable) _____
 % Bare Ground _____
 Total Cover of Bryophytes _____

Hydrophytic Vegetation Present? Yes No

Remarks: bryophyte layer submerged. polacu, parpal, vacoxy on local high point.

SOIL

Sampling Point: K_11

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 assume hydric soil due to hydrophytic vegetation and flowing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): 4
 Water Table Present? Yes No Depth (inches):
 Saturation Present? Yes No Depth (inches):
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 appears to be swale flooded by recent heavy precip, no obvious channel (banks/bed). water depth 4-8in, fast-flowing.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_12
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: 5.2 % / 3.0 ° Elevation: 145
 Subregion: Northern Alaska Lat.: 66.9736866666667 Long.: -160.462701666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>SFWWS, physio upland, geomorph fto, nonpatterned.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>5</u>	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>6</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>7</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>85.7%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>5</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>2.5</u>	20% of Total Cover: <u>1</u>		Prevalence Index worksheet:
1. <u>Picea glauca</u>	<u>5</u>	<input type="checkbox"/>	FACU	Total % Cover of: _____ Multiply by: _____
2. <u>Vaccinium uliginosum</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Dasiphora fruticosa</u>	<u>3</u>	<input type="checkbox"/>	FAC	FACW species <u>5</u> x 2 = <u>10</u>
4. <u>Betula glandulosa</u>	<u>7</u>	<input checked="" type="checkbox"/>	FAC	FAC species <u>64</u> x 3 = <u>192</u>
5. <u>Arctostaphylos rubra</u>	<u>5</u>	<input type="checkbox"/>	FAC	FACU species <u>10</u> x 4 = <u>40</u>
6. <u>Salix glauca</u>	<u>5</u>	<input type="checkbox"/>	FAC	UPL species <u>0</u> x 5 = <u>0</u>
7. <u>Betula nana</u>	<u>3</u>	<input type="checkbox"/>	FAC	Column Total s: <u>79</u> (A) <u>242</u> (B)
8. <u>Vaccinium vitis-Idaea</u>	<u>2</u>	<input type="checkbox"/>	FAC	Prevalence Index = B/A = <u>3.063</u>
9. <u>Empetrum nigrum</u>	<u>2</u>	<input type="checkbox"/>	FAC	
10. <u>Salix reticulata</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	
Total Cover: <u>52</u>				
50% of Total Cover: <u>26</u>	20% of Total Cover: <u>10.4</u>			Hydrophytic Vegetation Indicators:
Herb Stratum				<input checked="" type="checkbox"/> Dominance Test is > 50%
1. <u>Rubus chamaemorus</u>	<u>5</u>	<input checked="" type="checkbox"/>	FACW	<input type="checkbox"/> Prevalence Index is ≤3.0
2. <u>Carex bigelowii</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
3. <u>Deschampsia cespitosa</u>	<u>5</u>	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
4. <u>Saussurea angustifolia</u>	<u>2</u>	<input type="checkbox"/>	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>22</u>				
50% of Total Cover: <u>11</u>	20% of Total Cover: <u>4.4</u>			Plot size (radius, or length x width) <u>10m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground <u>2</u>
				Total Cover of Bryophytes <u>70</u>
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>ca 20% lichen cover. descae as collected earlier today.</u>				

SOIL

Sampling Point: K_12

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5		100					Fibric Organics	
5-8		100					Hemic Organics	
8-9		100					Sapric Organics	
9-23	10Y 4/1	95	5Y 4/3	5	C	PL	Fine Sandy Loam	10% organic inclusions and thin layers

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)
 Depth (inches): 23

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches): 3
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 1

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_13
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: 8.7 % / 5.0 ° Elevation: 170
 Subregion: Northern Alaska Lat.: 66.9738 Long.: -160.464853333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: caribou scat, game trails. SLOBE, physio upland, geomorph fto, nonpatterned.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>5</u>	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>83.3%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>5</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>2.5</u>	20% of Total Cover: <u>1</u>		Prevalence Index worksheet:
1. <u>Picea glauca</u>	<u>7</u>	<input type="checkbox"/>	FACU	OBL species <u>0</u> x 1 = <u>0</u>
2. <u>Betula glandulosa</u>	<u>15</u>	<input checked="" type="checkbox"/>	FAC	FACW species <u>15</u> x 2 = <u>30</u>
3. <u>Salix glauca</u>	<u>5</u>	<input type="checkbox"/>	FAC	FAC species <u>65</u> x 3 = <u>195</u>
4. <u>Vaccinium uliginosum</u>	<u>30</u>	<input checked="" type="checkbox"/>	FAC	FACU species <u>12</u> x 4 = <u>48</u>
5. <u>Vaccinium vitis-idaea</u>	<u>5</u>	<input type="checkbox"/>	FAC	UPL species <u>0</u> x 5 = <u>0</u>
6. <u>Ledum decumbens</u>	<u>10</u>	<input type="checkbox"/>	FACW	Column Total s: <u>92</u> (A) <u>273</u> (B)
7. <u>Salix reticulata</u>	<u>2</u>	<input type="checkbox"/>	FAC	Prevalence Index = B/A = <u>2.967</u>
8. <u>Empetrum nigrum</u>	<u>3</u>	<input type="checkbox"/>	FAC	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>77</u>				
Herb Stratum	50% of Total Cover: <u>38.5</u>	20% of Total Cover: <u>15.4</u>		Hydrophytic Vegetation Indicators:
1. <u>Arctagrostis latifolia</u>	<u>5</u>	<input checked="" type="checkbox"/>	FACW	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Deschampsia caespitosa</u>	<u>2</u>	<input checked="" type="checkbox"/>	FAC	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0
3. <u>Carex bigelowii</u>	<u>3</u>	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	<input type="checkbox"/>	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	_____	<input type="checkbox"/>	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>10</u>				
50% of Total Cover: <u>5</u>	20% of Total Cover: <u>2</u>			Plot size (radius, or length x width) <u>10m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground <u>3</u>
				Total Cover of Bryophytes <u>40</u>
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: descae as collected earlier today. ca 50% lichen cover.				

SOIL

Sampling Point: K_13

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)	%		Color (moist)	%	Type ¹	Loc ²		
0-3								Fibric Organics	
3-5								Hemic Organics	
5-14	5Y	4/1	90	10YR	4/4	10	C	PL	Silty Clay Loam 2% oxidized rhizospheres around living roots
14-15	5Y	4/1	40	10YR	4/4	60	C	M/PL	Silty Clay Loam
15-20	5Y	4/2	50	5Y	4/3	50	C	M	Silty Clay Loam

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: silty clay loam
 Depth (inches): 5

Hydric Soil Present? Yes No

Remarks:
 soils very cold but not frozen

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 soils moist but not saturated

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_14
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Shoreline
 Local relief (concave, convex, none): concave Slope: 0.0 % / 0.0 ° Elevation: 160
 Subregion: Northern Alaska Lat.: 66.9738333333333 Long.: -160.467531666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PEM1H

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: characterizing bright green pond fringe in aerial. pond w flowing inlet at time of site visit (audible) and scattered sparganium (?). large animal trail. HGWFG, physio lacustrine, geomorph wlsi (does audible inlet mean not isol?). Adjacent brown in aerial is slightly elevated graminoid-herb community dominated by calcan. heavy conml cover	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>86</u> x 1 = <u>86</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>86</u> (A) <u>86</u> (B) Prevalence Index = B/A = <u>1.000</u>
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		
1. _____	_____	<input type="checkbox"/>	_____	
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Herb Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		
1. <u>Equisetum fluviatile</u>	<u>10</u>	<input type="checkbox"/>	OBL	
2. <u>Carex utriculata</u>	<u>30</u>	<input checked="" type="checkbox"/>	OBL	
3. <u>Eriophorum scheuchzeri</u>	<u>5</u>	<input type="checkbox"/>	OBL	
4. <u>Arctophila fulva</u>	<u>30</u>	<input checked="" type="checkbox"/>	OBL	
5. <u>Eleocharis palustris</u>	<u>10</u>	<input type="checkbox"/>	OBL	
6. <u>Potamogeton gramineus</u>	<u>1</u>	<input type="checkbox"/>	OBL	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>86</u>				
50% of Total Cover: <u>43</u> 20% of Total Cover: <u>17.2</u>				
Remarks: trace lemna.				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 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) <u>5m</u> % Cover of Wetland Bryophytes (Where applicable) _____ % Bare Ground <u>95</u> Total Cover of Bryophytes <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>				

SOIL

Sampling Point: K_14

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): 8
 Water Table Present? Yes No Depth (inches):
 Saturation Present? Yes No Depth (inches):
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 8in standing water in sedge community.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_15
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Flat
 Local relief (concave, convex, none): none Slope: 0.0 % / 0.0 ° Elevation: 200
 Subregion: Northern Alaska Lat.: 66.9741966666667 Long.: -160.468356666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: bench between two steep slopes. SLOBW, physio upland, geomorph fto, nonpatterned.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>5</u>	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>7</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>87.5%</u> (A/B)
2. <u>Picea mariana</u>	<u>2</u>	<input checked="" type="checkbox"/>	FACW	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>7</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>31</u> x 2 = <u>62</u> FAC species <u>37</u> x 3 = <u>111</u> FACU species <u>12</u> x 4 = <u>48</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>80</u> (A) <u>221</u> (B) Prevalence Index = B/A = <u>2.763</u>
Sapling/Shrub Stratum 50% of Total Cover: <u>3.5</u> 20% of Total Cover: <u>1.4</u>				
1. <u>Picea glauca</u>	<u>7</u>	<input type="checkbox"/>	FACU	
2. <u>Betula glandulosa</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	
3. <u>Salix pulchra</u>	<u>10</u>	<input checked="" type="checkbox"/>	FACW	
4. <u>Ledum decumbens</u>	<u>15</u>	<input checked="" type="checkbox"/>	FACW	
5. <u>Vaccinium uliginosum</u>	<u>15</u>	<input checked="" type="checkbox"/>	FAC	
6. <u>Vaccinium vitis-idaea</u>	<u>5</u>	<input type="checkbox"/>	FAC	
7. <u>Betula nana</u>	<u>5</u>	<input type="checkbox"/>	FAC	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>67</u>				
Herb Stratum 50% of Total Cover: <u>33.5</u> 20% of Total Cover: <u>13.4</u>				
1. <u>Petasites frigidus</u>	<u>3</u>	<input checked="" type="checkbox"/>	FACW	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Arctagrostis latifolia</u>	<u>1</u>	<input type="checkbox"/>	FACW	
3. <u>Carex bigelowii</u>	<u>2</u>	<input checked="" type="checkbox"/>	FAC	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>6</u>				
50% of Total Cover: <u>3</u> 20% of Total Cover: <u>1.2</u>				
Plot size (radius, or length x width) <u>5m</u> % Cover of Wetland Bryophytes (Where applicable) _____ % Bare Ground <u>0</u> Total Cover of Bryophytes <u>95</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>				
Remarks:				

SOIL

Sampling Point: K_15

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-17		100					Fibric Organics	
17-19	2.5Y	3/1	100				Sandy Loam	

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):
 Type: active layer (frozen)
 Depth (inches): 19

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches): 11
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 5

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_16
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: 26.7 % / 15.0 ° Elevation: 180
 Subregion: Northern Alaska Lat.: 66.974335 Long.: -160.468706666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>steep southern aspect slope. FNWWS, physio upland, geomorph fto, nonpatterned.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>20</u>	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>80.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>20</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>10</u>	20% of Total Cover: <u>4</u>		Prevalence Index worksheet:
1. <u>Picea glauca</u>	<u>5</u>	<input type="checkbox"/>	FACU	<u>0</u> x 1 = <u>0</u>
2. <u>Salix pulchra</u>	<u>7</u>	<input checked="" type="checkbox"/>	FACW	<u>28</u> x 2 = <u>56</u>
3. <u>Salix alaxensis</u>	<u>7</u>	<input checked="" type="checkbox"/>	FAC	<u>17</u> x 3 = <u>51</u>
4. <u>Vaccinium vitis-idaea</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	<u>26.5</u> x 4 = <u>106</u>
5. <u>Rosa acicularis</u>	<u>1</u>	<input type="checkbox"/>	FACU	<u>0</u> x 5 = <u>0</u>
6. _____	_____	<input type="checkbox"/>	_____	Column Total s: <u>71.5</u> (A) <u>213</u> (B)
7. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>2.979</u>
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>30</u>				
Herb Stratum	50% of Total Cover: <u>15</u>	20% of Total Cover: <u>6</u>		Hydrophytic Vegetation Indicators:
1. <u>Equisetum pratense</u>	<u>20</u>	<input checked="" type="checkbox"/>	FACW	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Petasites frigidus</u>	<u>1</u>	<input type="checkbox"/>	FACW	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0
3. <u>Equisetum sclrpoides</u>	<u>0.5</u>	<input type="checkbox"/>	FACU	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	<input type="checkbox"/>	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	_____	<input type="checkbox"/>	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>21.5</u>				
50% of Total Cover: <u>10.75</u>	20% of Total Cover: <u>4.3</u>			Plot size (radius, or length x width) <u>5m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground <u>30</u>
				Total Cover of Bryophytes <u>55</u>
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>10% lichens</u>				

SOIL

Sampling Point: K_16

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)	%		Color (moist)	%	Type ¹	Loc ²		
0-1								Hemic Organics	
1-19	2.5Y	4/1	80	2.5Y	3/2	20	C	PL	Sandy Loam
19-22	2.5Y	4/1	60	2.5Y	4/4	40	C	PL	Sandy Loam thin organic layer at 18 and 17 in bgs

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_17
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: 8.7 % / 5.0 ° Elevation: 110
 Subregion: Northern Alaska Lat.: 66.9751583333333 Long.: -160.463153333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1/4B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>SFWWS, physio upland, geomorph fto, nonpatterned.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>5</u>	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>75.0%</u> (A/B)
2. <u>Picea mariana</u>	<u>2</u>	<input checked="" type="checkbox"/>	FACW	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>7</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>8</u> x 2 = <u>16</u> FAC species <u>57</u> x 3 = <u>171</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>85</u> (A) <u>267</u> (B) Prevalence Index = B/A = <u>3.141</u>
Sapling/Shrub Stratum 50% of Total Cover: <u>3.5</u> 20% of Total Cover: <u>1.4</u>				
1. <u>Picea glauca</u>	<u>15</u>	<input checked="" type="checkbox"/>	FACU	
2. <u>Vaccinium uliginosum</u>	<u>7</u>	<input type="checkbox"/>	FAC	
3. <u>Betula glandulosa</u>	<u>3</u>	<input type="checkbox"/>	FAC	
4. <u>Salix glauca</u>	<u>7</u>	<input type="checkbox"/>	FAC	
5. <u>Salix reticulata</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	
6. <u>Arctostaphylos rubra</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	
7. <u>Empetrum nigrum</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	
8. <u>Andromeda polifolia</u>	<u>1</u>	<input type="checkbox"/>	FACW	
9. <u>Betula nana</u>	<u>2</u>	<input type="checkbox"/>	FAC	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>65</u>				
Herb Stratum 50% of Total Cover: <u>32.5</u> 20% of Total Cover: <u>13</u>				
1. <u>Carex bigelowii</u>	<u>7</u>	<input checked="" type="checkbox"/>	FAC	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Tofieldia pusilla</u>	<u>1</u>	<input type="checkbox"/>	FAC	
3. <u>Eriophorum vaginatum</u>	<u>3</u>	<input checked="" type="checkbox"/>	FACW	
4. <u>Arctagrostis latifolia</u>	<u>2</u>	<input type="checkbox"/>	FACW	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>13</u>				
50% of Total Cover: <u>6.5</u> 20% of Total Cover: <u>2.6</u>				
Plot size (radius, or length x width) <u>10m</u> % Cover of Wetland Bryophytes (Where applicable) _____ % Bare Ground _____ Total Cover of Bryophytes _____ Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>				
Remarks: _____				

SOIL

Sampling Point: K_17

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4							Fibric Organics	
4-8							Hemic Organics	
8-21	5YR	4/1	100				Fine Sandy Loam	

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)
 Depth (inches): 21

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches): 5
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 1

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWS Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_18
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Bluff
 Local relief (concave, convex, none): none Slope: 99.9 % / 45.0 ° Elevation: 140
 Subregion: Northern Alaska Lat.: 66.9754283333333 Long.: -160.46223 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: at top of steep southern aspect bluff. small drainage at bottom w flowing water and salix. FMOAS, physio upland, geomorph fto, nonpatterned.	

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

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u>				Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A)
1. <u>Picea glauca</u>	<u>20</u>	<input checked="" type="checkbox"/>	FACU	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
2. <u>Populus tremuloides</u>	<u>40</u>	<input checked="" type="checkbox"/>	FACU	Percent of dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover:	<u>60</u>			
<u>Sapling/Shrub Stratum</u>	50% of Total Cover: <u>30</u>	20% of Total Cover: <u>12</u>		Prevalence Index worksheet:
1. <u>Populus tremuloides</u>	<u>25</u>	<input checked="" type="checkbox"/>	FACU	Total % Cover of: _____ Multiply by: _____
2. <u>Picea glauca</u>	<u>10</u>	<input type="checkbox"/>	FACU	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Vaccinium vitis-idaea</u>	<u>15</u>	<input checked="" type="checkbox"/>	FAC	FACW species <u>0</u> x 2 = <u>0</u>
4. <u>Vaccinium uliginosum</u>	<u>7</u>	<input type="checkbox"/>	FAC	FAC species <u>29.5</u> x 3 = <u>88.5</u>
5. <u>Empetrum nigrum</u>	<u>2</u>	<input type="checkbox"/>	FAC	FACU species <u>97</u> x 4 = <u>388</u>
6. _____	_____	<input type="checkbox"/>	_____	UPL species <u>0</u> x 5 = <u>0</u>
7. _____	_____	<input type="checkbox"/>	_____	Column Total s: <u>126.5</u> (A) <u>476.5</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>3.767</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover:	<u>59</u>			
<u>Herb Stratum</u>	50% of Total Cover: <u>29.5</u>	20% of Total Cover: <u>11.8</u>		Hydrophytic Vegetation Indicators:
1. <u>Mertensia paniculata</u>	<u>1</u>	<input type="checkbox"/>	FACU	<input type="checkbox"/> Dominance Test is > 50%
2. <u>Equisetum arvense</u>	<u>2</u>	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Prevalence Index is ≤3.0
3. <u>Deschampsia caespitosa</u>	<u>3</u>	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Chamerion angustifolium</u>	<u>1</u>	<input type="checkbox"/>	FACU	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Saussurea angustifolia</u>	<u>0.5</u>	<input type="checkbox"/>	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover:	<u>7.5</u>			
50% of Total Cover:	<u>3.75</u>	20% of Total Cover:	<u>1.5</u>	
Remarks: descae as collected earlier today				Plot size (radius, or length x width) <u>10m</u> % Cover of Wetland Bryophytes (Where applicable) _____ % Bare Ground <u>75</u> Total Cover of Bryophytes <u>20</u> Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>

SOIL

Sampling Point: K_18

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1							Hemic Organics	
1-3	10YR	4/3	100				Silty Clay Loam	
3-4	2.5Y	4/3	100				Silty Clay Loam	
4-21	5Y	4/2	100				Silty Clay Loam	thin layers of 2.5Y4/2

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: silty clay loam
 Depth (inches): 1

Hydric Soil Present? Yes No

Remarks:
 no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWS Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_19
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: 17.6 % / 10.0 ° Elevation: 190
 Subregion: Northern Alaska Lat.: _____ Long.: -160.460728333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>slobw, physio upland, geomorph fto, non-patterned. Transition plot between steep upland aspen stand and adjacent slope wetlands. Ecotone.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>5</u>	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>80.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>5</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>2.5</u>	20% of Total Cover: <u>1</u>		Prevalence Index worksheet:
1. <u>Betula glandulosa</u>	<u>50</u>	<input checked="" type="checkbox"/>	FAC	Total % Cover of: _____ Multiply by: _____
2. <u>Ledum decumbens</u>	<u>10</u>	<input type="checkbox"/>	FACW	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Vaccinium vitis-idaea</u>	<u>15</u>	<input type="checkbox"/>	FAC	FACW species <u>17</u> x 2 = <u>34</u>
4. <u>Vaccinium uliginosum</u>	<u>20</u>	<input checked="" type="checkbox"/>	FAC	FAC species <u>95</u> x 3 = <u>285</u>
5. <u>Salix glauca</u>	<u>3</u>	<input type="checkbox"/>	FAC	FACU species <u>5</u> x 4 = <u>20</u>
6. <u>Salix pulchra</u>	<u>2</u>	<input type="checkbox"/>	FACW	UPL species <u>0</u> x 5 = <u>0</u>
7. _____	_____	<input type="checkbox"/>	_____	Column Total s: <u>117</u> (A) <u>339</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>2.897</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>100</u>				
Herb Stratum	50% of Total Cover: <u>50</u>	20% of Total Cover: <u>20</u>		Hydrophytic Vegetation Indicators:
1. <u>Petasites frigidus</u>	<u>2</u>	<input type="checkbox"/>	FACW	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Calamagrostis canadensis</u>	<u>2</u>	<input type="checkbox"/>	FAC	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0
3. <u>Equisetum pratense</u>	<u>3</u>	<input checked="" type="checkbox"/>	FACW	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Carex bigelowii</u>	<u>5</u>	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	_____	<input type="checkbox"/>	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>12</u>				
50% of Total Cover: <u>6</u>	20% of Total Cover: <u>2.4</u>			Plot size (radius, or length x width) <u>10m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground <u>0</u>
				Total Cover of Bryophytes <u>60</u>
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>ca 45% lichen cover</u>				

SOIL

Sampling Point: K_19

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)	%		Color (moist)	%	Type ¹	Loc ²		
0-4								Fibric Organic	
4-6								Sapric Organic	charcoal, orga
6-19	5Y	3/1	90	2.5Y	4/3	10	C	PL	Silty Clay Loam

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen), si cl lo
 Depth (inches): 19, 6

Hydric Soil Present? Yes No

Remarks:
 no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 4

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 water perched atop thixotropic silty clay loam @6in bgs

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_20
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: 8.7 % / 5.0 ° Elevation: 130
 Subregion: Northern Alaska Lat.: 66.9756383333334 Long.: -160.455953333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: partially barren shrub-forb BPV, physio upland, geomorph fto (disturbed). Hiked up picgla poptre knob adjacent to flooded drainage. Small holes dug in sand, unid scat (fox?).	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Prevalence Index worksheet:
1. <u>Salix arbusculoides</u>	<u>3</u>	<input checked="" type="checkbox"/>	FACW	Total % Cover of: _____ Multiply by: _____
2. <u>Salix alaxensis</u>	<u>5</u>	<input checked="" type="checkbox"/>	FAC	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Picea glauca</u>	<u>3</u>	<input checked="" type="checkbox"/>	FACU	FACW species <u>3</u> x 2 = <u>6</u>
4. <u>Betula glandulosa</u>	<u>1</u>	<input type="checkbox"/>	FAC	FAC species <u>11</u> x 3 = <u>33</u>
5. <u>Populus balsamifera</u>	<u>0.5</u>	<input type="checkbox"/>	FACU	FACU species <u>11.5</u> x 4 = <u>46</u>
6. <u>Salix glauca</u>	<u>2</u>	<input type="checkbox"/>	FAC	UPL species <u>0</u> x 5 = <u>0</u>
7. _____	_____	<input type="checkbox"/>	_____	Column Total s: <u>25.5</u> (A) <u>85</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>3.333</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>14.5</u>				
Herb Stratum	50% of Total Cover: <u>7.25</u>	20% of Total Cover: <u>2.9</u>		Hydrophytic Vegetation Indicators:
1. <u>Chamerion angustifolium</u>	<u>5</u>	<input checked="" type="checkbox"/>	FACU	<input type="checkbox"/> Dominance Test is > 50%
2. <u>Equisetum arvense</u>	<u>3</u>	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Prevalence Index is ≤ 3.0
3. <u>Artemisia tilesii</u>	<u>3</u>	<input checked="" type="checkbox"/>	FACU	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	<input type="checkbox"/>	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	_____	<input type="checkbox"/>	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>11</u>				
50% of Total Cover: <u>5.5</u>	20% of Total Cover: <u>2.2</u>			Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>

Remarks: shrubs encroaching upon mostly barren site

SOIL

Sampling Point: K_20

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks		
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²				
0-18	5Y	4/2	85	5Y	4/3	15	C	M	Fine Loamy Sand	
18-24	5Y	5/2	90	5Y	4/3	10	C	M	Fine Loamy Sand	

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are 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 No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? Yes No Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 no wetland hydrology indicators

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_21
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: 8.7 % / 5.0 ° Elevation: 135
 Subregion: Northern Alaska Lat.: 66.9756866666666 Long.: -160.453535 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>stow, physio upland (disturbed), geomorph fto (disturbed), non-patterned. transitions to stcw. moose scat and browse.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>42.5</u> x 2 = <u>85</u> FAC species <u>46.5</u> x 3 = <u>139.5</u> FACU species <u>12</u> x 4 = <u>48</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>101</u> (A) <u>272.5</u> (B) Prevalence Index = B/A = <u>2.698</u>
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		
1. <u>Salix richardsonii</u>	<u>15</u>	<input checked="" type="checkbox"/>	FACW	
2. <u>Salix arbusculoides</u>	<u>5</u>	<input type="checkbox"/>	FACW	
3. <u>Salix alaxensis</u>	<u>40</u>	<input checked="" type="checkbox"/>	FAC	
4. <u>Betula glandulosa</u>	<u>1</u>	<input type="checkbox"/>	FAC	
5. <u>Picea glauca</u>	<u>3</u>	<input type="checkbox"/>	FACU	
6. <u>Populus balsamifera</u>	<u>1</u>	<input type="checkbox"/>	FACU	
7. <u>Salix bebbiana</u>	<u>5</u>	<input type="checkbox"/>	FAC	
8. <u>Salix pulchra</u>	<u>2</u>	<input type="checkbox"/>	FACW	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>72</u>				
Herb Stratum	50% of Total Cover: <u>36</u>	20% of Total Cover: <u>14.4</u>		
1. <u>Chamerion angustifolium</u>	<u>5</u>	<input type="checkbox"/>	FACU	
2. <u>Artemisia tilesii</u>	<u>3</u>	<input type="checkbox"/>	FACU	
3. <u>Equisetum pratense</u>	<u>20</u>	<input checked="" type="checkbox"/>	FACW	
4. <u>Parnassia palustris</u>	<u>0.5</u>	<input type="checkbox"/>	FACW	
5. <u>Polemonium acutiflorum</u>	<u>0.5</u>	<input type="checkbox"/>	FAC	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>29</u>				
50% of Total Cover: <u>14.5</u>	20% of Total Cover: <u>5.8</u>			
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 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) <u>5m</u> % Cover of Wetland Bryophytes (Where applicable) _____ % Bare Ground <u>25</u> Total Cover of Bryophytes <u>70</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>				
Remarks: _____				

SOIL

Sampling Point: K_21

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-1							Fibric Organics		
1-3	2.5Y	4/1	100				Fine Sandy Loam		
3-10	5Y	5/1	95	5Y	4/1	5	C	M	Fine Loamy Sand
10-14	2.5Y	4/1	95	2.5Y	4/2	5	C	M	Fine Loamy Sand
14-24	5Y	4/1	85	2.5Y	5/3	15	C	M	Fine Loamy Sand

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWS Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 no wetland hydrology indicators

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_22
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: 5.2 % / 3.0 ° Elevation: 120
 Subregion: Northern Alaska Lat.: 66.9737983333333 Long.: -160.445935 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>slob, physio upland, geomorph fto, nonpatterned.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>11</u> x 2 = <u>22</u> FAC species <u>73</u> x 3 = <u>219</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>84</u> (A) <u>241</u> (B) Prevalence Index = B/A = <u>2.869</u>
Sapling/Shrub Stratum 50% of Total Cover: <u>0</u> 20% of Total Cover: <u>0</u>				
1. <u>Betula nana</u>	<u>25</u>	<input checked="" type="checkbox"/>	FAC	
2. <u>Betula glandulosa</u>	<u>5</u>	<input type="checkbox"/>	FAC	
3. <u>Vaccinium uliginosum</u>	<u>15</u>	<input checked="" type="checkbox"/>	FAC	
4. <u>Vaccinium vitis-idaea</u>	<u>3</u>	<input type="checkbox"/>	FAC	
5. <u>Ledum decumbens</u>	<u>7</u>	<input type="checkbox"/>	FACW	
6. <u>Alnus viridis ssp. sinuata</u>	<u>5</u>	<input type="checkbox"/>	FAC	
7. <u>Andromeda polifolia</u>	<u>1</u>	<input type="checkbox"/>	FACW	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>61</u>				
Herb Stratum 50% of Total Cover: <u>30.5</u> 20% of Total Cover: <u>12.2</u>				
1. <u>Carex bigelowii</u>	<u>20</u>	<input checked="" type="checkbox"/>	FAC	
2. <u>Arctagrostis latifolia</u>	<u>3</u>	<input type="checkbox"/>	FACW	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>23</u>				
50% of Total Cover: <u>11.5</u> 20% of Total Cover: <u>4.6</u>				
Remarks: _____				

SOIL

Sampling Point: K_22

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4							Fibric Organics	
4-16							Hemic Organics	

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):
 Type: active layer (frozen)
 Depth (inches): 16

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches): 8
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 4

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 22-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_23
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: 5.2 % / 3.0 ° Elevation: 145
 Subregion: Northern Alaska Lat.: 66.973415 Long.: -160.444861666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>STCA, physio upland, geomorph fto (disturbed?).</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Prevalence Index worksheet:
1. <u>Alnus viridis ssp. crispa</u>	<u>90</u>	<input checked="" type="checkbox"/>	FAC	Total % Cover of: _____ Multiply by: _____
2. <u>Vaccinium uliginosum</u>	<u>5</u>	<input type="checkbox"/>	FAC	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Ledum decumbens</u>	<u>1</u>	<input type="checkbox"/>	FACW	FACW species <u>4</u> x 2 = <u>8</u>
4. _____	_____	<input type="checkbox"/>	_____	FAC species <u>96</u> x 3 = <u>288</u>
5. _____	_____	<input type="checkbox"/>	_____	FACU species <u>3</u> x 4 = <u>12</u>
6. _____	_____	<input type="checkbox"/>	_____	UPL species <u>0</u> x 5 = <u>0</u>
7. _____	_____	<input type="checkbox"/>	_____	Column Total s: <u>103</u> (A) <u>308</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>2.990</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>96</u>				
Herb Stratum	50% of Total Cover: <u>48</u>	20% of Total Cover: <u>19.2</u>		Hydrophytic Vegetation Indicators:
1. <u>Chamerion angustifolium</u>	<u>1</u>	<input type="checkbox"/>	FACU	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Rubus chamaemorus</u>	<u>3</u>	<input checked="" type="checkbox"/>	FACW	<input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0
3. <u>Lycopodium clavatum</u>	<u>2</u>	<input checked="" type="checkbox"/>	FACU	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Calamagrostis canadensis</u>	<u>1</u>	<input type="checkbox"/>	FAC	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	_____	<input type="checkbox"/>	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>7</u>				
50% of Total Cover: <u>3.5</u>	20% of Total Cover: <u>1.4</u>			Plot size (radius, or length x width) <u>5m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground <u>95</u>
				Total Cover of Bryophytes <u>0</u>
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>bare ground includes dead leaves</u>				

SOIL

Sampling Point: K_23

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3							Fibric Organics	
3-13							Hemic Organics	
13-15							Sapric Organics	

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):
 Type: active layer (frozen)
 Depth (inches): 15

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches): 4
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 3

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_24
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: 5.2 % / 3.0 ° Elevation: 165
 Subregion: Northern Alaska Lat.: 66.97554 Long.: -160.434246666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>SLOBE, physio upland, geomorph fto, nonpatterned.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Prevalence Index worksheet:
1. <u>Betula glandulosa</u>	<u>30</u>	<input checked="" type="checkbox"/>	FAC	Total % Cover of: _____ Multiply by: _____
2. <u>Dasiphora fruticosa</u>	<u>5</u>	<input type="checkbox"/>	FAC	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Vaccinium uliginosum</u>	<u>25</u>	<input checked="" type="checkbox"/>	FAC	FACW species <u>8</u> x 2 = <u>16</u>
4. <u>Picea glauca</u>	<u>1</u>	<input type="checkbox"/>	FACU	FAC species <u>90.5</u> x 3 = <u>271.5</u>
5. <u>Salix reticulata</u>	<u>5</u>	<input type="checkbox"/>	FAC	FACU species <u>3</u> x 4 = <u>12</u>
6. <u>Dryas integrifolia</u>	<u>2</u>	<input type="checkbox"/>	FACU	UPL species <u>0</u> x 5 = <u>0</u>
7. <u>Ledum decumbens</u>	<u>1</u>	<input type="checkbox"/>	FACW	Column Total s: <u>101.5</u> (A) <u>299.5</u> (B)
8. <u>Arctostaphylos rubra</u>	<u>7</u>	<input type="checkbox"/>	FAC	Prevalence Index = B/A = <u>2.951</u>
9. <u>Salix pulchra</u>	<u>5</u>	<input type="checkbox"/>	FACW	
10. <u>Salix richardsonii</u>	<u>1</u>	<input type="checkbox"/>	FACW	
Total Cover: <u>82</u>				
50% of Total Cover: <u>41</u>	20% of Total Cover: <u>16.4</u>			Hydrophytic Vegetation Indicators:
Herb Stratum				<input checked="" type="checkbox"/> Dominance Test is > 50%
1. <u>Deschampsia caespitosa</u>	<u>5</u>	<input checked="" type="checkbox"/>	FAC	<input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0
2. <u>Equisetum arvense</u>	<u>3</u>	<input type="checkbox"/>	FAC	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
3. <u>Carex bigelowii</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
4. <u>Parnassia palustris</u>	<u>1</u>	<input type="checkbox"/>	FACW	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. <u>Luzula arctica</u>	<u>0.5</u>	<input type="checkbox"/>	FAC	
6. <u>Carex williamsii</u>	<u>0.5</u>	<input type="checkbox"/>	FAC	
7. _____	_____	<input type="checkbox"/>	_____	Plot size (radius, or length x width) <u>5m</u>
8. _____	_____	<input type="checkbox"/>	_____	% Cover of Wetland Bryophytes (Where applicable) _____
9. _____	_____	<input type="checkbox"/>	_____	% Bare Ground <u>0</u>
10. _____	_____	<input type="checkbox"/>	_____	Total Cover of Bryophytes <u>90</u>
Total Cover: <u>20</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
50% of Total Cover: <u>10</u>	20% of Total Cover: <u>4</u>			
Remarks: <u>descae as collected 8/22/12. trace pedicularis sp. carwil as collected 8/21. ca 5% lichen cvr</u>				

SOIL

Sampling Point: K_24

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-3							Fibric Organics		
3-9							Hemic Organics		
9-10	10YR	4/6	100				Silty Clay Loam		
10-22	10Y	5/1	98	10YR	3/4	2	C	PL	Silty Clay Loam

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):
 Type: active layer (frozen), si cl lo
 Depth (inches): 28, 9

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 3

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWWS Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_25
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Flat
 Local relief (concave, convex, none): none Slope: 0.0 % / 0.0 ° Elevation: 185
 Subregion: Northern Alaska Lat.: 66.9757316666667 Long.: -160.434478333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>disturbed, adjacent to runway. upl/wetland bound at veg change. SLOW, physio upland (disturbed), geomorph fto (disturbed). moose scat.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>75.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>5.5</u> x 2 = <u>11</u> FAC species <u>98.5</u> x 3 = <u>295.5</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>109</u> (A) <u>326.5</u> (B) Prevalence Index = B/A = <u>2.995</u>
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		
1. <u>Picea glauca</u>	<u>2</u>	<input type="checkbox"/>	FACU	
2. <u>Betula glandulosa</u>	<u>10</u>	<input type="checkbox"/>	FAC	
3. <u>Salix alaxensis</u>	<u>40</u>	<input checked="" type="checkbox"/>	FAC	
4. <u>Salix bebbiana</u>	<u>40</u>	<input checked="" type="checkbox"/>	FAC	
5. <u>Arctostaphylos rubra</u>	<u>2</u>	<input type="checkbox"/>	FAC	
6. <u>Salix reticulata</u>	<u>1</u>	<input type="checkbox"/>	FAC	
7. <u>Salix arbusculoides</u>	<u>5</u>	<input type="checkbox"/>	FACW	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>100</u>				
Herb Stratum	50% of Total Cover: <u>50</u>	20% of Total Cover: <u>20</u>		
1. <u>Artemisia tilesii</u>	<u>2</u>	<input checked="" type="checkbox"/>	FACU	
2. <u>Equisetum arvense</u>	<u>3</u>	<input checked="" type="checkbox"/>	FAC	
3. <u>Polemonium acutiflorum</u>	<u>0.5</u>	<input type="checkbox"/>	FAC	
4. <u>Calamagrostis canadensis</u>	<u>1</u>	<input type="checkbox"/>	FAC	
5. <u>Parnassia palustris</u>	<u>0.5</u>	<input type="checkbox"/>	FACW	
6. <u>Plantago major</u>	<u>1</u>	<input type="checkbox"/>	FAC	
7. <u>Equisetum scirpoides</u>	<u>1</u>	<input type="checkbox"/>	FACU	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>9</u>				
50% of Total Cover: <u>4.5</u>	20% of Total Cover: <u>1.8</u>			
Remarks: <u>trace gallium sp.</u>				

SOIL

Sampling Point: K_25

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)	%		Color (moist)	%	Type ¹	Loc ²		
0-2								Fibric Organics	
2-15	5Y	5/2	98	10YR	4/6	2	C	PL	Silty Clay Loam
15-20									Hemic Organics buried, compressed O horizon
20-22	5Y	4/1	93	10YR	4/4	7	C	PL	Silty Clay Loam

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: si cl lo
 Depth (inches): 20

Hydric Soil Present? Yes No

Remarks:
 no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_26
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Flat
 Local relief (concave, convex, none): concave Slope: 0.0 % / 0.0 ° Elevation: 150
 Subregion: Northern Alaska Lat.: 66.9753 Long.: -160.439768333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PEM1H

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: small area of ponded water/emergent veg(HFWF), surrounded by SLOBE. Second small emergent area directly E is carutr/caraqu w standing water. Sediment retention ponds. Physog upland.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>35.5</u> x 1 = <u>35.5</u> FACW species <u>32.1</u> x 2 = <u>64.2</u> FAC species <u>0.1</u> x 3 = <u>0.300</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>67.7</u> (A) <u>100</u> (B) Prevalence Index = B/A = <u>1.477</u>
Sapling/Shrub Stratum 50% of Total Cover: <u>0</u> 20% of Total Cover: <u>0</u>				
1. <u>Salix pulchra</u>	<u>2</u>	<input checked="" type="checkbox"/>	FACW	
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>2</u>				
Herb Stratum 50% of Total Cover: <u>1</u> 20% of Total Cover: <u>0.4</u>				
1. <u>Sparganium hyperboreum</u>	<u>30</u>	<input checked="" type="checkbox"/>	OBL	
2. <u>Ranunculus gmelinii</u>	<u>30</u>	<input checked="" type="checkbox"/>	FACW	
3. <u>Hippuris vulgaris</u>	<u>0.5</u>	<input type="checkbox"/>	OBL	
4. <u>Eriophorum scheuchzeri</u>	<u>3</u>	<input type="checkbox"/>	OBL	
5. <u>Comarum palustre</u>	<u>1</u>	<input type="checkbox"/>	OBL	
6. <u>Carex utriculata</u>	<u>1</u>	<input type="checkbox"/>	OBL	
7. <u>Carex canescens</u>	<u>0.1</u>	<input type="checkbox"/>	FACW	
8. <u>Carex crawfordii</u>	<u>0.1</u>	<input type="checkbox"/>	FAC	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>65.7</u>				
50% of Total Cover: <u>32.85</u> 20% of Total Cover: <u>13.14</u>				
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 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) <u>2m x 2m</u> % Cover of Wetland Bryophytes (Where applicable) _____ % Bare Ground <u>95</u> Total Cover of Bryophytes <u>3</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>				
Remarks:				

SOIL

Sampling Point: K_26

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)	Secondary Indicators (two or more are required)
<input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Water Stained Leaves (B9) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Salt Deposits (C5) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes No Depth (inches): 24

Water Table Present? Yes No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_27
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Swale
 Local relief (concave, convex, none): concave Slope: 5.2 % / 3.0 ° Elevation: 135
 Subregion: Northern Alaska Lat.: 66.974745 Long.: -160.444376666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PEM1F

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>swale, ca 10ft wide, surrounded by slobe wetland. Hgwsl,physio upland (disturbed), geomorph fto (disturbed).</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>62</u> x 1 = <u>62</u> FACW species <u>4</u> x 2 = <u>8</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>76</u> (A) <u>100</u> (B) Prevalence Index = B/A = <u>1.316</u>
Sapling/Shrub Stratum 50% of Total Cover: <u>0</u> 20% of Total Cover: <u>0</u>				
1. <u>Salix pulchra</u>	<u>2</u>	<input checked="" type="checkbox"/>	FACW	
2. <u>Betula glandulosa</u>	<u>3</u>	<input checked="" type="checkbox"/>	FAC	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>5</u>				
Herb Stratum 50% of Total Cover: <u>2.5</u> 20% of Total Cover: <u>1</u>				
1. <u>Calamagrostis canadensis</u>	<u>7</u>	<input type="checkbox"/>	FAC	
2. <u>Eriophorum angustifolium</u>	<u>50</u>	<input checked="" type="checkbox"/>	OBL	
3. <u>Comarum palustre</u>	<u>7</u>	<input type="checkbox"/>	OBL	
4. <u>Equisetum fluviatile</u>	<u>5</u>	<input type="checkbox"/>	OBL	
5. <u>Carex canescens</u>	<u>2</u>	<input type="checkbox"/>	FACW	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>71</u>				
50% of Total Cover: <u>35.5</u> 20% of Total Cover: <u>14.2</u>				
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 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) <u>2m x 5m</u> % Cover of Wetland Bryophytes (Where applicable) _____ % Bare Ground <u>85</u> Total Cover of Bryophytes <u>10</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>				
Remarks: <u>trace epilobium sp. carbig tussocks in northern end of swale.</u>				

SOIL

Sampling Point: K_27

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): 4
 Water Table Present? Yes No Depth (inches):
 Saturation Present?
 (includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_28
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Swale
 Local relief (concave, convex, none): concave Slope: 0.0 % / 0.0 ° Elevation: 185
 Subregion: Northern Alaska Lat.: 66.9752116666667 Long.: -160.444108333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>wet willow swale, with standing water. visible in aerial. ca 40ft wide. STOW physog upland.moose scat and browse.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Prevalence Index worksheet:
1. <u>Salix alaxensis</u>	<u>60</u>	<input checked="" type="checkbox"/>	FAC	Total % Cover of: _____ Multiply by: _____
2. <u>Salix arbusculoides</u>	<u>2</u>	<input type="checkbox"/>	FACW	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Salix bebbiana</u>	<u>20</u>	<input checked="" type="checkbox"/>	FAC	FACW species <u>7</u> x 2 = <u>14</u>
4. _____	_____	<input type="checkbox"/>	_____	FAC species <u>81</u> x 3 = <u>243</u>
5. _____	_____	<input type="checkbox"/>	_____	FACU species <u>0</u> x 4 = <u>0</u>
6. _____	_____	<input type="checkbox"/>	_____	UPL species <u>0</u> x 5 = <u>0</u>
7. _____	_____	<input type="checkbox"/>	_____	Column Total s: <u>88</u> (A) <u>257</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>2.920</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>82</u>				Hydrophytic Vegetation Indicators:
50% of Total Cover: <u>41</u>	20% of Total Cover: <u>16.4</u>			<input checked="" type="checkbox"/> Dominance Test is > 50%
Herb Stratum				<input checked="" type="checkbox"/> Prevalence Index is ≤3.0
1. <u>Equisetum pratense</u>	<u>5</u>	<input checked="" type="checkbox"/>	FACW	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
2. <u>Calamagrostis canadensis</u>	<u>1</u>	<input type="checkbox"/>	FAC	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
3. _____	_____	<input type="checkbox"/>	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>6</u>				Plot size (radius, or length x width) <u>2m x 5m</u>
50% of Total Cover: <u>3</u>	20% of Total Cover: <u>1.2</u>			% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground _____
				Total Cover of Bryophytes _____
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>trace epilobium sp</u>				

SOIL

Sampling Point: K_28

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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

⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): 24

Water Table Present? Yes No Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:

BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

site ranges from saturated at surface to standing water.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_29
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Flat
 Local relief (concave, convex, none): tussocks Slope: 5.2 % / 3.0 ° Elevation: 180
 Subregion: Northern Alaska Lat.: 66.9761083333333 Long.: -160.447836666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS3/1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>slope, physio upland, geomorph fto. moose scat.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Prevalence Index worksheet:
1. <u>Betula nana</u>	<u>20</u>	<input checked="" type="checkbox"/>	FAC	Total % Cover of: _____ Multiply by: _____
2. <u>Ledum decumbens</u>	<u>5</u>	<input type="checkbox"/>	FACW	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Vaccinium vitis-idaea</u>	<u>30</u>	<input checked="" type="checkbox"/>	FAC	FACW species <u>25</u> x 2 = <u>50</u>
4. <u>Vaccinium uliginosum</u>	<u>5</u>	<input type="checkbox"/>	FAC	FAC species <u>69</u> x 3 = <u>207</u>
5. <u>Salix bebbiana</u>	<u>1</u>	<input type="checkbox"/>	FAC	FACU species <u>0</u> x 4 = <u>0</u>
6. _____	_____	<input type="checkbox"/>	_____	UPL species <u>0</u> x 5 = <u>0</u>
7. _____	_____	<input type="checkbox"/>	_____	Column Total s: <u>94</u> (A) <u>257</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>2.734</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>61</u>				
Herb Stratum	50% of Total Cover: <u>30.5</u>	20% of Total Cover: <u>12.2</u>		Hydrophytic Vegetation Indicators:
1. <u>Eriophorum vaginatum</u>	<u>20</u>	<input checked="" type="checkbox"/>	FACW	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Carex bigelowii</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	<input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0
3. <u>Calamagrostis canadensis</u>	<u>3</u>	<input type="checkbox"/>	FAC	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	<input type="checkbox"/>	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	_____	<input type="checkbox"/>	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>33</u>				
50% of Total Cover: <u>16.5</u>	20% of Total Cover: <u>6.6</u>			Plot size (radius, or length x width) <u>10m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground <u>5</u>
				Total Cover of Bryophytes <u>80</u>
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>ca 10% lichen cover. several tussocks crushed from atvs.</u>				

SOIL

Sampling Point: K_29

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5							Fibric Organics	
5-13							Hemic Organics	
13-17	10YR	3/1	100				Silty Clay Loam	

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):
 Type: active layer (frozen), si cl lo
 Depth (inches): 17, 13

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches): 9
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 5

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_30
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Swale
 Local relief (concave, convex, none): convex Slope: 0.0 % / 0.0 ° Elevation: 200
 Subregion: Northern Alaska Lat.: 66.97567 Long.: -160.447721666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: low point in swale. stcw between swale and K_29. STOW, physio upland (disturbed), geomorph fto (disturbed). soils and scattered OBL veg - site once did, or occassionally does, hold water. however, site visit during extremely wet period and no wetland hydrology indicators observed	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>75.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Prevalence Index worksheet:
1. <u>Salix alaxensis</u>	<u>10</u>	<input type="checkbox"/>	FAC	Total % Cover of: _____ Multiply by: _____
2. <u>Salix bebbiana</u>	<u>50</u>	<input checked="" type="checkbox"/>	FAC	OBL species <u>1</u> x 1 = <u>1</u>
3. <u>Betula glandulosa</u>	<u>5</u>	<input type="checkbox"/>	FAC	FACW species <u>5.5</u> x 2 = <u>11</u>
4. <u>Arctostaphylos rubra</u>	<u>3</u>	<input type="checkbox"/>	FAC	FAC species <u>73</u> x 3 = <u>219</u>
5. _____	_____	<input type="checkbox"/>	_____	FACU species <u>3.5</u> x 4 = <u>14</u>
6. _____	_____	<input type="checkbox"/>	_____	UPL species <u>0</u> x 5 = <u>0</u>
7. _____	_____	<input type="checkbox"/>	_____	Column Total s: <u>83</u> (A) <u>245</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>2.952</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>68</u>				
Herb Stratum	50% of Total Cover: <u>34</u>	20% of Total Cover: <u>13.6</u>		Hydrophytic Vegetation Indicators:
1. <u>Artemisia tilesii</u>	<u>3</u>	<input checked="" type="checkbox"/>	FACU	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Equisetum pratense</u>	<u>5</u>	<input checked="" type="checkbox"/>	FACW	<input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0
3. <u>Calamagrostis canadensis</u>	<u>5</u>	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Achillea millefolium</u>	<u>0.5</u>	<input type="checkbox"/>	FACU	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Comarum palustre</u>	<u>0.5</u>	<input type="checkbox"/>	OBL	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. <u>Parnassia palustris</u>	<u>0.5</u>	<input type="checkbox"/>	FACW	
7. <u>Equisetum fluviatile</u>	<u>0.5</u>	<input type="checkbox"/>	OBL	
8. _____	_____	<input type="checkbox"/>	_____	Plot size (radius, or length x width) <u>10m</u>
9. _____	_____	<input type="checkbox"/>	_____	% Cover of Wetland Bryophytes (Where applicable) _____
10. _____	_____	<input type="checkbox"/>	_____	% Bare Ground <u>40</u>
Total Cover: <u>15</u>				Total Cover of Bryophytes <u>55</u>
50% of Total Cover: <u>7.5</u>	20% of Total Cover: <u>3</u>			Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>

Remarks: trace gallium sp., platanthera sp.

SOIL

Sampling Point: K_30

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks	
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²			
0-2		90					Fibric Organics	10% fine gravel	
2-3	5Y	5/2	100				Coarse Sandy Loam		
3-22	5Y	4/1	80	10YR	4/4	20	C	PL	Silty Clay Loam

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: si cl lo
 Depth (inches): 3

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_31
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Flat
 Local relief (concave, convex, none): flat Slope: 0.0 % / 0.0 ° Elevation: 175
 Subregion: Northern Alaska Lat.: 66.9758883333333 Long.: -160.447873333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: spoils area? elevated 2-3 ft from adjacent undisturbed tundra. STCW, physio upland (disturbed), geomorph fto (disturbed).	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>6</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>36</u> x 2 = <u>72</u> FAC species <u>131</u> x 3 = <u>393</u> FACU species <u>8</u> x 4 = <u>32</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>175</u> (A) <u>497</u> (B) Prevalence Index = B/A = <u>2.840</u>
Sapling/Shrub Stratum 50% of Total Cover: <u>0</u> 20% of Total Cover: <u>0</u>				
1. <u>Betula glandulosa</u>	10	<input type="checkbox"/>	FAC	
2. <u>Salix alaxensis</u>	40	<input checked="" type="checkbox"/>	FAC	
3. <u>Salix bebbiana</u>	30	<input checked="" type="checkbox"/>	FAC	
4. <u>Betula nana</u>	10	<input type="checkbox"/>	FAC	
5. <u>Salix arbusculoides</u>	5	<input type="checkbox"/>	FACW	
6. <u>Salix richardsonii</u>	10	<input type="checkbox"/>	FACW	
7. <u>Picea glauca</u>	5	<input type="checkbox"/>	FACU	
8. <u>Vaccinium vitis-Idaea</u>	30	<input checked="" type="checkbox"/>	FAC	
9. <u>Ledum decumbens</u>	7	<input type="checkbox"/>	FACW	
10. <u>Dasiphora fruticosa</u>	1	<input type="checkbox"/>	FAC	
Total Cover: <u>148</u>				
Herb Stratum 50% of Total Cover: <u>74</u> 20% of Total Cover: <u>29.6</u>				
1. <u>Carex bigelowii</u>	10	<input checked="" type="checkbox"/>	FAC	
2. <u>Chamerion angustifolium</u>	3	<input type="checkbox"/>	FACU	
3. <u>Equisetum pratense</u>	7	<input checked="" type="checkbox"/>	FACW	
4. <u>Arctagrostis latifolia</u>	7	<input checked="" type="checkbox"/>	FACW	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>27</u>				
50% of Total Cover: <u>13.5</u> 20% of Total Cover: <u>5.4</u>				
Remarks: trace spiste				

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

Plot size (radius, or length x width) 5m
 % Cover of Wetland Bryophytes (Where applicable) _____
 % Bare Ground 0
 Total Cover of Bryophytes 95

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: K_31

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-22							Sapric Organics	

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)
 Depth (inches): 22

Hydric Soil Present? Yes No

Remarks:

suspect this was a spoils area during original airstrip construction, where overburden was piled. Cannot apply A2 as no indication that soils have wetland hydrology (saturation).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

soils moist to active layer, but no saturation.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_32
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Flat
 Local relief (concave, convex, none): flat Slope: 0.0 % / 0.0 ° Elevation: 155
 Subregion: Northern Alaska Lat.: 66.9762133333333 Long.: -160.44133 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PEM1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: wet emergent area (br green in aerial), adjacent to slightly higher, drier emergent area dominated by chaang (tan in aerial). Swale next to airstrip here is dry.HGMB. Physog upland.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Prevalence Index worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	<input type="checkbox"/>	_____	OBL species <u>0</u> x 1 = <u>0</u>
3. _____	_____	<input type="checkbox"/>	_____	FACW species <u>3</u> x 2 = <u>6</u>
4. _____	_____	<input type="checkbox"/>	_____	FAC species <u>104</u> x 3 = <u>312</u>
5. _____	_____	<input type="checkbox"/>	_____	FACU species <u>5</u> x 4 = <u>20</u>
6. _____	_____	<input type="checkbox"/>	_____	UPL species <u>0</u> x 5 = <u>0</u>
7. _____	_____	<input type="checkbox"/>	_____	Column Total s: <u>112</u> (A) <u>338</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>3.018</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>			Hydrophytic Vegetation Indicators:
Herb Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		<input checked="" type="checkbox"/> Dominance Test is > 50%
1. <u>Calamagrostis canadensis</u>	<u>90</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Prevalence Index is ≤3.0
2. <u>Chamerion angustifolium</u>	<u>5</u>	<input type="checkbox"/>	<u>FACU</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
3. <u>Carex bigelowii</u>	<u>10</u>	<input type="checkbox"/>	<u>FAC</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
4. <u>Equisetum arvense</u>	<u>3</u>	<input type="checkbox"/>	<u>FAC</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. <u>Polemonium acutiflorum</u>	<u>1</u>	<input type="checkbox"/>	<u>FAC</u>	
6. <u>Salix pulchra</u>	<u>3</u>	<input type="checkbox"/>	<u>FACW</u>	
7. _____	_____	<input type="checkbox"/>	_____	Plot size (radius, or length x width) <u>5m</u>
8. _____	_____	<input type="checkbox"/>	_____	% Cover of Wetland Bryophytes (Where applicable) _____
9. _____	_____	<input type="checkbox"/>	_____	% Bare Ground <u>0</u>
10. _____	_____	<input type="checkbox"/>	_____	Total Cover of Bryophytes <u>95</u>
Total Cover: <u>112</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
50% of Total Cover: <u>56</u>	20% of Total Cover: <u>22.4</u>			
Remarks: carbig tussocks w shallow standing water. Sal pul grouped with herbs for dominance test, as total shrub cover <5%				

SOIL

Sampling Point: K_32

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks		
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²				
0-1							Fibric Organics			
1-9							Hemic Organics	pocket of 10Y4/1 si cl lo		
9-19	10Y	4/2	85	10YR	4/4	15	C	PL	Silty Clay Loam	2% semi-ang fine gravels

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)
 Depth (inches): 18

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): 2
 Water Table Present? Yes No Depth (inches): 5
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 1

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWS Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_33
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Flat
 Local relief (concave, convex, none): convex Slope: 0.0 % / 0.0 ° Elevation: 165
 Subregion: Northern Alaska Lat.: 66.9761116666667 Long.: -160.441348333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: spoils area? herb gram mesic calcan/chaang, physio upland (disturbed), geomorph fto (disturbed), nonpatterned. if indistinguishable from adjacent PEM, map whole herb community as wetland. both u and pem present along side of airstrip.HGMB.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Prevalence Index worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	<input type="checkbox"/>	_____	OBL species <u>0</u> x 1 = <u>0</u>
3. _____	_____	<input type="checkbox"/>	_____	FACW species <u>0</u> x 2 = <u>0</u>
4. _____	_____	<input type="checkbox"/>	_____	FAC species <u>53</u> x 3 = <u>159</u>
5. _____	_____	<input type="checkbox"/>	_____	FACU species <u>42</u> x 4 = <u>168</u>
6. _____	_____	<input type="checkbox"/>	_____	UPL species <u>0</u> x 5 = <u>0</u>
7. _____	_____	<input type="checkbox"/>	_____	Column Total s: <u>95</u> (A) <u>327</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>3.442</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Herb Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Hydrophytic Vegetation Indicators:
1. <u>Chamerion angustifolium</u>	<u>40</u>	<input checked="" type="checkbox"/>	FACU	<input type="checkbox"/> Dominance Test is > 50%
2. <u>Calamagrostis canadensis</u>	<u>40</u>	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Prevalence Index is ≤3.0
3. <u>Deschampsia caespitosa</u>	<u>3</u>	<input type="checkbox"/>	FAC	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Artemisia tilesii</u>	<u>2</u>	<input type="checkbox"/>	FACU	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Carex bigelowii</u>	<u>10</u>	<input type="checkbox"/>	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>95</u>				
50% of Total Cover: <u>47.5</u>	20% of Total Cover: <u>19</u>			Plot size (radius, or length x width) <u>2m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground _____
				Total Cover of Bryophytes _____
				Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks:				

SOIL

Sampling Point: K_33

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1							Hemic Organics	
1-25		100					Sapric Organics	pocket of 2.5y 5/2 silt loam.

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer
 Depth (inches): 25

Hydric Soil Present? Yes No

Remarks:

disturbed, likely was a spoils site for organic overburden during original airstrip construction. Cannot apply A2 as there is no indication of wetland hydrology (saturation).

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches): 22
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 20

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

no wetland hydrology indicators

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_34
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Swale
 Local relief (concave, convex, none): concave Slope: 0.0 % / 0.0 ° Elevation: 175
 Subregion: Northern Alaska Lat.: 66.97602 Long.: -160.440113333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PEM1H

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>equfll swale w standing water. HFWF. Physog upland.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Prevalence Index worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	<input type="checkbox"/>	_____	OBL species <u>34</u> x 1 = <u>34</u>
3. _____	_____	<input type="checkbox"/>	_____	FACW species <u>0</u> x 2 = <u>0</u>
4. _____	_____	<input type="checkbox"/>	_____	FAC species <u>0</u> x 3 = <u>0</u>
5. _____	_____	<input type="checkbox"/>	_____	FACU species <u>1</u> x 4 = <u>4</u>
6. _____	_____	<input type="checkbox"/>	_____	UPL species <u>0</u> x 5 = <u>0</u>
7. _____	_____	<input type="checkbox"/>	_____	Column Total s: <u>35</u> (A) <u>38</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>1.086</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Herb Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Hydrophytic Vegetation Indicators:
1. <u>Equisetum fluviatile</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Hordeum jubatum</u>	<u>1</u>	<input type="checkbox"/>	<u>FACU</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0
3. <u>Carex aquatilis</u>	<u>1</u>	<input type="checkbox"/>	<u>OBL</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Juncus arcticus</u>	<u>2</u>	<input type="checkbox"/>	<u>OBL</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Juncus alpinoarticulatus ssp. nodulosus</u>	<u>1</u>	<input type="checkbox"/>	<u>OBL</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>35</u>				
50% of Total Cover: <u>17.5</u>	20% of Total Cover: <u>7</u>			Plot size (radius, or length x width) <u>2m x5m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground <u>95</u>
				Total Cover of Bryophytes <u>0</u>
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: _____				

SOIL

Sampling Point: K_34

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): 20
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 iron floc and biogenic sheen

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_35
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Flat
 Local relief (concave, convex, none): flat Slope: 0.0 % / 0.0 ° Elevation: 190
 Subregion: Northern Alaska Lat.: 66.976875 Long.: -160.436981666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>disturbed soils w buried O horizon. water in small swale adjacent to airstrip, upland between small swale and here.FBWT.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix alaxensis</u>	<u>25</u>	<input checked="" type="checkbox"/>	FAC	Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>83.3%</u> (A/B)
2. <u>Salix arbusculoides</u>	<u>5</u>	<input type="checkbox"/>	FACW	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover:			<u>30</u>	
Sapling/Shrub Stratum	50% of Total Cover: <u>15</u>	20% of Total Cover: <u>6</u>		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>22</u> x 2 = <u>44</u> FAC species <u>97</u> x 3 = <u>291</u> FACU species <u>28</u> x 4 = <u>112</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>147</u> (A) <u>447</u> (B) Prevalence Index = B/A = <u>3.041</u>
1. <u>Picea glauca</u>	<u>3</u>	<input type="checkbox"/>	FACU	
2. <u>Salix arbusculoides</u>	<u>10</u>	<input checked="" type="checkbox"/>	FACW	
3. <u>Salix alaxensis</u>	<u>20</u>	<input checked="" type="checkbox"/>	FAC	
4. <u>Salix richardsonii</u>	<u>5</u>	<input type="checkbox"/>	FACW	
5. <u>Salix bebbiana</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover:			<u>48</u>	
Herb Stratum	50% of Total Cover: <u>24</u>	20% of Total Cover: <u>9.6</u>		Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Artemisia tilesii</u>	<u>5</u>	<input type="checkbox"/>	FACU	
2. <u>Equisetum arvense</u>	<u>30</u>	<input checked="" type="checkbox"/>	FAC	
3. <u>Chamerion angustifolium</u>	<u>20</u>	<input checked="" type="checkbox"/>	FACU	
4. <u>Parnassia palustris</u>	<u>1</u>	<input type="checkbox"/>	FACW	
5. <u>Calamagrostis canadensis</u>	<u>5</u>	<input type="checkbox"/>	FAC	
6. <u>Gallium trifidum</u>	<u>1</u>	<input type="checkbox"/>	FACW	
7. <u>Polemonium acutiflorum</u>	<u>2</u>	<input type="checkbox"/>	FAC	
8. <u>Deschampsia caespitosa</u>	<u>5</u>	<input type="checkbox"/>	FAC	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover:			<u>69</u>	
	50% of Total Cover: <u>34.5</u>	20% of Total Cover: <u>13.8</u>		Plot size (radius, or length x width) <u>5m</u> % Cover of Wetland Bryophytes (Where applicable) _____ % Bare Ground <u>50</u> Total Cover of Bryophytes <u>45</u> Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: _____				

SOIL

Sampling Point: K_35

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)	%		Color (moist)	%	Type ¹	Loc ²		
0-1								Fibric Organics	
1-7	5Y	4/1	95	10YR	4/4	5	C	PL	Silty Clay Loam substantial organic inclusions
7-15									Sapric Organics
15-18	10Y	4/1	90	2.5Y	4/2	10	C	PL	Silty Clay Loam
18-22	5Y	4/1	80	2.5Y	4/4	20	C	PL	Silty Clay Loam

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: si cl lo
 Depth (inches): 15

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 7

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWS Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_36
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Flat
 Local relief (concave, convex, none): _____ Slope: 0.0 % / 0.0 ° Elevation: 175
 Subregion: Northern Alaska Lat.: 66.9769616666667 Long.: -160.43494 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PEM1H

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: small pond w emergent vegetation. Hgwlg. Physio upland.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Prevalence Index worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	<input type="checkbox"/>	_____	OBL species <u>45</u> x 1 = <u>45</u>
3. _____	_____	<input type="checkbox"/>	_____	FACW species <u>0.5</u> x 2 = <u>1</u>
4. _____	_____	<input type="checkbox"/>	_____	FAC species <u>1</u> x 3 = <u>3</u>
5. _____	_____	<input type="checkbox"/>	_____	FACU species <u>0</u> x 4 = <u>0</u>
6. _____	_____	<input type="checkbox"/>	_____	UPL species <u>0</u> x 5 = <u>0</u>
7. _____	_____	<input type="checkbox"/>	_____	Column Total s: <u>46.5</u> (A) <u>49</u> (B)
8. _____	_____	<input type="checkbox"/>	_____	Prevalence Index = B/A = <u>1.054</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				
Herb Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		Hydrophytic Vegetation Indicators:
1. <u>Carex utriculata</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Equisetum fluviatile</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0
3. <u>Comarum palustre</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Rubus arcticus</u>	<u>0.5</u>	<input type="checkbox"/>	<u>FAC</u>	<input checked="" type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Carex crawfordii</u>	<u>0.5</u>	<input type="checkbox"/>	<u>FAC</u>	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. <u>Carex canescens</u>	<u>0.5</u>	<input type="checkbox"/>	<u>FACW</u>	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>46.5</u>				
50% of Total Cover: <u>23.25</u>	20% of Total Cover: <u>9.3</u>			Plot size (radius, or length x width) <u>5m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground <u>80</u>
				Total Cover of Bryophytes <u>15</u>
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: majority of pond dominated by equflu. point taken where carutr and compal are codominant. water levels high, rubarc submerged. veg may include species not typically submerged.				

SOIL

Sampling Point: K_36

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are 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 No Depth (inches): 24
 Water Table Present? Yes No Depth (inches):
 Saturation Present? Yes No Depth (inches):
 (includes capillary fringe)

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 water depth 24+ inches

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_37
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Flat
 Local relief (concave, convex, none): flat Slope: 0.0 % / 0.0 ° Elevation: 160
 Subregion: Northern Alaska Lat.: 66.9769783333333 Long.: -160.432501666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: caribou and moose scat. two dead birds (feathers). SFWWS, physio upland, geomorph fto (disturbed - utility line cleared for lift station?)	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>83.3%</u> (A/B)
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>1</u> x 1 = <u>1</u> FACW species <u>13</u> x 2 = <u>26</u> FAC species <u>66</u> x 3 = <u>198</u> FACU species <u>11</u> x 4 = <u>44</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>91</u> (A) <u>269</u> (B) Prevalence Index = B/A = <u>2.956</u>
Sapling/Shrub Stratum 50% of Total Cover: <u>0</u> 20% of Total Cover: <u>0</u>				
1. <u>Betula glandulosa</u>	<u>15</u>	<input checked="" type="checkbox"/>	FAC	
2. <u>Salix reticulata</u>	<u>7</u>	<input type="checkbox"/>	FAC	
3. <u>Salix pulchra</u>	<u>3</u>	<input type="checkbox"/>	FACW	
4. <u>Vaccinium uliginosum</u>	<u>15</u>	<input checked="" type="checkbox"/>	FAC	
5. <u>Vaccinium vitis-idaea</u>	<u>5</u>	<input type="checkbox"/>	FAC	
6. <u>Ledum decumbens</u>	<u>3</u>	<input type="checkbox"/>	FACW	
7. <u>Arctostaphylos rubra</u>	<u>7</u>	<input type="checkbox"/>	FAC	
8. <u>Dasiphora fruticosa</u>	<u>2</u>	<input type="checkbox"/>	FAC	
9. <u>Dryas integrifolia</u>	<u>1</u>	<input type="checkbox"/>	FACU	
10. <u>Picea glauca</u>	<u>10</u>	<input checked="" type="checkbox"/>	FACU	
Total Cover: <u>68</u>				
Herb Stratum 50% of Total Cover: <u>34</u> 20% of Total Cover: <u>13.6</u>				
1. <u>Deschampsia caespitosa</u>	<u>5</u>	<input checked="" type="checkbox"/>	FAC	
2. <u>Carex bigelowii</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	
3. <u>Carex magellanica</u>	<u>1</u>	<input type="checkbox"/>	OBL	
4. <u>Eriophorum vaginatum</u>	<u>7</u>	<input checked="" type="checkbox"/>	FACW	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>23</u>				
50% of Total Cover: <u>11.5</u> 20% of Total Cover: <u>4.6</u>				
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 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) <u>5m</u> % Cover of Wetland Bryophytes (Where applicable) _____ % Bare Ground <u>0</u> Total Cover of Bryophytes <u>85</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>				
Remarks: ca 10% lichen cover. trace pedicularis, unid herbs, polviv, vacoxy, parpal, valeriana				

SOIL

Sampling Point: K_37

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks		
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²				
0-3							Fibric Organics	thin band of 5Y4/1 mineral layer at 3in		
3-5							Hemic Organics			
5-7							Sapric Organics			
7-20	10Y	4/1	98	2.5Y	5/3	2	C	PL	Silty Clay Loam	thin band of 10YR3/6 at 7in

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: si cl lo
 Depth (inches): 7

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches): 2
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 1

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_38
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Flat
 Local relief (concave, convex, none): none Slope: 0.0 % / 0.0 ° Elevation: 135
 Subregion: Northern Alaska Lat.: 66.9770416666667 Long.: -160.428058333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: characterizing dense deciduous signature. open tall willow - trees, rather than shrubs (15-20ft). FBWT. Physog upland.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix alaxensis</u>	10	<input checked="" type="checkbox"/>	FAC	Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>83.3%</u> (A/B)
2. <u>Salix arbusculoides</u>	5	<input checked="" type="checkbox"/>	FACW	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>15</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>55</u> x 2 = <u>110</u> FAC species <u>80</u> x 3 = <u>240</u> FACU species <u>25</u> x 4 = <u>100</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>160</u> (A) <u>450</u> (B) Prevalence Index = B/A = <u>2.813</u>
Sapling/Shrub Stratum	50% of Total Cover: <u>7.5</u>	20% of Total Cover: <u>3</u>		
1. <u>Salix alaxensis</u>	60	<input checked="" type="checkbox"/>	FAC	
2. <u>Salix arbusculoides</u>	20	<input checked="" type="checkbox"/>	FACW	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>80</u>				
Herb Stratum	50% of Total Cover: <u>40</u>	20% of Total Cover: <u>16</u>		
1. <u>Artemisia tilesii</u>	20	<input checked="" type="checkbox"/>	FACU	
2. <u>Equisetum pratense</u>	30	<input checked="" type="checkbox"/>	FACW	
3. <u>Calamagrostis canadensis</u>	10	<input type="checkbox"/>	FAC	
4. <u>Gallium boreale</u>	5	<input type="checkbox"/>	FACU	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>65</u>				
	50% of Total Cover: <u>32.5</u>	20% of Total Cover: <u>13</u>		Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
Remarks: <u>galium 4 lvs.</u>				

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

Plot size (radius, or length x width) 5m
 % Cover of Wetland Bryophytes (Where applicable) _____
 % Bare Ground 85
 Total Cover of Bryophytes 10

Hydrophytic Vegetation Present? Yes No

SOIL

Sampling Point: K_38

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix			Redox Features				Texture	Remarks	
	Color (moist)	%		Color (moist)	%	Type ¹	Loc ²			
0-3								Hemic Organics		
3-23	5Y	5/2	65	2.5Y	5/4	15	C	PL	Silt Loam	20% wood and organic inclusions

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 disturbed soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWS Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 no wetland hydrology indicators

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 23-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_39
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Flat
 Local relief (concave, convex, none): flat Slope: 0.0 % / 0.0 ° Elevation: 130
 Subregion: Northern Alaska Lat.: 66.9768883333333 Long.: -160.425815 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>flooded. small areas appear to typically have standing water, but doubt the entire willow community does. STOW. Physiog upland.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>30</u> x 1 = <u>30</u> FACW species <u>33.5</u> x 2 = <u>67</u> FAC species <u>83</u> x 3 = <u>249</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>146.5</u> (A) <u>346</u> (B) Prevalence Index = B/A = <u>2.362</u>
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		
1. <u>Salix richardsonii</u>	<u>20</u>	<input checked="" type="checkbox"/>	FACW	
2. <u>Salix alaxensis</u>	<u>30</u>	<input checked="" type="checkbox"/>	FAC	
3. <u>Salix arbusculoides</u>	<u>10</u>	<input type="checkbox"/>	FACW	
4. <u>Salix bebbiana</u>	<u>5</u>	<input type="checkbox"/>	FAC	
5. <u>Salix pulchra</u>	<u>0.5</u>	<input type="checkbox"/>	FACW	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>65.5</u>				
Herb Stratum	50% of Total Cover: <u>32.75</u>	20% of Total Cover: <u>13.1</u>		
1. <u>Calamagrostis canadensis</u>	<u>30</u>	<input checked="" type="checkbox"/>	FAC	
2. <u>Deschampsia caespitosa</u>	<u>10</u>	<input type="checkbox"/>	FAC	
3. <u>Equisetum pratense</u>	<u>3</u>	<input type="checkbox"/>	FACW	
4. <u>Carex bigelowii</u>	<u>5</u>	<input type="checkbox"/>	FAC	
5. <u>Eriophorum angustifolium</u>	<u>30</u>	<input checked="" type="checkbox"/>	OBL	
6. <u>Equisetum arvense</u>	<u>3</u>	<input type="checkbox"/>	FAC	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>81</u>				
50% of Total Cover: <u>40.5</u>	20% of Total Cover: <u>16.2</u>			
Remarks: _____				

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

Plot size (radius, or length x width) 5m
 % Cover of Wetland Bryophytes (Where applicable) _____
 % Bare Ground _____
 Total Cover of Bryophytes _____

Hydrophytic Vegetation Present? Yes No

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 21-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_MS_01
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Toeslope
 Local relief (concave, convex, none): tussocks Slope: 5.2 % / 3.0 ° Elevation: 90
 Subregion: Northern Alaska Lat.: 67.0040566666667 Long.: -160.501598333333 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: flowing water throughout community. All streams high, Kobuk River approaching flood stage. Community may typically be a saturated (B) system, w sedimentation and flowing water an unusual event - difficult to tell at this water level. FNWWS, physio upland, geomorph mfrif?, drainanes	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	7	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A)
2. <u>Picea mariana</u>	3	<input checked="" type="checkbox"/>	FACW	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>80.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>10</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>5</u>	20% of Total Cover: <u>2</u>		Prevalence Index worksheet:
1. <u>Picea glauca</u>	5	<input type="checkbox"/>	FACU	Total % Cover of: _____ Multiply by: _____
2. <u>Betula glandulosa</u>	25	<input checked="" type="checkbox"/>	FAC	OBL spec ies <u>25</u> x <u>1</u> = <u>25</u>
3. <u>Salix richardsonii</u>	10	<input checked="" type="checkbox"/>	FACW	FACW spec ies <u>16</u> x <u>2</u> = <u>32</u>
4. <u>Vaccinium uliginosum</u>	7	<input type="checkbox"/>	FAC	FAC spec ies <u>46</u> x <u>3</u> = <u>138</u>
5. <u>Dasiphora fruticosa</u>	7	<input type="checkbox"/>	FAC	FACU spec ies <u>12</u> x <u>4</u> = <u>48</u>
6. <u>Salix reticulata</u>	5	<input type="checkbox"/>	FAC	UPL spec ies <u>0</u> x <u>5</u> = <u>0</u>
7. <u>Rubus arcticus</u>	1	<input type="checkbox"/>	FAC	Column Total s: <u>99</u> (A) <u>243</u> (B)
8. <u>Arctostaphylos rubra</u>	1	<input type="checkbox"/>	FAC	Prevalence Index = B/A = <u>2.455</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>61</u>				
Herb Stratum	50% of Total Cover: <u>30.5</u>	20% of Total Cover: <u>12.2</u>		Hydrophytic Vegetation Indicators:
1. <u>Carex aquatilis</u>	25	<input checked="" type="checkbox"/>	OBL	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Equisetum pratense</u>	3	<input type="checkbox"/>	FACW	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0
3. _____	_____	<input type="checkbox"/>	_____	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	<input type="checkbox"/>	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	_____	<input type="checkbox"/>	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>28</u>				
50% of Total Cover: <u>14</u>	20% of Total Cover: <u>5.6</u>			Plot size (radius, or length x width) <u>10m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground <u>40</u>
				Total Cover of Bryophytes <u>50</u>
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>

Remarks: picgla stunted, similar in appearance to picmar but no twig hairs, picgla bark and cones.

SOIL

Sampling Point: K_MS_01

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks		
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²				
0-3							Fibric Organics	some mineral content (from flooding)		
3-7							Hemic Organics			
7-8	10YR	2/1	100				Loam	heavy organics		
8-15	5Y	4/1	85	7.5YR	4/4	15	C	PL	Silt Loam	
15-17	10YR	3/1	75	10YR	3/3	25	C	PL	Loam	heavy organics

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 soil pit in high area

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): 6
 Water Table Present? Yes No Depth (inches): 1
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 water flowing through community to downslope willow-filled drainage. sedimentation and drift deposits throughout. shrubs/trees on hummocks. high water throughout region at time of site visit.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 21-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_MS_02
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): convex Slope: 26.7 % / 15.0 ° Elevation: 220
 Subregion: Northern Alaska Lat.: 67.0040816666667 Long.: -160.503966666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: light signature in aerial is lichen-heavy hillslope/knob. FNWWS, physio upland, geomorph fto (most likely old riverine influence - geotech spoils on knob = rounded gravels, proximity to Kobuk River), nonpatterned.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	10	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)
2. <u>Betula neoalaskana</u>	2	<input type="checkbox"/>	FACU	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover:			12	
Sapling/Shrub Stratum	50% of Total Cover: <u>6</u>	20% of Total Cover: <u>2.4</u>		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>25</u> x 3 = <u>75</u> FACU species <u>30.5</u> x 4 = <u>122</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>60.5</u> (A) <u>207</u> (B) Prevalence Index = B/A = <u>3.421</u>
1. <u>Betula neoalaskana</u>	10	<input checked="" type="checkbox"/>	FACU	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Picea glauca</u>	5	<input checked="" type="checkbox"/>	FACU	
3. <u>Alnus viridis ssp. crispa</u>	0.5	<input type="checkbox"/>	FAC	
4. <u>Salix pulchra</u>	3	<input type="checkbox"/>	FACW	
5. <u>Empetrum nigrum</u>	10	<input checked="" type="checkbox"/>	FAC	
6. <u>Ledum decumbens</u>	2	<input type="checkbox"/>	FACW	
7. <u>Vaccinium uliginosum</u>	5	<input checked="" type="checkbox"/>	FAC	
8. <u>Vaccinium vitis-Idaea</u>	5	<input checked="" type="checkbox"/>	FAC	
9. <u>Arctostaphylos rubra</u>	0.5	<input type="checkbox"/>	FAC	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover:			41	
Herb Stratum	50% of Total Cover: <u>20.5</u>	20% of Total Cover: <u>8.2</u>		
1. <u>Chamerion angustifolium</u>	0.5	<input type="checkbox"/>	FACU	Plot size (radius, or length x width) <u>10m</u> % Cover of Wetland Bryophytes (Where applicable) _____ % Bare Ground <u>10</u> Total Cover of Bryophytes <u>0</u> Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
2. <u>Diphysastrum alpinum</u>	3	<input checked="" type="checkbox"/>	FACU	
3. <u>Saussurea angustifolia</u>	1	<input type="checkbox"/>	FAC	
4. <u>Deschampsia caespitosa</u>	3	<input checked="" type="checkbox"/>	FAC	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover:			7.5	
50% of Total Cover:	<u>3.75</u>	20% of Total Cover:	<u>1.5</u>	

Remarks: 85% lichen cover

SOIL

Sampling Point: K_MS_02

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-1							Hemic Organics	
1-6	2.5Y	4/3	100				Silty Clay Loam	
6-17	2.5Y	4/2	80				Loamy Coarse Sand	20% rounded to angular gravels to cobbles

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 no wetland hydrology indicators

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 21-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_MS_03
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: 8.7 % / 5.0 ° Elevation: 230
 Subregion: Northern Alaska Lat.: 67.0048916666667 Long.: -160.506946666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1/4B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: characterizing yellow-green tundra on slight slope. wetland/upland bound at bright lichen-dominated community (see K_MS_02). SFWWS, physio upland, geomorph fto (most likely old riverine influence - geotech spoils on knob = rounded gravels, proximity to Kobuk River), nonnattered	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	5	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>6</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>8</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>75.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>5</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>2.5</u>	20% of Total Cover: <u>1</u>		Prevalence Index worksheet:
1. <u>Picea glauca</u>	10	<input checked="" type="checkbox"/>	FACU	Total % Cover of: _____ Multiply by: _____
2. <u>Salix glauca</u>	7	<input checked="" type="checkbox"/>	FAC	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Betula glandulosa</u>	10	<input checked="" type="checkbox"/>	FAC	FACW species <u>9</u> x 2 = <u>18</u>
4. <u>Vaccinium uliginosum</u>	7	<input checked="" type="checkbox"/>	FAC	FAC species <u>38</u> x 3 = <u>114</u>
5. <u>Ledum decumbens</u>	5	<input type="checkbox"/>	FACW	FACU species <u>15</u> x 4 = <u>60</u>
6. <u>Empetrum nigrum</u>	1	<input type="checkbox"/>	FAC	UPL species <u>0</u> x 5 = <u>0</u>
7. <u>Arctostaphylos rubra</u>	3	<input type="checkbox"/>	FAC	Column Total s: <u>62</u> (A) <u>192</u> (B)
8. <u>Betula nana</u>	2	<input type="checkbox"/>	FAC	Prevalence Index = B/A = <u>3.097</u>
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>45</u>				
Herb Stratum	50% of Total Cover: <u>22.5</u>	20% of Total Cover: <u>9</u>		Hydrophytic Vegetation Indicators:
1. <u>Deschampsia caespitosa</u>	0.5	<input type="checkbox"/>	FAC	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Carex bigelowii</u>	5	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Prevalence Index is ≤3.0
3. <u>Petasites frigidus</u>	2	<input checked="" type="checkbox"/>	FACW	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Equisetum arvense</u>	1	<input type="checkbox"/>	FAC	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Carex williamsii</u>	1	<input type="checkbox"/>	FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. <u>Calamagrostis canadensis</u>	1	<input type="checkbox"/>	FAC	
7. <u>Rubus chamaemorus</u>	2	<input checked="" type="checkbox"/>	FACW	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>12.5</u>				
50% of Total Cover: <u>6.25</u>	20% of Total Cover: <u>2.5</u>			Plot size (radius, or length x width) <u>10m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground _____
				Total Cover of Bryophytes _____
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks:				

SOIL

Sampling Point: K_MS_03

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)	%		Color (moist)	%	Type ¹	Loc ²		
0-5								Fibric Organics	
5-8								Hemic Organics	
8-13								Sapric Organics	mineral soil inclusions, same as underlying
13-20	5Y	5/1	85	10YR	4/6	15	C	PL	Silty Clay Loam

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: silty clay loam
 Depth (inches): 13

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches): 2
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 21-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_MS_Q4
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): flat Slope: 8.7 % / 5.0 ° Elevation: 270
 Subregion: Northern Alaska Lat.: 67.0004633333333 Long.: -160.50664 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1/3B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: characterizing yellow-green tundra on slight slope. same as K_MS_03. SFWWS, physio upland, geomorph fto (most likely old riverine influence - geotech spoils on knob = rounded gravels, proximity to Kobuk River), nonpatterned.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	5	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>7</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>71.4%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>5</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>2.5</u>	20% of Total Cover: <u>1</u>		Prevalence Index worksheet:
1. <u>Picea glauca</u>	10	<input checked="" type="checkbox"/>	FACU	OBL species <u>0</u> x 1 = <u>0</u>
2. <u>Betula glandulosa</u>	15	<input checked="" type="checkbox"/>	FAC	FACW species <u>21</u> x 2 = <u>42</u>
3. <u>Ledum decumbens</u>	10	<input checked="" type="checkbox"/>	FACW	FAC species <u>40</u> x 3 = <u>120</u>
4. <u>Vaccinium uliginosum</u>	10	<input checked="" type="checkbox"/>	FAC	FACU species <u>15</u> x 4 = <u>60</u>
5. <u>Vaccinium vitis-idaea</u>	5	<input type="checkbox"/>	FAC	UPL species <u>0</u> x 5 = <u>0</u>
6. <u>Alnus viridis ssp. crispa</u>	3	<input type="checkbox"/>	FAC	Column Total s: <u>76</u> (A) <u>222</u> (B)
7. <u>Salix richardsonii</u>	2	<input type="checkbox"/>	FACW	Prevalence Index = B/A = <u>2.921</u>
8. <u>Salix pulchra</u>	3	<input type="checkbox"/>	FACW	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>58</u>				
Herb Stratum	50% of Total Cover: <u>29</u>	20% of Total Cover: <u>11.6</u>		Hydrophytic Vegetation Indicators:
1. <u>Carex bigelowii</u>	7	<input checked="" type="checkbox"/>	FAC	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Rubus chamaemorus</u>	3	<input checked="" type="checkbox"/>	FACW	<input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0
3. <u>Equisetum pratense</u>	1	<input type="checkbox"/>	FACW	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Arctagrostis latifolia</u>	2	<input type="checkbox"/>	FACW	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	_____	<input type="checkbox"/>	_____	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>13</u>				
50% of Total Cover: <u>6.5</u>	20% of Total Cover: <u>2.6</u>			Plot size (radius, or length x width) <u>10m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground _____
				Total Cover of Bryophytes _____
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks:				

SOIL

Sampling Point: K_MS_04

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3							Fibric Organics	
3-10							Hemic Organics	
10-12							Sapric Organics	
12-15	2.5Y	4/1	100				Silty Clay Loam	
15-17	10YR	4/3	95				Loam	5% parent rocks (schisty flutes)

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: silty clay loam
 Depth (inches): 12

Hydric Soil Present? Yes No

Remarks:
 soils very cold, but not frozen.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches):
 Water Table Present? Yes No Depth (inches): 3
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 water table near surface, likely due to recent heavy precip and silty clay loam

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 21-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_MS_05
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): flat Slope: 17.6 % / 10.0 ° Elevation: 165
 Subregion: Northern Alaska Lat.: 67.0003933333333 Long.: -160.502521666667 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>FNWWS. poptre at site, but not a large % of community as a whole. physio upland, geomorph fto. lichen-dominated knob/hillside is upl, bound at color change/topo break.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus tremuloides</u>	<u>7</u>	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>6</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>33.3%</u> (A/B)
2. <u>Picea glauca</u>	<u>10</u>	<input checked="" type="checkbox"/>	FACU	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover:			<u>17</u>	
Sapling/Shrub Stratum	50% of Total Cover: <u>8.5</u>	20% of Total Cover: <u>3.4</u>		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>5</u> x 2 = <u>10</u> FAC species <u>37</u> x 3 = <u>111</u> FACU species <u>37.5</u> x 4 = <u>150</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>79.5</u> (A) <u>271</u> (B) Prevalence Index = B/A = <u>3.409</u>
1. <u>Picea glauca</u>	<u>5</u>	<input type="checkbox"/>	FACU	
2. <u>Populus tremuloides</u>	<u>10</u>	<input checked="" type="checkbox"/>	FACU	
3. <u>Betula glandulosa</u>	<u>2</u>	<input type="checkbox"/>	FAC	
4. <u>Salix glauca</u>	<u>5</u>	<input type="checkbox"/>	FAC	
5. <u>Vaccinium uliginosum</u>	<u>7</u>	<input type="checkbox"/>	FAC	
6. <u>Empetrum nigrum</u>	<u>20</u>	<input checked="" type="checkbox"/>	FAC	
7. <u>Ledum decumbens</u>	<u>5</u>	<input type="checkbox"/>	FACW	
8. <u>Rosa acicularis</u>	<u>0.5</u>	<input type="checkbox"/>	FACU	
9. <u>Loiseleuria procumbens</u>	<u>2</u>	<input type="checkbox"/>	FACU	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover:			<u>56.5</u>	
Herb Stratum	50% of Total Cover: <u>28.25</u>	20% of Total Cover: <u>11.3</u>		Hydrophytic Vegetation Indicators: <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Chamerion angustifolium</u>	<u>1</u>	<input type="checkbox"/>	FACU	
2. <u>Saussurea angustifolia</u>	<u>1</u>	<input type="checkbox"/>	FAC	
3. <u>Diphysastrum alpinum</u>	<u>2</u>	<input checked="" type="checkbox"/>	FACU	
4. <u>Deschampsia caespitosa</u>	<u>2</u>	<input checked="" type="checkbox"/>	FAC	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover:			<u>6</u>	
50% of Total Cover:	<u>3</u>	20% of Total Cover:	<u>1.2</u>	

Remarks: descae as collected earlier today. 60% lichen cover

SOIL

Sampling Point: K_MS_05

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2							Hemic Organics	
2-9	10YR	4/3	95				Coarse Loamy Sand	w patches of 2.5Y5/1
9-18	2.5Y	4/2	95				Coarse Loamy Sand	5% rounded to semi-ang coarse sand-gravel

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 no wetland hydrology indicators

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 21-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_MS_06
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: % / ° Elevation: 115
 Subregion: Northern Alaska Lat.: 66.9998666666667 Long.: -160.502398333333 Datum: WGS84
 Soil Map Unit Name: NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>FNWWS, physio upland, geomorph fto, nonpatterned. several animal burrows (ground squirrels).</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>10</u>	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>80.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>10</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>5</u>	20% of Total Cover: <u>2</u>		Prevalence Index worksheet:
1. <u>Salix richardsonii</u>	<u>7</u>	<input type="checkbox"/>	FACW	<u>0</u> x 1 = <u>0</u>
2. <u>Salix glauca</u>	<u>7</u>	<input type="checkbox"/>	FAC	<u>8.5</u> x 2 = <u>17</u>
3. <u>Betula glandulosa</u>	<u>35</u>	<input checked="" type="checkbox"/>	FAC	<u>80</u> x 3 = <u>240</u>
4. <u>Vaccinium uliginosum</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	<u>10.5</u> x 4 = <u>42</u>
5. <u>Empetrum nigrum</u>	<u>10</u>	<input checked="" type="checkbox"/>	FAC	<u>0</u> x 5 = <u>0</u>
6. <u>Salix reticulata</u>	<u>7</u>	<input type="checkbox"/>	FAC	Column Total s: <u>99</u> (A) <u>299</u> (B)
7. <u>Arctostaphylos rubra</u>	<u>5</u>	<input type="checkbox"/>	FAC	Prevalence Index = B/A = <u>3.020</u>
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>81</u>				
Herb Stratum	50% of Total Cover: <u>40.5</u>	20% of Total Cover: <u>16.2</u>		Hydrophytic Vegetation Indicators:
1. <u>Saussurea angustifolia</u>	<u>1</u>	<input type="checkbox"/>	FAC	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Carex bigelowii</u>	<u>5</u>	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Prevalence Index is ≤3.0
3. <u>Petasites frigidus</u>	<u>1</u>	<input type="checkbox"/>	FACW	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Equisetum pratense</u>	<u>0.5</u>	<input type="checkbox"/>	FACW	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Mertensia paniculata</u>	<u>0.5</u>	<input type="checkbox"/>	FACU	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>8</u>				
50% of Total Cover: <u>4</u>	20% of Total Cover: <u>1.6</u>			Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: <u>5% lichens</u>				Plot size (radius, or length x width) <u>10m</u> % Cover of Wetland Bryophytes (Where applicable) _____ % Bare Ground <u>5</u> Total Cover of Bryophytes <u>85</u>

SOIL

Sampling Point: K_MS_06

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)	%		Color (moist)	%	Type ¹	Loc ²		
0-2								Fibric Organics	
2-3								Hemic Organics	
3-8	5Y	4/1	95	10YR	4/4	5	C	PL	Silt Loam small redox ftrs, cannot accurately color to v
8-10	10YR	4/1	90	7.5YR	3/3	10	C	PL	Silt Loam
10-12	7.5YR	2.5/2	100						Loam
12-17	2.5Y	4/1	100						Silt Loam

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

3-10: organics throughout, heavier at depth. all mineral soils micaceous. no hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

no wetland hydrology indicators (soils moist but not saturated). animal burrows (ground squirrels) in this community increase confidence in stating no wetland hydrology.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 21-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_MS_07
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Channel (active)
 Local relief (concave, convex, none): flat Slope: 5.2 % / 3.0 ° Elevation: 120
 Subregion: Northern Alaska Lat.: 67.0000733333333 Long.: -160.50061 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: PSS1C

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: small creek has overtopped banks to flood entire SLCW community.physog riverine.	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	<input type="checkbox"/>	_____	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/>	_____	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>0</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>2</u> x 1 = <u>2</u> FACW species <u>86</u> x 2 = <u>172</u> FAC species <u>7</u> x 3 = <u>21</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>95</u> (A) <u>195</u> (B) Prevalence Index = B/A = <u>2.053</u>
Sapling/Shrub Stratum	50% of Total Cover: <u>0</u>	20% of Total Cover: <u>0</u>		
1. <u>Salix richardsonii</u>	<u>85</u>	<input checked="" type="checkbox"/>	FACW	
2. <u>Salix pseudomonticola</u>	<u>2</u>	<input type="checkbox"/>	FAC	
3. _____	_____	<input type="checkbox"/>	_____	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>87</u>				
Herb Stratum	50% of Total Cover: <u>43.5</u>	20% of Total Cover: <u>17.4</u>		
1. <u>Carex membranacea</u>	<u>1</u>	<input type="checkbox"/>	FACW	
2. <u>Carex aquatilis</u>	<u>2</u>	<input checked="" type="checkbox"/>	OBL	
3. <u>Calamagrostis canadensis</u>	<u>5</u>	<input checked="" type="checkbox"/>	FAC	
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>8</u>				
50% of Total Cover: <u>4</u>	20% of Total Cover: <u>1.6</u>			
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 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) <u>10m</u> % Cover of Wetland Bryophytes (Where applicable) _____ % Bare Ground _____ Total Cover of Bryophytes _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>				
Remarks: other vegetation present, but submerged - cannot id or estimate percentages.				

SOIL

Sampling Point: K_MS_07

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 assume hydric soil due to hydrophytic vegetation and inundation.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are 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 No Depth (inches): 12
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 small creek has overtopped banks to flood entire willow community. cannot reach bottom of channel w shovel. channel visible in aerials, ca 2ft wide at bankfull.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 21-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_MS_08
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): flat Slope: 12.2 % / 7.0 ° Elevation: 180
 Subregion: Northern Alaska Lat.: 66.9954433333333 Long.: -160.502655 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>moose scat. FNWWS, physio upland, geomorph fto, nonpatterned.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	10	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>75.0%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>10</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>5</u>	20% of Total Cover: <u>2</u>		Prevalence Index worksheet:
1. <u>Picea glauca</u>	5	<input type="checkbox"/>	FACU	Total % Cover of: _____ Multiply by: _____
2. <u>Salix richardsonii</u>	25	<input checked="" type="checkbox"/>	FACW	OBL species <u>1</u> x 1 = <u>1</u>
3. <u>Salix pulchra</u>	5	<input type="checkbox"/>	FACW	FACW species <u>52</u> x 2 = <u>104</u>
4. <u>Vaccinium uliginosum</u>	25	<input checked="" type="checkbox"/>	FAC	FAC species <u>47</u> x 3 = <u>141</u>
5. <u>Vaccinium vitis-idaea</u>	3	<input type="checkbox"/>	FAC	FACU species <u>15</u> x 4 = <u>60</u>
6. <u>Dasiphora fruticosa</u>	5	<input type="checkbox"/>	FAC	UPL species <u>0</u> x 5 = <u>0</u>
7. <u>Ledum decumbens</u>	5	<input type="checkbox"/>	FACW	Column Total s: <u>115</u> (A) <u>306</u> (B)
8. <u>Empetrum nigrum</u>	7	<input type="checkbox"/>	FAC	Prevalence Index = B/A = <u>2.661</u>
9. <u>Salix reticulata</u>	3	<input type="checkbox"/>	FAC	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>83</u>				
Herb Stratum	50% of Total Cover: <u>41.5</u>	20% of Total Cover: <u>16.6</u>		Hydrophytic Vegetation Indicators:
1. <u>Rubus chamaemorus</u>	2	<input type="checkbox"/>	FACW	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Carex bigelowii</u>	3	<input type="checkbox"/>	FAC	<input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0
3. <u>Saussurea angustifolia</u>	1	<input type="checkbox"/>	FAC	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Equisetum pratense</u>	15	<input checked="" type="checkbox"/>	FACW	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Ranunculus lapponicus</u>	1	<input type="checkbox"/>	OBL	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. _____	_____	<input type="checkbox"/>	_____	
7. _____	_____	<input type="checkbox"/>	_____	
8. _____	_____	<input type="checkbox"/>	_____	
9. _____	_____	<input type="checkbox"/>	_____	
10. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>22</u>				
50% of Total Cover: <u>11</u>	20% of Total Cover: <u>4.4</u>			Plot size (radius, or length x width) <u>10m</u>
				% Cover of Wetland Bryophytes (Where applicable) _____
				% Bare Ground _____
				Total Cover of Bryophytes _____
				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: _____				

SOIL

Sampling Point: K_MS_08

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-3							Fibric Organics	
3-20	10YR	2/1	100				Silt Loam	

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWWS Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Kiana Wetlands Borough/City: Northwest Arctic Borough Sampling Date: 21-Aug-12
 Applicant/Owner: USKH/ADOT&PF Sampling Point: K_MS_09
 Investigator(s): SLI/EKJ Landform (hillside, terrace, hummocks etc.): Hillside
 Local relief (concave, convex, none): none Slope: 12.2 % / 7.0 ° Elevation: 275
 Subregion: Northern Alaska Lat.: 66.9951783333333 Long.: -160.505315 Datum: WGS84
 Soil Map Unit Name: _____ NWI classification: Upland

Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes 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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: <u>FNOWS, physio upland, geomorph fto, nonpatterned.</u>	

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Picea glauca</u>	<u>30</u>	<input checked="" type="checkbox"/>	FACU	Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A)
2. _____	_____	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____	_____	<input type="checkbox"/>	_____	Percent of dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)
4. _____	_____	<input type="checkbox"/>	_____	
5. _____	_____	<input type="checkbox"/>	_____	
Total Cover: <u>30</u>				
Sapling/Shrub Stratum	50% of Total Cover: <u>15</u>	20% of Total Cover: <u>6</u>		Prevalence Index worksheet:
1. <u>Picea glauca</u>	<u>5</u>	<input type="checkbox"/>	FACU	Total % Cover of: _____ Multiply by: _____
2. <u>Dasiphora fruticosa</u>	<u>5</u>	<input type="checkbox"/>	FAC	OBL species <u>0</u> x 1 = <u>0</u>
3. <u>Salix richardsonii</u>	<u>25</u>	<input checked="" type="checkbox"/>	FACW	FACW species <u>26</u> x 2 = <u>52</u>
4. <u>Vaccinium uliginosum</u>	<u>30</u>	<input checked="" type="checkbox"/>	FAC	FAC species <u>98</u> x 3 = <u>294</u>
5. <u>Vaccinium vitis-idaea</u>	<u>5</u>	<input type="checkbox"/>	FAC	FACU species <u>40.5</u> x 4 = <u>162</u>
6. <u>Empetrum nigrum</u>	<u>15</u>	<input type="checkbox"/>	FAC	UPL species <u>0</u> x 5 = <u>0</u>
7. <u>Salix reticulata</u>	<u>10</u>	<input type="checkbox"/>	FAC	Column Total s: <u>164.5</u> (A) <u>508</u> (B)
8. <u>Arctostaphylos rubra</u>	<u>7</u>	<input type="checkbox"/>	FAC	Prevalence Index = B/A = <u>3.088</u>
9. <u>Alnus viridis ssp. crispa</u>	<u>20</u>	<input checked="" type="checkbox"/>	FAC	
10. <u>Linnaea borealis</u>	<u>1</u>	<input type="checkbox"/>	FACU	
Total Cover: <u>123</u>				
Herb Stratum	50% of Total Cover: <u>61.5</u>	20% of Total Cover: <u>24.6</u>		Hydrophytic Vegetation Indicators:
1. <u>Lycopodium clavatum</u>	<u>1</u>	<input type="checkbox"/>	FACU	<input checked="" type="checkbox"/> Dominance Test is > 50%
2. <u>Carex bigelowii</u>	<u>3</u>	<input checked="" type="checkbox"/>	FAC	<input type="checkbox"/> Prevalence Index is ≤ 3.0
3. <u>Saussurea angustifolia</u>	<u>1</u>	<input type="checkbox"/>	FAC	<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Rubus arcticus</u>	<u>2</u>	<input type="checkbox"/>	FAC	<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>Equisetum pratense</u>	<u>1</u>	<input type="checkbox"/>	FACW	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
6. <u>Mertensia paniculata</u>	<u>0.5</u>	<input type="checkbox"/>	FACU	
7. <u>Papaver macounii</u>	<u>3</u>	<input checked="" type="checkbox"/>	FACU	Plot size (radius, or length x width) <u>10m</u>
8. _____	_____	<input type="checkbox"/>	_____	% Cover of Wetland Bryophytes (Where applicable) _____
9. _____	_____	<input type="checkbox"/>	_____	% Bare Ground _____
10. _____	_____	<input type="checkbox"/>	_____	Total Cover of Bryophytes _____
Total Cover: <u>11.5</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
50% of Total Cover: <u>5.75</u>	20% of Total Cover: <u>2.3</u>			
Remarks: _____				

SOIL

Sampling Point: K_MS_09

Profile Description: Describe to depth needed to document the presence or absence of indicators

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-5							Fibric Organics	
5-7							Hemic Organics	
7-8							Sapric Organics	
8-13	10YR	2/1	100				Loam	
13-16	2.5Y	4/1	100				Silt Loam	
16-21	10YR	2/1	100				Silt Loam	

¹Type: C=Concentration D=Depletion RM=Reduced Matrix ²Location: PL=Pore Lining RC=Root Channel 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
⁴ Give details of color change in Remarks

Restrictive Layer (if present):

Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 no hydric soil indicators - cannot apply A2 as there is no indication that organics are saturated.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one 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 (two or more are 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 No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 BLM RAWs Kiana site recorded 5.4in precip in Aug 2012, mean for previous 10 yrs in Aug is 3.0in (SD 1.5in).

Remarks:
 no wetland hydrology indicators

Appendix A1. Wetland verification plots, Kiana, Alaska, 2012.

Plot ID	Cowardin	Date		Investigators	Dominant Species	Field Notes
		Completed				
K_V01	PFO4B	8/20/2012	SLI, EKJ		<i>Picea glauca</i> , <i>Picea mariana</i> , <i>Alnus viridis</i> ssp. <i>crispa</i> , <i>Betula glandulosa</i> , <i>Salix glauca</i> , <i>Vaccinium uliginosum</i> , <i>Vaccinium vitis-idaea</i> , <i>Carex bigelowii</i> , <i>Equisetum arvense</i> , <i>Petasites frigidus</i>	Open white spruce woodland adjacent to roadside. Disturbed area with metal debris and histic epipedon, frozen at 18 inches.
K_V02	Us	8/20/2012	SLI, EKJ		<i>Artemisia tilesii</i> , <i>Bromus pumpellianus</i> ssp <i>pumpellianus</i> , <i>Chamerion angustifolium</i> , <i>Hordeum jubatum</i> , <i>Elymus alaskanus</i> ssp <i>alaskanus</i>	Partially vegetated, barren edge of runway with invasive species.
K_V03	U	8/20/2012	SLI, EKJ		<i>Picea glauca</i> , <i>Salix alaxensis</i> , <i>Salix glauca</i> , <i>Shepherdia canadensis</i>	Bluff leading down to the Kobuk River. White spruce woodland with high chroma mineral soils. Floodplain at bottom of bluff a flooded <i>Salix</i> community, cannot access due to high water.
K_V04	U	8/20/2012	SLI, EKJ		<i>Picea glauca</i> , <i>Picea mariana</i> , <i>Betula neolaskana</i> , <i>Salix bebbiana</i> , <i>Vaccinium vitis-idea</i>	White spruce woodland with a 40 percent lichen cover on rounded upland feature.
K_V05	PSS4/1B	8/22/2012	SLI, EKJ		<i>Picea glauca</i> , <i>Picea mariana</i> , <i>Betula glandulosa</i> , <i>Carex bigelowii</i>	Dwarf white spruce woodland on hillside with scattered <i>Eriophorum vaginatum</i> tussocks and 15 percent lichen. Wetland soils (histc epipedon) saturated at the surface with the active layer at 16 inches below ground surface.
K_V06	PSS1B	8/22/2012	SLI, EKJ		<i>Alnus viridis</i> ssp. <i>crispa</i> , <i>Betula glandulosa</i> , <i>Empetrum nigrum</i> , <i>Picea glauca</i> , <i>Salix richardsonii</i> , <i>Vaccinium vitis-idaea</i> , <i>Petasites frigidus</i>	Steep hillside with saturated Alaska redox soils. Active layer at 20 inches below ground surface. Open low shrub birch-willow community with caribou scat and game trails in plot.
K_V07	R3UBH	8/22/2012	SLI, EKJ		<i>Betula glandulosa</i> , <i>Salix richardsonii</i> , <i>Vaccinium uliginosum</i>	Small riverine feature flowing into lake.
K_V08	PSS1B	8/22/2012	SLI, EKJ		<i>Picea glauca</i> , <i>Salix richardsonii</i> , <i>Petasites frigidus</i>	Shallow swale visible in aerial. Probing shows saturated mineral hydric soils. Connects uphill to a small PEMIE wet sedge meadow with <i>Carex utriculata</i> , <i>Eriophorum angustifolium</i> and <i>Menyanthes trifoliata</i>

Appendix A1. Continued.

Plot ID	Cowardin	Date		Investigators	Dominant Species	Field Notes
		Completed				
K_V09	PSS1C	8/22/2012	SLI, EKJ	<i>Betula glandulosa</i> , <i>Dasiphora fruticosa</i> , <i>Salix richardsonii</i> , <i>Carex aquatilis</i> , <i>Comarum palustre</i>	Flooded low open willow community. Water 12 to 16 inches deep.	
K_V10	PSS1B	8/22/2012	SLI, EKJ	<i>Picea glauca</i> , <i>Picea mariana</i> , <i>Arctostaphylos rubra</i> , <i>Betula glandulosa</i> , <i>Ledum decumbens</i> , <i>Vaccinium uliginosum</i> , <i>Carex bigelowii</i>	White Spruce woodland community with histic epipedon over saturated silty clay loam) and moose scat found within plot.	
K_V12	PEM1B	8/22/2012	SLI, EKJ	<i>Betula nana</i> , <i>Salix alaxensis</i> , <i>Salix arbusculoides</i> , <i>Salix bebbiana</i> , <i>Calamagrostis canadensis</i> , <i>Equisetum fluviatile</i> , <i>Eriophorum scheuchzeri</i> , <i>Hordeum jubatum</i> , <i>Poa palustris</i>	Wet sedge-grass meadow tundra swale between road and airstrip.	
K_V13	U	8/23/2012	SLI, EKJ	<i>Picea glauca</i> , <i>Salix alaxensis</i> , <i>Salix bebbiana</i> , <i>Chamerion angustifolium</i> , <i>Equisetum arvense</i>	Tall closed willow community in a narrow swale (15 ft) on fill. Swale has changed from a clear wide swale to what looks like erosional features with standing water and thick willow cover.	
K_V14	PSS1B	8/23/2012	SLI, EKJ	<i>Salix alaxensis</i> , <i>Calamagrostis canadensis</i> , <i>Populus balsamifera</i>	Moose scat and browse in community. In small swale that is 2 ft wide with 2 ft tall banks, surrounded by upland fill. Tall open willow community	
K_V16 K_MS_V01	U PSS1B	8/23/2012 8/21/2012	SLI, EKJ SLI, EKJ	<i>Picea glauca</i> , <i>Picea mariana</i> , <i>Betula glandulosa</i> , <i>Picea glauca</i> , <i>Salix glauca</i>	Small open balsam poplar forest White spruce woodland community with with birch understory. Organic soils over silty clay loam.	
K_MS_V02	PSS1/3B	8/21/2012	SLI, EKJ	<i>Picea glauca</i> , <i>Salix spp.</i>	Non-RPW drainage through Sfwws community. Incised banks 7 ft high on left bank and 2 ft high on right bank. Slow velocity flowing water with a silt substrate and step pools. 12 to 24 inches wide and 2 to 6 inches deep. White spruce woodland community with a <i>Salix glauca</i> canopy.	

Appendix A.1. Continued.

Plot ID	Cowardin	Date		Investigators	Dominant Species	Field Notes
		Completed				
K_MS_V03	U	8/21/2012		SLI, EKJ	<i>Picea glauca</i> , <i>Betula glandulosa</i> , <i>Salix glauca</i> , <i>Salix richardsonii</i>	Non-wetland hillside with ground squirrel burrows. Probing shows thin organic mat over high chroma soils. Open white spruce forest community.
K_MS_V04	U	8/21/2012		SLI, EKJ	<i>Picea glauca</i> , <i>Picea mariana</i> , <i>Alnus viridis</i> ssp. <i>crispa</i> , <i>Betula glandulosa</i> , <i>Salix richardsonii</i>	White spruce woodland community on hillside.
K_MS_V05	PSS1B	8/21/2012		SLI, EKJ	<i>Picea glauca</i> , <i>Picea mariana</i> , <i>Alnus viridis</i> ssp. <i>crispa</i> , <i>Betula glandulosa</i> , <i>Salix richardsonii</i>	White spruce woodland with wetland soils. Histic epipedon with saturated soils at the surface and active layer 12 inches below ground surface.
K_MS_V06	U	8/21/2012		SLI, EKJ	<i>Betula neolaskana</i> , <i>Picea glauca</i> , <i>Alnus viridis</i> ssp. <i>crispa</i> , <i>Vaccinium uliginosum</i>	Open white spruce community
K_MS_V07	PSS1B	8/21/2012		SLI, EKJ	<i>Picea glauca</i> , <i>Picea mariana</i> , <i>Betula glandulosa</i> , <i>Salix richardsonii</i>	White spruce woodland surrounding small stream (unsure if stream is just related to recent heavy precipitation or around year round)

Appendix B. Site Photos

I. SITE PHOTOS



K_01: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PF04B



Hydrology: Saturated (A3) with a shallow aquitard (D3)
Soils: Organics over silty clay loam (Histic Epipedon A2)



K_02: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PSS1/4B



Hydrology: Saturated (A3) with oxidized rhizospheres (C3)
Soils: Organics over silty clay loam (Alaska Redox A14)



K_03: Palustrine Saturated Deciduous Shrub Scrub
NWI Class: PSS1B



Hydrology: Saturated (A3) with a shallow aquitard (D3)
Soils: Organics over silty clay loam (Histic Epipedon A2)



K_04: Upland
NWI Class: U



Hydrology: Well drained
Soils: Organics over loamy sand



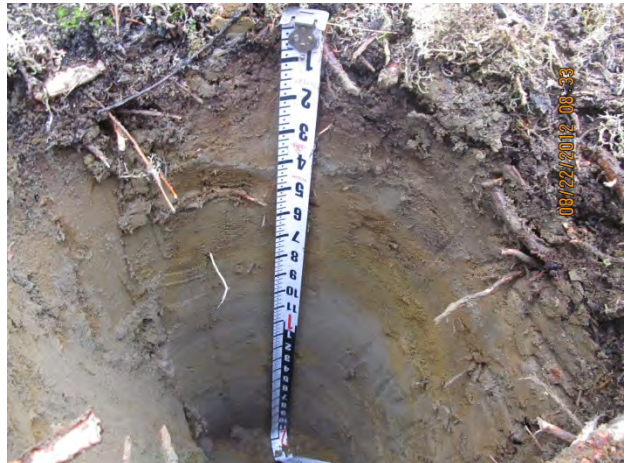
K_05: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PSS1/4B



Hydrology: Saturated (A3) with high water table (A2)
Soils: Organics (Histel A1)



K_06: Upland
NWI Class: U



Hydrology: Well drained
Soils: Organic over sandy loam



K_07: Riverine Seasonally Flooded Low and Tall Willow Scrub
NWI Class: PSS1C



Hydrology: Surface water (A1) and sediment deposits (B2)
Soils: No pit dug, inundated



K_08: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PSS1B



Hydrology: Saturated (A3) with high water table (A2)
Soils: Organics over silty clay loam (Histic Epipedon A2)



K_09: Riverine Seasonally Flooded Low and Tall Willow Scrub
NWI Class: PSS1C



Hydrology: Surface water (A1) and iron deposits (B5)
Soils: No pit dug, inundated



K_10: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PSS1/4B



Hydrology: Saturated (A3) with oxidized rhizospheres (C3)
Soils: Organics over silty clay loam (Alaska Redox A14)



K_11: Riverine Seasonally Flooded Wet Sedge Meadow
NWI Class: PEM1E



Hydrology: Surface water (A1) and FAC-neutral (D5)
Soils: No pit dug, inundated



K_12: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PSS1B



Hydrology: Saturated (A3) with a high water table (A2)
Soils: Organics over fine sandy loam (Histic Epipedon A2)



K_13: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PSS1B



Hydrology: Oxidized Rhizospheres (C3) and Aquitard (D3)
Soils: Organics over silty clay loam (Alaska Redox A14)



K_14: Lacustrine Flooded Sedge-Grass Marsh
NWI Class: PEM1H



Hydrology: Surface water (A1) and FAC-neutral (D5)
Soils: No pit dug, inundated



K_15: Palustrine Saturated Deciduous Shrub Scrub
NWI Class: PSS1B



Hydrology: Saturated (A3) with a high water table (A2)
Soils: Organics over sandy loam (Histosol A1)



K_16: Upland
NWI Class: U



Hydrology: Well drained and FAC-neutral (D5)
Soils: Organics over sandy loam



K_17: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PSS1/4B



Hydrology: Saturated (A3) with a high water table (A2)
Soils: Organics over fine sandy loam (Histic Epipedon A2)



K_18: Upland
NWI Class: U



Hydrology: Well drained with a shallow aquitard (D3)
Soils: Organics over silty clay loam



K_19: Upland
NWI Class: U



Hydrology: Saturated (A3) with a shallow aquitard (D3)
Soils: Organics over silty clay



K_20: Upland
NWI Class: U



Hydrology: Well drained
Soils: Fine sandy loam



K_21: Upland
NWI Class: U



Hydrology: Well drained and FAC-neutral (D5)
Soils: Organics over fine loamy sand



K_22: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PSS1B



Hydrology: Saturated (A3) with a high water table (A2)
Soils: Organics (Histel A1)



K_23: Palustrine Saturated Deciduous Shrub Scrub
NWI Class: PSS1B



Hydrology: Saturation (A3) and high water table (A2)
Soils: Organics (Histic Epipedon A2)



K_24: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PSS1B



Hydrology: Saturation (A3) with a shallow aquitard (D3)
Soils: Organics over silty clay loam (Histic Epipedon A2)



K_25: Upland
NWI Class: U



Hydrology: Well drained with a shallow aquitard (D3)
Soils: Organics over silty clay loam



K_26: Palustrine Flooded Wet Emergent Meadow
NWI Class: PEM1H



Hydrology: Surface water (A1) and FAC-neutral (D5)
Soils: No pit dug, inundated



K_27: Palustrine Flooded Wet Emergent Meadow
NWI Class: PEM1F



Hydrology: Surface water (A1) and FAC-neutral (D5)
Soils: No pit dug, inundated



K_28: Palustrine Saturated Deciduous Shrub Scrub
NWI Class: PSS1B



Hydrology: Surface water (A1) and FAC-neutral (D5)
Soils: No pit dug, inundated



K_29: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PSS3/1B



Hydrology: Saturation (A3) with high water table (A2)
Soils: Organics and silty clay loam (Histic Epipedon A2)



K_30: Upland
NWI Class: U



Hydrology: Shallow aquitard (D3)
Soils: Organics over silty clay loam (Alaska Redox A14)



K_31: Upland
NWI Class: U



Hydrology: Shallow aquitard (D3) and FAC-neutral (D5)
Soils: Organics



K_32: Palustrine Saturated Graminoid Meadow
NWI Class: PEM1B



Hydrology: Surface water (A1) with a shallow aquitard (D3)
Soils: Organics over silty clay loam (Histic Epipedon A2)



K_33: Upland
NWI Class: U



Hydrology: Well drained
Soils: Organics



K_34: Palustrine Flooded Wet Emergent Meadow
NWI Class: PEM1H



Hydrology: Surface water (A1) and iron deposits (B5)
Soils: No pit dug, inundated



K_35: Palustrine Saturated Deciduous Shrub Scrub
NWI Class: PSS1B



Hydrology: Saturation (A3) with a shallow aquitard (D3)
Soils: Organics over silty clay loam (Histic Epipedon A2)



K_36: Palustrine Flooded Wet Emergent Meadow
NWI Class: PEM1H



Hydrology: Surface water (A1) and FAC-neutral (D5)
Soils: No pit dug, inundated



K_37: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PSS1B



Hydrology: Saturation (A3) with high water table (A2)
Soils: Organics over silty clay loam (Problematic Alaska Gleyed)



K_38: Upland
NWI Class: U



Hydrology: Well drained and FAC-neutral (D5)
Soils: Organics over silt loam (Alaska Redox A14)



K_39: Palustrine Saturated Deciduous Shrub Scrub
NWI Class: PSS1B



Hydrology: Surface water (A1) and iron deposits (B5)
Soils: No pit dug, inundated



K_MS_01: Palustrine Saturated Needleleaf-Shrub Birch
Woodland
NWI Class: PSS1B



Hydrology: Surface water (A1) and sediment deposits (B2)
Soils: Organics over loam (Alaska Redox A14)



K_MS_02: Upland
NWI Class: U



Hydrology: Well drained
Soils: Organics over loamy coarse sand



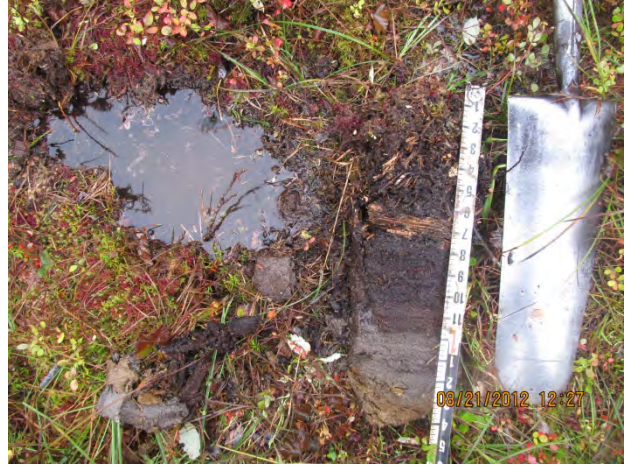
K_MS_03: Palustrine Saturated Needleleaf-Shrub Birch
Woodland
NWI Class: PSS1/4B



Hydrology: Saturation with a high water table
Soils: Organics over silty clay loam (Histic Epipedon A2)



K_MS_04: Palustrine Saturated Needleleaf-Shrub Birch
Woodland
NWI Class: PSS1/3B



Hydrology: Saturated (A3) with high water table (A3)
Soils: Organics over loam (Histic Epipedon A2)



K_MS_05: Upland
NWI Class: U



Hydrology: Well drained
Soils: Organics over loamy coarse sand



K_MS_06: Upland
NWI Class: U



Hydrology: Well drained
Soils: Organics over silt loam



K_MS_07: Riverine Seasonally Flooded Low and Tall Willow
NWI Class: PSS1C

Hydrology: Surface water (A1) and FAC-neutral
Soils: No soil pit dug, inundated



K_MS_08: Upland
NWI Class: U



Hydrology: Well drained and FAC-neutral (D5)
Soils: Organics over silt loam



K_MS_09: Upland
NWI Class: U



Hydrology: Well drained
Soils: Organics over silt loam

II. VERIFICATION SITE PHOTOS



K_V01: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PFO4B



K_V02: Upland
NWI Class: Us



K_V03: Upland
NWI Class: U



K_V04: Upland
NWI Class: U



K_V05: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PSS1/4B



K_V06: Palustrine Saturated Deciduous Shrub Scrub



K_V07: Upper Perennial Stream
NWI Class: R3BUH



K_V08: Riverine Seasonally Flooded Low and Tall Willow
NWI Class: PSS1B



K_V09: Riverine Seasonally Flooded Low and Tall Willow
NWI Class: PSS1C



K_V10: Palustrine Saturated Needleleaf-Shrub Birch Woodland
NWI Class: PSS1B



K_V12: Palustrine Saturated Graminoid Meadow
NWI Class: PEM1B



K_V13: Upland
NWI Class: U



K_V14: Palustrine Saturated Deciduous Shrub Scrub
NWI Class: PSS1B



K_V16: Upland
NWI Class: U



K_MS_V01: Palustrine Saturated Needleleaf-Shrub Birch
Woodland
NWI Class: PSS1B



K_MS_V02: Palustrine Saturated Needleleaf-Shrub Birch
Woodland
NWI Class: PSS1/3B



K_MS_V03: Upland
NWI Class: U



K_MS_V04: Upland
NWI Class: U



K_MS_V05: Palustrine Saturated Needleleaf-Shrub Birch
Woodland
NWI Class: PSS1B



K_MS_V06: Upland
NWI Class: U



K_MS_V07: Palustrine Saturated Needleleaf-Shrub Birch
Woodland
NWI Class: PSS1B

Appendix C. Functional Assessment Forms

WETLAND FUNCTIONS DATA FORM-ALASKA REGULATORY BEST PROFESSIONAL JUDGMENT

CHARACTERIZATION

(Modified by ABR, Inc.—Environmental Research & Services; September 2012)

Project: Proposed Airstrip Improvement, Kiana, AK

Date: 10/18/2012

Wetland: Upper Perennial Stream

PM/RS: Wendy Davis

<p>A. Flood Flow Regulation (Storage and Desynchronization)</p>	<p>Wetland likely to perform function? (Y or N) Rating: N/A</p>
<p>1. Wetland is within a permafrost system, with a near-surface active layer. IF YES, PROCEED NO FURTHER. 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense ($\geq 40\%$ cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.</p>	<p>1. N 2. Y 3. N 4. N 5. N 6. N 7. N ≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>B. Sediment, Nutrient (N and P), Toxicant Removal</p>	<p>Wetland likely to perform function? (Y or N) Rating: Low Function</p>
<p>1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense ($\geq 50\%$ cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.</p>	<p>1. N 2. Y 3. N 4. N 5. N 6. N ≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>C. Erosion Control and Shoreline Stabilization</p>	<p>Wetland likely to perform function? (Y or N) Rating: N/A</p>
<p>1. Wetland directly abuts permanent or relatively permanent water. IF NO, PROCEED NO FURTHER. 2. Wetland has dense, energy absorbing vegetation (trees, shrubs) bordering the water course and no evidence of erosion. 3. An at least moderately dense herbaceous layer is present.</p>	<p>1. N/A 2. N/A 3. N/A 1-2 attributes (Y)—High Function None—Low Function</p>
<p>D. Production of Organic Matter and its Export</p>	<p>Wetland likely to perform function? (Y or N) Rating: Moderate Function</p>
<p>1. Wetland is flooded at least once every 10 years. IF NO, PROCEED NO FURTHER. 2. A more than minimal amount of organic matter is flushed from the wetland by water flow at least once every 10 years. IF NO, PROCEED NO FURTHER. 3. Wetland has at least 30% cover of herbaceous vegetation. 4. Woody plants in wetland are mostly deciduous. 5. High degree of plant community structure, vegetation density, and species richness present. 6. Interspersion of vegetation and water is at least moderate.</p>	<p>1. Y 2. Y 3. N 4. N/A 5. N 6. N ≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>

E. General Habitat Suitability	Wetland likely to perform function? (Y or N) Rating: Moderate Function
<p>1. Wetland is not fragmented by development.</p> <p>2. Upland surrounding wetland is undisturbed.</p> <p>3. Diversity (evenness of cover) of plant species is moderately high (≥ 5 species with at least 10% cover each).</p> <p>4. Plant community has two or more strata, with at least two of those strata having $\geq 10\%$ total cover.</p> <p>5. Wetland has at least a moderate degree of Cowardin Class interspersion.</p> <p>6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.</p>	<p>1. Y</p> <p>2. Y</p> <p>3. N</p> <p>4. N</p> <p>5. N</p> <p>6. N</p> <p>≥ 5 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function</p>
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: High Function
<p>1. Wetland has perennial or intermittent surface water connection to a fish-bearing water body. IF NO, PROCEED NO FURTHER.</p> <p>2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter.</p> <p>3. Fish are present or are known to be present.</p> <p>4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter.</p> <p>5. Spawning areas are present (aquatic vegetation and/or gravel beds)</p> <p>6. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation).</p>	<p>1. Y</p> <p>2. Y</p> <p>3. Y</p> <p>4. Y</p> <p>5. Y</p> <p>6. Y</p> <p>≥ 5 attributes (Y)—High Function 3–4 attributes (Y)—Moderate Function 0–2 attributes (Y)—Low Function</p>
G. Native Plant Richness	Wetland likely to perform function? (Y or N): N Rating: N/A
<p>1. At least 20 native plant species occur in the wetland</p> <p>2. Wetland contains two or more Cowardin Classes.</p> <p>3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
H. Educational, Scientific, Recreational, or Subsistence Use	Wetland likely to perform function? (Y or N): N Rating: Moderate Function
<p>1. Site has documented scientific or educational use.</p> <p>2. Wetland is in public ownership.</p> <p>3. Accessible trails are available.</p> <p>4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).</p>	<p>1. N</p> <p>2. Y</p> <p>3. N</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N): N Rating: Low Function
<p>1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species.</p> <p>2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service</p> <p>3. Wetland has biological, geological, or other features that are determined to be rare.</p> <p>4. Wetland has been determined significant because it provides functions scarce for the area.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p> <p>If attribute 1 is Y, then automatically High Function</p>

WETLAND FUNCTIONS DATA FORM-ALASKA REGULATORY BEST PROFESSIONAL JUDGMENT

CHARACTERIZATION

(Modified by ABR, Inc.—Environmental Research & Services; September 2012)

Project: Proposed Airstrip Improvement, Kiana, AK

Date: 10/18/2012

Wetland: Permanently Flooded Pond

PM/RS: Wendy Davis

<p>A. Flood Flow Regulation (Storage and Desynchronization)</p>	<p>Wetland likely to perform function? (Y or N) Rating: High Function</p>
<p>1. Wetland is within a permafrost system, with a near-surface active layer. IF YES, PROCEED NO FURTHER. 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense ($\geq 40\%$ cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.</p>	<p>1. N 2. Y 3. Y 4. N 5. N 6. Y 7. Y</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>B. Sediment, Nutrient (N and P), Toxicant Removal</p>	<p>Wetland likely to perform function? (Y or N) Rating: Moderate Function</p>
<p>1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense ($\geq 50\%$ cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.</p>	<p>1. N 2. Y 3. N 4. N 5. N 6. Y</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>C. Erosion Control and Shoreline Stabilization</p>	<p>Wetland likely to perform function? (Y or N) Rating: N/A</p>
<p>1. Wetland directly abuts permanent or relatively permanent water. IF NO, PROCEED NO FURTHER. 2. Wetland has dense, energy absorbing vegetation (trees, shrubs) bordering the water course and no evidence of erosion. 3. An at least moderately dense herbaceous layer is present.</p>	<p>1. N/A 2. N/A 3. N/A</p> <p>1-2 attributes (Y)—High Function None—Low Function</p>
<p>D. Production of Organic Matter and its Export</p>	<p>Wetland likely to perform function? (Y or N) Rating: Low Function</p>
<p>1. Wetland is flooded at least once every 10 years. IF NO, PROCEED NO FURTHER. 2. A more than minimal amount of organic matter is flushed from the wetland by water flow at least once every 10 years. IF NO, PROCEED NO FURTHER. 3. Wetland has at least 30% cover of herbaceous vegetation. 4. Woody plants in wetland are mostly deciduous. 5. High degree of plant community structure, vegetation density, and species richness present. 6. Interspersion of vegetation and water is at least moderate.</p>	<p>1. Y 2. N 3. N 4. N/A 5. N 6. N/A</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>

E. General Habitat Suitability	Wetland likely to perform function? (Y or N) Rating: Moderate Function
<p>1. Wetland is not fragmented by development.</p> <p>2. Upland surrounding wetland is undisturbed.</p> <p>3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each).</p> <p>4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover.</p> <p>5. Wetland has at least a moderate degree of Cowardin Class interspersion.</p> <p>6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.</p>	<p>1. Y</p> <p>2. Y</p> <p>3. N</p> <p>4. N</p> <p>5. N</p> <p>6. N</p> <p>≥ 5 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function</p>
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: High Function
<p>1. Wetland has perennial or intermittent surface water connection to a fish-bearing water body. IF NO, PROCEED NO FURTHER.</p> <p>2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter.</p> <p>3. Fish are present or are known to be present.</p> <p>4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter.</p> <p>5. Spawning areas are present (aquatic vegetation and/or gravel beds)</p> <p>6. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation).</p>	<p>1. Y</p> <p>2. Y</p> <p>3. Y</p> <p>4. Y</p> <p>5. Y</p> <p>6. Y</p> <p>≥ 5 attributes (Y)—High Function 3–4 attributes (Y)—Moderate Function 0–2 attributes (Y)—Low Function</p>
G. Native Plant Richness	Wetland likely to perform function? (Y or N): N Rating: Low Function
<p>1. At least 20 native plant species occur in the wetland</p> <p>2. Wetland contains two or more Cowardin Classes.</p> <p>3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
H. Educational, Scientific, Recreational, or Subsistence Use	Wetland likely to perform function? (Y or N): N Rating: Moderate Function
<p>1. Site has documented scientific or educational use.</p> <p>2. Wetland is in public ownership.</p> <p>3. Accessible trails are available.</p> <p>4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).</p>	<p>1. N</p> <p>2. Y</p> <p>3. N</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N): N Rating: Low Function
<p>1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species.</p> <p>2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service</p> <p>3. Wetland has biological, geological, or other features that are determined to be rare.</p> <p>4. Wetland has been determined significant because it provides functions scarce for the area.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p> <p>If attribute 1 is Y, then automatically High Function</p>

WETLAND FUNCTIONS DATA FORM-ALASKA REGULATORY BEST PROFESSIONAL JUDGMENT

CHARACTERIZATION

(Modified by ABR, Inc.—Environmental Research & Services; September 2012)

Project: Proposed Airstrip Improvement, Kiana, AK

Date: 10/18/2012

Wetland: Lacustrine Flooded Sedge-Grass Marsh

PM/RS: Wendy Davis

<p>A. Flood Flow Regulation (Storage and Desynchronization)</p>	<p>Wetland likely to perform function? (Y or N) Rating: High Function</p>
<p>1. Wetland is within a permafrost system, with a near-surface active layer. IF YES, PROCEED NO FURTHER. 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense ($\geq 40\%$ cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.</p>	<p>1. N 2. Y 3. Y 4. N 5. N 6. Y 7. Y</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>B. Sediment, Nutrient (N and P), Toxicant Removal</p>	<p>Wetland likely to perform function? (Y or N) Rating: High Function</p>
<p>1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense ($\geq 50\%$ cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.</p>	<p>1. N 2. Y 3. Y 4. Y 5. N 6. Y</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>C. Erosion Control and Shoreline Stabilization</p>	<p>Wetland likely to perform function? (Y or N) Rating: High Function</p>
<p>1. Wetland directly abuts permanent or relatively permanent water. IF NO, PROCEED NO FURTHER. 2. Wetland has dense, energy absorbing vegetation (trees, shrubs) bordering the water course and no evidence of erosion. 3. An at least moderately dense herbaceous layer is present.</p>	<p>1. Y 2. N 3. Y</p> <p>1-2 attributes (Y)—High Function None—Low Function</p>
<p>D. Production of Organic Matter and its Export</p>	<p>Wetland likely to perform function? (Y or N) Rating: High Function</p>
<p>1. Wetland is flooded at least once every 10 years. IF NO, PROCEED NO FURTHER. 2. A more than minimal amount of organic matter is flushed from the wetland by water flow at least once every 10 years. IF NO, PROCEED NO FURTHER. 3. Wetland has at least 30% cover of herbaceous vegetation. 4. Woody plants in wetland are mostly deciduous. 5. High degree of plant community structure, vegetation density, and species richness present. 6. Interspersion of vegetation and water is at least moderate.</p>	<p>1. Y 2. Y 3. Y 4. Y 5. Y 6. Y</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>

E. General Habitat Suitability	Wetland likely to perform function? (Y or N) Rating: High Function
<p>1. Wetland is not fragmented by development.</p> <p>2. Upland surrounding wetland is undisturbed.</p> <p>3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each).</p> <p>4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover.</p> <p>5. Wetland has at least a moderate degree of Cowardin Class interspersion.</p> <p>6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.</p>	<p>1. Y</p> <p>2. Y</p> <p>3. Y</p> <p>4. N</p> <p>5. Y</p> <p>6. Y</p> <p>≥ 5 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function</p>
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: High Function
<p>1. Wetland has perennial or intermittent surface water connection to a fish-bearing water body. IF NO, PROCEED NO FURTHER.</p> <p>2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter.</p> <p>3. Fish are present or are known to be present.</p> <p>4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter.</p> <p>5. Spawning areas are present (aquatic vegetation and/or gravel beds)</p> <p>6. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation).</p>	<p>1. Y</p> <p>2. Y</p> <p>3. Y</p> <p>4. Y</p> <p>5. Y</p> <p>6. Y</p> <p>≥ 5 attributes (Y)—High Function 3–4 attributes (Y)—Moderate Function 0–2 attributes (Y)—Low Function</p>
G. Native Plant Richness	Wetland likely to perform function? (Y or N): N Rating: Moderate Function
<p>1. At least 20 native plant species occur in the wetland</p> <p>2. Wetland contains two or more Cowardin Classes.</p> <p>3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.</p>	<p>1. N</p> <p>2. Y</p> <p>3. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
H. Educational, Scientific, Recreational, or Subsistence Use	Wetland likely to perform function? (Y or N): N Rating: Moderate Function
<p>1. Site has documented scientific or educational use.</p> <p>2. Wetland is in public ownership.</p> <p>3. Accessible trails are available.</p> <p>4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).</p>	<p>1. N</p> <p>2. Y</p> <p>3. N</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N): N Rating: Low Function
<p>1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species.</p> <p>2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service</p> <p>3. Wetland has biological, geological, or other features that are determined to be rare.</p> <p>4. Wetland has been determined significant because it provides functions scarce for the area.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p> <p>If attribute 1 is Y, then automatically High Function</p>

WETLAND FUNCTIONS DATA FORM-ALASKA REGULATORY BEST PROFESSIONAL JUDGMENT

CHARACTERIZATION

(Modified by ABR, Inc.—Environmental Research & Services; September 2012)

Project: Proposed Airstrip Improvement, Kiana, AK

Date: 10/18/2012

Wetland: Palustrine Flooded Wet Emergent Meadow

PM/RS: Wendy Davis

<p>A. Flood Flow Regulation (Storage and Desynchronization)</p>	<p>Wetland likely to perform function? (Y or N) Rating: Moderate Function</p>
<p>1. Wetland is within a permafrost system, with a near-surface active layer. IF YES, PROCEED NO FURTHER. 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense ($\geq 40\%$ cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.</p>	<p>1. N 2. Y 3. Y 4. N 5. N 6. N 7. Y ≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>B. Sediment, Nutrient (N and P), Toxicant Removal</p>	<p>Wetland likely to perform function? (Y or N) Rating: High Function</p>
<p>1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense ($\geq 50\%$ cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.</p>	<p>1. Y 2. Y 3. N 4. N 5. N 6. Y ≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>C. Erosion Control and Shoreline Stabilization</p>	<p>Wetland likely to perform function? (Y or N) Rating: High Function</p>
<p>1. Wetland directly abuts permanent or relatively permanent water. IF NO, PROCEED NO FURTHER. 2. Wetland has dense, energy absorbing vegetation (trees, shrubs) bordering the water course and no evidence of erosion. 3. An at least moderately dense herbaceous layer is present.</p>	<p>1. Y 2. N 3. Y 1-2 attributes (Y)—High Function None—Low Function</p>
<p>D. Production of Organic Matter and its Export</p>	<p>Wetland likely to perform function? (Y or N) Rating: High Function</p>
<p>1. Wetland is flooded at least once every 10 years. IF NO, PROCEED NO FURTHER. 2. A more than minimal amount of organic matter is flushed from the wetland by water flow at least once every 10 years. IF NO, PROCEED NO FURTHER. 3. Wetland has at least 30% cover of herbaceous vegetation. 4. Woody plants in wetland are mostly deciduous. 5. High degree of plant community structure, vegetation density, and species richness present. 6. Interspersion of vegetation and water is at least moderate.</p>	<p>1. Y 2. Y 3. Y 4. Y 5. N 6. Y ≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>

E. General Habitat Suitability	Wetland likely to perform function? (Y or N) Rating: Low Function
<p>1. Wetland is not fragmented by development.</p> <p>2. Upland surrounding wetland is undisturbed.</p> <p>3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each).</p> <p>4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover.</p> <p>5. Wetland has at least a moderate degree of Cowardin Class interspersion.</p> <p>6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.</p>	<p>1. Y</p> <p>2. N</p> <p>3. N</p> <p>4. N</p> <p>5. N</p> <p>6. N</p> <p>≥ 5 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function</p>
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: N/A
<p>1. Wetland has perennial or intermittent surface water connection to a fish-bearing water body. IF NO, PROCEED NO FURTHER.</p> <p>2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter.</p> <p>3. Fish are present or are known to be present.</p> <p>4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter.</p> <p>5. Spawning areas are present (aquatic vegetation and/or gravel beds)</p> <p>6. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation).</p>	<p>1. N</p> <p>2. N/A</p> <p>3. N/A</p> <p>4. N/A</p> <p>5. N/A</p> <p>6. N/A</p> <p>≥ 5 attributes (Y)—High Function 3–4 attributes (Y)—Moderate Function 0–2 attributes (Y)—Low Function</p>
G. Native Plant Richness	Wetland likely to perform function? (Y or N): N Rating: Low Function
<p>1. At least 20 native plant species occur in the wetland</p> <p>2. Wetland contains two or more Cowardin Classes.</p> <p>3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
H. Educational, Scientific, Recreational, or Subsistence Use	Wetland likely to perform function? (Y or N): N Rating: High Function
<p>1. Site has documented scientific or educational use.</p> <p>2. Wetland is in public ownership.</p> <p>3. Accessible trails are available.</p> <p>4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).</p>	<p>1. N</p> <p>2. Y</p> <p>3. Y</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N): N Rating: Low Function
<p>1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species.</p> <p>2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service</p> <p>3. Wetland has biological, geological, or other features that are determined to be rare.</p> <p>4. Wetland has been determined significant because it provides functions scarce for the area.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p> <p>If attribute 1 is Y, then automatically High Function</p>

WETLAND FUNCTIONS DATA FORM-ALASKA REGULATORY BEST PROFESSIONAL JUDGMENT

CHARACTERIZATION

(Modified by ABR, Inc.—Environmental Research & Services; September 2012)

Project: Proposed Airstrip Improvement, Kiana, AK

Date: 10/18/2012

Wetland: Riverine Seasonally Flooded Wet Sedge Meadow

PM/RS: Wendy Davis

<p>A. Flood Flow Regulation (Storage and Desynchronization)</p>	<p>Wetland likely to perform function? (Y or N) Rating: Moderate Function</p>
<p>1. Wetland is within a permafrost system, with a near-surface active layer. IF YES, PROCEED NO FURTHER. 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense ($\geq 40\%$ cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.</p>	<p>1. N 2. N 3. N 4. N 5. N 6. Y 7. Y</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>B. Sediment, Nutrient (N and P), Toxicant Removal</p>	<p>Wetland likely to perform function? (Y or N) Rating: Moderate Function</p>
<p>1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense ($\geq 50\%$ cover) herbaceous vegetation is present. 4. At least moderate interspersions of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.</p>	<p>1. N 2. N 3. Y 4. Y 5. N 6. Y</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>C. Erosion Control and Shoreline Stabilization</p>	<p>Wetland likely to perform function? (Y or N) Rating: Low Function</p>
<p>1. Wetland directly abuts permanent or relatively permanent water. IF NO, PROCEED NO FURTHER. 2. Wetland has dense, energy absorbing vegetation (trees, shrubs) bordering the water course and no evidence of erosion. 3. An at least moderately dense herbaceous layer is present.</p>	<p>1. N 2. N/A 3. N/A</p> <p>1-2 attributes (Y)—High Function None—Low Function</p>
<p>D. Production of Organic Matter and its Export</p>	<p>Wetland likely to perform function? (Y or N) Rating: High Function</p>
<p>1. Wetland is flooded at least once every 10 years. IF NO, PROCEED NO FURTHER. 2. A more than minimal amount of organic matter is flushed from the wetland by water flow at least once every 10 years. IF NO, PROCEED NO FURTHER. 3. Wetland has at least 30% cover of herbaceous vegetation. 4. Woody plants in wetland are mostly deciduous. 5. High degree of plant community structure, vegetation density, and species richness present. 6. Interspersion of vegetation and water is at least moderate.</p>	<p>1. Y 2. Y 3. Y 4. Y 5. N 6. Y</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>

E. General Habitat Suitability	Wetland likely to perform function? (Y or N) Rating: Moderate Function
<p>1. Wetland is not fragmented by development.</p> <p>2. Upland surrounding wetland is undisturbed.</p> <p>3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each).</p> <p>4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover.</p> <p>5. Wetland has at least a moderate degree of Cowardin Class interspersion.</p> <p>6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.</p>	<p>1. Y</p> <p>2. Y</p> <p>3. N</p> <p>4. N</p> <p>5. N</p> <p>6. N</p> <p>≥ 5 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function</p>
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: Low Function
<p>1. Wetland has perennial or intermittent surface water connection to a fish-bearing water body. IF NO, PROCEED NO FURTHER.</p> <p>2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter.</p> <p>3. Fish are present or are known to be present.</p> <p>4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter.</p> <p>5. Spawning areas are present (aquatic vegetation and/or gravel beds)</p> <p>6. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation).</p>	<p>1. N</p> <p>2. N/A</p> <p>3. N/A</p> <p>4. N/A</p> <p>5. N/A</p> <p>6. N/A</p> <p>≥ 5 attributes (Y)—High Function 3–4 attributes (Y)—Moderate Function 0–2 attributes (Y)—Low Function</p>
G. Native Plant Richness	Wetland likely to perform function? (Y or N): N Rating: Low Function
<p>1. At least 20 native plant species occur in the wetland</p> <p>2. Wetland contains two or more Cowardin Classes.</p> <p>3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
H. Educational, Scientific, Recreational, or Subsistence Use	Wetland likely to perform function? (Y or N): N Rating: High Function
<p>1. Site has documented scientific or educational use.</p> <p>2. Wetland is in public ownership.</p> <p>3. Accessible trails are available.</p> <p>4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).</p>	<p>1. N</p> <p>2. Y</p> <p>3. Y</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N): N Rating: Low Function
<p>1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species.</p> <p>2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service</p> <p>3. Wetland has biological, geological, or other features that are determined to be rare.</p> <p>4. Wetland has been determined significant because it provides functions scarce for the area.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p> <p>If attribute 1 is Y, then automatically High Function</p>

WETLAND FUNCTIONS DATA FORM-ALASKA REGULATORY BEST PROFESSIONAL JUDGMENT

CHARACTERIZATION

(Modified by ABR, Inc.—Environmental Research & Services; September 2012)

Project: Proposed Airstrip Improvement, Kiana, AK

Date: 10/18/2012

Wetland: Palustrine Saturated Graminoid Meadow

PM/RS: Wendy Davis

<p>A. Flood Flow Regulation (Storage and Desynchronization)</p>	<p>Wetland likely to perform function? (Y or N) Rating: Low Function</p>
<p>1. Wetland is within a permafrost system, with a near-surface active layer. IF YES, PROCEED NO FURTHER. 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense ($\geq 40\%$ cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.</p>	<p>1. N 2. N 3. N 4. N 5. N 6. N 7. Y</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>B. Sediment, Nutrient (N and P), Toxicant Removal</p>	<p>Wetland likely to perform function? (Y or N) Rating: Moderate Function</p>
<p>1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense ($\geq 50\%$ cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.</p>	<p>1. Y 2. N 3. Y 4. N 5. N 6. Y</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>C. Erosion Control and Shoreline Stabilization</p>	<p>Wetland likely to perform function? (Y or N) Rating: N/A</p>
<p>1. Wetland directly abuts permanent or relatively permanent water. IF NO, PROCEED NO FURTHER. 2. Wetland has dense, energy absorbing vegetation (trees, shrubs) bordering the water course and no evidence of erosion. 3. An at least moderately dense herbaceous layer is present.</p>	<p>1. N 2. N/A 3. N/A</p> <p>1-2 attributes (Y)—High Function None—Low Function</p>
<p>D. Production of Organic Matter and its Export</p>	<p>Wetland likely to perform function? (Y or N) Rating: N/A</p>
<p>1. Wetland is flooded at least once every 10 years. IF NO, PROCEED NO FURTHER. 2. A more than minimal amount of organic matter is flushed from the wetland by water flow at least once every 10 years. IF NO, PROCEED NO FURTHER. 3. Wetland has at least 30% cover of herbaceous vegetation. 4. Woody plants in wetland are mostly deciduous. 5. High degree of plant community structure, vegetation density, and species richness present. 6. Interspersion of vegetation and water is at least moderate.</p>	<p>1. N 2. N/A 3. N/A 4. N/A 5. N/A 6. N/A</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>

E. General Habitat Suitability	Wetland likely to perform function? (Y or N) Rating: Low Function
<p>1. Wetland is not fragmented by development.</p> <p>2. Upland surrounding wetland is undisturbed.</p> <p>3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each).</p> <p>4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover.</p> <p>5. Wetland has at least a moderate degree of Cowardin Class interspersion.</p> <p>6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>4. N</p> <p>5. N</p> <p>6. N</p> <p>≥ 5 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function</p>
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: N/A
<p>1. Wetland has perennial or intermittent surface water connection to a fish-bearing water body. IF NO, PROCEED NO FURTHER.</p> <p>2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter.</p> <p>3. Fish are present or are known to be present.</p> <p>4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter.</p> <p>5. Spawning areas are present (aquatic vegetation and/or gravel beds)</p> <p>6. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation).</p>	<p>1. N</p> <p>2. N/A</p> <p>3. N/A</p> <p>4. N/A</p> <p>5. N/A</p> <p>6. N/A</p> <p>≥ 5 attributes (Y)—High Function 3–4 attributes (Y)—Moderate Function 0–2 attributes (Y)—Low Function</p>
G. Native Plant Richness	Wetland likely to perform function? (Y or N): N Rating: Low Function
<p>1. At least 20 native plant species occur in the wetland</p> <p>2. Wetland contains two or more Cowardin Classes.</p> <p>3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
H. Educational, Scientific, Recreational, or Subsistence Use	Wetland likely to perform function? (Y or N): N Rating: High Function
<p>1. Site has documented scientific or educational use.</p> <p>2. Wetland is in public ownership.</p> <p>3. Accessible trails are available.</p> <p>4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).</p>	<p>1. N</p> <p>2. Y</p> <p>3. Y</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N): N Rating: Low Function
<p>1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species.</p> <p>2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service</p> <p>3. Wetland has biological, geological, or other features that are determined to be rare.</p> <p>4. Wetland has been determined significant because it provides functions scarce for the area.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p> <p>If attribute 1 is Y, then automatically High Function</p>

WETLAND FUNCTIONS DATA FORM-ALASKA REGULATORY BEST PROFESSIONAL JUDGMENT

CHARACTERIZATION

(Modified by ABR, Inc.—Environmental Research & Services; September 2012)

Project: Proposed Airstrip Improvement, Kiana, AK

Date: 10/18/2012

Wetland: Riverine Seasonally Flooded Low and Tall Willow Scrub

PM/RS: Wendy Davis

<p>A. Flood Flow Regulation (Storage and Desynchronization)</p>	<p>Wetland likely to perform function? (Y or N) Rating: High Function</p>
<p>1. Wetland is within a permafrost system, with a near-surface active layer. IF YES, PROCEED NO FURTHER. 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense ($\geq 40\%$ cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.</p>	<p>1. N 2. Y 3. N 4. Y 5. Y 6. Y 7. N ≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>B. Sediment, Nutrient (N and P), Toxicant Removal</p>	<p>Wetland likely to perform function? (Y or N) Rating: Moderate Function</p>
<p>1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense ($\geq 50\%$ cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.</p>	<p>1. N 2. Y 3. N 4. Y 5. Y 6. N ≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>C. Erosion Control and Shoreline Stabilization</p>	<p>Wetland likely to perform function? (Y or N) Rating: High Function</p>
<p>1. Wetland directly abuts permanent or relatively permanent water. IF NO, PROCEED NO FURTHER. 2. Wetland has dense, energy absorbing vegetation (trees, shrubs) bordering the water course and no evidence of erosion. 3. An at least moderately dense herbaceous layer is present.</p>	<p>1. Y 2. Y 3. Y 1-2 attributes (Y)—High Function None—Low Function</p>
<p>D. Production of Organic Matter and its Export</p>	<p>Wetland likely to perform function? (Y or N) Rating: High Function</p>
<p>1. Wetland is flooded at least once every 10 years. IF NO, PROCEED NO FURTHER. 2. A more than minimal amount of organic matter is flushed from the wetland by water flow at least once every 10 years. IF NO, PROCEED NO FURTHER. 3. Wetland has at least 30% cover of herbaceous vegetation. 4. Woody plants in wetland are mostly deciduous. 5. High degree of plant community structure, vegetation density, and species richness present. 6. Interspersion of vegetation and water is at least moderate.</p>	<p>1. Y 2. Y 3. N 4. Y 5. N 6. Y ≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>

E. General Habitat Suitability	Wetland likely to perform function? (Y or N) Rating: Moderate Function
<p>1. Wetland is not fragmented by development.</p> <p>2. Upland surrounding wetland is undisturbed.</p> <p>3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each).</p> <p>4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover.</p> <p>5. Wetland has at least a moderate degree of Cowardin Class interspersion.</p> <p>6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.</p>	<p>1. Y</p> <p>2. Y</p> <p>3. N</p> <p>4. N</p> <p>5. N</p> <p>6. N</p> <p>≥ 5 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function</p>
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: Moderate Function
<p>1. Wetland has perennial or intermittent surface water connection to a fish-bearing water body. IF NO, PROCEED NO FURTHER.</p> <p>2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter.</p> <p>3. Fish are present or are known to be present.</p> <p>4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter.</p> <p>5. Spawning areas are present (aquatic vegetation and/or gravel beds)</p> <p>6. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation).</p>	<p>1. Y</p> <p>2. N</p> <p>3. Y</p> <p>4. Y</p> <p>5. N</p> <p>6. Y</p> <p>≥ 5 attributes (Y)—High Function 3–4 attributes (Y)—Moderate Function 0–2 attributes (Y)—Low Function</p>
G. Native Plant Richness	Wetland likely to perform function? (Y or N): N Rating: Low Function
<p>1. At least 20 native plant species occur in the wetland</p> <p>2. Wetland contains two or more Cowardin Classes.</p> <p>3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
H. Educational, Scientific, Recreational, or Subsistence Use	Wetland likely to perform function? (Y or N): N Rating: High Function
<p>1. Site has documented scientific or educational use.</p> <p>2. Wetland is in public ownership.</p> <p>3. Accessible trails are available.</p> <p>4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).</p>	<p>1. N</p> <p>2. Y</p> <p>3. Y</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N): N Rating: Low Function
<p>1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species.</p> <p>2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service</p> <p>3. Wetland has biological, geological, or other features that are determined to be rare.</p> <p>4. Wetland has been determined significant because it provides functions scarce for the area.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p> <p>If attribute 1 is Y, then automatically High Function</p>

WETLAND FUNCTIONS DATA FORM-ALASKA REGULATORY BEST PROFESSIONAL JUDGMENT

CHARACTERIZATION

(Modified by ABR, Inc.—Environmental Research & Services; September 2012)

Project: Proposed Airstrip Improvement, Kiana, AK

Date: 10/18/2012

Wetland: Palustrine Saturated Deciduous Shrub Scrub

PM/RS: Wendy Davis

<p>A. Flood Flow Regulation (Storage and Desynchronization)</p>	<p>Wetland likely to perform function? (Y or N) Rating: N/A</p>
<p>1. Wetland is within a permafrost system, with a near-surface active layer. IF YES, PROCEED NO FURTHER. 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense ($\geq 40\%$ cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.</p>	<p>1. Y 2. N/A 3. N/A 4. N/A 5. N/A 6. N/A 7. N/A ≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>B. Sediment, Nutrient (N and P), Toxicant Removal</p>	<p>Wetland likely to perform function? (Y or N) Rating: Moderate Function</p>
<p>1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense ($\geq 50\%$ cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.</p>	<p>1. Y 2. N 3. Y 4. N 5. N 6. Y ≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>C. Erosion Control and Shoreline Stabilization</p>	<p>Wetland likely to perform function? (Y or N) Rating: N/A</p>
<p>1. Wetland directly abuts permanent or relatively permanent water. IF NO, PROCEED NO FURTHER. 2. Wetland has dense, energy absorbing vegetation (trees, shrubs) bordering the water course and no evidence of erosion. 3. An at least moderately dense herbaceous layer is present.</p>	<p>1. N 2. N/A 3. N/A 1-2 attributes (Y)—High Function None—Low Function</p>
<p>D. Production of Organic Matter and its Export</p>	<p>Wetland likely to perform function? (Y or N) Rating: High Function</p>
<p>1. Wetland is flooded at least once every 10 years. IF NO, PROCEED NO FURTHER. 2. A more than minimal amount of organic matter is flushed from the wetland by water flow at least once every 10 years. IF NO, PROCEED NO FURTHER. 3. Wetland has at least 30% cover of herbaceous vegetation. 4. Woody plants in wetland are mostly deciduous. 5. High degree of plant community structure, vegetation density, and species richness present. 6. Interspersion of vegetation and water is at least moderate.</p>	<p>1. Y 2. Y 3. Y 4. Y 5. Y 6. Y ≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>

E. General Habitat Suitability	Wetland likely to perform function? (Y or N) Rating: Moderate Function
<p>1. Wetland is not fragmented by development.</p> <p>2. Upland surrounding wetland is undisturbed.</p> <p>3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each).</p> <p>4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover.</p> <p>5. Wetland has at least a moderate degree of Cowardin Class interspersion.</p> <p>6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.</p>	<p>1. N</p> <p>2. N</p> <p>3. Y</p> <p>4. Y</p> <p>5. N</p> <p>6. Y</p> <p>≥ 5 attributes (Y)—High Function</p> <p>2–4 attributes (Y)—Moderate Function</p> <p>0–1 attributes (Y)—Low Function</p>
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: N/A
<p>1. Wetland has perennial or intermittent surface water connection to a fish-bearing water body. IF NO, PROCEED NO FURTHER.</p> <p>2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter.</p> <p>3. Fish are present or are known to be present.</p> <p>4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter.</p> <p>5. Spawning areas are present (aquatic vegetation and/or gravel beds)</p> <p>6. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation).</p>	<p>1. N</p> <p>2. N/A</p> <p>3. N/A</p> <p>4. N/A</p> <p>5. N/A</p> <p>6. N/A</p> <p>≥ 5 attributes (Y)—High Function</p> <p>3–4 attributes (Y)—Moderate Function</p> <p>0–2 attributes (Y)—Low Function</p>
G. Native Plant Richness	Wetland likely to perform function? (Y or N): N Rating: Moderate Function
<p>1. At least 20 native plant species occur in the wetland</p> <p>2. Wetland contains two or more Cowardin Classes.</p> <p>3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.</p>	<p>1. N</p> <p>2. Y</p> <p>3. N</p> <p>≥ 2 attributes (Y)—High Function</p> <p>1 attribute (Y)—Moderate Function</p> <p>None—Low Function</p>
H. Educational, Scientific, Recreational, or Subsistence Use	Wetland likely to perform function? (Y or N): N Rating: High Function
<p>1. Site has documented scientific or educational use.</p> <p>2. Wetland is in public ownership.</p> <p>3. Accessible trails are available.</p> <p>4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).</p>	<p>1. N</p> <p>2. Y</p> <p>3. Y</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function</p> <p>1 attribute (Y)—Moderate Function</p> <p>None—Low Function</p>
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N): N Rating: Low Function
<p>1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species.</p> <p>2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service</p> <p>3. Wetland has biological, geological, or other features that are determined to be rare.</p> <p>4. Wetland has been determined significant because it provides functions scarce for the area.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function</p> <p>1 attribute (Y)—Moderate Function</p> <p>None—Low Function</p> <p>If attribute 1 is Y, then automatically High Function</p>

WETLAND FUNCTIONS DATA FORM-ALASKA REGULATORY BEST PROFESSIONAL JUDGMENT

CHARACTERIZATION

(Modified by ABR, Inc.—Environmental Research & Services; September 2012)

Project: Proposed Airstrip Improvement, Kiana, AK

Date: 10/18/2012

Wetland: Palustrine Saturated Needleleaf-Shrub Birch Woodland

PM/RS: Wendy Davis

<p>A. Flood Flow Regulation (Storage and Desynchronization)</p>	<p>Wetland likely to perform function? (Y or N) Rating: N/A</p>
<p>1. Wetland is within a permafrost system, with a near-surface active layer. IF YES, PROCEED NO FURTHER. 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense ($\geq 40\%$ cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.</p>	<p>1. Y 2. N/A 3. N/A 4. N/A 5. N/A 6. N/A 7. N/A</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>B. Sediment, Nutrient (N and P), Toxicant Removal</p>	<p>Wetland likely to perform function? (Y or N) Rating: Moderate Function</p>
<p>1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense ($\geq 50\%$ cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.</p>	<p>1. Y 2. N 3. N 4. N 5. N 6. Y</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>
<p>C. Erosion Control and Shoreline Stabilization</p>	<p>Wetland likely to perform function? (Y or N) Rating: N/A</p>
<p>1. Wetland directly abuts permanent or relatively permanent water. IF NO, PROCEED NO FURTHER. 2. Wetland has dense, energy absorbing vegetation (trees, shrubs) bordering the water course and no evidence of erosion. 3. An at least moderately dense herbaceous layer is present.</p>	<p>1. N 2. N/A 3. N/A</p> <p>1-2 attributes (Y)—High Function None—Low Function</p>
<p>D. Production of Organic Matter and its Export</p>	<p>Wetland likely to perform function? (Y or N) Rating: N/A</p>
<p>1. Wetland is flooded at least once every 10 years. IF NO, PROCEED NO FURTHER. 2. A more than minimal amount of organic matter is flushed from the wetland by water flow at least once every 10 years. IF NO, PROCEED NO FURTHER. 3. Wetland has at least 30% cover of herbaceous vegetation. 4. Woody plants in wetland are mostly deciduous. 5. High degree of plant community structure, vegetation density, and species richness present. 6. Interspersion of vegetation and water is at least moderate.</p>	<p>1. N 2. N/A 3. N/A 4. N/A 5. N/A 6. N/A</p> <p>≥ 4 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function</p>

E. General Habitat Suitability	Wetland likely to perform function? (Y or N) Rating: Moderate Function
<p>1. Wetland is not fragmented by development.</p> <p>2. Upland surrounding wetland is undisturbed.</p> <p>3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each).</p> <p>4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover.</p> <p>5. Wetland has at least a moderate degree of Cowardin Class interspersion.</p> <p>6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>4. Y</p> <p>5. Y</p> <p>6. Y</p> <p>≥ 5 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function</p>
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: N/A
<p>1. Wetland has perennial or intermittent surface water connection to a fish-bearing water body. IF NO, PROCEED NO FURTHER.</p> <p>2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter.</p> <p>3. Fish are present or are known to be present.</p> <p>4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter.</p> <p>5. Spawning areas are present (aquatic vegetation and/or gravel beds)</p> <p>6. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation).</p>	<p>1. N</p> <p>2. N/A</p> <p>3. N/A</p> <p>4. N/A</p> <p>5. N/A</p> <p>6. N/A</p> <p>≥ 5 attributes (Y)—High Function 3–4 attributes (Y)—Moderate Function 0–2 attributes (Y)—Low Function</p>
G. Native Plant Richness	Wetland likely to perform function? (Y or N): N Rating: Medium Function
<p>1. At least 20 native plant species occur in the wetland</p> <p>2. Wetland contains two or more Cowardin Classes.</p> <p>3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.</p>	<p>1. N</p> <p>2. Y</p> <p>3. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
H. Educational, Scientific, Recreational, or Subsistence Use	Wetland likely to perform function? (Y or N): N Rating: High Function
<p>1. Site has documented scientific or educational use.</p> <p>2. Wetland is in public ownership.</p> <p>3. Accessible trails are available.</p> <p>4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).</p>	<p>1. N</p> <p>2. Y</p> <p>3. Y</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p>
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N): N Rating: Low Function
<p>1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species.</p> <p>2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service</p> <p>3. Wetland has biological, geological, or other features that are determined to be rare.</p> <p>4. Wetland has been determined significant because it provides functions scarce for the area.</p>	<p>1. N</p> <p>2. N</p> <p>3. N</p> <p>4. N</p> <p>≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function</p> <p>If attribute 1 is Y, then automatically High Function</p>

Wetland Delineation Report: Kiana Airport Improvements

Desktop Wetland Delineation for
the Proposed Material Site Haul
Route to Support Kiana Airport
Improvements.



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July 2014

Sign-off Sheet

This document entitled *Wetland Delineation Report: Kiana Airport Improvements* was prepared by the Stantec Environmental and Water Resources Division ("Stantec") for the account of Alaska Department of Transportation & Public Facilities, Northern Region (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by Kacy D. Hillman
(signature)

Kacy D. Hillman, PWS



Reviewed by Sara Lindberg
(signature)

Sara Lindberg, CESCL

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FIGURES

- Figure 1: Location and Vicinity Map
- Figure 2: Wetland Delineation Haul Road Study Area
- Figure 3: Wetland Delineation Site Detail

PHOTO LOG

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1.0 INTRODUCTION

The Northern Region Alaska Department of Transportation and Public Facilities proposes to improve safety and efficiency of the Bob Baker Memorial Airport (Kiana Airport). Due to Kiana's remote location, goods and services can only be delivered to the community by barge or aircraft. The runway's current 3,400-foot length limits the type of cargo aircraft that can service Kiana Airport, so larger aircraft (such as DC-6) can only land partially loaded, which limits the amount of delivered goods and services to the community. In addition, the existing runway's deteriorating surface causes operational problems that result in frequent runway closures during spring breakup due to soft runway conditions from poor drainage. Furthermore, the airport apron is often congested with increased aircraft operations during the summer months.

A material site is needed to facilitate improvements to the Kiana Airport, as well as a haul route to access the material site. The proposed haul route study area for the proposed Kiana Airport Improvements is located in Kiana, Alaska within Sections 31 and 32, Township 19 North, Range 8 West, Kateel River Meridian (Figure 1). Kiana is located 57 miles east of Kotzebue in the Northwest Arctic Borough. The study area focus of this desktop wetland delineation includes a proposed haul route corridor between Kiana and the proposed Material Site (Figure 2).

No existing wetlands mapping covers the proposed haul route study area, including the U.S. Fish and Wildlife Service *National Wetlands Inventory (NWI)*. Wetland mapping was completed by ABR, Inc., in 2013 and covers the material site and airport study areas, adjacent to the haul route study area. Existing wetland mapping is shown on Figure 2. Kiana is located on a bluff overlooking the confluence of the Kobuk and Squirrel rivers. *The Alaska Vegetation Classification* (Viereck, et. al., 1992) identifies the study area as a boreal forest dominated by closed, open, and woodland evergreen forests of black and white spruce with extensive areas of open and closed deciduous forests of paper birch, aspen, and balsam poplar. Extensive mosaics of shrub and herbs, are identified in this region with subarctic lowland sedge and sedge-moss bog meadows as well as willow, sweetgale, and graminoid bogs. The study area's ecoregion is identified as a continental climate, with undifferentiated alluvium and slope deposits over primarily sedimentary rocks (Gallant et al., 1995).

This desktop wetland delineation of the material site haul route study area serves to support and satisfy requirements for the United States Army Corps of Engineers (USACE) Section 404 wetland permit application process.

2.0 METHODOLOGY

The wetland delineation for the material site haul route study area was completed using desktop wetland delineation methods by Kacy D. Hillman, Professional Wetland Scientist No. 2150. The desktop wetland delineation was evaluated using high resolution aerial imagery taken in 2011

and 20-foot contours. Esri® ArcMap™ Version 10.1 was used to heads-up digitize the different waters, wetland, and upland vegetation types observed on the aerial imagery. Wetlands and waters were classified according to Cowardin et al (1979) NWI annotations that distinguish the dominant vegetation and water regimes.

The *Wetlands Determination, Functional Assessment and Habitat Assessment for Proposed Kiana Airstrip Improvements, Alaska* (ABR, 2013) was used as a guide to cross-reference ABR ground-truthed waters, and wetland and upland classification types with distinguishing signatures on aerial imagery. In addition, ground photos taken by archaeologists from SWCA Environmental Consultants June 9-12, 2014 were used to verify aerial imagery signatures.

3.0 RESULTS AND DISCUSSION

Ten Cowardin classifications were identified within the study area, three Waters of the U.S., five wetlands (vegetated), and two uplands (non-wetland).

3.1 WATERS OF THE U.S.

Waters within the study area include Upper Perennial Streams (Riverine, Upper Perennial, Unconsolidated Bottom [R3UB]), Lower Perennial Streams (Riverine, Lower Perennial, Streambed [R2SB]), and Flooded Ponds (Palustrine, Unconsolidated Bottom [PUB]).

3.1.1 Upper Perennial Stream

The Upper Perennial Stream flowing along the northwestern edge of the study area appears to eventually outlet into the Kobuk River, a navigable water. Other Upper Perennial Streams connect Flooded Ponds. Upper Perennial Streams within the study area comprise 0.3% (1.8 acre) of the study area. ABR describes observed Upper Perennial Streams near the study area as relatively permanent waters with constant flow throughout the growing season characterized by narrow channels with small riparian areas composed of wet shrub scrub wetland types. Desktop wetland delineation methods do not allow for substrate identifiers so Upper Perennial Streams observed on aerial imagery were given the classification R3UB. These streams were easily visible as meandering channels on the aerial imagery (figures 2-3, not shown in SWCA photos).

3.1.2 Lower Perennial Stream

Lower Perennial Streams were observed on aerial imagery as narrower meandering channels than the Upper Perennial Streams and were generally connected to greater Upper Perennial Streams or Flooded Ponds. Lower Perennial Streams within the study area comprise 0.1% (0.5 acre) of the study area. ABR did not observe any Lower Perennial Streams within their study areas. Desktop wetland delineation methods do not allow for substrate identifiers so Lower

Perennial Streams observed on aerial imagery were given the classification R2SB (figures 2-3, not shown in SWCA photos).

3.1.3 Flooded Ponds

Flooded Ponds appear scattered throughout the study area and vary in size. Flooded Ponds within the study area comprise 3.2% (17.1 acres) of the study area. Features of Flooded Ponds observed from aerial imagery show dark open water characteristics. Some Flooded Ponds within the study area appear to be connected by Upper Perennial or Lower Perennial streams. ABR classified Flooded Ponds as shallow open water ponds. Desktop wetland delineation methods do not allow for substrate identifiers so Flooded Ponds observed on aerial imagery were given the classification PUB (figures 2-3, Photo Log – SWCA Test Point #4).

Not all connections between ponds are apparent from the aerial imagery and it is assumed there are present connections, possibly Intermittent Streams that were unable to be accurately mapped from the aerial imagery. South of the study area it appears there are multiple streams flowing south that outlet into the Kobuk River. Intermittent Streams do not permanently carry water and are generally narrower than Upper or Lower Perennial streams, which are difficult to distinguish from aerial imagery.

3.2 WETLANDS

Wetlands within the study area include Shrub-dominated (Palustrine, Scrub-Shrub [PSS], Palustrine, Scrub-Shrub, Broad-Leaved Deciduous [PSS1], Palustrine, Scrub-Shrub, Broad-Leaved Deciduous/Broad-Leaved Evergreen, Saturated [PSS1/3B], and Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Flooded [PSS1C]) and Emergent (Palustrine Emergent [PEM]).

3.2.1 Shrub-dominated

Shrub-dominated Wetlands are the most common type of wetlands found within the study area comprising 91.6% (489.1 acres) of the study area. ABR classified these wetlands as dominated by an open canopy of shrub species including both deciduous and evergreen in some areas. Characteristics of Shrub-dominated Wetlands identified by ABR include dominant vegetation consisting of *Salix richardsonii* (Richardson's willow), *Picea glauca* (white spruce) *Betula glandulosa* (resin birch), and *Vaccinium uliginosum* (bog blueberry), with saturated organic soils. Desktop wetland delineation methods do not allow for hydrologic identifiers so Shrub-dominated Wetlands observed on aerial imagery that did not abut ABR mapped wetlands were given the classification PSS. Distinguishable features on the aerial imagery include light green open canopy shrubs sometimes connected to open areas with more scattered shrubs (figures 2-3, Photo Log – SWCA Test Points #1, 3, 4, 8-11, 13-18).

3.2.2 Emergent

Emergent Wetlands within the study area comprise only 1.3% (6.9 acres) of the study area. ABR classified these wetlands as depressional features, sometimes part of a lacustrine fringe. Characteristics of Emergent Wetlands within the study area identified by ABR include emergent vegetation consisting of *Eriophorum angustifolium* (tall cottongrass), *Comarum palustre* (purple marshlocks), *Equisetum fluviatile* (water horsetail), and *Carex utriculata* (Northwest Territory sedge) with visible surface water throughout. Desktop wetland delineation methods do not allow for hydrologic identifiers so Emergent Wetlands observed on aerial imagery were given the classification PEM. These wetlands are distinguishable on the aerial imagery as open habitat devoid of shrub species (figures 2-3, not shown in SWCA photos). Many Emergent Wetlands within the study area border Flooded Ponds.

3.3 UPLANDS

Uplands within the study area were identified as non-wetland (Upland [U]) and filled areas (Upland, Disturbed [Us]). Upland areas were classified by evaluating contour data and ground photography. If both determination methods were not available to classify uplands, or landscape position did not correlate, a more conservative PSS designation was classified as a default.

3.3.1 Non-wetland

Non-wetland upland areas comprise 2.4% (12.7 acres) of the study area. These areas are distinguishable on the aerial imagery by darker green closed canopy forested areas similar to upland areas mapped by ABR (figures 2-3, Photo Log – SWCA Test Points #2, 5-7, 12). Characteristics of Non-wetland uplands identified by ABR include predominant needleleaf forest (*Picea glauca*) and woodland or low and tall willow scrub communities (*Salix pulchra* (tealeaf willow), *Vaccinium uliginosum*, *Vaccinium vitis-idaea* (lingonberry)) located on steep slopes and bluffs, as well as smaller rounded knobs on sandy/loam soils. SWCA ground photos were also used to determine some of these areas that were harder to identify based solely on aerial imagery. ABR classified Non-wetlands as predominant needle-leaf forests, and woodland or low and tall willow shrub communities on steep slopes, bluffs, and small rounded knobs.

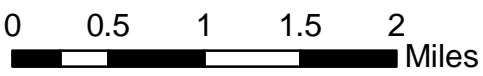
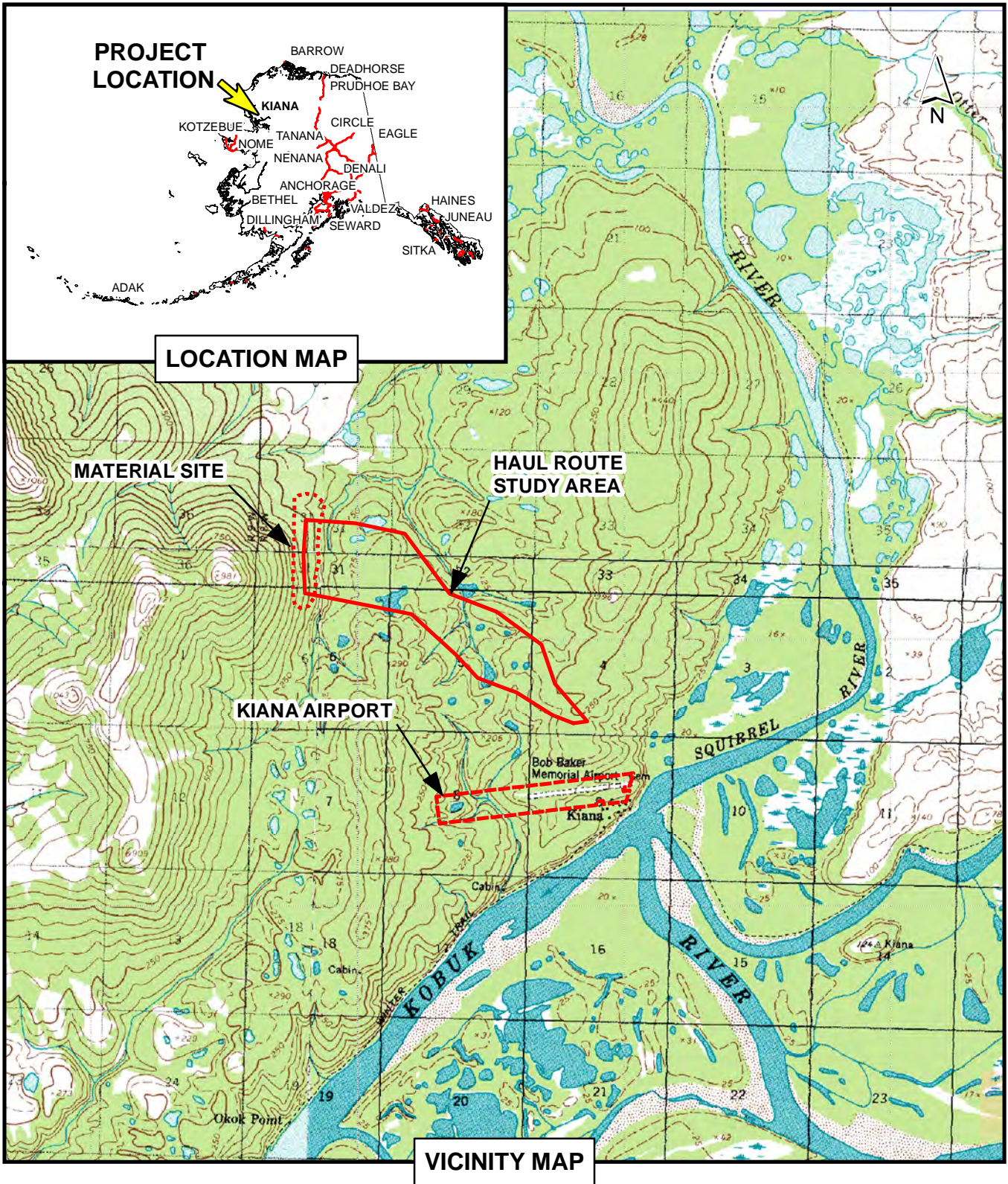
3.3.2 Filled Areas

Filled upland areas comprise 1.1% (6 acres) of the study area. These areas are distinguishable on the aerial imagery by roads and filled pads devoid of vegetation (figures 2-3, not shown in SWCA photos).

4.0 CONNECTION TO NAVIGABLE WATERS

The Kobuk River is a navigable water in the vicinity of Kiana and is subject to Section 10 of the Rivers and Harbors Act. All wetlands and waters within the study area are likely jurisdictional due to their direct downstream connection to the Kobuk River.

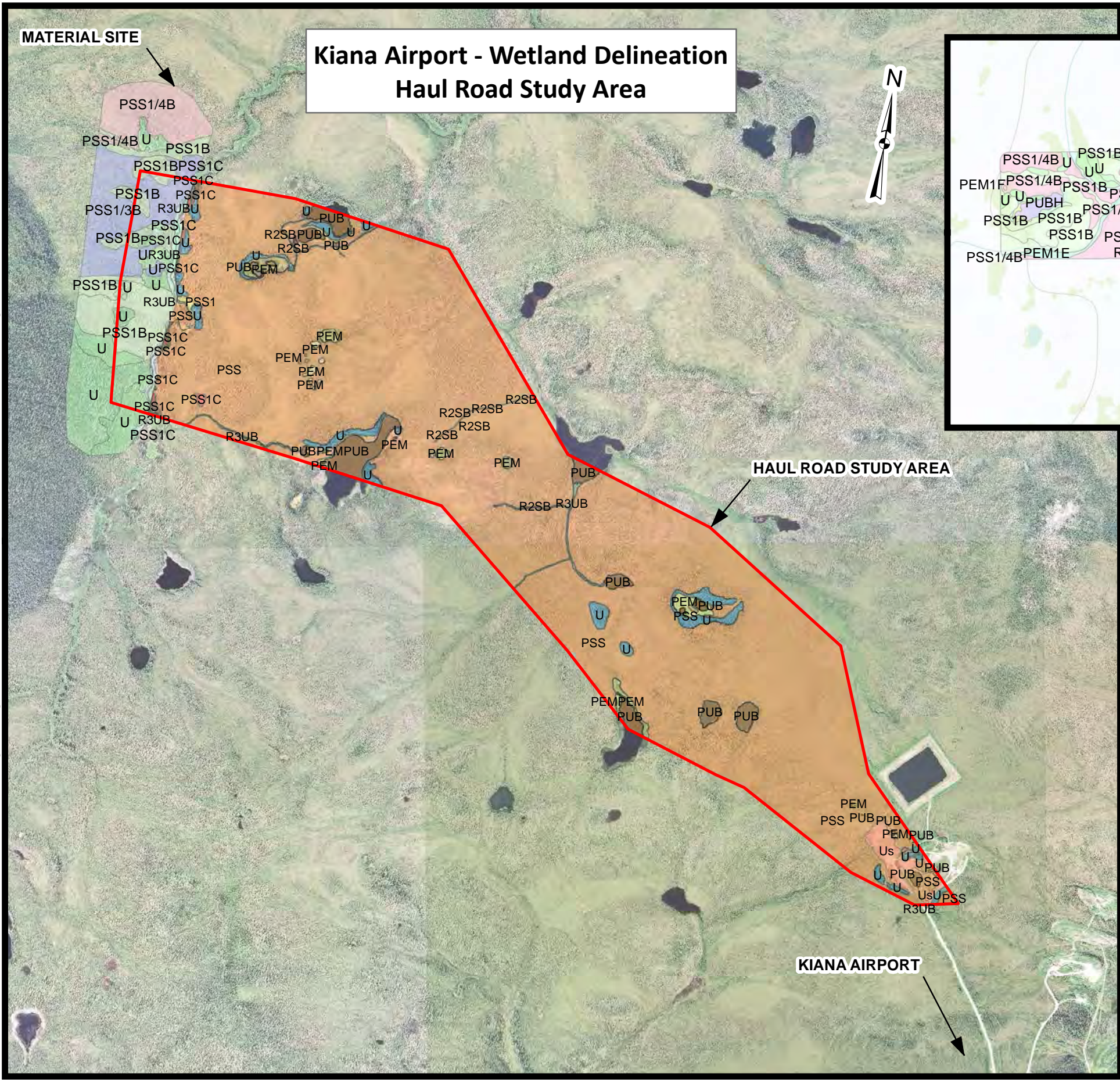
FIGURES



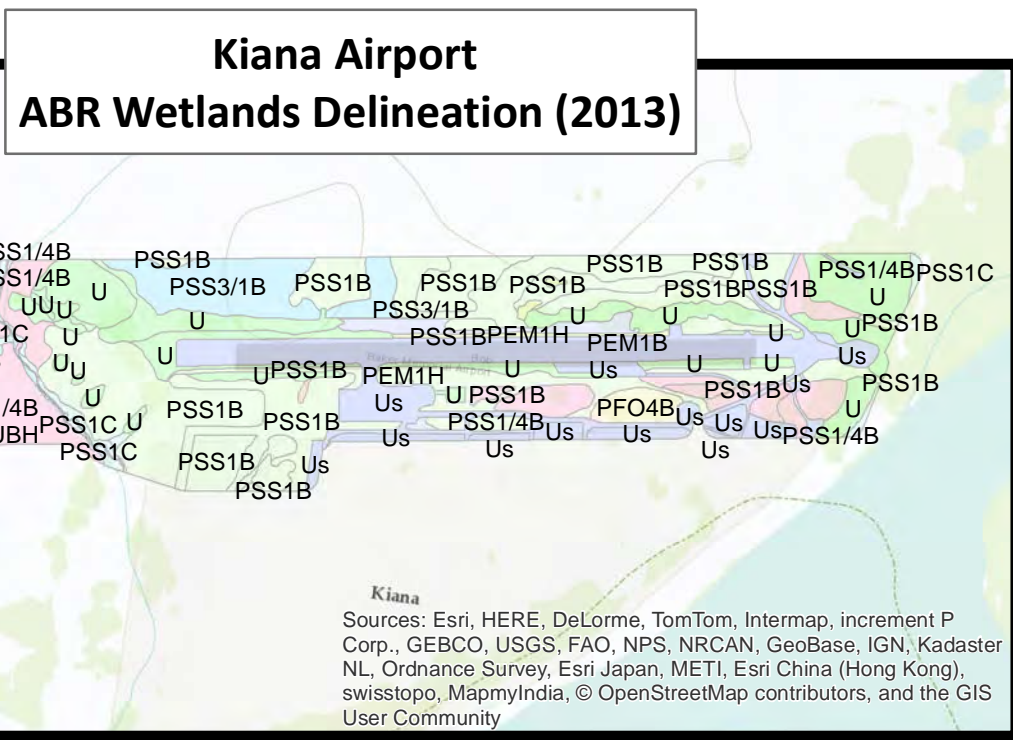
PROJECT SITE
 Sec 4, 5, 6, 8, 9, 31 & 32
 T18N & T19N, R8W
 Kateel River Meridian

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES NORTHERN REGION	
BOB BAKER MEMORIAL AIRPORT (KIANA AIRPORT) IMPROVEMENTS PROJECT	
AKSAS Project No: 63179	FIGURE
DATE: July 2014	1

Document Path: \\FBXFILE\Jobs\1357300\Dwgs\N\Figures\Wetland_Delineation\1357300_Wetland_Recon_Fig-02_Slits_Overview.mxd



**Kiana Airport - Wetland Delineation
Haul Road Study Area**



ABR Wetland Classifications

- PEM1B
- PEM1E
- PEM1F
- PEM1H
- PFO4B
- PSS1/3B
- PSS1/4B
- PSS1B
- PSS1C
- PSS3/1B
- PUBH
- R3UBH
- U
- Us

Stantec Wetland Classification

- PEM
- PSS
- PSS1
- PSS1/3B
- PSS1C
- PUB
- R2SB
- R3UB
- U
- Us

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
NORTHERN REGION

**BOB BAKER MEMORIAL AIRPORT
(KIANA AIRPORT)
IMPROVEMENTS PROJECT**

AKSAS Project No: 63179	FIGURE
DATE: JULY 2014	2

PHOTO LOG

Kiana Airport Improvements
Desktop Wetland Delineation Photo Log

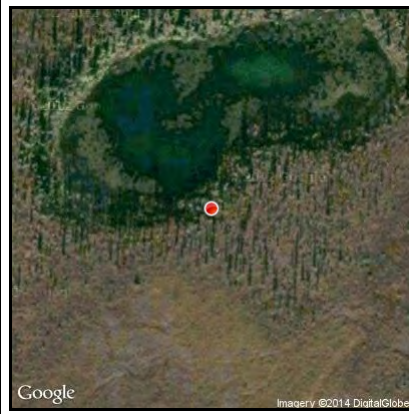
Overview Map



Attributes	
Title	1
Subject	SWCA Test Point #1
Description	PSS. Characteristic overview of PSS habitat.
Latitude	N 67.0003°
Longitude	W 160.4930°



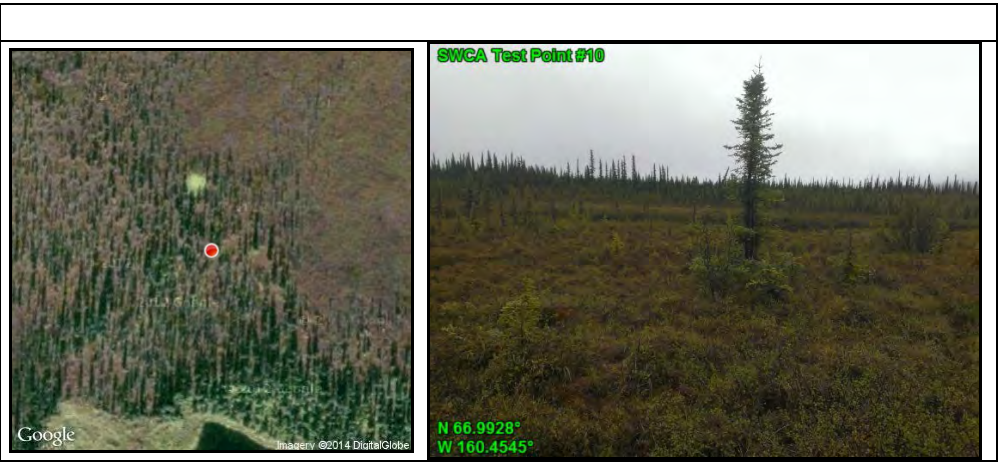
Attributes	
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Subject	SWCA Test Point #1
Description	PSS. Characteristic overview of PSS habitat.
Latitude	N 67.0003°
Longitude	W 160.4930°



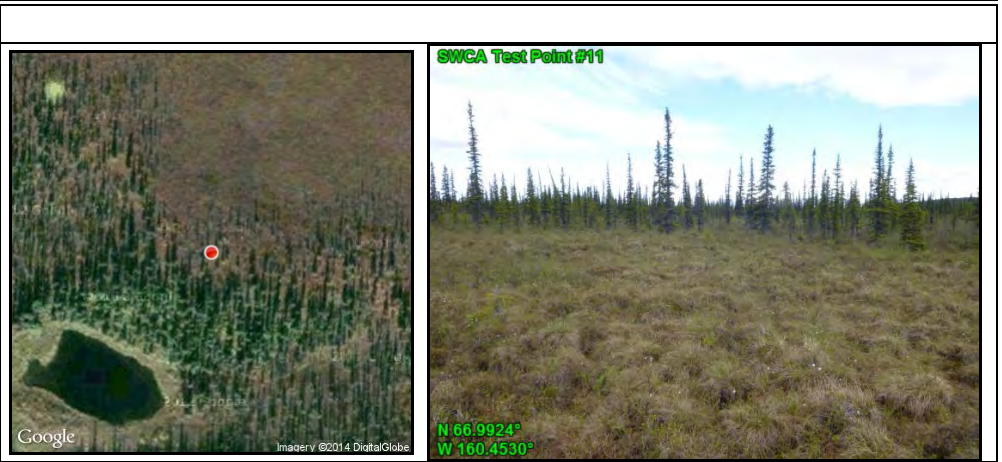
Attributes	
Title	10
Subject	SWCA Test Point #10
Description	PSS. Characteristic overview of PSS habitat.
Latitude	N 66.9928°
Longitude	W 160.4545°



Attributes	
Title	10
Subject	SWCA Test Point #10
Description	PSS. Characteristic overview of PSS habitat.
Latitude	N 66.9928°
Longitude	W 160.4545°



Attributes	
Title	11
Subject	SWCA Test Point #11
Description	PSS. Overview of typical PSS habitat.
Latitude	N 66.9924°
Longitude	W 160.4530°



Attributes	
Title	11
Subject	SWCA Test Point #11
Description	PSS. Overview of typical PSS habitat.
Latitude	N 66.9924°
Longitude	W 160.4530°



Attributes	
Title	12
Subject	SWCA Test Point #12
Description	Upland. View of hillside bluff upland habitat.
Latitude	N 66.9914°
Longitude	W 160.4528°



Attributes	
Title	12
Subject	SWCA Test Point #12
Description	Upland. View of hillside bluff upland habitat.
Latitude	N 66.9914°
Longitude	W 160.4528°



Attributes	
Title	13-15
Subject	SWCA Test Points #13-15
Description	PSS. Area characteristic of PSS habitat.
Latitude	N 66.9910°
Longitude	W 160.4544°



Attributes	
Title	13-15
Subject	SWCA Test Points #13-15
Description	PSS. Area characteristic of PSS habitat.
Latitude	N 66.9910°
Longitude	W 160.4544°



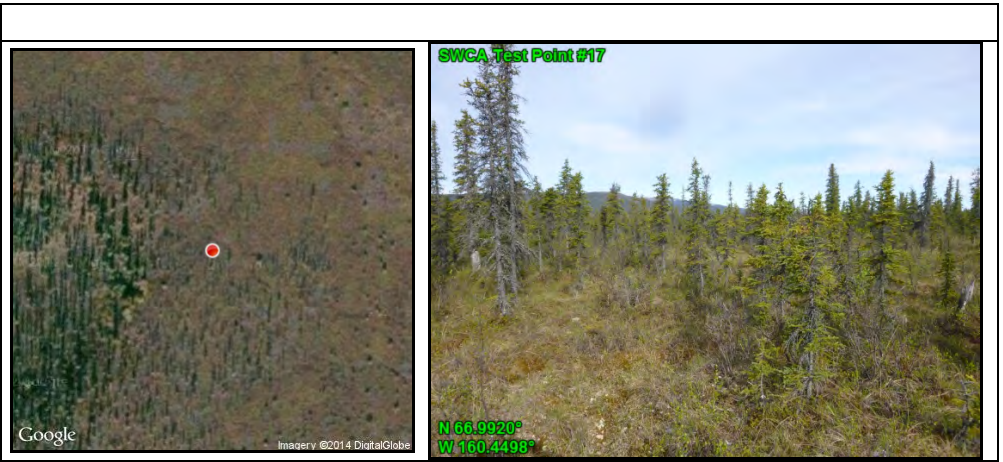
Attributes	
Title	16
Subject	SWCA Test Point #16
Description	PSS. Overview of PSS habitat.
Latitude	N 66.9913°
Longitude	W 160.4563°



Attributes	
Title	16
Subject	SWCA Test Point #16
Description	PSS. Overview of PSS habitat.
Latitude	N 66.9913°
Longitude	W 160.4563°



Attributes	
Title	17
Subject	SWCA Test Point #17
Description	PSS. Overview of PSS habitat.
Latitude	N 66.9920°
Longitude	W 160.4498°



Attributes	
Title	17
Subject	SWCA Test Point #17
Description	PSS. Overview of PSS habitat.
Latitude	N 66.9920°
Longitude	W 160.4498°



Attributes	
Title	18
Subject	SWCA Test Point #18
Description	PSS. Overview of PSS habitat.
Latitude	N 66.9923°
Longitude	W 160.4495°



Attributes	
Title	18
Subject	SWCA Test Point #18
Description	PSS. Overview of PSS habitat.
Latitude	N 66.9923°
Longitude	W 160.4495°



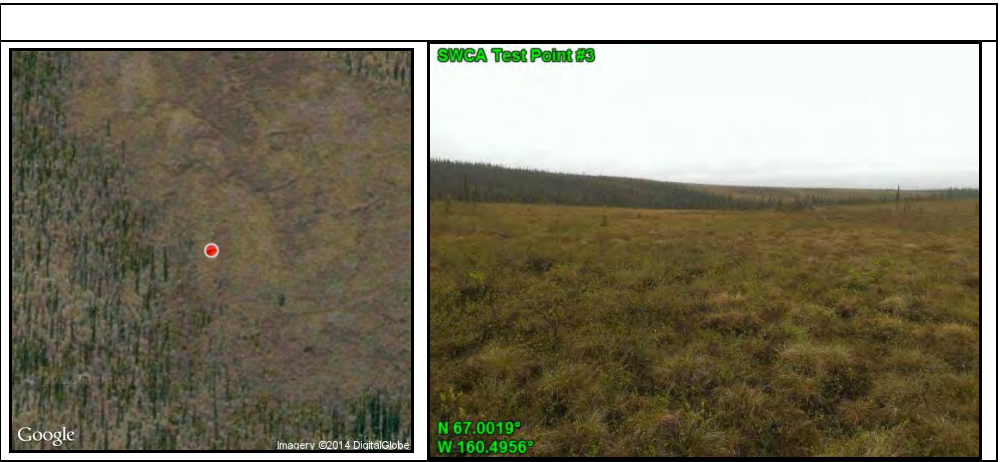
Attributes	
Title	2
Subject	SWCA Test Point #2
Description	Upland. Area representative of hillside upland habitat.
Latitude	N 67.0009°
Longitude	W 160.4941°



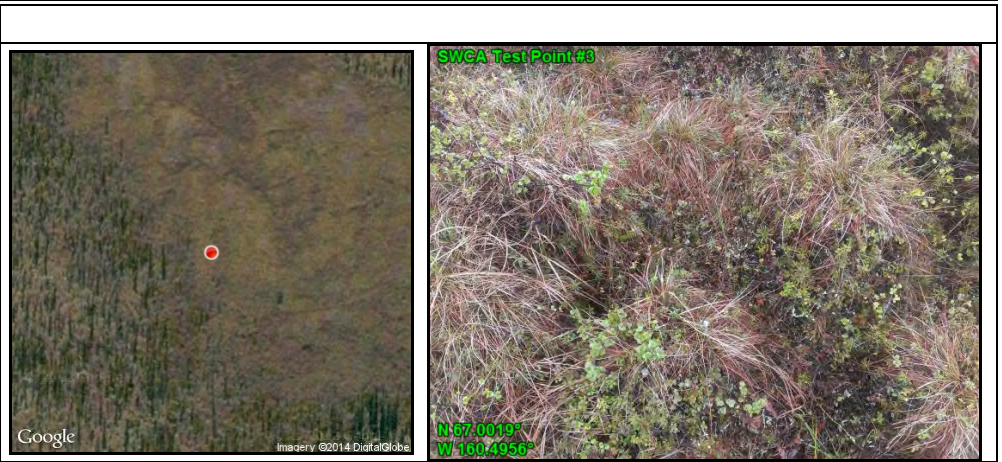
Attributes	
Title	2
Subject	SWCA Test Point #2
Description	Upland. Area representative of hillside upland habitat.
Latitude	N 67.0009°
Longitude	W 160.4941°



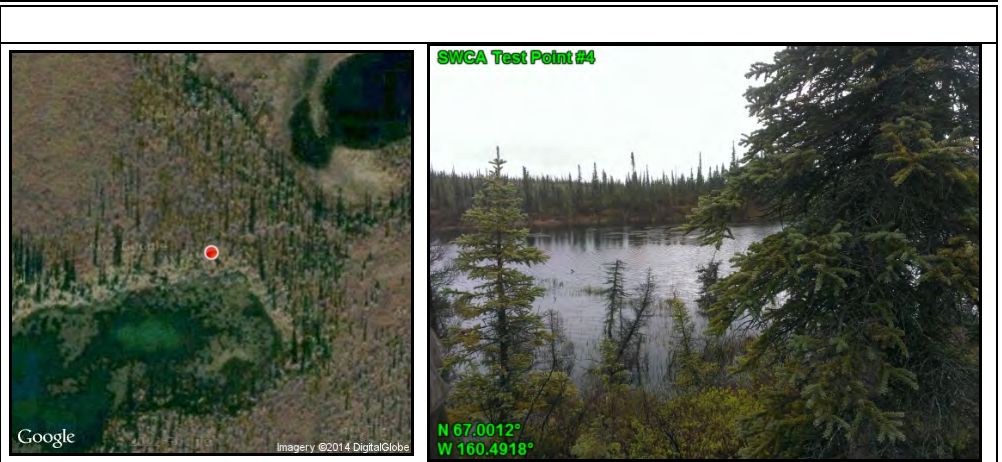
Attributes	
Title	3
Subject	SWCA Test Point #3
Description	PSS. Area representative of Palustrine Scrub-Shrub habitat.
Latitude	N 67.0019°
Longitude	W 160.4956°



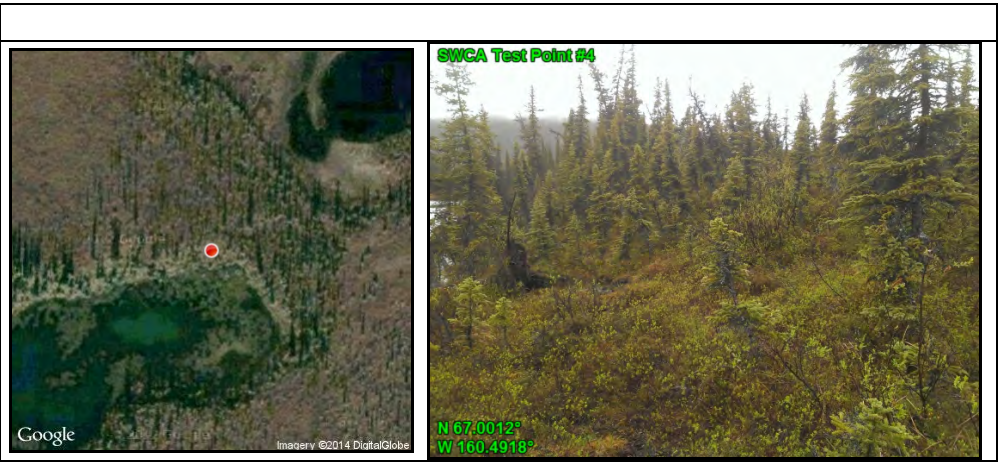
Attributes	
Title	3
Subject	SWCA Test Point #3
Description	PSS. Area representative of Palustrine Scrub-Shrub habitat.
Latitude	N 67.0019°
Longitude	W 160.4956°



Attributes	
Title	4
Subject	SWCA Test Point #4
Description	Flooded Pond. View overlooking habitat of a typical Flooded Pond.
Latitude	N 67.0012°
Longitude	W 160.4918°



Attributes	
Title	4
Subject	SWCA Test Point #4
Description	PSS. Area representative of Palustrine Scrub-Shrub habitat.
Latitude	N 67.0012°
Longitude	W 160.4918°



Attributes	
Title	4
Subject	SWCA Test Point #4
Description	PSS. Area representative of Palustrine Scrub-Shrub habitat.
Latitude	N 67.0012°
Longitude	W 160.4918°



Attributes	
Title	5
Subject	SWCA Test Point #5
Description	Upland. Overview of upland habitat.
Latitude	N 67.0025°
Longitude	W 160.4851°



Attributes	
Title	5
Subject	SWCA Test Point #5
Description	Upland. Overview of upland habitat.
Latitude	N 67.0025°
Longitude	W 160.4851°



Attributes	
Title	6
Subject	SWCA Test Point #6
Description	Upland. Overview representative of upland habitat.
Latitude	N 66.9959°
Longitude	W 160.4844°



Attributes	
Title	6
Subject	SWCA Test Point #6
Description	Upland. Overview representative of upland habitat.
Latitude	N 66.9959°
Longitude	W 160.4844°



Attributes	
Title	7
Subject	SWCA Test Point #7
Description	Upland. Overview representative of upland habitat.
Latitude	N 66.9955°
Longitude	W 160.4858°



Attributes	
Title	7
Subject	SWCA Test Point #7
Description	Upland. Overview representative of upland habitat.
Latitude	N 66.9955°
Longitude	W 160.4858°



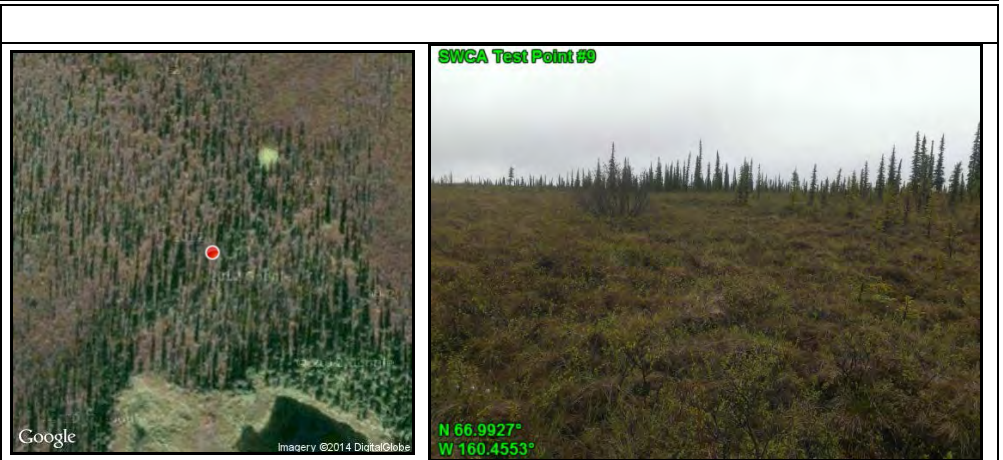
Attributes	
Title	8
Subject	SWCA Test Point #8
Description	PSS. Overview of typical PSS habitat.
Latitude	N 66.9964°
Longitude	W 160.4992°



Attributes	
Title	8
Subject	SWCA Test Point #8
Description	PSS. Ground view of typical PSS vegetation.
Latitude	N 66.9964°
Longitude	W 160.4992°



Attributes	
Title	9
Subject	SWCA Test Point #9
Description	PSS. Overview of characteristic PSS habitat.
Latitude	N 66.9927°
Longitude	W 160.4553°



Attributes	
Title	9
Subject	SWCA Test Point #9
Description	PSS. Overview of characteristic PSS habitat.
Latitude	N 66.9927°
Longitude	W 160.4553°

