

Kotzebue to Cape Blossom Road Draft Environmental Assessment

Project No. 76884/NCPD-0001(204)



Appendix C Kotzebue to Cape Blossom Road Project, 2012 Environmental Study

KOTZEBUE TO CAPE BLOSSOM ROAD PROJECT

2012 ENVIRONMENTAL STUDY

PREPARED FOR

ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES, NORTHERN REGION FAIRBANKS, ALASKA

UNDER CONTRACT TO

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FINAL REPORT

Prepared for:

Alaska Department of Transportation and Public Facilities, Northern Region

Under contract to:

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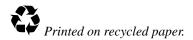
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INTRODUCTION

The Northern Region State of Alaska Department of Transportation & Public Facilities (DOT&PF) is evaluating potential development of an all season road from Kotzebue to Cape Blossom, on the Baldwin Peninsula, in the Northwest Arctic Borough, Alaska. The Kotzebue to Cape Blossom Road would connect the community of Kotzebue to Cape Blossom via an approximately 12 mile road. DOT&PF originally considered 4 build alternatives, 3 of which have been dismissed due to higher costs, larger footprints, environmental concerns and land ownership issues. The alternative currently being carried forward is the Upgrade Route and is the focus for further detailed environmental studies. The Upgrade Route would involve reconstructing Air Force Road south of the Hillside Road intersection, ending adjacent to the Kotzebue Electric Association. A new road would be constructed to the terminus at a beach access ramp near Cape Blossom. The Upgrade Route will cross Sadie Creek. When developing the study area for the environmental surveys, a new road from New Hillside Road was also being considered as a separate option. This option is part of the study area but has since been dismissed from consideration.

To satisfy permitting requirements associated with the study area, ABR, Inc.—Environmental Research & Services (ABR) performed several environmental surveys within the study area during the summer of 2012. The environmental surveys investigated the current condition of wetlands, fisheries, and avian resources within the study area. A wetlands assessment, wetland functional assessment, and wildlife habitat assessment were completed in support of the U.S. Army Corps of Engineers (USACE) Section 404 wetland permit application process. A survey of the study area was completed to assess resident and anadromous fish assemblages relative to available habitat in Sadie Creek. Studies of avian resources included an aerial survey for Yellow-billed Loons and cliff-nesting raptors. All environmental studies will be used to support an Environmental Assessment that is being prepared by DOT&PF as part of the National Environmental Policy Act (NEPA) process.

WETLANDS MAPPING AND FUNCTIONAL ASSESSMENT AND WILDLIFE HABITAT MAPPING

To satisfy permitting requirements associated with the Cape Blossom Road project, ABR performed a wetlands assessment, wetland functional assessment, and wildlife habitat assessment in support of the USACE Section 404 wetland permit application process. The wetlands study area is nearly 3,400 acres in size (Figure 1), comprising a 300 foot buffer around the existing windfarm access road from the intersection at New Hillside Road, and a 1,000 foot buffer around the remaining proposed alignment as described above (INTRODUCTION) (centered on -162.492° 66.810° WGS 1984). The legal land description for the study area is Kateel River Meridian:

- Township 17N, Range 18W, Sections14, 21, 23–28, 35, and 36;
- Township 17N, Range 17W, Sections 31 and 32;
- Township 16N, Range 18W, Sections 1–3 and 11–13;
- Township 16N, Range 17W, Sections 18, 19, 30, and 31; and
- Township 15N, Range 17W, Section 6.

METHODS

FIELD SURVEY

Routine wetland determinations were performed following the USACE 3-parameter approach (Environmental Laboratory 1987, USACE 2007) at each wetland determination plot. High resolution digital orthoimagery (DigitalGlobe 1.64-ft pixel resolution, acquired 2 and 4 August 2010) provided by Michael Baker and Associates was examined prior to field work and preliminary sample plots were selected to cover the range of visible photo signatures within the study area. 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® NomadTM series GPS 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.

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 (i.e., the ratio of hydrophytic to upland plants) and/or the Prevalence Index (the 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 if conditions of saturation, flooding, or ponding occur 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, as defined 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. Additional information collected at each wetland determination plot included physiography, surface form, Viereck et al. (1992) Level

IV vegetation class, and observations of wildlife use (e.g., dens, browse, or scat) or human activity (e.g., fish racks or 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 was used to improve map accuracy by increasing the number of documented wetland ecotypes tagged to particular aerial photosignatures.

The National Weather Service records meteorological data at the Kotzebue Airport (Station 505076, WRCC 2012), with limited data available from 1949 to present. August 2012 mean air temperature (51.3° F) was slightly cooler than the long-term mean for August (1949–2012, 51.8° F) and NCDC normal mean for August (1981–2010, 51.7° F). August 2012 total precipitation (4.36 inches) was nearly double the long-term mean (2.14 inches) and NCDC normal mean (2.18 inches).

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 (NWI) program (Dahl et al. 2009). Wetlands and waters were mapped at a scale of 1:1,500. Wetlands and waters were categorized per Cowardin et al. (1979) using NWI annotation, which describes the dominant vegetation and water regime. Digital NWI data (USFWS 2012) and a preliminary wetland assessment (ADOT&PF 2011) were reviewed prior to field efforts.

In addition to assigning Cowardin codes, each wetland polygon was assigned a physiography and Viereck et al. (1992) Level IV vegetation class. Physiography codes represent generalized geomorphologic features used to describe landscape position. The Viereck et al. (1992) Level IV vegetation classification uses plant species composition and community structure to classify common plant communities in Alaska. We combined the 3 mapped categories (physiography, Cowardin code, and Viereck class) 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 wetland types into Wetland Functional Types for descriptive and functional assessment purposes (as described in the Functional Assessment methodology, below).

Wetlands and waters within the study area were assessed to determine if they met the definition of navigable waters of the U.S., subject to jurisdiction under Section 10 of the Rivers and Harbors Act, and/or waters of the U.S., subject to jurisdiction under Section 404 of the Clean Water 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 hydrogeomorphic (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.

Hydrologic, water quality, ecologic, and sociologic functions performed by wetlands and waters in the study area were assessed through a combination of interpreting 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 value, 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 and 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 2 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—supports federally listed species, high quality habitat, presence of rare features, and/or supports functions not commonly provided within the watershed

Based on the functional assessment outputs, wetlands and waters within the study 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 type; 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 Habitat Types 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 Habitat Types important for each species present.

RESULTS

WETLANDS MAPPING AND CLASSIFICATION

One team of 2 scientists collected wetlands, vegetation, and wildlife habitat field data 24–27 August 2012. Standard USACE field determinations were completed at 68 sites and verifications (rapid assessment technique to confirm previously documented conditions) were completed at 13 sites (Appendices A and B).

We identified 26 Cowardin classes in the study area: 7 non-navigable waters, 18 vegetated wetlands, and 2 uplands (Figure 2.1—2.12, Table 1). The northern portion of the study area is dominated by gently rolling water-shedding physiography supporting saturated wetlands. The relatively permanent waters (RPWs) Sadie Creek and June Creek and their tributaries flow through this area. The southern portion of the study area comprises numerous low-lying, drained lake basins, and hence wetland hydrology ranges from saturated to permanently flooded wetlands.

Results of field-based wetlands mapping and classification are in agreement with the preliminary wetland assessment included as an attachment to the Kotzebue to Cape Blossom Road Reconnaissance Study (ADOT&PF 2011), which identified small upland areas along the coastal margins of the peninsula in the current study area.

August 2012 had higher than normal precipitation and many waters were at flood stage during the field effort. The understory vegetation in riparian communities is likely underestimated

due to the volume of water. All wetlands but 2 saturated deciduous shrub sites showed direct indicators of wetland hydrology (A1: Surface Water, A2: High Water Table, and/or A3: Saturation). Waters

Although no field measures of electrical conductivity were taken, Permanently Flooded Subtidal Estuarine Waters (E1UBH, 0.80 acres) were mapped based on their proximity to Kotzebue Sound and likely saline influence. These waters were mapped near Cape Blossom, where 1 estuarine feature intersected the study area 2 times. Over 60 Permanently Flooded Ponds (PUBH, 60.48 acres) and portions of 4 Permanently Flooded Lakes (L1UBH, 33.67 acres) were mapped within the study area. Most ponds were small features (averaging about 1 acre) scattered within the northern portion of the study. Lakes (\geq 20 acres) were evenly distributed throughout the study area.

The RPWs Sadie Creek, June Creek, and their tributaries (R2UBH and R2USA, 14.44 and 1.03 acres, respectively) are Lower Perennial Rivers generally flowing east to west through the study area.

Wetlands

Wetlands mapped within the study area include Permanently Flooded, Semi-Permanently Flooded, and Seasonally Flooded-Saturated Emergent wetlands; Seasonally Flooded-Saturated and Saturated Broadleaf and Needleleaf wetlands; and Seasonally Flooded-Saturated and Saturated Emergent and Shrub complex wetlands.

Permanently Flooded Aquatic Beds (PAB3H, 2.97 acres) and shallow water littoral areas (L2AB3H and L2UB3H, 1.35 and 1.05 acres, respectively) were mapped in association with lakes and ponds, in depressional features throughout the study area.

Emergent wetlands were most frequently mapped in wet drained lake basins in the southern portion of the study area. Permanently Flooded Persistent Emergent (PEM1H, 18.73 acres) and Semi-Permanently Flooded Persistent Emergent (PEM1F, 129.13 acres) wetlands were mapped in lacustrine fringes and wet sedge tundra, meeting hydrology indicator A1 (Surface Water) with 2–8 inches of standing water. Dominant vegetation in PEM1H and PEM1F wetlands included

creeping sedge (Carex chodorrhiza), round sedge (C. rotundata), white cottongrass (Eriophorum scheuchzeri), tall cottongrass (E. angustifolium), and purple marshlocks (Comarum palustre). The aquatic plant common bladderwort (Utricularia macrorhiza) in these communities further confirmed the assertion that these wetlands are permanently to semi-permanently flooded. The dwarf shrubs Alaska bog willow (Salix fuscescens), dwarf birch (Betula nana), and leatherleaf (Cha*maedaphne calyculata*) were observed atop hummocks and vermiculations in PEM1F wetlands. Seasonally Flooded-Saturated Persistent Emergent (PEM1E, 131.63 acres) wetlands were frequently dominated by tall cottongrass, white cottongrass, creeping sedge, water sedge (C. aquati*lis*), round sedge, and arctic sweetgrass (Anthoxanthum arcticum). Verniculations and hummocks often provided microtopographic relief, with bog rosemary (Andromeda polifolia), Alaska bog willow, dwarf birch, and bog blueberry (Vaccinium uliginosum) common species on high points. PEM1E wetlands frequently had organic soils, meeting hydric soil indicator A1 (Histosol or Histel) or A2 (*Histic epipedon*) with a shallow active layer. Primary indicators of wetland hydrology were observed at all PEM1E wetlands, either A1 (Surface Water), or A2 (High Water Table) and A3 (Saturation). Saturated Persistent Emergent (PEM1B, 0.69 acres) wetlands were mapped in one area, along a drying lake margin invaded by bluejoint (*Calamagrostis canadensis*).

Seasonally Flooded-Saturated Broadleaf Deciduous Shrub (PSS1E, 36.75 acres) and Seasonally Flooded Broadleaf Deciduous Shrub (PSS1C, 0.05 acres) wetlands were willow (*Salix* spp.) dominated communities in swales and riparian areas, whose landscape positions indicated a high likelihood of seasonal flooding. Saturated Broadleaf Deciduous Shrub (PSS1B, 554.02 acres) wetlands were predominantly willow thickets dominated by tealeaf willow (*Salix pulchra*) and Richardson's willow (*S. richardsonii*), located in riparian corridors, on moderate to steep slopes, or at previously disturbed sites. Some PSS1B wetlands were low birch–ericaceous communities dominated by dwarf birch and lingonberry (*Vaccinium vitis-idaea*), and others were alder thickets dominated by mountain alder (*Alnus viridis* ssp. *crispa*). Soils generally lacked thick organic deposits, and frequently met hydric soil indicators A13 (Alaska Gleyed) or A14 (Alaska Redox). Wetland hydrology indicator A3 (Saturation) was observed in nearly all PSS1B wetlands. Saturated Needleleaf Evergreen Shrub (PSS4B, 7.16 acres) wetlands were black crowberry (*Empetrum nigrum*) dominated wetlands in riparian areas adjacent to Sadie Creek. Three Cowardin codes encompassed the range of low open shrub communities mapped within the study area: Saturated Broadleaf Evergreen Shrub (PSS3B, 20.55 acres), Saturated Broadleaf Evergreen / Broadleaf Deciduous Shrub (PSS3/1B, 205.26 acres), and Saturated Broadleaf Deciduous / Broadleaf Evergreen Shrub (PSS1/3B, 38.35 acres). The variation in Cowardin classifications is due to the variation in site-specific dominants, which typically dominated by the broadleaf deciduous shrubs dwarf birch and bog blueberry, and the broadleaf evergreen shrubs lingonberry and marsh Labrador tea (*Ledum decumbens*). Typical dominant herbaceous plants included water sedge, Bigelow's sedge (*C. bigelowii*), tussock cottongrass (*Eriophorum vaginatum*), and cloudberry (*Rubus chamaemorus*). Low open shrub wetlands were most frequently mapped in the northern portion of the study area, along gentle slopes. Organic soils met hydric soil indicator A2 (Histic Epipedon) with a shallow active layer, and wetland hydrology indicators A2 (High Water Table) and A3 (Saturation) were observed in these communities.

Seasonally Flooded–Saturated Persistent Emergent/Broadleaf Deciduous Shrub (PEM1/SS1E, 625.95 acres) and Semi-Permanently Flooded Persistent Emergent/Broadleaf Deciduous Shrub (PEM1/SS1F, 195.92 acres) wetlands were most frequently mapped in wet drained lake basins in the southern portion of the study area. PEM1/SS1E and PEM1/SS1F wetlands comprised low-center polygon communities or wet sedge tundra with hummocks, both with subtle micro-topographic differences. Typical dominant herbaceous species included water sedge, creeping sedge, round sedge, white cottongrass, and tussock cottongrass. Typical dominant shrub species included dwarf birch, lingonberry, and bog blueberry. Wetland hydrology indicator A1 (Surface Water) was observed in low areas, and A2 (High Water Table) and A3 (Saturation) were observed in high areas. Organic soils met hydric soil indicator A2 (Histic Epipedon), often over a shallow active layer.

Saturated Shrub/Persistent Emergent complexes were the most commonly mapped wetlands in the study area. Saturated Persistent Emergent/Broadleaf Deciduous Shrub (PEM1/SS1B, 59.59 acres), Saturated Persistent Emergent/Broadleaf Evergreen Shrub (PEM1/SS3B, 67.95 acres), and Saturated Broadleaf Deciduous Shrub/Persistent Emergent (PSS1/EM1B, 339.18 acres) wetlands were primarily low shrub tussock tundra on either non-patterned or high-center low-relief polygons. Saturated Broadleaf Evergreen Shrub/Persistent Emergent (PSS3/EM1B, 779.96 acres) wetlands were a mix of low shrub tussock tundra and mixed sedge-shrub tundra, and occurred on a variety of surface forms: non-patterned, high-center low-relief polygons, high-center high-relief polygons, mixed high- and low-center polygons, and hummocks. Typical shrub dominant species in saturated shrub/emergent wetland complexes included bog blueberry, lingonberry, dwarf birch, and black crowberry. Typical dominant herbaceous species in saturated shrub/emergent wetland complexes species in saturated shrub/emergent wetland complexes typically had organic soils meeting hydric soil indicator A2 (Histic Epipedon) over a shallow active layer. Wetland hydrology indicator A1 (Surface Water) was generally present in polygonal troughs and microtopographic low points, while the majority of each of these wetlands met wetland hydrology indicator A2 (Saturation) and A3 (High Water Table).

Uplands

Both naturally occurring uplands (U, 5.19 acres) and fill or urbanized upland areas (Us, 15.66 acres) were mapped within the study area. Fill or urbanized areas (Us) comprise existing roads, the former White Alice site, and landfill within the study area, and are not included in the functional assessment or wildlife habitat discussions. Naturally occurring uplands (U) were predominantly non-wetland willow shrub communities located on steep slopes and bluffs.

Proposed Jurisdictional Status

Kotzebue Sound, surrounding the Baldwin Peninsula and entirely outside of the study area, is a navigable water of the U.S. Examination of aerial photography indicates that Permanently Flooded Subtidal Estuarine Waters (E1UBH) mapped within the study area are impounded by an active beach ridge. The mean tidal fluctuation measured at Kotzebue is 0.57 feet from mean low tide to mean high tide (NOAA 2012), thus it is unlikely that the estuary has a surface connection to Kotzebue Sound on a daily basis and salt water inputs in the lagoon area are presumably caused by seasonal storm surge events. Thus, the E1UBH within the study area is believed to be a

non-navigable water of the U.S. No waters on the Baldwin Peninsula are included in the Alaska Department of Natural Resource's Navigable Waters Mapper (ADNR 2012). Sadie Creek does, however, drain directly into Kotzebue Sound and June Creek drains into a lagoon that connects to Kotzebue Sound. As both are tributaries to a navigable water, they are believed to be non-navigable waters of the U.S.

All other wetlands and waters within the study area are either tributaries to RPWs connecting to Kotzebue Sound, or directly abut tributaries through surface and/or subsurface connections. Surface connections were often readily apparent through topographic review, while subsurface connections were due to extended areas of saturated soils, connecting wetlands to remote waters. The vast majority of soil pits encountered frozen soil within 24 inches of the surface (Appendix A). This continuous shallow active layer provides a near-surface confining layer that perches water and extends adjacent saturated soils away from the water source for miles.

FUNCTIONAL ASSESSMENT

Wetlands were aggregated into 12 distinct Wetland Functional Classes (Table 2), incorporating Cowardin classification, physiography, and Viereck et al. (1992) Level IV vegetation class. A functional assessment was performed for each Wetland Functional Class (Table 3, Appendix C), evaluating the hydrologic, water quality, ecologic, and sociologic functions of each. This functional assessment was used to classify Wetland Functional Classes into Categories II–III (Table 3) for use in permitting and compensatory mitigation negotiations. Functional assessment results are generally in agreement with preliminary wetlands assessment included as an attachment to the Kotzebue to Cape Blossom Road Reconnaissance Study (ADOT&PF 2011), which identified estuarine areas as high value wetlands. No wetlands within the study area have been granted a special managerial or conservation status, and no wetlands in the study area have been documented to have rare or scarce biologic, geologic, or functional features.

No terrestrial critical habitat is present within the study area. Marine and estuarine waters surrounding the Baldwin Peninsula are designated critical feeding habitat for polar bears (*Ursus maritimus*), from mean high tide line to 300 m depth. As discussed above, no tidal survey data are available for the study area. Based on aerial photo review, we do not believe that the estuarine

feature mapped within the study area is below mean high tide, and thus was not intended to be included in the designated polar bear sea-ice critical habitat. Based on this assertion, the area of Coastal Beach and Waters (0.80 acres) at the southern end of the study area was rated low for Uniqueness and Special Status and designated a Category II wetland. If, however, it was the intent of the U.S. Fish and Wildlife Service to include this estuarine feature in critical sea-ice habitat for polar bears, Coastal Beach and Waters should be rated moderate for Uniqueness and Special Status and elevated to Category I, due to the presence of critical habitat.

Yellow-billed Loons (*Gavia adamsii*), a candidate species for listing as threatened or endangered under the Endangered Species Act (ESA), were observed on a lake in the southern part of the Baldwin Peninsula during U.S. Fish & Wildlife Service (USFWS) breeding pair surveys in the mid-1990s (Earnst 2004) and are known to nest on lakes on the Seward Peninsula and in the Cape Krusenstern area (Bollinger et al. 2008). Field surveys were conducted for Yellow-billed Loons on the Baldwin Peninsula in 2012 and no birds were found. High value loon habitat, including Permanently Flooded Lake or Pond, Littoral Aquatic Bed and Lacustrine Fringe, and Permanently Flooded Sedge Marsh has high potential habitat suitability for loons but since none were observed specifically within the study area these classes remained at a Category II level.

With the exception of Seasonally Flooded Saturated Low and Tall Deciduous Shrub, the permanently to seasonally flooded Wetland Functional Classes were designated as Category II wetlands, due to their overall moderate to high levels of functional performance. Their proximity and connections to open water, in combination with vegetation structure, generally provide a higher level of functioning for Erosion Control and Shoreline Stabilization, Organic Matter Production and Export, and Fish Habitat. Their general position in depressional features with constricted to no outlets allow a higher level of performance for Flood Flow Regulation and Sediment, Nutrient, and Toxicant Removal.

The remaining Wetland Functional Classes scored lower for hydrologic and water quality functions due to lack of storage capacity or long water retention times. Many of these Wetland Functional Classes were not likely to perform Organic Matter Production & Export due to infrequent flooding. Several types did, however, score high for Educational, Scientific, Recreational, & Subsistence Use based on conversations field staff had with their cultural advisor.

The Lower Perennial River, by its very nature, cannot perform flood flow regulation, erosion control, or shoreline stabilization, nor can it 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.

HABITAT ASSESSMENT

Threatened, Endangered, and Candidate Wildlife Species

The marine habitat within and immediately adjacent to the study area is designated as critical habitat for the polar bear, which is listed as threatened under the ESA. The critical habitat surrounding the Baldwin Peninsula is part of the designated sea ice habitat, which includes all marine waters from mean high tide to 300 m in depth. As discussed above, no tidal survey data are available for the study area and we do not believe the U.S. Fish and Wildlife Service intended to include this small estuarine feature in sea-ice critical habitat. Although the terrestrial habitat of the Baldwin Peninsula is not designated as critical habitat for the polar bear, bears may occasionally be present in the study area during the winter and early spring.

The Yellow-billed Loon is a candidate species for listing under the ESA. Although Yellow-billed Loons were not detected during 2012 aerial surveys (see YELLOW-BILLED LOON AND RAPTOR SURVEYS), this species may occur in the study area. One adult was observed on a lake in the southern part of the Baldwin Peninsula (outside of the 2012 survey area) during USFWS breeding pair surveys in the mid-1990s (Earnst 2004). Nesting Yellow-billed Loons have been recorded on the Seward Peninsula and in the Cape Krusenstern area near the study area (Bollinger et al. 2008). Yellow-billed Loons nest and raise their young exclusively on lakes in coastal and inland low-lying tundra. Nest sites are often located on the shore or on islands of large (>5 ha), deep (>2 m), permanent lakes with fish (Earnst 2004). Suitable nesting habitat is present in the study area where Littoral Aquatic Bed and Lacustrine Fringe, Sedge Marsh, Wet Sedge-Shrub Meadow, Moist Dwarf Shrub Tundra, and Moist Sedge-Shrub Meadow occur along lake shorelines. Suitable island nesting habitat occurs in Freshwater Lake or Pond. Yellow-billed Loons have been recorded nesting in these habitats on the Colville River delta and the NPRA (Johnson et. al 2012). The occurrence of Yellow-billed Loons in large lakes in the study area is

likely to be determined by the availability in those lakes of fish populations adequate to support adults and young.

Wildlife Habitat Assessment

The study area provides valuable wildlife habitat for numerous species of birds and mammals. Both aquatic and terrestrial habitats in the study area are important to many birds, especially waterfowl and shorebirds, for breeding and foraging. Twelve Wildlife Habitat Types were identified in the study area, each with important wildlife habitat associations (Figure 3.1—3.12). Habitat associations were developed for a list of common species (41 birds and 8 mammals) found in the region including polar bears and Yellow-billed Loons (Table 4). Moist and Wet Sedge–Shrub Meadow were the 2 most common habitats in the study area (1,355.10 acres and 1,052.88 acres, respectively). Both habitats, along with Moist Dwarf Shrub Tundra (45.7 acres) have similar species assemblages. At least 30 species of birds and 6 species of mammals listed in Table 4 are expected to be found in these habitats. These tundra habitats are important for foraging; nesting, denning, or calving; predator protection or escape terrain; or for other important behavioral or life-history functions. Herbivores and insectivores such as shorebirds, waterbirds, moose, and caribou are common in these habitats, which combined occupy 73% of the study area.

Shrub habitats (Low and Tall Willow Scrub, Low Birch–Ericaceous Scrub, and Tall Alder Scrub) occupy 22% of the study area, a combined 748.53 acres. Seven of the 8 mammal species listed in Table 4 are expected to use these habitats, and at least 11 of the bird species. Willow, birch, and alder shrub habitats provide important browse for herbivorous mammals, such as caribou and moose, and cover for small mammals, such as hares and foxes. Eight of the 11 species of birds that use shrub habitats are passerines, for which shrub habitats provide the resources needed for nesting, foraging, roosting, and protective cover.

Freshwater habitats comprise nearly 110 acres of the study area: 94.14 acres of Freshwater Lake or Pond and 15.47 acres of Rivers and Streams. These waterbodies provide valuable foraging habitat for waterfowl and loons, and moose and river otters. Littoral Aquatic Bed and Lacustrine Fringe is closely associated with Freshwater Lakes and Ponds in the study area, and is a relatively uncommon (15.29 acres) but disproportionately important habitat. Numerous avian species use Littoral Aquatic Bed and Lacustrine Fringe, primarily for nesting, foraging, and roosting. Coastal Beach and Waters (0.80 acres) occur at the southern end of the study area within a lagoon. This inland estuary is important to wildlife, providing suitable foraging habitat for a number of waterbird species.

Gravel Fill (15.66 acres) consists of existing gravel road right-of-ways and provides little functional habitat to wildlife species. Semipalmated Plovers prefer gravel areas for nesting. Common Ravens and gulls may use this habitat as a vantage point for hunting and red foxes may use it as a travel thoroughfare. Polar bears may cross through this area during snow cover. However, the occurrence of wildlife on roads and gravel surfaces is incidental and rare.

FISHERIES

DOT&PF has provided several corridor alternatives to connect Kotzebue to Cape Blossom. Some of the proposed road corridor alternatives cross streams. The evaluation and sustainability of Essential Fish Habitat (EFH) is mandated by the Federal management plan for Pacific salmon species, as prescribed by the National Marine Fisheries Service (NMFS). Furthermore, Alaska Title 16 Fish Passage regulations stipulate maintenance of resident fish passage routes.

The most significant stream in the study area is Sadie Creek and its network of smaller tributaries would be traversed by this proposed road project. Information regarding fish assemblages and habitat in this drainage is limited to word of mouth, and no fish surveys have previously been conducted. Additionally, the Alaska Department of Fish and Game (ADFG) *Atlas to the Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* (ADFG 2012) has not identified any anadromous fish streams in the study area. Thus, an assessment of fish assemblages in Sadie Creek and its smaller tributaries was recommended to gather information regarding passage needs for migrating resident and/or anadromous fish populations. The purpose of this survey was to assess resident and anadromous fish assemblages in streams near the alternative road corridors. Information collected in this survey will inform decisions regarding the need for and potential design of crossing structures within the study area.

METHODS

SITE SELECTION

ABR biologists selected fish sampling sites on Sadie Creek and its tributaries with the guidance of Bill Morris, regional supervisor of Division of Habitat at ADFG, and the DOT&PF report "Kotzebue to Cape Blossom Road Reconnaissance Study, State Project No. 76884, February 2011" (ADOT&PF 2011) The location of sites MS1 (main stem Sadie Creek), NF1 (north fork Sadie Creek), and SF1 (south fork Sadie Creek) were selected to be near stream crossings. Site MS1 is located directly downstream from a potential stream crossing identified as crossing #1 (Figure 4; Appendix D, Plate 1). Sites NF1 and SF1 were chosen to collect information regarding fish presence near 2 other potential stream crossings identified as crossing #2a and #2b (Figure 4;

Appendix D, Plate 2). Site NF2 was chosen to directly overlap with potential stream crossing #2a (Appendix D, Plate 3). Three fish sampling sites upstream of the main forks of Sadie Creek were chosen to investigate fish presence in headwater tributaries in the study area (TR1, TR2 and TR3) (Figure 4). The type of fishing gear used and exact gear placement was chosen based on-site assessments of water levels and flow.

SITE VISITS

Sampling was conducted near potential stream crossing in July and August 2012. In August, some of the July sampling sites were resampled and additional sites were added. All sites were accessed by R-44 helicopters operated by Pollux Aviation in July and by Bering Air in August.

WATER CHEMISTRY AND DISCHARGE

In-situ water chemistry (temperature [°C], pH, specific conductance [µS/cm⁻¹], and dissolved oxygen [%]) were measured at 8 sites in Sadie Creek with a YSI Professional Plus Multiparameter Meter during 26–28 July and 11–13 August 2012.

Discharge was measured at 3 sites, 1 on each of the main forks (site NF3 and SF2 on 11 August), as well as on 1 of the tributaries (TR2 on 13 August). Water velocities and depths were measured at 10 points along the wetted width cross section using a Marsh McBirney 2000 Flo-Mate. Overall discharge was then calculated from the cross sectional velocities and depth data (Appendix E).

FISH SAMPLING

Sadie Creek and its tributaries were surveyed for fish using 3 different gear types: minnow traps, seine nets, and fyke nets (Table 5). Minnow traps were baited with sterilized salmon roe and deployed from the stream bank where they were attached by a length of rope. Each trap was set out for a minimum of 3 hours and a maximum of 6 hours.

Seine net hauls were conducted by pulling a 10 foot long, 5 foot high, 0.25-inch mesh seine with a lead line bottom and surface float line in a half-circle 1–3 times nearshore at a subset of sites. One individual extended the net from shore into the water while the other end was held in place. After extending the net, the individual in the water then walked the net into deeper water

and arced back toward shore. The net was then pulled onto shore with care taken to keep the lead line on the bottom of the stream and in front of or even with the cork line.

Fyke nets had 1.2 m² frame openings and 0.25-inch mesh with 25 foot wings. Because water levels during the July sampling event were high, the nets could not be set across the entire stream. Instead, the nets were set along the stream margins and thus did not fish the entire stream width. Fyke net wings were set from 1 side of the frame opening to the vegetated stream margin on 1 bank and then from the other side of the frame out to the deepest section of wadeable stream. Two fyke nets were set per site on opposite banks, 1 facing upstream, and 1 facing downstream (Appendix D, Plate 4). During the August sampling event, water levels had dropped sufficiently to allow for 2 fyke nets to be set across the full width of the stream at each site sampled (Appendix D, Plate 5).

Fish captured were removed, anesthetized using clove oil, identified, enumerated, and measured for length. Fish were placed in a holding tub to recover from anesthesia before being returned live to the site of their trapping location. Fish caught in fyke nets were returned to the water opposite the opening of the net they were captured in. Voucher samples were preserved in formalin and returned to the laboratory for identification. All fishing effort was conducted under Alaska Department of Fish and Game Fish Resource Permit SF2012-259 and Amendment 1: Fish Resource Permit SF2012-259 (Appendix F).

RESULTS AND DISCUSSION

WATER CHEMISTRY AND DISCHARGE

Sadie Creek and its tributaries are low gradient, tundra-stained streams that flow slowly over mud and other organic substrates. The riparian vegetation along the majority of the sites was dominated by either grasses or mix of alder (*Alnus spp*) and willow (*Salix spp*.) (Appendix D, Plate 7). Most sample sites were located in stream reaches with deeply incised, near vertical channel walls with high depth to width ratios (Appendix D, Plate 6). The total discharge during August sampling was 0.1 m³/s at NF3, 0.1 m³/s at TR2, and 0.3 m³/s at SF2 (Appendix E). Mean water temperatures in the Sadie Creek main fork and tributary sampling stations were 10.6–14.5 °C. Water

temperatures were 10.6–12.1°C in July and 14.0–16.5°C in August (Table 6). The pH was 6.0-7.1, normal for tundra streams, which often have a low pH (Table 6) (Oswood et al. 1989). Specific conductance had high variability across sites and between sampling trips, ranging from 59.2 to 964.0 μ S/cm⁻¹ (Table 6). This high variation was likely due to changes in water levels between sampling events but could also be because most sites were not resampled between July and August events. Although MS1 was the only site at which water chemistry was measured during both July and August events, the variability in conductance between those events is illustrative of variability across the wider sampling area over the sampling season. Specific conductance across all sites had a range of $420.6-964 \,\mu\text{S/cm}^{-1}$ in July, and a much lower range of 59.2–255.7 µS/cm⁻¹ in August (Table 6). The higher range in conductivity during July may have been due in part to intrusion of salt water into Sadie Creek, although we did not measure salinity directly. Additionally, the higher water levels and associated terrestrial runoff in Sadie Creek and its tributaries in July may have resulted in increased concentrations of dissolved solids and higher specific conductance, which is typical after flood events (Wetzel 2001). Site MS1, closest to the brackish water mouth of Sadie Creek, had the highest specific conductance during the August sampling, but the July values were nearly twice as high at this site $(255.7 \text{ vs. } 461.1 \text{ } \mu\text{S/cm}^{-1})$ (Table 6). Dissolved oxygen was 66.2–91.2% (Table 6).

FISH PRESENCE

To determine fish presence, ABR sampled 9 different sites within the Sadie Creek drainage during 2 sampling trips using fyke nets, seines, and minnows traps (Table 5, Figure 4). Fyke nets were fished for a total of 245.3 hours, minnow traps were fished for 42.8 hours, and 18 seine hauls were pulled. Fish species captured were ninespine stickleback (*Pungitius pungitius*), threespine stickleback (*Gasterosteus aculeatus*), humpback whitefish (*Coregonus clupeaformis*), broad whitefish (*Coregonus nasus*), least cisco (*Coregonus sardinella*), northern pike (*Esox lucius*), and Alaska blackfish (*Dallia pectoralis*) (Table 7). This assemblage of species is typical for small coastal freshwater streams (see Appendix G) (Morrow 1980).

A total of 44 juvenile whitefish were caught but not identified to species in the field. Misidentification of juvenile whitefish is a common problem (Brown et al. 2012). Four voucher sam-

ples were later identified by ABR senior biologists as 1 humpback whitefish and 3 broad whitefish. Analysis of digital photographs allowed for the positive identification of an additional 10 whitefish as either humpback or broad whitefish.

Adult chum salmon (*Oncorhynchus keta*) are known to occur in Kotzebue Sound (Menard and Kent 2011). Additionally, an ADFG study of near-shore marine fish in Kotzebue Sound documented juvenile chum salmon between Lockhart Point (a coastal point on the Baldwin Peninsula northwest of Kotzebue) and Sadie Creek (Raymond et al. 1984). However, no juvenile or adult Pacific salmon were captured in Sadie Creek. The physical characteristics of Sadie Creek and its tributaries (low gradient, slow flowing, and fine organic substrates) suggest that salmon runs are unlikely to occur now or in the future (Bjornn and Reiser 1991), although occasional strays may be present.

FISH ABUNDANCE BY SAMPLING EVENT AND SITE

Different types of fishing gear catch different fish and at distinct rates (Pope et al. 1975). We used multiple combinations of sampling gear by site and between sampling events in response to on-site assessments of current water levels and flow (Table 5). For instance, fyke nets were deployed at some sites and only minnow traps were deployed at other sites. At some sampling sites, multiple gear types were deployed. We are confident that a thorough cross section of the fish community was collected in the sampling area through the use of this variety of capture methods.

Ninespine stickleback (Appendix D, Plate 8) were the most common fish caught during July and August surveys (Table 7) and were collected at all sample sites except the most inland site (TR3) (Table 8). Ninespine sticklebacks ranged in length from 16 to 72 mm, with a median of 35 mm and a mean of 37 mm (n = 475) (Figure 5, Appendix H). Most ninespine stickleback were caught in minnow traps, with a mean catch per unit effort (CPUE) of 21.22 fish/hour. Because of this high capture rate, overnight sets of minnow traps were not employed, due to concerns regarding the potential for high fish mortality. CPUE of ninespine stickleback was higher in August than in July (Figure 6).

Threespine stickleback were captured on both July and August survey trips, but in low numbers (Table 7). All threespine sticklebacks were caught with fyke nets and at the farthest downstream sites: NF1, NF3, and SF1 (Table 8).

Northern pike were captured primarily in fyke nets and, with 38 fish total, they were the second most common fish caught (Table 7; Appendix D, Plate 13). Two northern pike were caught in a minnow trap and none were caught in the seine net. Fork length ranged from 90–461 mm, with a median of 145 mm and a mean of 219 mm (Figure 5, Appendix H). Northern pike CPUE was higher in August (0.2 fish/hour) than in July (0.1 fish/hour) (Figure 6). Two different size classes of northern pike were captured: 100–200 mm and 350–500 mm (Figure 7). Although northern pike growth rates can vary widely in different waterbodies, depending on such factors as prey size, intraspecific competition, and number of warm degree days (Jacobson 1992), the size disparity within the Sadie Creek system may represent the failure of a year class within the fishery.

Three species of whitefish: broad whitefish, humpback whitefish, and least cisco (Appendix D, Plates 10, 11, and 12, respectively) were captured in the north and south forks of Sadie Creek (Table 8) and only in fyke nets. In July, only adult humpback whitefish were caught (Table 7). In August, juvenile and adult humpback whitefish, juvenile broad whitefish, and adult least cisco were caught. These capture results suggest temporal differences in the use of sampled creeks by different species and age classes of whitefish, but the capture of multiple life history stages and species in August may also have been because fyke net sets completely crossed the stream during that sampling period, whereas high water levels in July had precluded this.

Only juvenile broad whitefish were captured during sampling surveys (and only in August), suggesting that adults may have been in lakes or in the nearshore environment during the earlier sampling event. Many whitefish populations in Arctic Alaska migrate along the coast and into brackish and freshwater during summer to rear, feed, and sometimes overwinter (Brown et al. 2012). Juvenile broad whitefish may use Sadie Creek as a rearing and feeding area during the late summer period. It is possible that a June sampling trip would have yielded more adult specimens of all whitefish, as this is a period when subsistence fishers harvest whitefish at the mouth of Sadie Creek (S. Barr, personal communication, 27 July 2012).

Alaska blackfish were caught primarily in minnow traps and at only 2 sites, NF3 and TR3, during August sampling (Table 8; Appendix D, Plate 14). Most blackfish were caught at TR3, which is the farthest inland site and exhibited near slack flow. Blackfish primarily live in waters with low flow and are tolerant of low dissolved oxygen levels. For a complete list of species and lengths by site, refer to Appendix H.

SUMMARY

Harvest rates were low for most fish species captured during 2012 surveys, but the species assemblage was typical of Arctic Coastal Plain tundra streams (Morrow 1980). High water events during July sampling likely affected capture rates due to the inability to completely sample the cross sectional width of Sadie Creek at several locations. Furthermore, it is likely that several fish species migrate in and out of the Sadie Creek and its tributaries during early summer (mid to late June) and in fall (late August to early September). Indeed, juvenile humpback and broad whitefish were captured during Sadie Creek surveys, which is to be expected in smaller coastal streams as they go in search of summer food resources (Chang-Kue and Jessop 1992). In the case of adult of adult humpback whitefish, we know that they are likely not spawning/overwintering in Sadie Creek as they prefer to spawn in waters with gravel bottoms, while Sadie Creek substrate is predominately mud/organic in nature (McPhail and Lindsey 1970, Morrow 1980, Brown 2004, Brown 2009).

Further evidence for seasonal use of Sadie Creek by anadromous fish (e.g., whitefish) comes in the form of local knowledge by area residents who fish the mouth of Sadie Creek in early summer as fish out- migrate from the system, presumably from lakes but possibly from deeper pools in Sadie Creek. Thus, additional early summer sampling may have uncovered larger numbers of out-migrating fish of various life history stages, particularly from the connected lake systems in the survey area. EFH is of little concern in Sadie Creek as no federally protected fish species (i.e., Pacific salmon) have been identified in the stream to date. Furthermore, the substrate in Sadie Creek is not appropriate for the spawning needs of salmon.

Winter abundance and distribution of fish in Sadie Creek may differ from summer. This system supports ninespine and threespine stickleback, at least three species of whitefish (broad

whitefish, humpback whitefish, and least cisco), as well as northern pike and Alaska blackfish. No adult or juvenile salmon were captured in the system. Sadie Creek and its tributaries are relatively slow flowing, deeply incised streams with soft mud and organic bottoms. Though a complete bathymetric survey was not completed during fishing efforts, depths at fish sampling locations indicate that Sadie Creek does not necessarily freeze to the bottom throughout the course of its drainage in winter. ABR biologists were unable to cross Sadie Creek at any of the potential road crossings in July and August due to high waters. Larger pools of appropriate depth (i.e., >6 feet) in Sadie Creek could provide overwintering habitat for some fishes, particularly juvenile fishes (Moulton and George 2000). Further investigation of stream bathymetry and ice depths are needed to assess the availability of overwintering habitat in Sadie Creek and inform decisions regarding the need for and potential design of crossing structures within the study area.

YELLOW-BILLED LOON AND RAPTOR SURVEYS

The proposed Kotzebue to Cape Blossom Road alignment and alternatives are located within the breeding range of the Yellow-billed Loon, which is a candidate for listing under the Endangered Species Act (ESA) of 1973, as amended (74 FR 12932–12968). Yellow-billed Loons nest on large (>5 ha), deep (>2 m), permanent, fish-bearing lakes in coastal tundra of northern and western Alaska (Bollinger et al. 2007, USFWS 2009, Johnson et al. 2012). Numerous waterbodies adjacent to the proposed road alignment may provide suitable nesting and brood-rearing habitat for Yellow-billed Loons. During surveys in the mid-1990s, a Yellow-billed Loon was observed on a lake in the southern part of the Baldwin Peninsula outside of the study area (Earnst 2004). Although no nests have been recorded in the study area, Yellow-billed Loon nests have been reported elsewhere on the Baldwin Peninsula (Earnst 2004) and nearby in Cape Krusenstern National Monument (Schroeder 1996, Bollinger et al. 2007), Alaska Maritime National Wildlife Refuge (USFWS 1998), Selawik National Wildlife Refuge (Earnst 2004), and Bering Land Bridge National Preserve (Bollinger et al. 2007).

Suitable raptor nesting habitat in the vicinity of the proposed road alignment is limited to coastal bluffs and cliffs on the west and south coasts of the Baldwin Peninsula, including cliff faces near Cape Blossom. These features may provide potential nesting habitat for Peregrine Falcons (*Falco peregrinus*), Gyrfalcons (*Falco rusticolus*), Golden Eagles (*Aquila chrysaetos*), Rough-legged Hawks (*Buteo lagopus*), and Common Ravens (*Corvus corax*). Each of these species is protected under the Migratory Bird Treaty Act (16 U.S.C. 703–712) and the Golden Eagle is further protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668–668d). All of these species are known to nest in the region (Schroeder 1996) and can be sensitive to disturbance during the breeding season.

Field surveys were conducted to determine the distribution and abundance of Yellow-billed Loons and cliff-nesting raptors in the study area. The following section summarizes the results of the aerial surveys for Yellow-billed Loons and raptors in association with the proposed Kotzebue to Cape Blossom Road.

METHODS

LOONS

Aerial surveys for Yellow-billed Loons were conducted on 30 June 2012. Observations of Pacific Loons (*Gavia pacifica*) and Red-throated Loons (*Gavia stellata*) were recorded incidentally during surveys. One experienced observer and a pilot completed the survey in a Robinson 44 helicopter. The survey targeted lakes 5 ha and larger in size and adjacent smaller lakes and aquatic habitats that are typical breeding habitats for Yellow-billed Loons (Sjolander and Agren 1976, North and Ryan 1989). All potential breeding habitats within 3 miles of the proposed road alignment were surveyed. The aircraft was flown at about 75 m above ground level at a speed of 60 km/h. The perimeter of each survey lake was circled while the observer searched lake surfaces and shorelines for loons and nests (Figure 8). All locations of loons and their nests were recorded on color photomosaics (~1:35,000 scale) and later digitized in a GIS database.

RAPTORS

Aerial surveys for nesting raptors were completed concurrently with the loon surveys on 30 June 2012. The survey route followed the coast from north to south, starting at Kotzebue and ending at the southern end of the Baldwin Peninsula (Figure 8). If potential nesting habitat was encountered, multiple passes were taken of the cliffs to allow the observer the opportunity to thoroughly search cliff faces. Photographs of potential nesting habitat were taken.

RESULTS AND DISCUSSION

LOONS

No Yellow-billed Loons or nests were found within the study area during the aerial survey conducted on 30 June 2012. A total of 44 lakes were surveyed for Yellow-billed Loons, ranging in size from 5 to 101 ha. Many lakes within the study area are large enough to support nesting Yellow-billed Loons. Median lake size used by Yellow-billed Loons on the North Slope for both nesting and brood-rearing was 50 ha (range 6.4–508 ha; Wildman and Johnson 2008). Yellow-billed Loons have been recorded nesting on lakes <6 ha, but broods from those lakes were moved to adjacent larger lakes for rearing.

The timing of the loon survey appeared to be appropriate because Pacific Loons were found on nests and the survey occurred during the known nesting period for Yellow-billed Loons in this part of Alaska (Earnst 2004, Bollinger et al. 2007). Suitable breeding habitat for Yellow-billed Loons is unevenly distributed in northwestern Alaska and may be limited on the Baldwin Peninsula. Shoreline and island nesting habitat similar to that which is used for nesting on the North Slope is present around lakes in the Cape Blossom study area, but we do not know whether lakes in the study area support fish populations required by breeding Yellow-billed Loons. Yellow-billed Loons feed their young fish secured almost exclusively from the brood-rearing lake (North 1994).

Pacific and Red-throated loons and their nests were recorded opportunistically within the study area. Because not all water bodies were searched, the total number of Pacific and Red-throated loons observed may under-represent their actual abundance in the study area. Pacific Loons were recorded on 48% (21 of 44) of the lakes surveyed. A total of 48 Pacific Loons were recorded, including 18 pairs and 3 active nests (Figure 9). Pacific Loons are the most common loon breeding in northwest Alaska, where they nest on shores, islands, and emergent vegetation of shallow and deep lakes ranging in size from 1 to 300 ha (ABR, unpublished data). Two individual Red-throated Loons were observed on a single lake near the south end of the survey area (Figure 9). Red-throated Loons nest on smaller (<1 ha) and shallower ponds than other loons. In northwest Alaska, Red-throated Loons are considered fairly common in coastal breeding habitat (Schroeder 1996).

RAPTORS

Potential cliff-nesting raptor habitat in the study area is limited to a mud bluff, about 30 m in height and about 1.8 km in length, at Cape Blossom on the southwestern coast of the Baldwin Peninsula. No raptors or raptor nests were found at these bluffs, but whitewash was identified at 1 location that was probably a roosting perch. At the time of the survey, the bluff was actively eroding in some places, which would make those areas unsuitable for nesting. However, other areas of the bluff contained moderate-value nesting habitat for Peregrine Falcons and Rough-legged Hawks, and low value habitat for Gyrfalcons and Golden Eagles. The bluff at Cape Blossom is

similar to mud bluffs on the North Slope, which were once thought to be low-quality habitat for nesting Peregrine Falcons, but in recent years appear to be used regularly for nesting (Ritchie et al. 2004, Ritchie and Nigro 2012).

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Wetland Type Description	NWI Code ^a	Area (acres)	% of Study Area
NON-NAVIGABLE WATERS			
Permanently Flooded Subtidal Estuarine	E1UBH	0.80	0.02
Lower Perennial River	R2UBH	14.44	0.43
Lower Perennial Unconsolidated Shore	R2USA	1.03	0.03
Permanently Flooded Lakes	L1UBH	33.67	1.01
Permanently Flooded Ponds	PUBH	60.48	1.81
NON-NAVIGABLE WATERS TOTAL		110.42	3.3
JURISDICTIONAL WETLANDS			
Lacustrine Littoral Unconsolidated Bottom	L2UB3H	1.05	0.03
Lacustrine Permanently Flooded Aquatic Bed	L2AB3H	1.35	0.04
Palustrine Permanently Flooded Aquatic Bed	PAB3H	2.97	0.09
Permanently Flooded Persistent Emergent	PEM1H	18.73	0.56
Semi-Permanently Flooded Persistent Emergent	PEM1F	129.13	3.86
Seasonally Flooded-Saturated Persistent Emergent	PEM1E	131.63	3.93
Saturated Persistent Emergent	PEM1B	0.69	0.02
Semi-Permanently Flooded Persistent Emergent/Broadleaf Deciduous Shrub	PEM1/SS1F	195.92	5.85
Seasonally Flooded Saturated Persistent Emergent/Broadleaf Deciduous Shrub	PEM1/SS1E	625.95	18.70
Saturated Persistent Emergent / Broadleaf Deciduous Shrub	PEM1/SS1B	59.59	1.78
Saturated Persistent Emergent / Broadleaf Evergreen Shrub	PEM1/SS3B	67.95	2.03
Saturated Broadleaf Deciduous Shrub / Persistent Emergent	PSS1/EM1B	339.18	10.13
Saturated Broadleaf Evergreen Shrub / Persistent Emergent	PSS3/EM1B	779.96	23.30
Seasonally Flooded-Saturated Broadleaf Deciduous Shrub	PSS1E	36.75	1.10
Seasonally Flooded Broadleaf Deciduous Shrub	PSS1C	0.05	0.00
Saturated Broadleaf Deciduous Shrub	PSS1B	554.02	16.55
Saturated Broadleaf Deciduous / Broadleaf Evergreen Shrub	PSS1/3B	38.35	1.15
Saturated Broadleaf Evergreen / Broadleaf Deciduous Shrub	PSS3/1B	205.26	6.13
Saturated Broadleaf Evergreen Shrub	PSS3B	20.55	0.61
Saturated Needleleaf Evergreen Shrub	PSS4B	7.16	0.21
WETLANDS TOTAL		3,216.24	96.07
NON-WETLANDS			
Upland	U	5.19	0.16
Gravel Fill	Us	15.66	0.47
UPLANDS TOTAL		20.85	0.63
TOTAL	-	3,347.51	100.00

Table 1.Area (acres) of wetlands, waters, and non-wetlands in the proposed Kotzebue to Cape
Blossom Road study area, Alaska, 2012.

^a Cowardin et al. 1979

Table 2.	Wetland Functional Class descriptions for th	Wetland Functional Class descriptions for the proposed Kotzebue to Cape Blossom Road, Alaska.	
Wetland I	Wetland Functional Class	Description	Area (acres)
Seasonal	Seasonal Tidal Estuary	Located near Cape Blossom, one estuarine feature that intersected the study area five times. Mapped as Cowardin wetland type E1UBH. These are unvegetated waters formed by freshwater drainage features impounded at the outlet to Kotzebue Sound by high beach ridges. There are no emergent flooded wetlands along the fringes of these estuarine waterbodies.	0.80
Permaner	Permanently Flooded Lake or Pond	Occurs in depressional features throughout the study area. Mapped as Cowardin wetland types PUBH and L1UBH, these open water features consist of shallow to deep open water in a variety of sizes. Several of the larger lakes have well-developed lacustrine fringe wetlands.	94.14
Lower Pe	Lower Perennial River	Sadie Creek, June Creek, and their tributaries generally flow east to west through the study area. Mapped as Coward wetland types R2UBH and R2USA. Lower Perennial Rivers include both flowing waters and unconsolidated shores, and are generally low gradient, low velocity systems connecting to Kotzebue Sound.	15.47
Littoral A	Littoral Aquatic Bed and Lacustrine Fringe	Describes a series of lacustrine fringe wetland types at the edge of Permanently Flooded Lakes or Ponds, including those dominated by plants growing on or below the water surface. Mapped as Cowardin wetland types L2UB3H, L2AB3H, PAB3H, PEM1H, PEM1F, and PEM1E. Communities are dominated by obligate wetland emergent plants such as <i>Carex aquatilis</i> , <i>C. rotundata</i> , and <i>Eriophorum</i> <i>scheuchzeri</i> ; floating <i>Sphagnum</i> spp. mats; and/or <i>Potamageton</i> spp. Surface water is present throughout.	17.99
Permaner	Permanently Flooded Sedge Marsh	Occurs in drainages and depressions throughout the study area, frequently occupying low areas in drained lake basins. Mapped as Cowardin wetland types PEM1F and PEM1H. Communities are dominated by wetland emergent plants such as <i>Comarum palustre</i> , <i>Carex aquatilis, Caltha palustris, Eriophorum angustifolium</i> , and <i>Eriophorum scheuchzeri</i> .	9.93

Table 2. Continued.		
Wetland Functional Class	Description	Area (acres)
Semi-Permanently Flooded Sedge-Shrub Meadow	Occurs in wet portions of drained lake basins. Microtopography ranges from non-patterned to low-center low relief polygons where shrubby plant community components occupy the raised micro-sites. Mapped as Cowardin wetland types PEM1/SS1F, PEM1F, and PEM1H. Dominated by obligate wetland species <i>Carex chordorrhiza</i> , <i>C.</i> <i>rotundata</i> , and <i>Eriophorum scheuchzeri</i> with scattered aquatic plant <i>Utricularia macrorhiza</i> . Dwarf shrubs on microtopographic high points include <i>Betula nana</i> , <i>Vaccinium uliginosum</i> , and <i>Chamaedaphne calyculata</i> .	322.07
Seasonally Flooded Saturated Sedge-Shrub Meadow	Occurs in wet portions of drained lake basins or bordering drainageways and riverine corridors, intermediate between Semi- Permanently Flooded Sedge–Shrub Meadow and Saturated Emergent Sedge–Shrub Meadow. The microtopography is most commonly patterned ranging from peat mounds to high center-low relief polygons. Mapped as Cowardin wetland types PEM1E and PEM1/SS1E. Typically dominated by emergents <i>Carex aquatilis</i> , <i>C.</i> <i>chordorrhiza</i> , <i>C. rotundata</i> , <i>Eriophorum angustifolium</i> , and <i>E.</i> <i>scheuchzeri</i> . Dwarf shrubs on micro-topographic high points include <i>Vaccinium uliginosum</i> , <i>Betula nana</i> , and <i>Salix fuscescens</i> .	756.74
Seasonally Flooded Saturated Low and Tall Deciduous Shrub	Occurs in drainageways and depressions adjacent to streams and lakes. Mapped as Cowardin wetland types PSS1C and PSS1E. Dominated by <i>Salix pulchra</i> and <i>Salix richardsonii</i> low and tall shrubs.	36.8
Saturated Emergent Sedge-Shrub Meadow	Occurs in level to gently sloping areas throughout the study area, frequently with tussocks and/or polygonal features. Mapped as Cowardin wetland types PSS1B, PEM1B, PSS3/EM1B, PSS1/EM1B, PSS1/EM1B, PSS1/EM1B, PSS1/EM1B, PSS1/EM1B, Cowardin with the statement of the statement o	1319.54

Wetland Functional Class	Description	Area (acres)
Saturated Dwarf Shrub Tundra	Occurs adjacent to riparian areas and collapse ponds, and in drier portions of drained lake basins. Mapped as Cowardin wetland types PSS1B, PSS4B, PSS1/3B. Typical dominant species include the dwarf shrubs <i>Arctostaphylos alpina</i> , <i>Betula nana</i> , <i>Empetrum nigrum</i> , <i>Salix fuscescens</i> , and the emergents <i>Eriophorum vaginatum</i> and <i>Carex aquatilis</i> .	45.70
Saturated Birch-Ericaceous Scrub Tundra	Occurs on level to sloping terrain, primarily in the northern portion of the study area in non-patterned areas. Mapped as Cowardin wetland types PSS1B, PSS3B, PSS3/1B. Typical dominant species include the low shrubs <i>Betula nana</i> , <i>Ledum decumbens</i> , <i>Vaccinium</i> <i>uliginosum</i> , and <i>V. vitis-idaea</i> with the emergents <i>Carex bigelowii</i> , <i>Eriophorum vaginatum</i> , and <i>Rubus chamaemorus</i> .	349.33
Saturated Low and Tall Deciduous Shrub	Occurs more frequently in the northern portion of the study area along level to steeply sloping areas, and adjacent to Permanently Flooded Lakes or Ponds. Mapped as Cowardin wetland type PSS1B. Commonly dominated by low or tall <i>Salix pulchra</i> and <i>S.</i> <i>richardsonii</i> , or <i>Alnus viridis</i> ssp. <i>crispa</i> .	358.14

Table 2. Continued.

Table 3.Relative functional rankings and caCape Blossom Road, Alaska, 2012.	ional rank 1 Road, Ali		gorization fo	or Wetland Fi	unctional Cl	lasses identi	fied along t	he proposed	categorization for Wetland Functional Classes identified along the proposed Kotzebue to 12.
Wetland Functional Class	Category	Flood Flow Regulation	Sediment/ Nutrient/ Toxicant Removal	Erosion Control and Shoreline Stabilization	Organic Matter Production and Export	General Habitat Suitability	Fish Habitat	Native Plant Richness	Education/ Science/Rec/ Subsistence Use
Seasonal Tidal Estuary	П	N/A	N/A	N/A	Low	Moderate	High	N/A	High
Permanently Flooded Lake or Pond	Π	High	Moderate	N/A	Low	Moderate	High	N/A	High
Lower Perennial River	III	N/A	Low	N/A	Low	Moderate	High	N/A	Moderate
Littoral Aquatic Bed and Lacustrine Fringe	Π	High	Moderate	High	Moderate	Moderate	High	Moderate	Moderate
Permanently Flooded Sedge Marsh	Π	High	Moderate	High	Moderate	Moderate	Moderate	Moderate	Moderate
Semi-Permanently Flooded Sedge-Shrub Meadow	Π	High	Moderate	N/A	High	High	N/A	Moderate	Moderate
Seasonally Flooded Saturated Sedge–Shrub Meadow	П	High	Moderate	High	High	High	N/A	Moderate	Moderate
Seasonally Flooded Saturated Low and Tall Deciduous Shrub	Ш	Moderate	Moderate	High	Moderate	Moderate	N/A	Low	Moderate
Saturated Emergent Sedge– Shrub Meadow	III	Low	Low	N/A	N/A	High	N/A	Moderate	High
Saturated Dwarf Shrub Tundra	III	Low	Low	N/A	N/A	High	N/A	Moderate	High
Saturated Birch-Ericaceous Scrub Tundra	III	Low	Low	N/A	N/A	High	N/A	Moderate	High
Saturated Low and Tall Deciduous Shrub	Ш	Low	Moderate	High	N/A	Moderate	N/A	Low	High

y					
stud		Gravel Fill (15.66)			
ad s		(87:5)			
n Ro		Tall Alder Scrub			
lossor		Low Birch-Ericaceous Scrub (349.33)			
Cape H		Low and Tall Willow Scrub (395.92)			
bue to	es)	Woist Sedge-Shrub Meadow (1355.10)		×	×
Kotze s). ^a	Wildlife Habitat (acres)	Moist Dwarf Shrub Tundra (45.70)		×	×
the proposed H for a species)	llife Hat	Wet Sedge–Shrub Meadow (1052.88)		×	×
the pro t for a	Wild	Sedge Marsh (3.94)		×	×
cur in portan		Littoral Aquatic Bed and Lacustrine Fringe (15.29)		×	×
ly to oc red im		Freshwater Lake or Pond (94.14)		×	×
als like conside		Rivers and Streams (15.47)		×	×
namma abitat e		Coastal Beach and Waters (0.80)			×
nmon birds and mammals likely to occur in the proposed Kotzebue to Cape Blossom Road study cates a wildlife habitat considered important for a species). ^a				suo.	umbianus
ent for con 12 (× indic				Anser albifi	Cygnus columbianus
Habitat assessment for common area, Alaska, 2012 (× indicates				Greater White-fronted Goose Anser albifrons	wan
Table 4.			BIRDS	Greater V	Tundra Swan

Greater White-fronted GoosAnser albifrons \times \times \times \times \times \times \times \times Tundra SwanCygnus columbianus \times \times \times \times \times \times \times \times American WigeonAnas americana \times \times \times \times \times \times \times \times Northern ShovelerAnas americana \times \times \times \times \times \times \times \times Northern PintailAnas chana \times \times \times \times \times \times \times \times Northern PintailAnas chana \times \times \times \times \times \times \times \times Northern PintailAnas chana \times \times \times \times \times \times \times \times Northern PintailAnas chana \times \times \times \times \times \times \times \times Northern PintailAnas chana \times \times \times \times \times \times \times \times Green-winged TealAnas creaca \times \times \times \times \times \times \times \times Green-winged TealSomateria mollissima \times \times \times \times \times \times \times \times \times Common EiderSomateria mollissima \times Long-tailed DuckCamparated Merganserator \times \times \times \times \times \times \times \times \times <th></th> <th>×</th> <th></th> <th></th> <th></th>											×			
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Continued.
Table 4.

Wildlife Habitat (acres)

(99.21)				×											×	×	
(3.28) Gfavel Fill				^											^	^	
Tall Alder Scrub																	
Low Birch–Ericaceous Scrub (349.33)	×					×											
Low and Tall Willow Scrub (29.592)																	
woist Sedge–Shrub Meadow (11355.10)	×	×	×	×	×	×	×	×	×	×							
Riomart durd? TrawG trioM (07.24)	×	×	×	×	×	×	×	×	×	×							
Wet Sedge–Shrub Meadow (1052.88)	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Sedge Marsh (3.94)	×	×			×	×	×	×	×	×	×	×	×	×	×	×	×
Littoral Aquatic Bed and Lacustrine Fringe (15.29)	×	×			×	×	×	×	×	×	×	×	×	×	×	×	×
Freshwater Lake or Pond (94.14)															×	×	×
Rivers and Streams (74.21)				×											×	×	×
Coastal Beach and Waters (0.80)				×		×	×	×	×	×	×	×	×	×	×	×	×
				SI			1					m					
			a	Charadrius semipalmatus	sne	n	sephala			SC		lopaceus	180	SH		SI	а
	eus	ensis	minic	semip	haeop	onica	lanoc	illa	uri	anote	ina	NS SCO	allina	lobat		boreı	disaeı
	cyan	anade	lis do	lrius	ius p	ı lapp	ia me	is pus	is ma	is mel	is alp	lrom	180 81	sndo.	canus	hyper	para
	Circus cyaneus	Grus canadensis	Pluvialis dominica	harac	Numenius phaeopus	Limosa lapponica	Arenaria melanoco	Calidris pusilla	Calidris mauri	Calidris melanotos	Calidris alpina	Limnodromus scol	Gallinago gallinag	Phalaropus lobatu	Larus canus	Larus hyperboreus	Sterna paradisaea
	0	9	Ρ	0	Z	Γ	Α	0	0	0	0	Γ	9	Р	Γ	Γ	S
			ver					per				ц		0			
	<u>ب</u>		American Golden-Plover	lover		ήt	•	Semipalmated Sandpiper	per	Jer		Long-billed Dowitcher		Red-necked Phalarope			
	Northern Harrier	rane	Golde	Semipalmated Plover		Bar-tailed Godwit	Black Turnstone	tted S	Western Sandpiper	Pectoral Sandpiper		d Dov	nipe	d Pha		Gull	Ę
	iern F	Sandhill Crane	rican	palmi	Whimbrel	ailed	k Turr	palm£	ern Si	ıral Sí	.u	-bille	Wilson's Snipe	necke	Gull	Glaucous Gull	Arctic Tern
	Nort	Sand	Ame	Semi	Whir	Bar-t	Black	Semi	West	Pectc	Dunlin	Long	Wilso	Red-i	Mew Gull	Glau	Arcti

	Gravel Fill (15.66)			×												
	Tall Alder Scrub (3.28)						×		×	×	×		×	×		×
	Low Birch–Ericaceous Scrub (349.33)			×	×	×	×	×	×	×	×		×	×		×
	Low and Tall Willow Scrub (29.292)						×		×	×	×		×	×		×
cres)	Moist Sedge–Shrub Meadow (1355.10)	×	×	×	×	×		×					×	×	×	×
Wildlife Habitat (acres)	Moist Dwarf Shrub Tundra (45.70)	×	×	×	×	×		×	×				×	×	×	×
lldlife H	Wet Sedge–Shrub Meadow (1052.88)	×	×	×	×	×		×					×	×	×	×
Wi	Sedge Marsh (3.94)													×	×	×
	Littoral Aquatic Bed and Lacustrine Fringe (15.29)													×		×
	Freshwater Lake or Pond (94.14)															×
	Rivers and Streams (15.47)			×												
	Coastal Beach and Waters (0.80)	×	×	×										×		
		Stercorarius parasiticus	Stercorarius longicaudus	Corvus corax	Motacilla tschutschensis	Calcarius lapponicus	Spizella arborea	Passerculus sandwichensis	Zonotrichia leucophrys	Carduelis flammea	Carduelis hornemanni		Spermophilus parryii	Ursus arctos	Rangifer tarandus	Alces alces
		Parasitic Jaeger	Long-tailed Jaeger	Common Raven	Eastern Yellow Wagtail	Lapland Longspur	American Tree Sparrow	Savannah Sparrow	White-crowned Sparrow	Common Redpoll	Hoary Redpoll	MAMMALS	Arctic Ground Squirrel	Brown (grizzly) Bear	Caribou	Moose

Continued.	
Table 4.	

								,					
		Coastal Beach and Waters (0.80)	Rivers and Streams (15.47)	Freshwater Lake or Pond (94.14)	Littoral Aquatic Bed and Lacustrine Fringe (15.29)	Sedge Marsh (3.94)	Wet Sedge–Shrub Meadow (1052.88)	Moist Dwarf Shrub Tundra (45.70)	woist Sedge–Shrub Meadow (01.335.10)	UrroZ wolliW llßT bas woL (29.292)	Low Birch-Ericaceous Scrub (349.33)	Tall Alder Scrub (3.28)	Gravel Fill (15.66)
$Polar Bear^{c}$	Ursus maritimus	×	×	×	×	×	×	×	×	×	×	×	×
Red Fox	Vulpes vulpes				×	×	×	×	×	×	×	×	×
Snowshoe Hare	Lepus americanus						×	×	×	×	×	×	
Tundra Hare	Lepus othus						×	×	×	×	×	×	

(Armstrong 1995, Schröeder 1996. Cook and MacDonald 2006, ADOT 2011). ^b The Yellow-billed Loon is a candidate species for listing as threatened or endangered under the U.S. Endangered Species Act. ^c The polar bear is a threatened species under the U.S. Endangered Species Act. The marine habitats surrounding the study area are designated critical habitat for this species. Potential use of terrestrial habitat is seasonal; limited to winter and spring.

					Gear Typ	be by Date		
Site	Latitude	Longitude	26 Jul	27 Jul	28 Jul	11 Aug	12 Aug	13 Aug
MS1	N66.81470	W162.51610			S			S
NF1	N66.81918	W162.48747	F	F, M	F, M	М		
NF2	N66.82193	W162.46741			М			
NF3	N66.82135	W162.48117				F	F	F
SF1	N66.81818	W162.48817	F	F, M	F, M	М		
SF2	N66.82412	W162.41506						F
TR1	N66.80969	W162.43021		M, S				
TR2	N66.86499	W162.41172				F	F	
TR3	N66.84338	W162.41017						Μ

Table 5.Site locations, sampling dates, and gear types deployed in Sadie Creek and its
tributaries near Kotzebue, Alaska, 26–28 July and 11–13 August 2012. (F = fyke net,
M = minnow trap, S = seine).

	-	erature °C)	F	оН		d Oxygen %)	1	onductance cm ⁻¹)
Site	July	August	July	August	July	August	July	August
MS1	12.1	16.5	7.1	6.3	98.1	84.3	461.1	255.7
NF1	11		7		82.8		420.6	
NF3		14		6.1		66.2		92.5
SF1	12		7.1		84.9		597.7	
SF2		14.3		6		91.2		68.1
TR1	10.6		6.7		66.7		964	
TR2		14.5		6.2		83.3		59.2
TR3		14.1		6		79.4		77.6

Table 6.Ambient water chemistry by site in Sadie Creek and its tributaries near Kotzebue,
Alaska, 26–28 July and 11–13 August 2012.

Species	Scientific name	July	August
Ninespine stickleback	Pungitius pungitius	299	888
Threespine stickleback	Gasterosteus aculeatus	4	4
Broad whitefish	Coregonus nasus		12
Humpback whitefish	Coregonus clupeafomis	3	10
Unidentified juvenile whitefish	Coregonus spp.		33
Least cisco	Coregonus sardinella		4
Northern pike	Esox lucius	1	37
Alaska blackfish	Dallia pectoralis		4

Table 7.Total catch by fish species in Sadie Creek and its tributaries near Kotzebue, Alaska,
26–28 July and 11–13 August 2012.

Table 8.Total catch by fish species and2012.	fish sp	ecies a		e in Sac	lie Cr	eek an	d its tı	ibutari	es near K	site in Sadie Creek and its tributaries near Kotzebue, Alaska, 26–28 July and 11–13 August	aska, 26–28	s July and	[11–	13 Au{	gust
	A	MS1	NF1	1	NF2	72	Z	NF3	SF1	SF2	TR1	TR2		TR3	~
Species	July	Aug	July	Aug	July	Aug	July	Aug	July Aug	July Aug	July Aug	July At	gu	July /	Aug
Ninespine stickleback	27	27 90 23	230	1	-			112	12 543	20	29			1	122
Threespine stickleback			Ч					4	3						
Broad whitefish								12							
Humpback whitefish			5					10	-						
Unknown juvenile whitefish								26		L					
Least cisco								4							
Northern pike								6	1	19			7		7
Alaska blackfish								-							ю

nd site in Sadie Creek and its tributaries near Kotzebue, Alaska, 26–28 July and 11–13 August	
ska, 26–28 July a	
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its tributaries nea	
Sadie Creek and	
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Total catch by fish sp 2012.	
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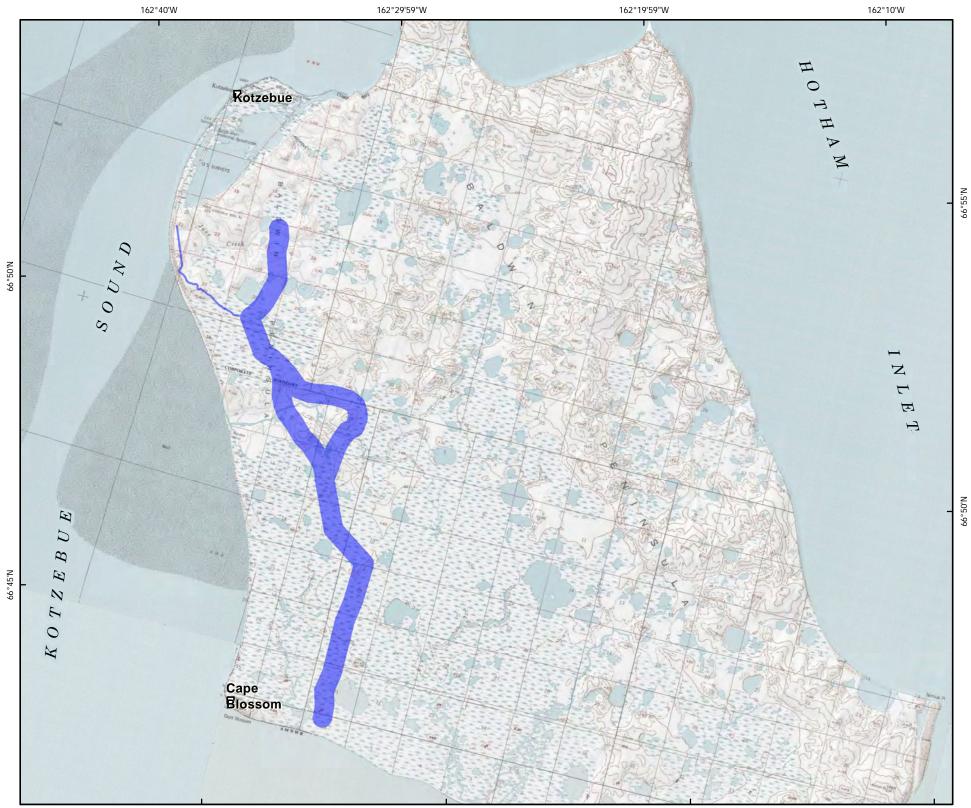
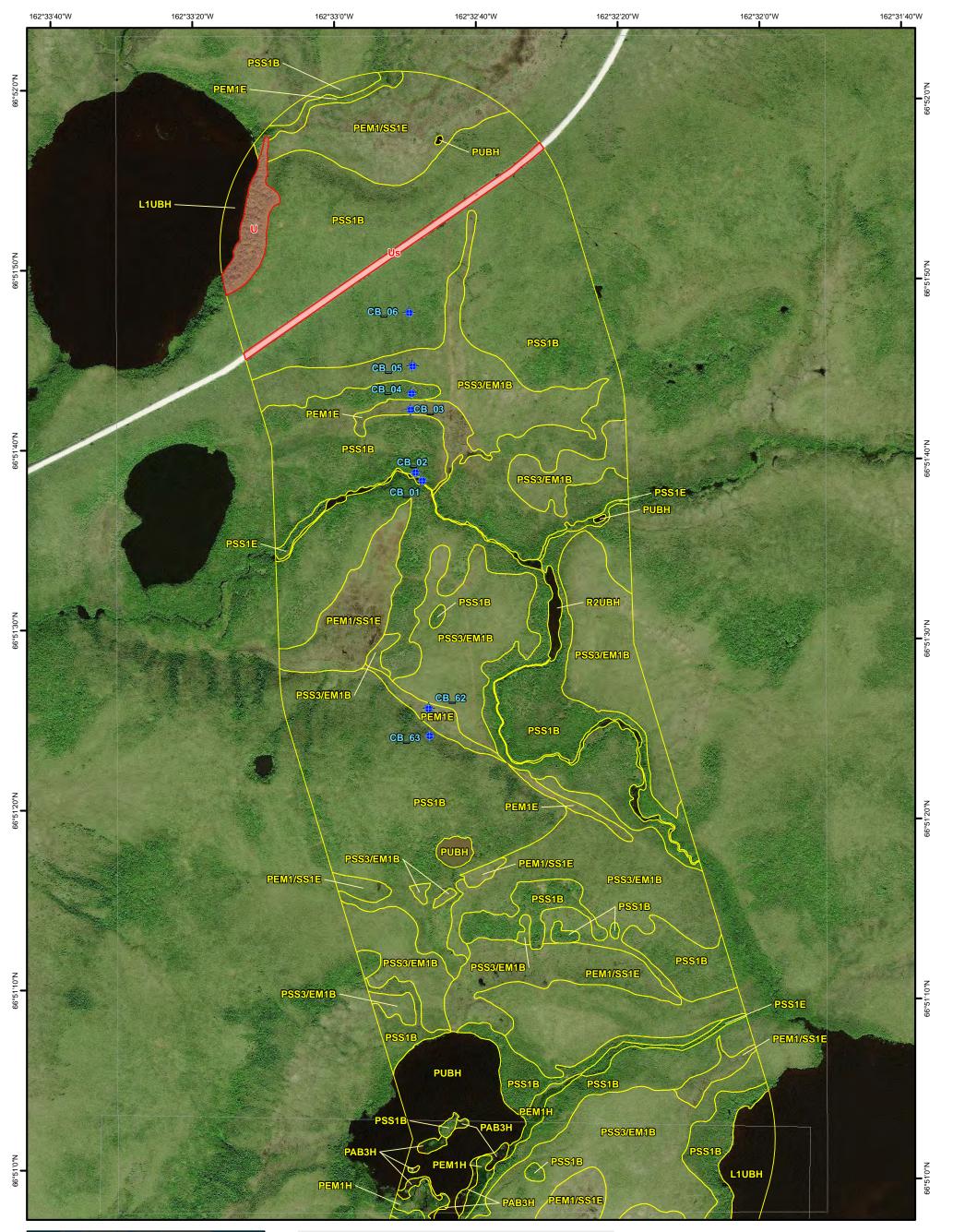


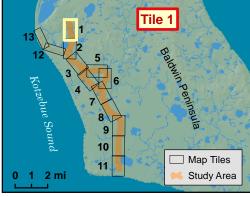
Figure 2 Map Legend

NWI Code	Description
Non-Navigable Waters	
E1UBH	Permanently Flooded Subtidal Estuarine
R2UBH	Lower Perennial River
R2USA	Lower Perennial Unconsolidated Shore
L1UBH	Permanently Flooded Lakes
PUBH	Permanently Flooded Ponds
Wetlands	
L2UB3H	Lacustrine Littoral Unconsolidated Bottom
L2AB3H	Lacustrine Permanently Flooded Aquatic Bed
PAB3H	Palustrine Permanently Flooded Aquatic Bed
PEM1H	Permanently Flooded Persistent Emergent



¹ Follows National Wetlar	nds Inventory (NWI) map conventions and Cowardin et al. (1979) classification system.	26 November 2012 CapeBlossom_Wetlands_SA_12-211.mxd
Us	Upland (Fill)	Map prepared by: ABR Inc.—Environmental Research & Services
U	Upland	
Uplands		Road Project Area and Figure 2 Map Legend
PSS4B	Saturated Needleleaf Evergreen Shrub	Kotzebue to Cape Blossom
PSS3B	Saturated Broadleaf Evergreen Shrub	Figure 1.
PSS3/1B	Saturated Broadleaf Evergreen / Broadleaf Deciduous Shrub	
PSS1/3B	Saturated Broadleaf Deciduous / Broadleaf Evergreen Shrub	
PSS1B	Saturated Broadleaf Deciduous Shrub	0 1 2 3 Miles
PSS1C	Seasonally Flooded Broadleaf Deciduous Shrub	Kilometers
PSS1E	Seasonally Flooded-Saturated Broadleaf Decidous Shrub	0 1 2 3 4
PSS3/EM1B	Saturated Broadleaf Evergreen Shrub / Persistent Emergent	
PSS1/EM1B	Saturated Broadleaf Deciduous Shrub / Persistent Emergent	Cape Diosson Study Area
PEM1/SS3B	Saturated Persistent Emergent / Broadleaf Evergreen Shrub	Cape Blossom Study Area
PEM1/SS1B	Saturated Persistent Emergent / Broadleaf Deciduous Shrub	
PEM1/SS1E	Seasonally Flooded – Saturated Persistent Emergent / Broadleaf Deciduous Shrub	
PEM1/SS1F	Semi-Permanently Flooded Persistent Emergent / Broadleaf Deciduous Shrub	
PEM1B	Saturated Persistent Emergent	
PEM1E	Seasonally Flooded-Saturated Persistent Emergent	
PEM1F	Semi-PermanentlyFlooded Persistent Emergent	

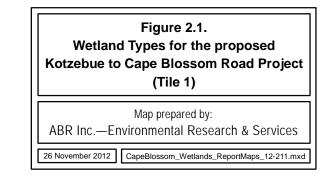


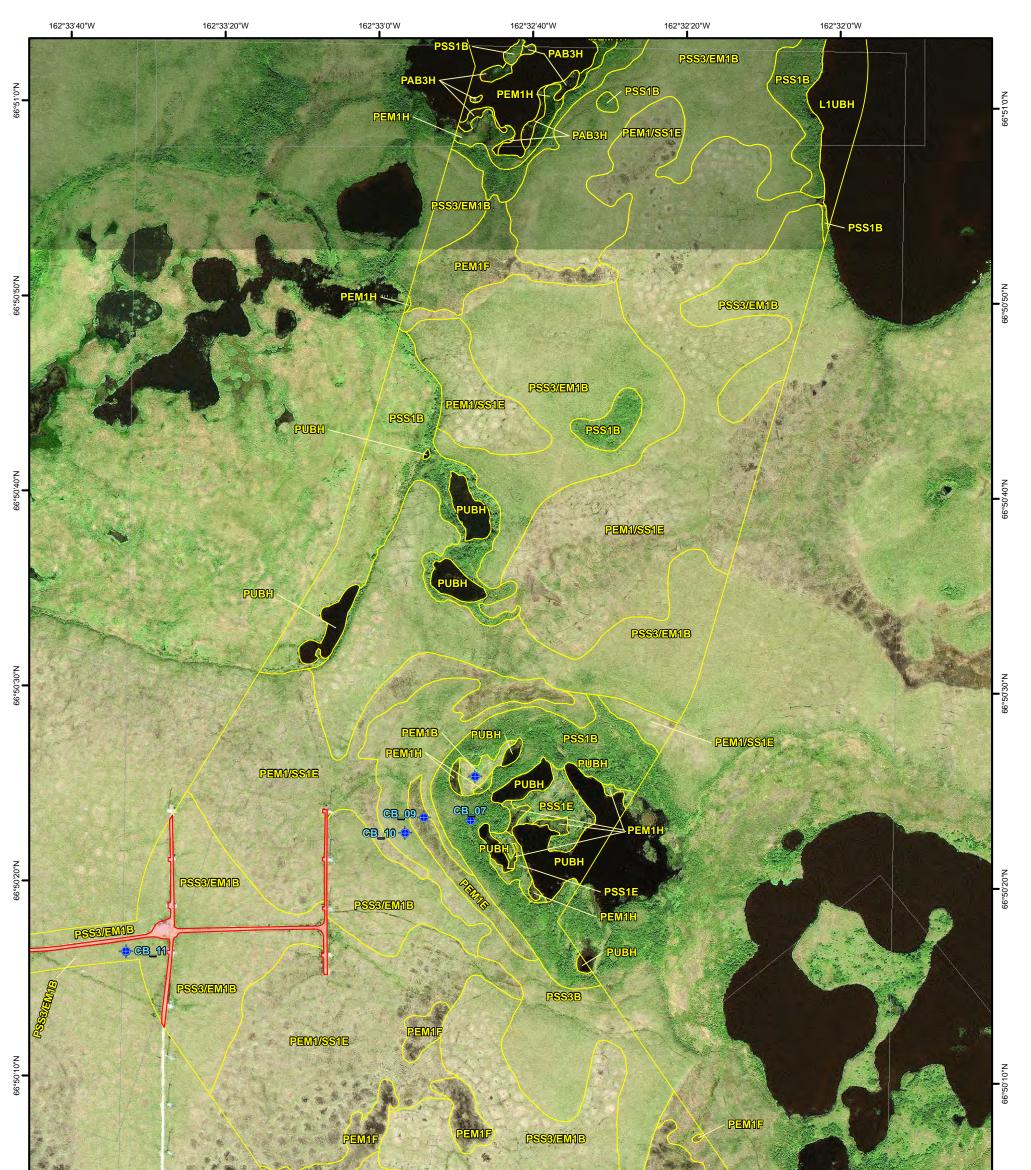




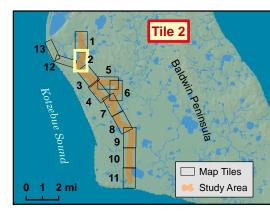
Notes: Mapping by ABR, Inc. within a 2000-ft corridor surrounding the centerline of the Proposed road alternatives. Orthophotography by DigitalGlobe, acquired August 2 and 4, 2010; pixel resolution 1.64 feet. Map projection: Alaska State Plane Zone 7, NAD 1983, U.S. feet. Map scale when printed at 11*x17* is 1:6,000 or 1*=500'.









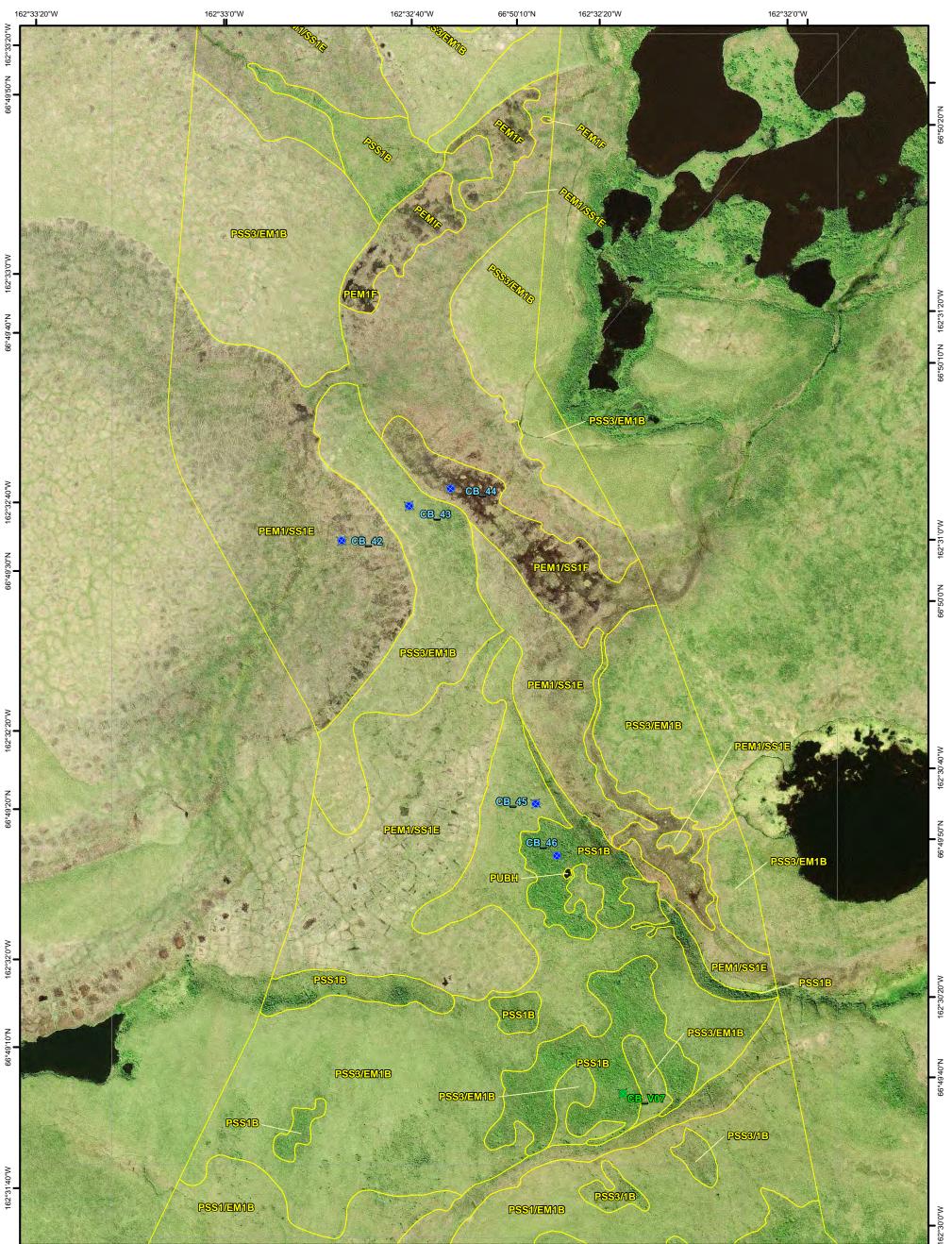


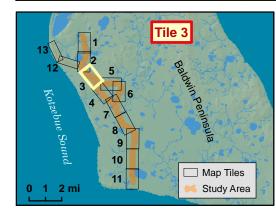


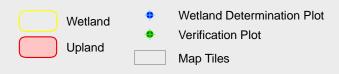
Notes: Mapping by ABR, Inc. within a 2000-ft corridor surrounding the centerline of the Proposed road alternatives. Orthophotography by DigitalGlobe, acquired August 2 and 4, 2010; pixel resolution 1.64 feet. Map projection: Alaska State Plane Zone 7, NAD 1983, U.S. feet. Map scale when printed at 11*x17" is 1:6,000 or 1*=500'.



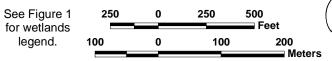
66°50'0"N

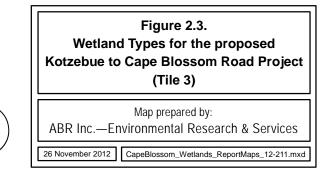




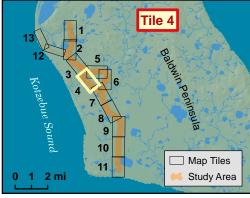


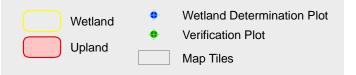
Notes: Mapping by ABR, Inc. within a 2000-ft corridor surrounding the centerline of the Proposed road alternatives. Orthophotography by DigitalGlobe, acquired August 2 and 4, 2010; pixel resolution 1.64 feet. Map projection: Alaska State Plane Zone 7, NAD 1983, U.S. feet. Map scale when printed at 11*x17" is 1:6,000 or 1*=500'.







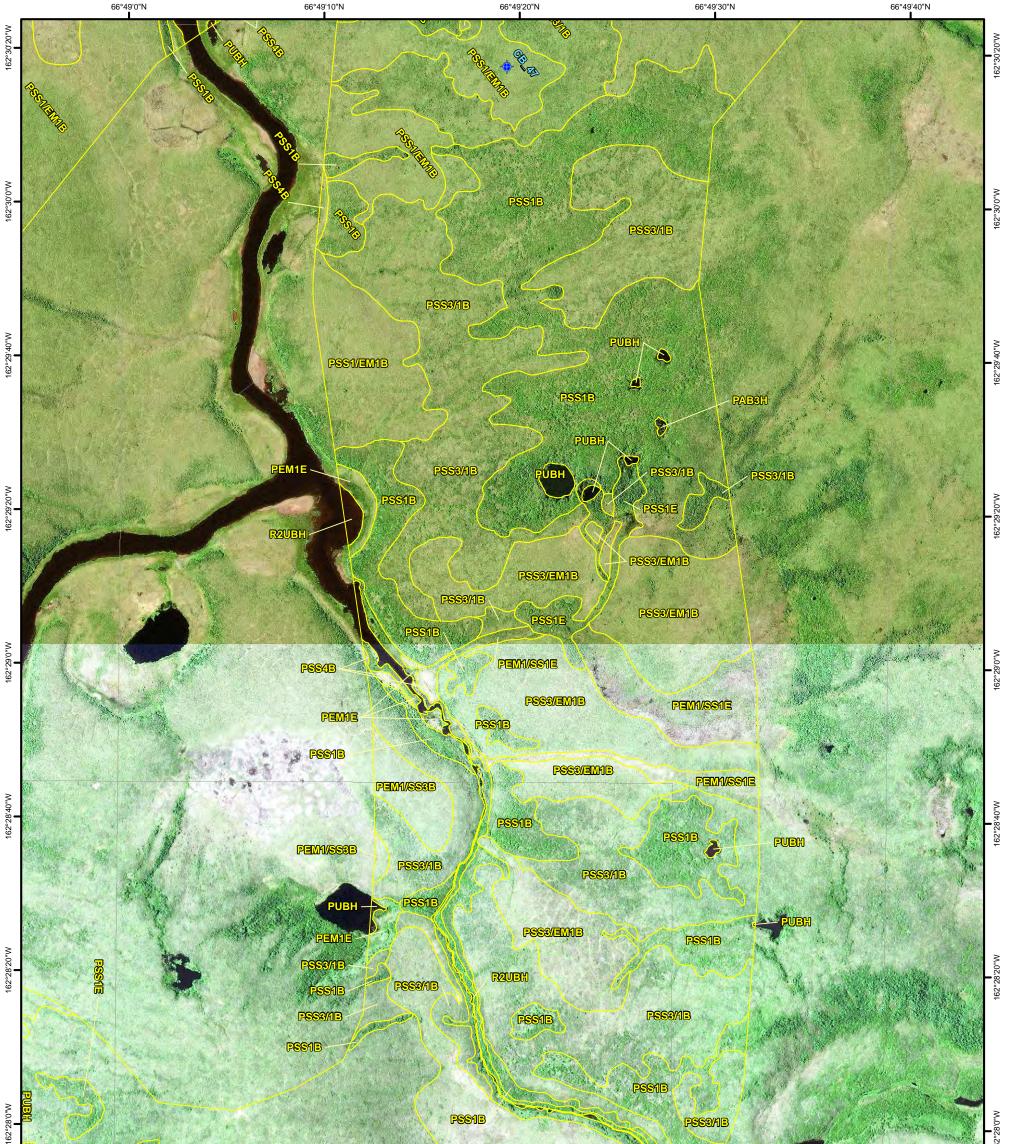




Notes: Mapping by ABR, Inc. within a 2000-ft corridor surrounding the centerline of the Proposed road alternatives. Orthophotography by DigitalGlobe, acquired August 2 and 4, 2010; pixel resolution 1.64 feet. Map projection: Alaska State Plane Zone 7, NAD 1983, U.S. feet. Map scale when printed at 11*x17" is 1:6,000 or 1*=500'.

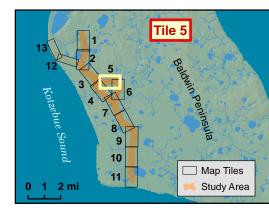


	Figure 2.4. Types for the proposed Cape Blossom Road Project (Tile 4)
ABR Inc.—Env	Map prepared by: rironmental Research & Services



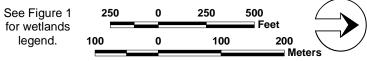
62°27'40"W

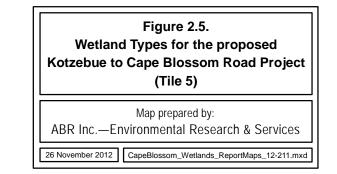


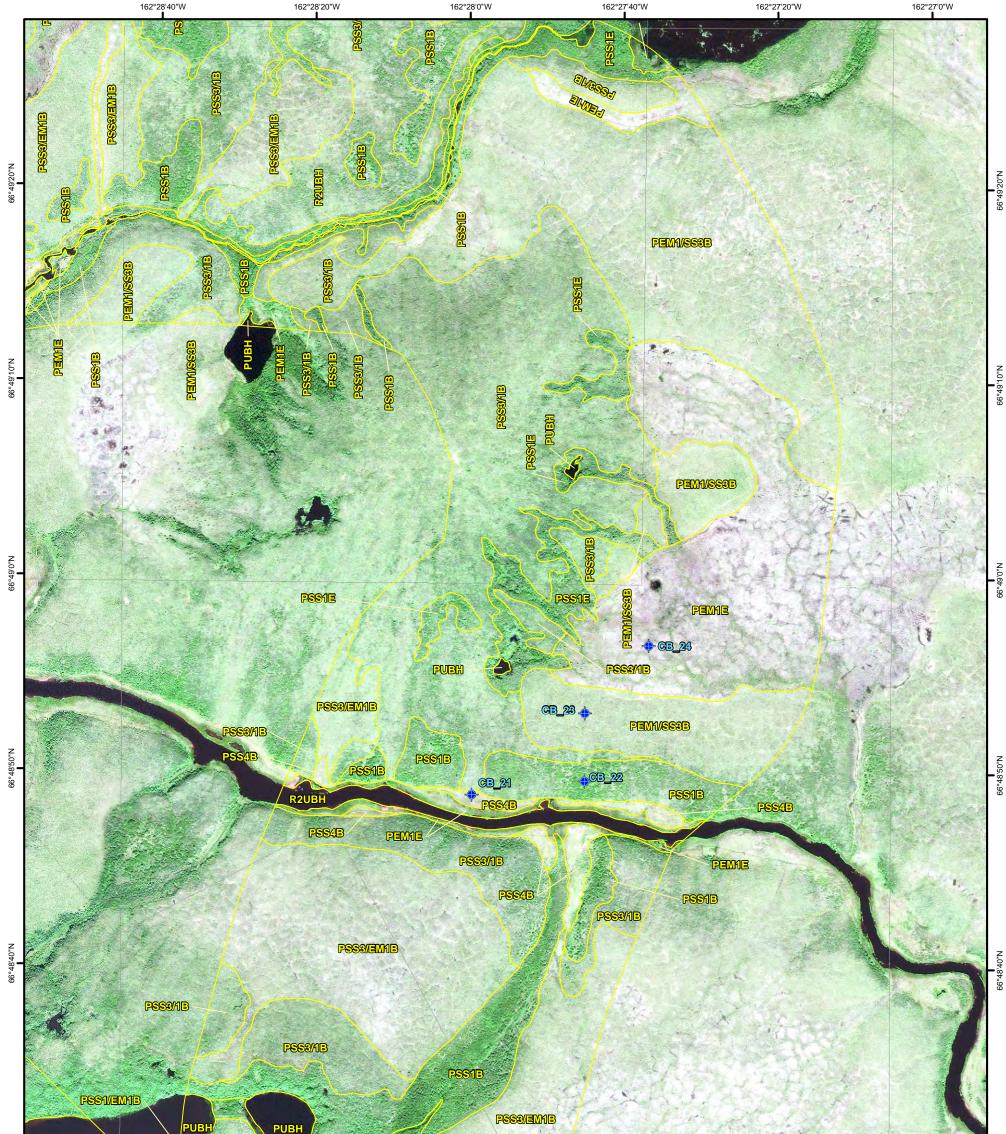




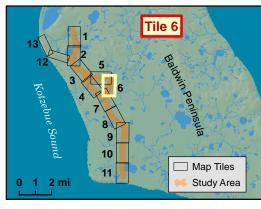
Notes: Mapping by ABR, Inc. within a 2000-ft corridor surrounding the centerline of the Proposed road alternatives. Orthophotography by DigitalGlobe, acquired August 2 and 4, 2010; pixel resolution 1.64 feet. Map projection: Alaska State Plane Zone 7, NAD 1983, U.S. feet. Map scale when printed at 11"x17" is 1:6,000 or 1"=500'.









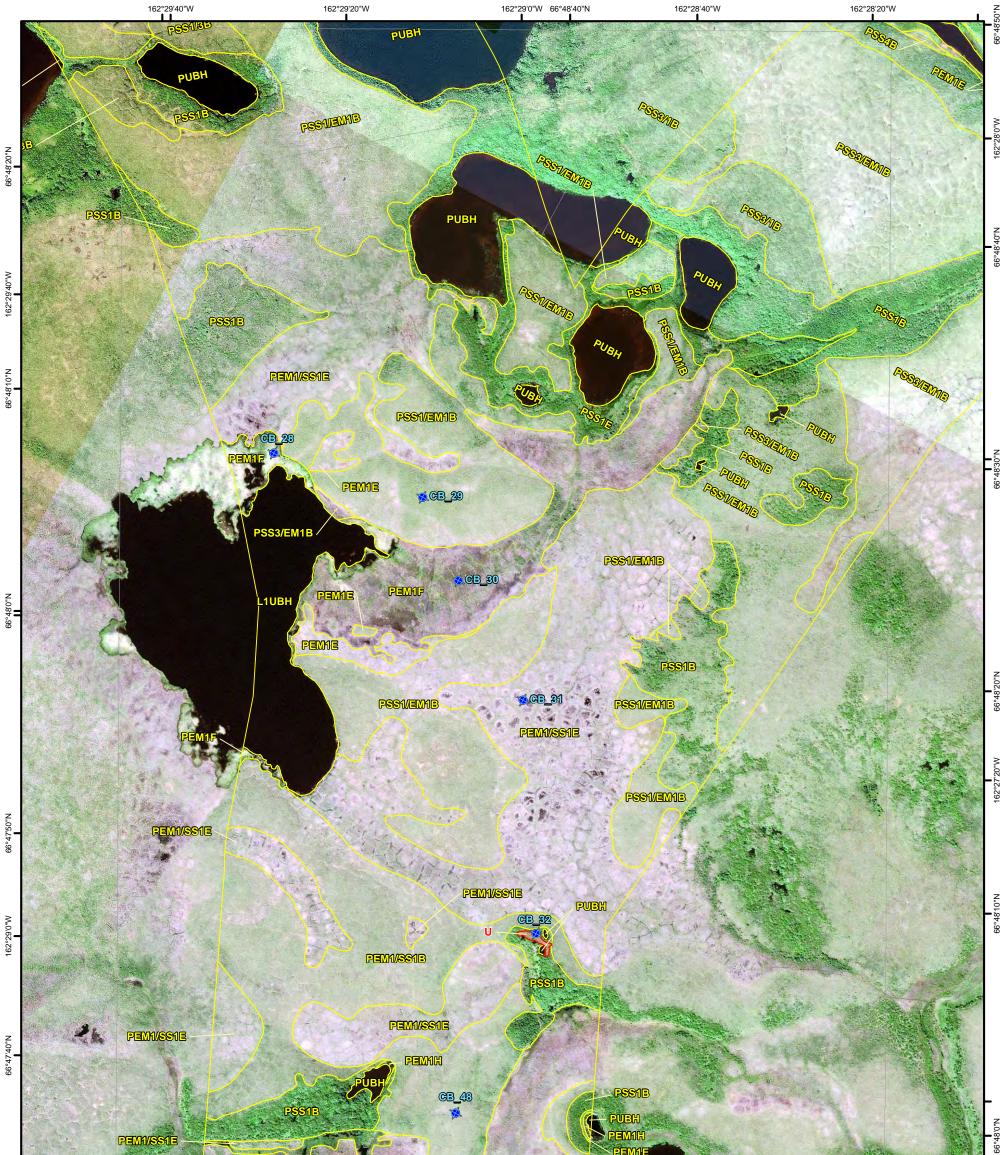




Notes: Mapping by ABR, Inc. within a 2000-ft corridor surrounding the centerline of the Proposed road alternatives. Orthophotography by DigitalGlobe, acquired August 2 and 4, 2010: pixel resolution 1.64 feet. Map projection: Alaska State Plane Zone 7, NAD 1983, U.S. feet. Map scale when printed at 11*x17" is 1:6,000 or 1"=500'.

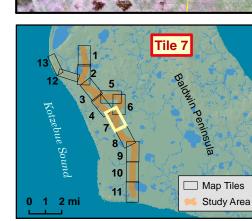


Figure 2.6. Wetland Types for the proposed Kotzebue to Cape Blossom Road Project (Tile 6)
Map prepared by: ABR Inc.—Environmental Research & Services
26 November 2012 CapeBlossom_Wetlands_ReportMaps_12-211.mxd



66°47'50"N







Notes: Mapping by ABR, Inc. within a 2000-ft corridor surrounding the centerline of the Proposed road alternatives. Orthophotography by DigitalGlobe, acquired August 2 and 4, 2010; pixel resolution 1.64 feet. Map projection: Alaska State Plane Zone 7, NAD 1983, U.S. feet. Map scale when printed at 11"x17" is 1:6,000 or 1"=500'.

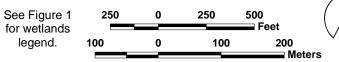
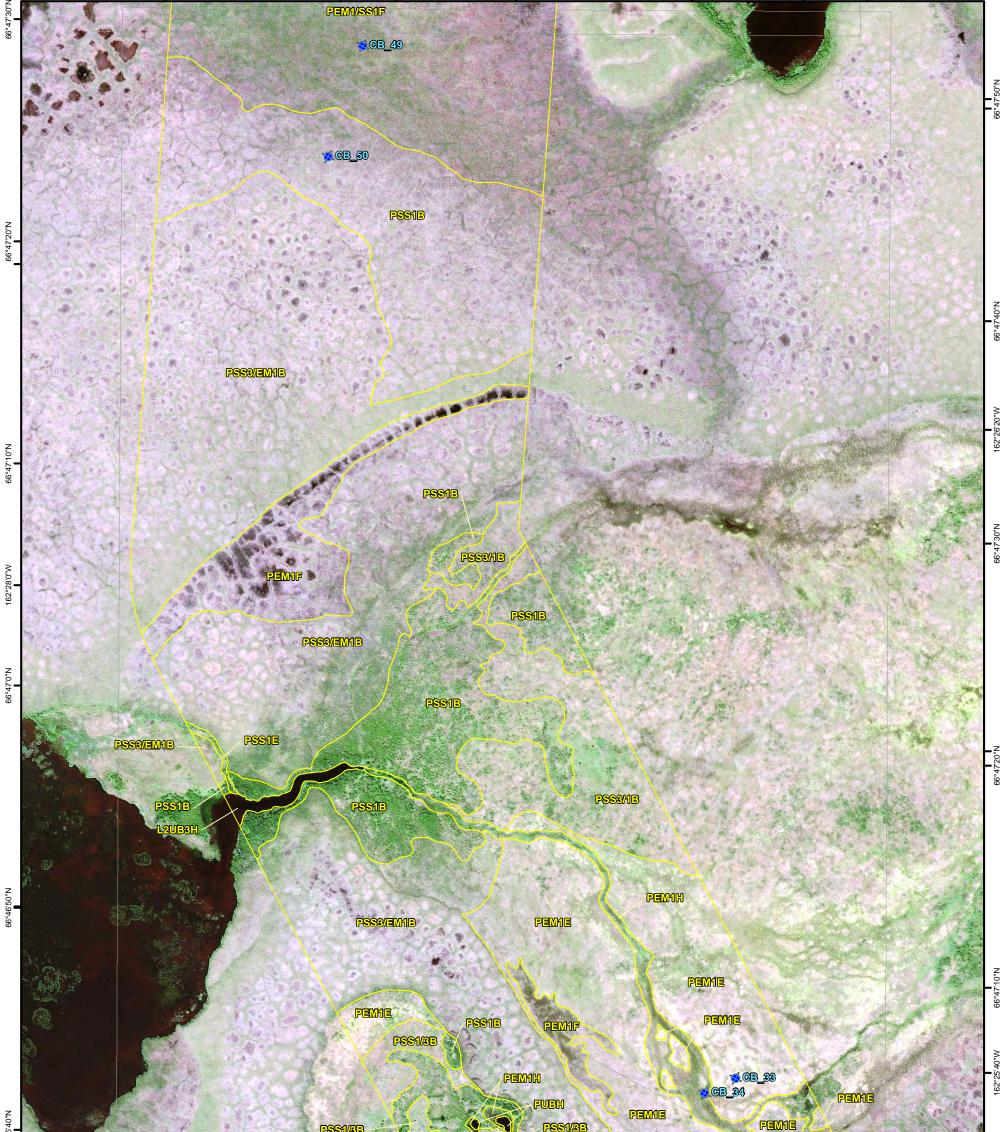
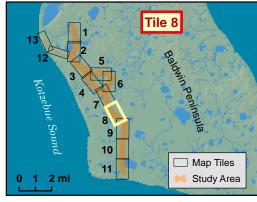


	Figure 2.7. Types for the proposed Cape Blossom Road Project (Tile 7)
ABR Inc.—Env	Map prepared by: /ironmental Research & Services
26 November 2012	CapeBlossom_Wetlands_ReportMaps_12-211.mxd





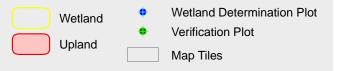


162°28'20"W ∎

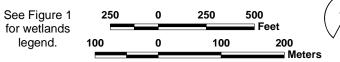
162°28'0"W

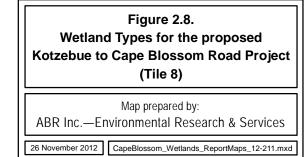
66°47'40"N

162°27'40"W



Notes: Mapping by ABR, Inc. within a 2000-ft corridor surrounding the centerline of the Proposed road alternatives. Orthophotography by DigitalGlobe, acquired August 2 and 4, 2010; pixel resolution 1.64 feet. Map projection: Alaska State Plane Zone 7, NAD 1983, U.S. feet. Map scale when printed at 11*x17" is 1:6,000 or 1*=500'.



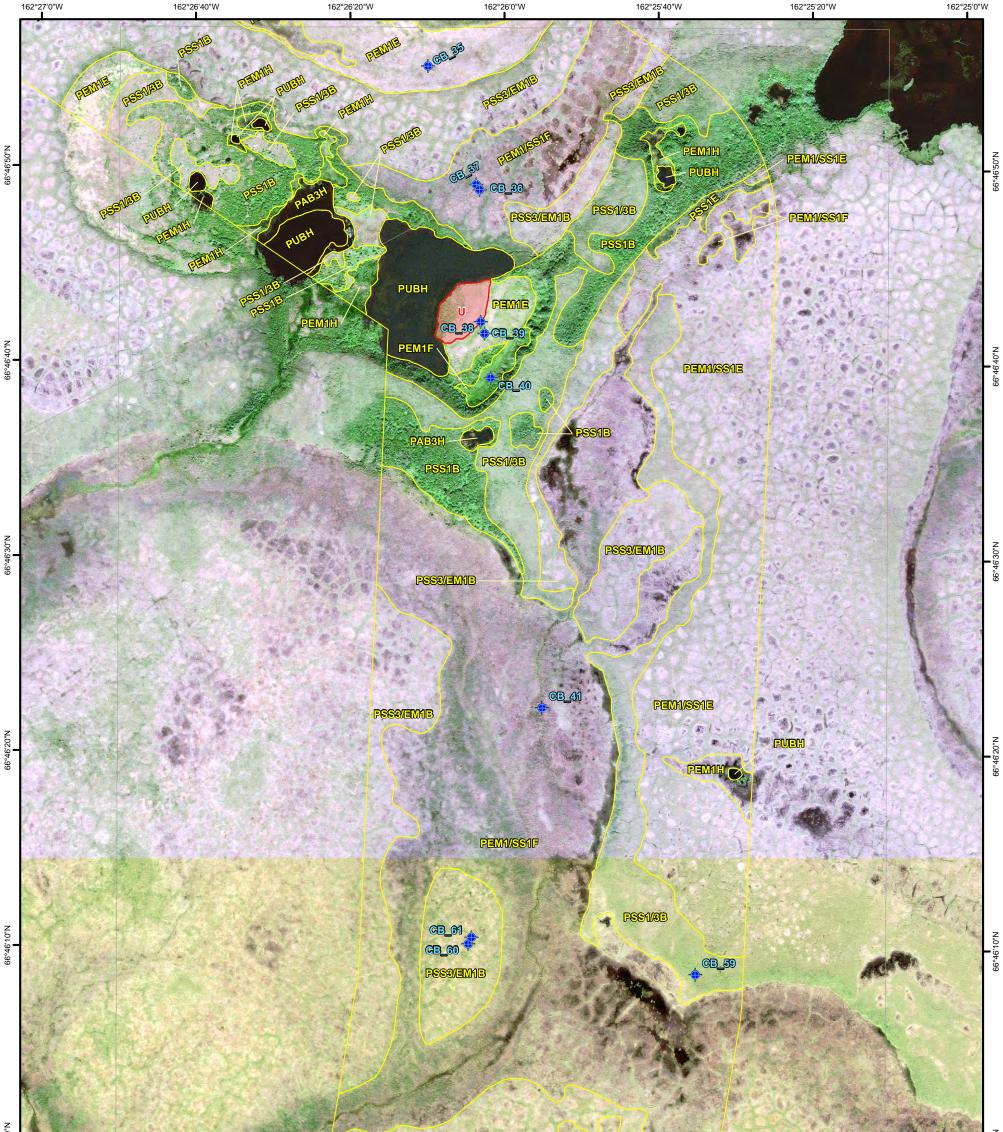


66°47'0"N

66°47'50"N

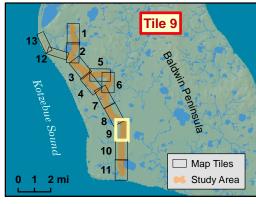
162°27'20"W

162°27'0"W



°46'0"N







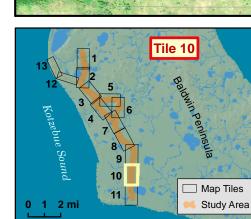
Notes: Mapping by ABR, Inc. within a 2000-ft corridor surrounding the centerline of the Proposed road alternatives. Orthophotography by DigitalGlobe, acquired August 2 and 4, 2010: pixel resolution 1.64 feet. Map projection: Alaska State Plane Zone 7, NAD 1983, U.S. feet. Map scale when printed at 11"x17" is 1:6,000 or 1"=500'.



	Figure 2.9. Types for the proposed Cape Blossom Road Project (Tile 9)
ABR Inc.—Env	Map prepared by: vironmental Research & Services





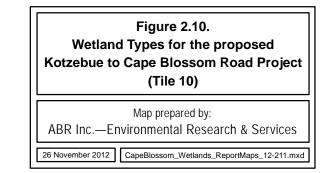


66°44'50"N



Notes: Mapping by ABR, Inc. within a 2000-ft corridor surrounding the centerline of the Proposed road alternatives. Orthophotography by DigitalGlobe, acquired August 2 and 4, 2010; pixel resolution 1.64 feet. Map projection: Alaska State Plane Zone 7, NAD 1983, U.S. feet. Map scale when printed at 11*x17" is 1:6,000 or 1"=500".

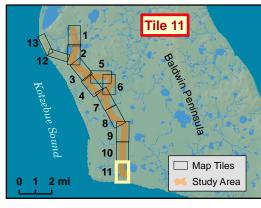




66°44'50"N







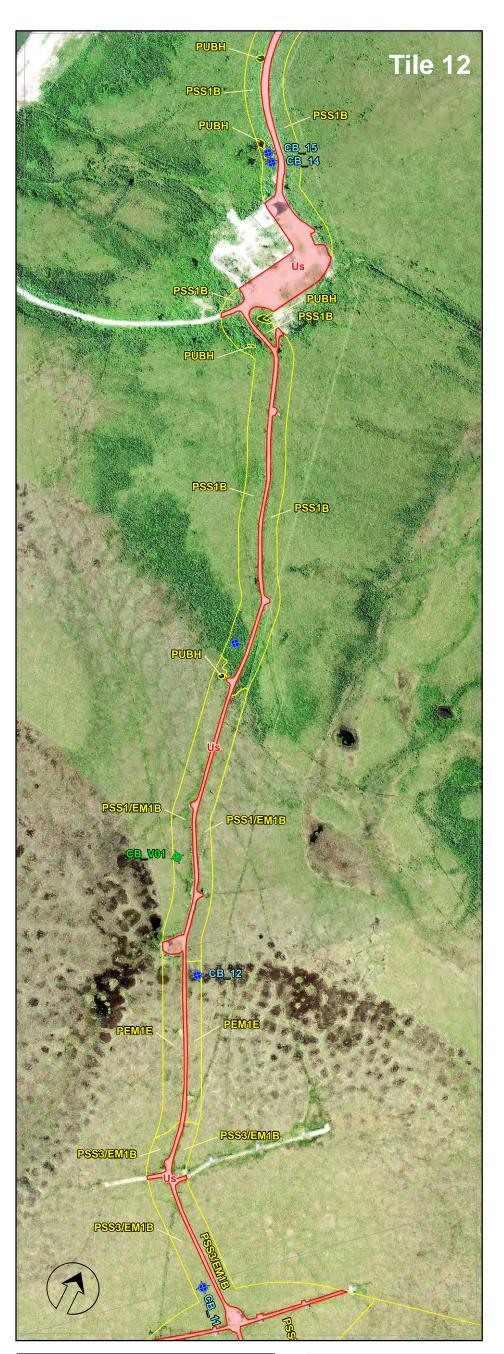


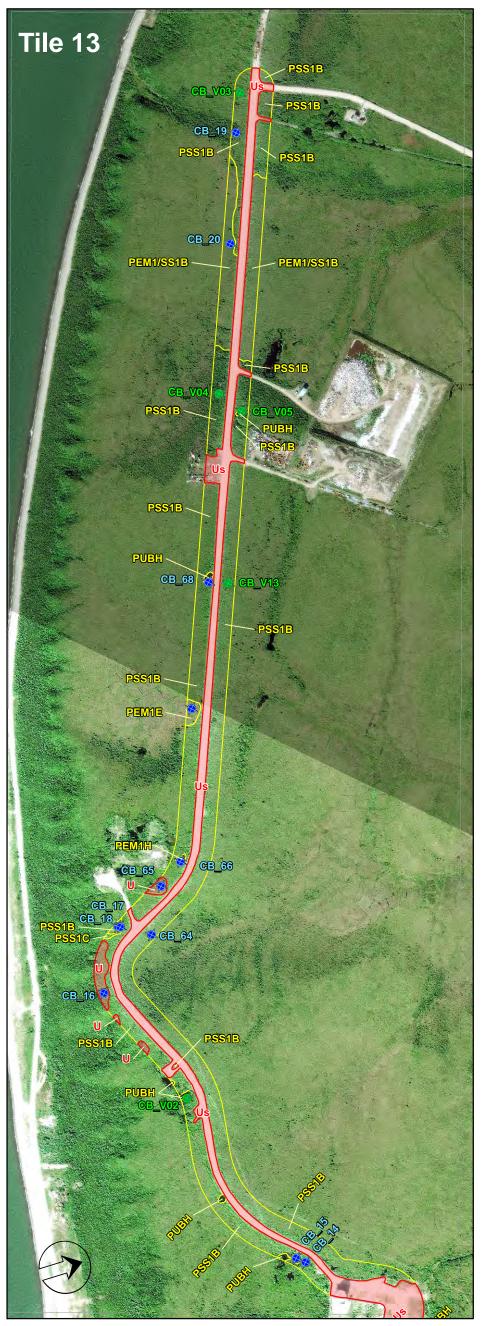
Notes: Mapping by ABR, Inc. within a 2000-ft corridor surrounding the centerline of the Proposed road alternatives. Orthophotography by DigitalGlobe, acquired August 2 and 4, 2010: pixel resolution 1.64 feet. Map projection: Alaska State Plane Zone 7, NAD 1983, U.S. feet. Map scale when printed at 11"x17" is 1:6,000 or 1"=500'.

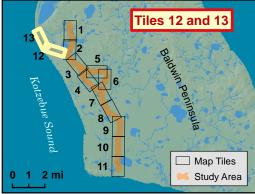


	Figure 2.11. I Types for the proposed Cape Blossom Road Project (Tile 11)
Map prepared by: ABR Inc.—Environmental Research & Services	
26 November 2012	CapeBlossom_Wetlands_ReportMaps_12-211.mxd

66°43'50"N









Notes: Mapping by ABR, Inc. within a 2000-ft corridor surrounding the centerline of the Proposed road alternatives. Orthophotography by DigitalGlobe, acquired August 2 and 4, 2010: pixel resolution 1.64 feet. Map projection: Alaska State Plane Zone 7, NAD 1983, U.S. feet. Map scale when printed at 11"x17" is 1:6,000 or 1"=500'.

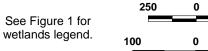
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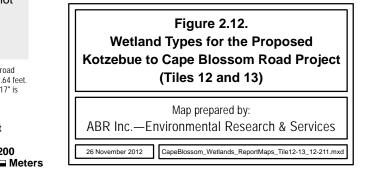
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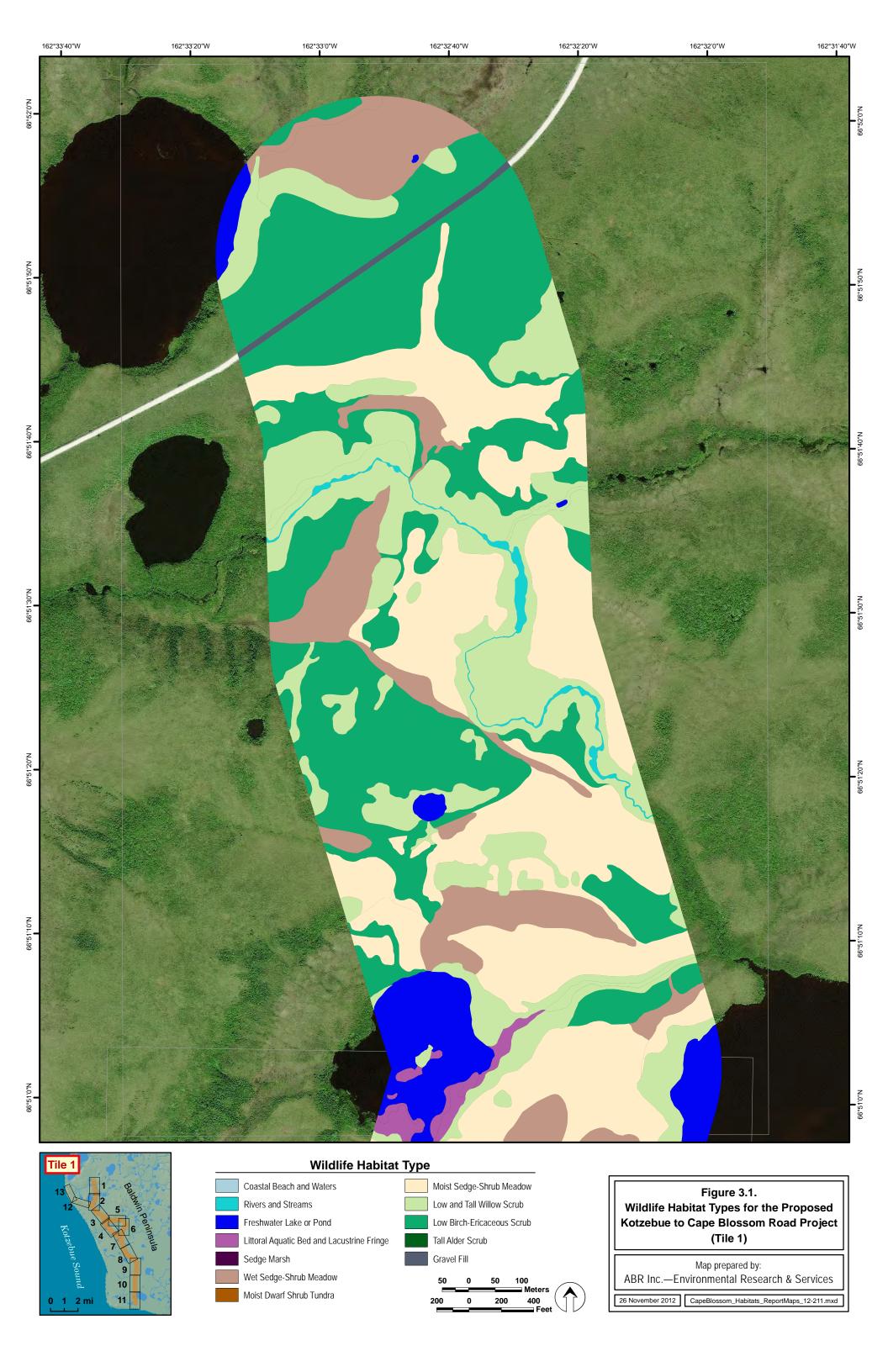
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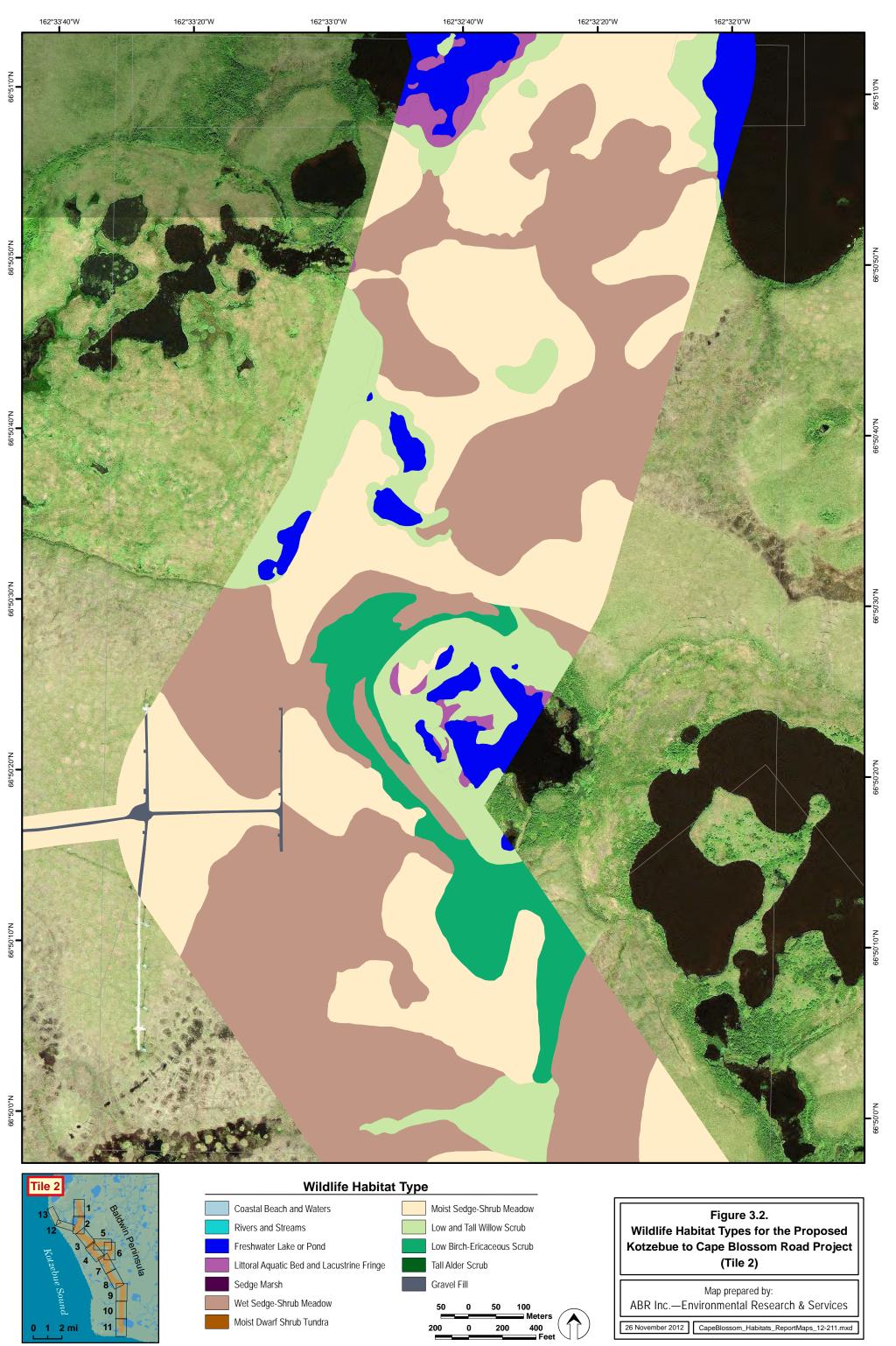
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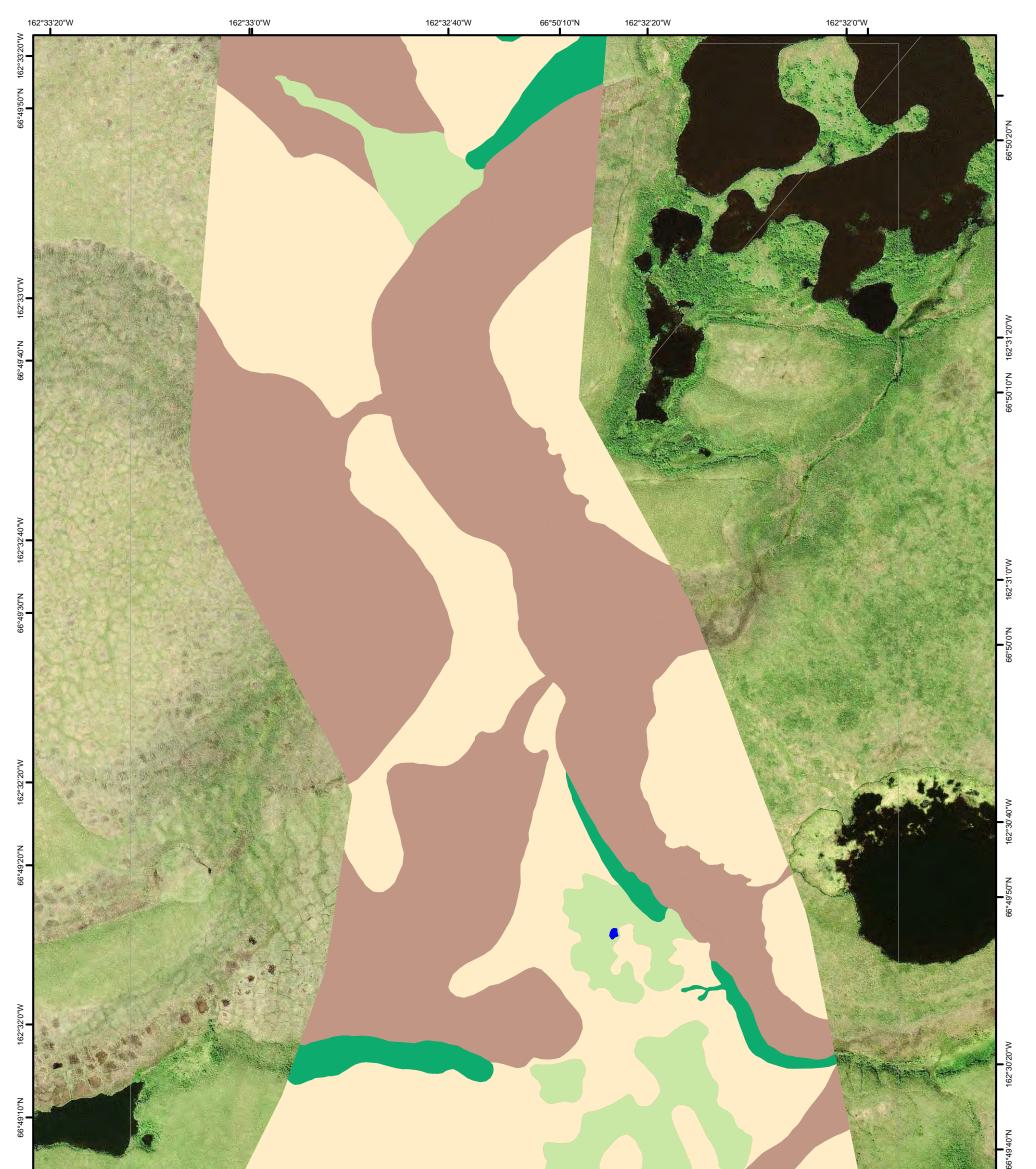
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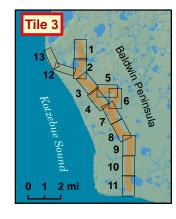


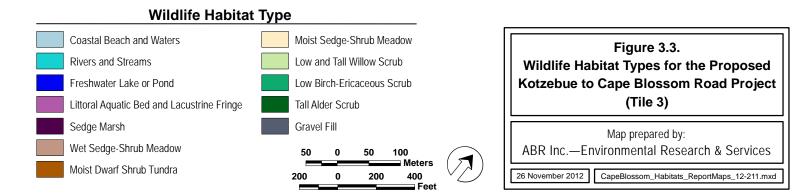


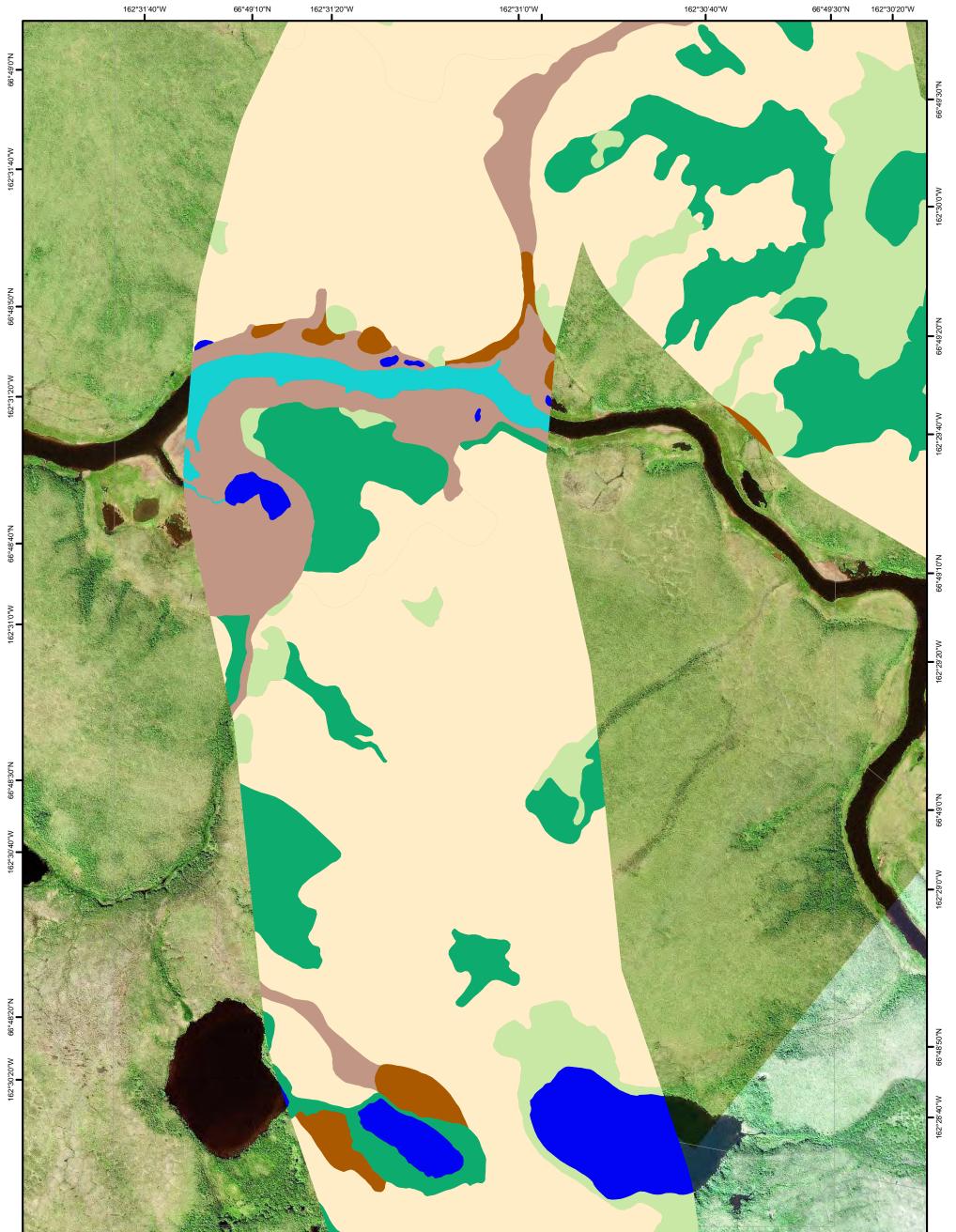


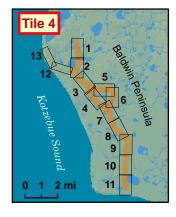




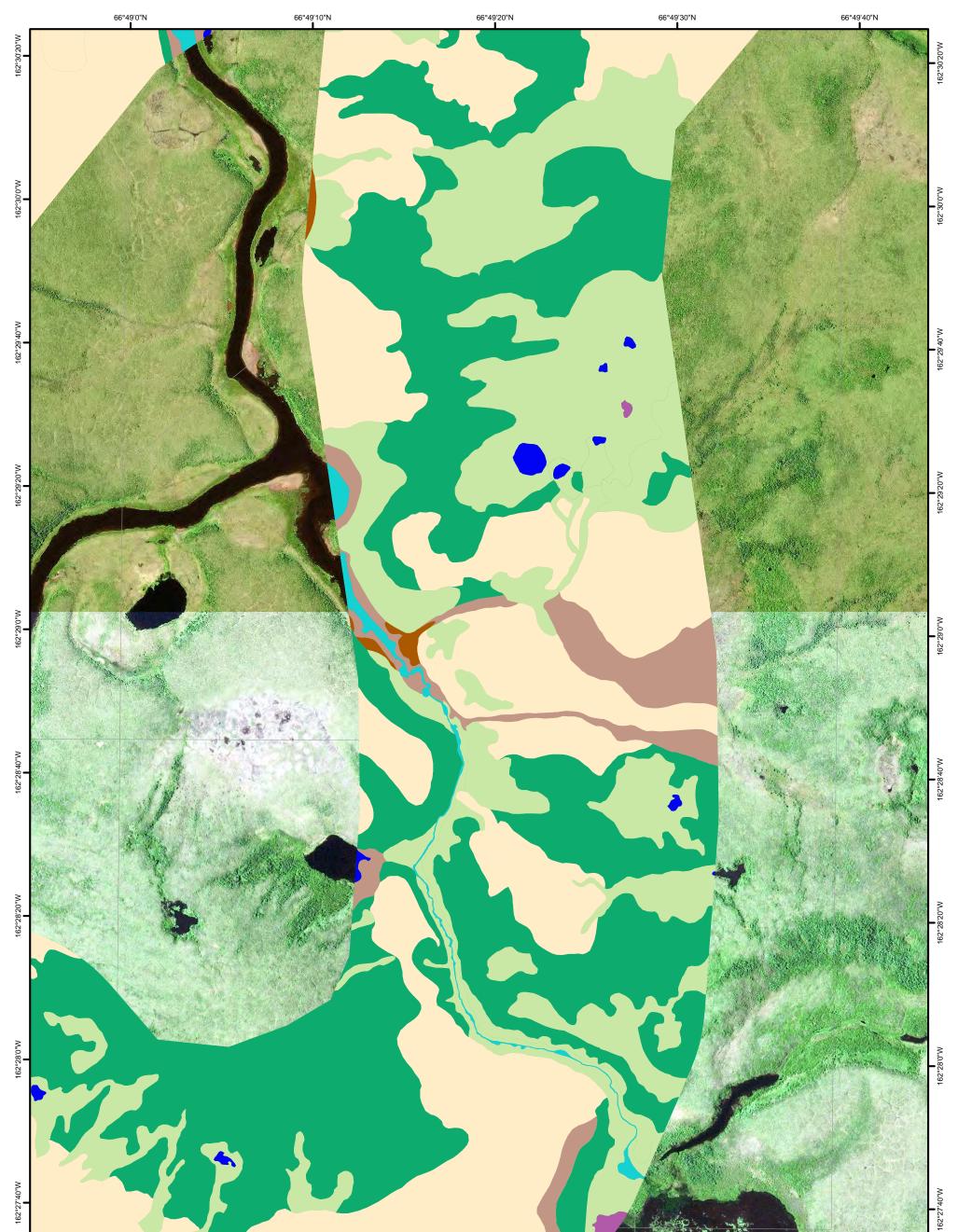


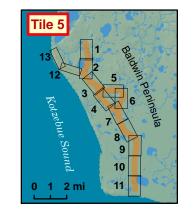


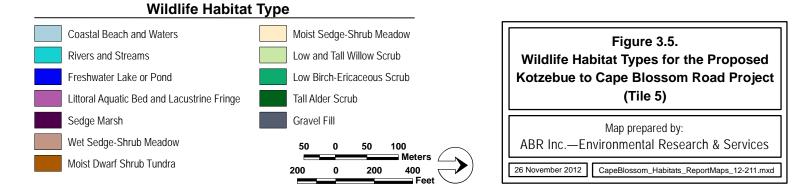


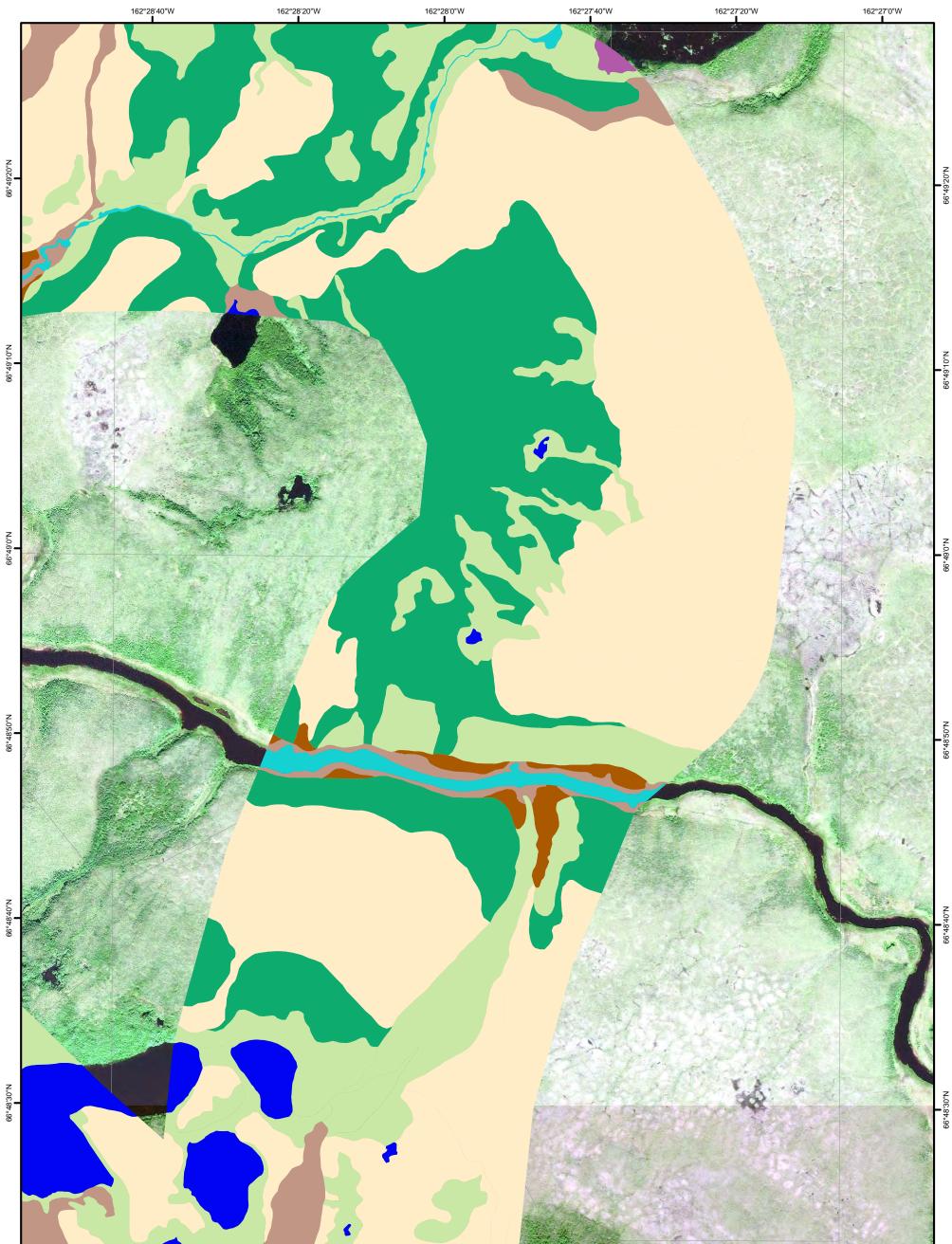


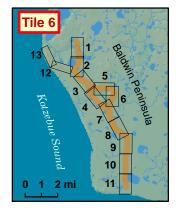
Wildlife Habitat Type Coastal Beach and Waters Moist Sedge-Shrub Meadow Figure 3.4. Rivers and Streams Low and Tall Willow Scrub Wildlife Habitat Types for the Proposed Freshwater Lake or Pond Low Birch-Ericaceous Scrub Kotzebue to Cape Blossom Road Project (Tile 4) Littoral Aquatic Bed and Lacustrine Fringe Tall Alder Scrub Sedge Marsh Gravel Fill Map prepared by: Wet Sedge-Shrub Meadow ABR Inc.—Environmental Research & Services 100 — Meters 50 0 50 Moist Dwarf Shrub Tundra 26 November 2012 CapeBlossom_Habitats_ReportMaps_12-211.mxd 200 400 200 0 Feet



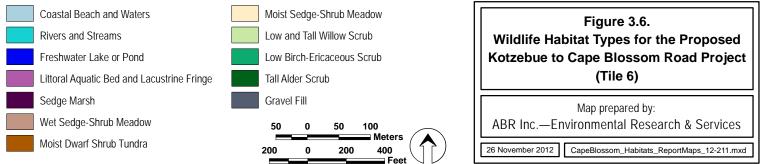
















162°29'40"W

162°29'20"W

162°29'0"W 66°48'40"N

162°28'20"W ∎ .

66°48'50"N

162°28'0"W

66°48'40"N

66°48'30"N

66°48'20"N

162°27'20"W

66°48'10"N

66°48'0"N

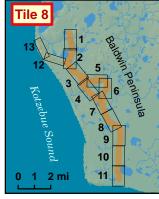




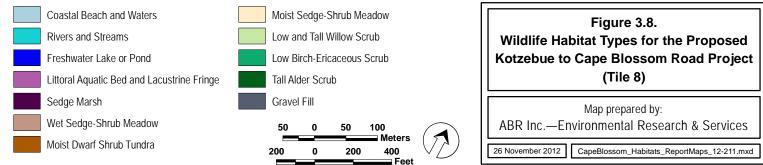


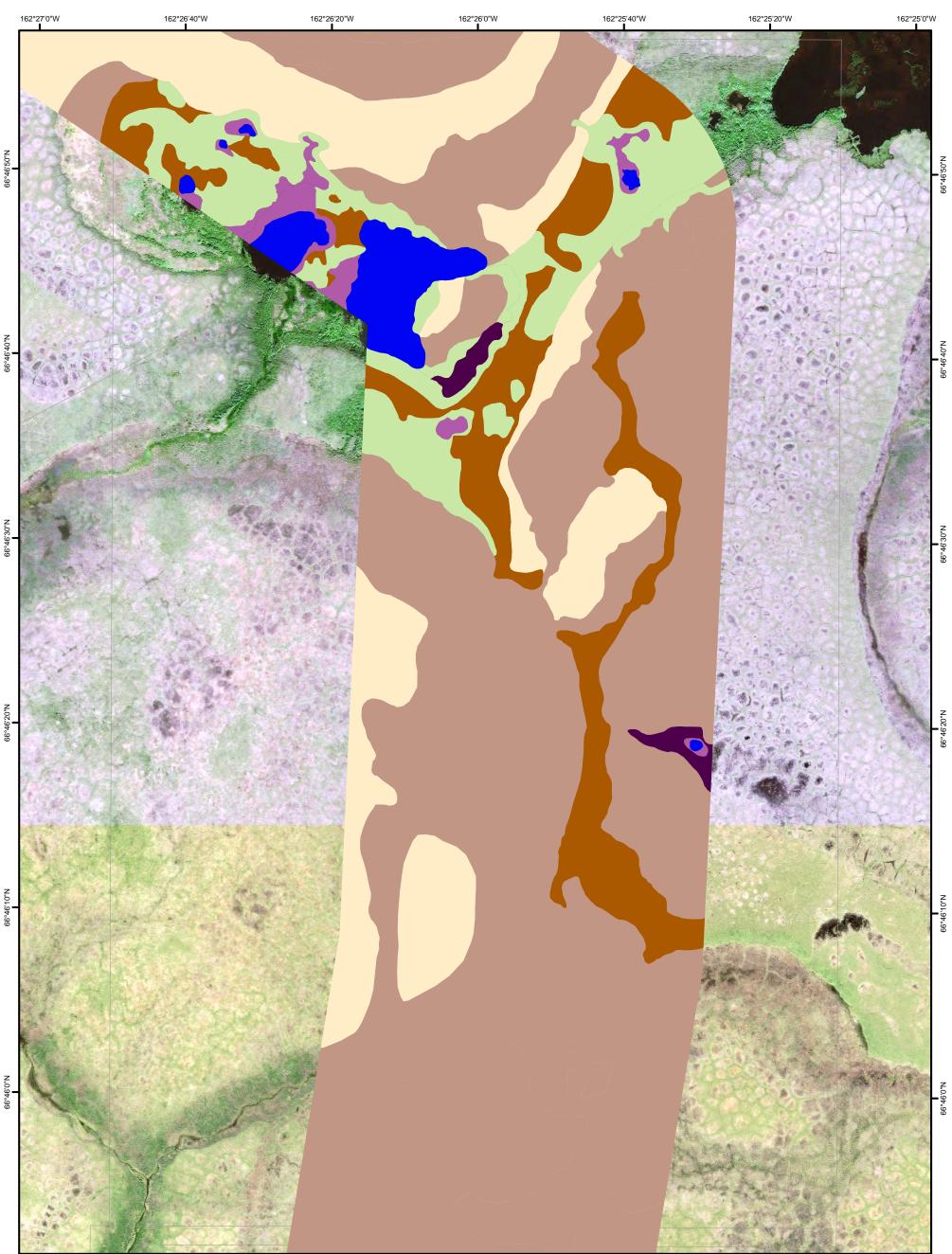
Wildlife Habitat Type Coastal Beach and Waters Moist Sedge-Shrub Meadow Figure 3.7. Rivers and Streams Low and Tall Willow Scrub Wildlife Habitat Types for the Proposed Low Birch-Ericaceous Scrub Freshwater Lake or Pond Kotzebue to Cape Blossom Road Project (Tile 7) Littoral Aquatic Bed and Lacustrine Fringe Tall Alder Scrub Sedge Marsh Gravel Fill Map prepared by: Wet Sedge-Shrub Meadow ABR Inc.—Environmental Research & Services 50 0 50 100 Meters Moist Dwarf Shrub Tundra 26 November 2012 CapeBlossom_Habitats_ReportMaps_12-211.mxd 200 400 200 0 Feet

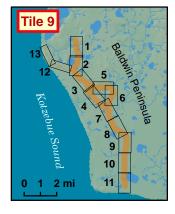




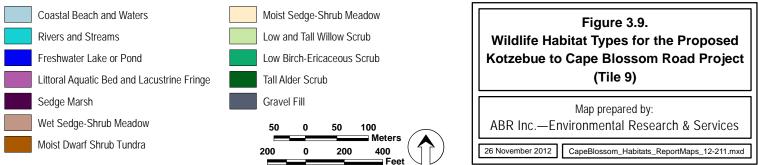


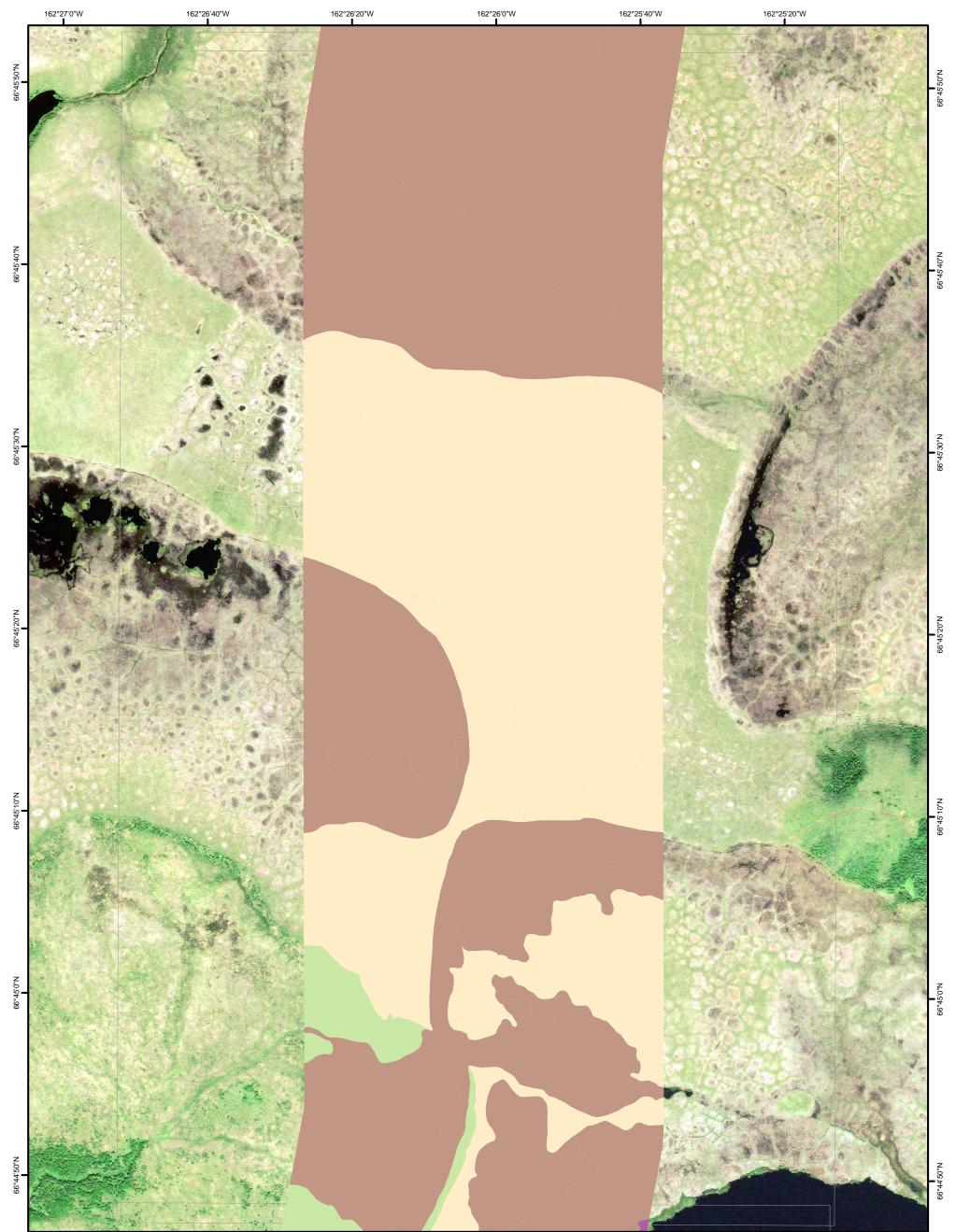


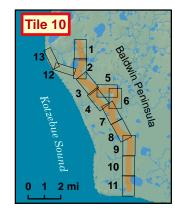




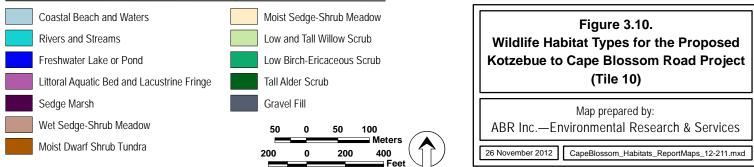


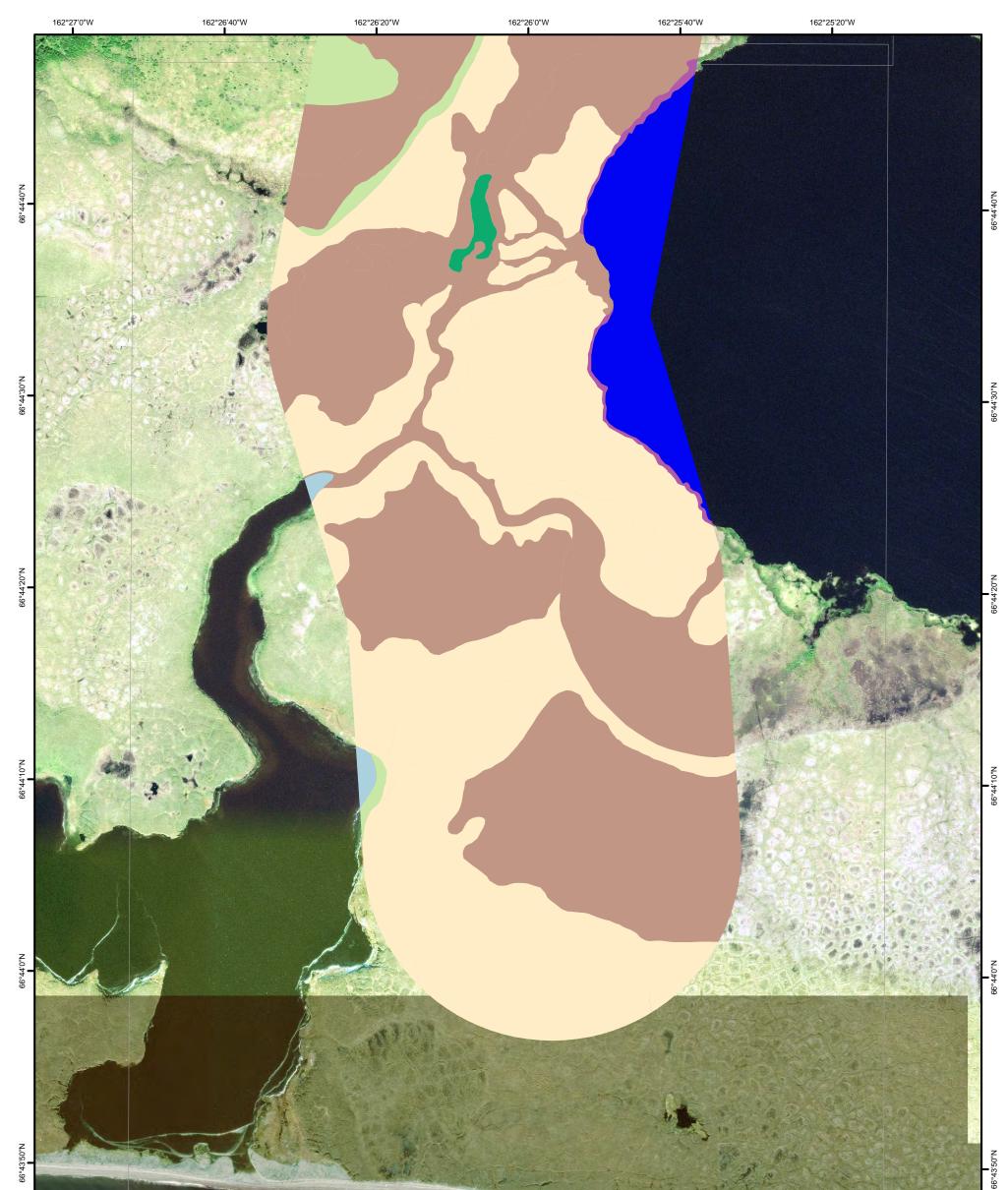


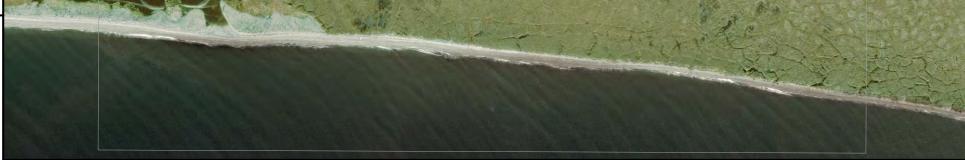


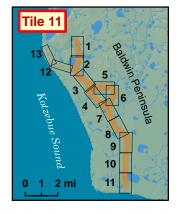


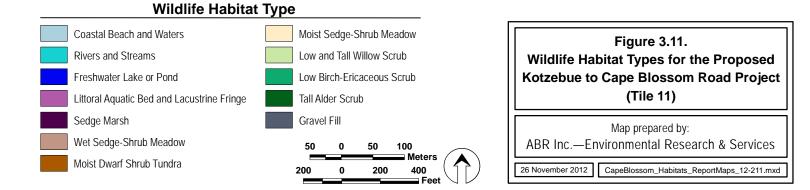
Wildlife Habitat Type

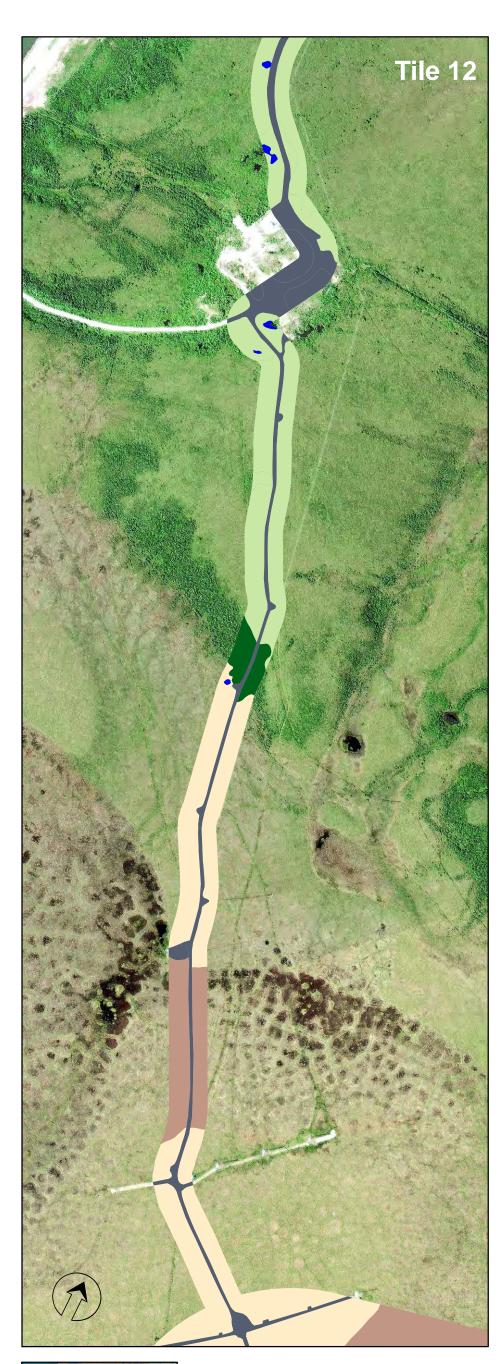




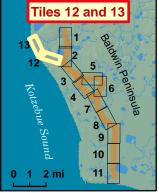


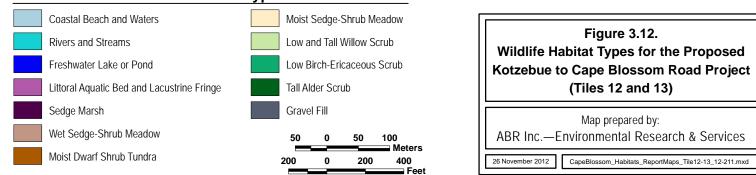




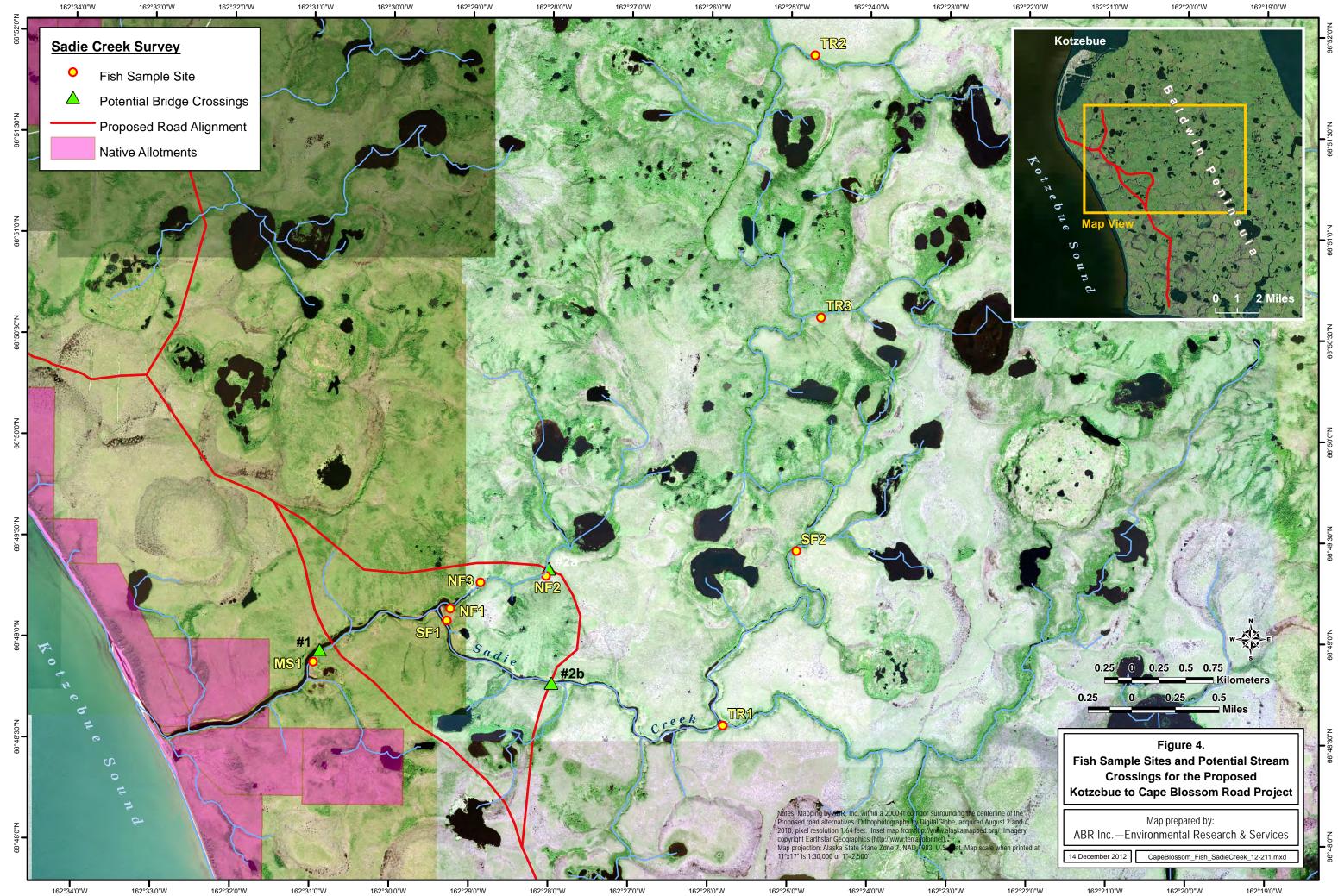








Wildlife Habitat Type



162°19'0"W

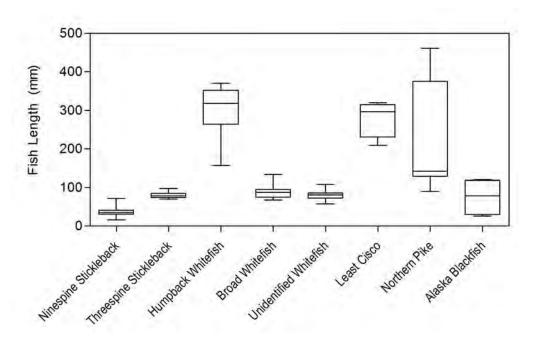


Figure 5. Fish length by species for fish caught in Sadie Creek and its tributaries near Kotzebue, Alaska, 26–28 July and 11–13 August 2012. Boxes represent the lower quartile, median, and upper quartile and whiskers represent minimum and maximum values.

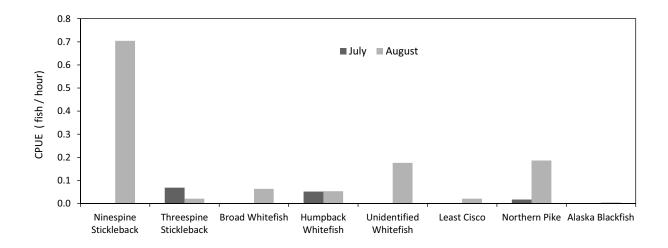


Figure 6. Catch per unit effort (CPUE) by species in fyke nets in Sadie Creek and its tributaries near Kotzebue, Alaska, 26–28 July and 11–13 August 2012.

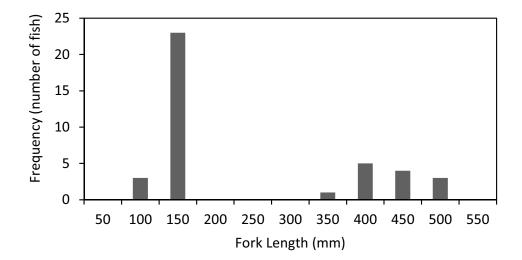
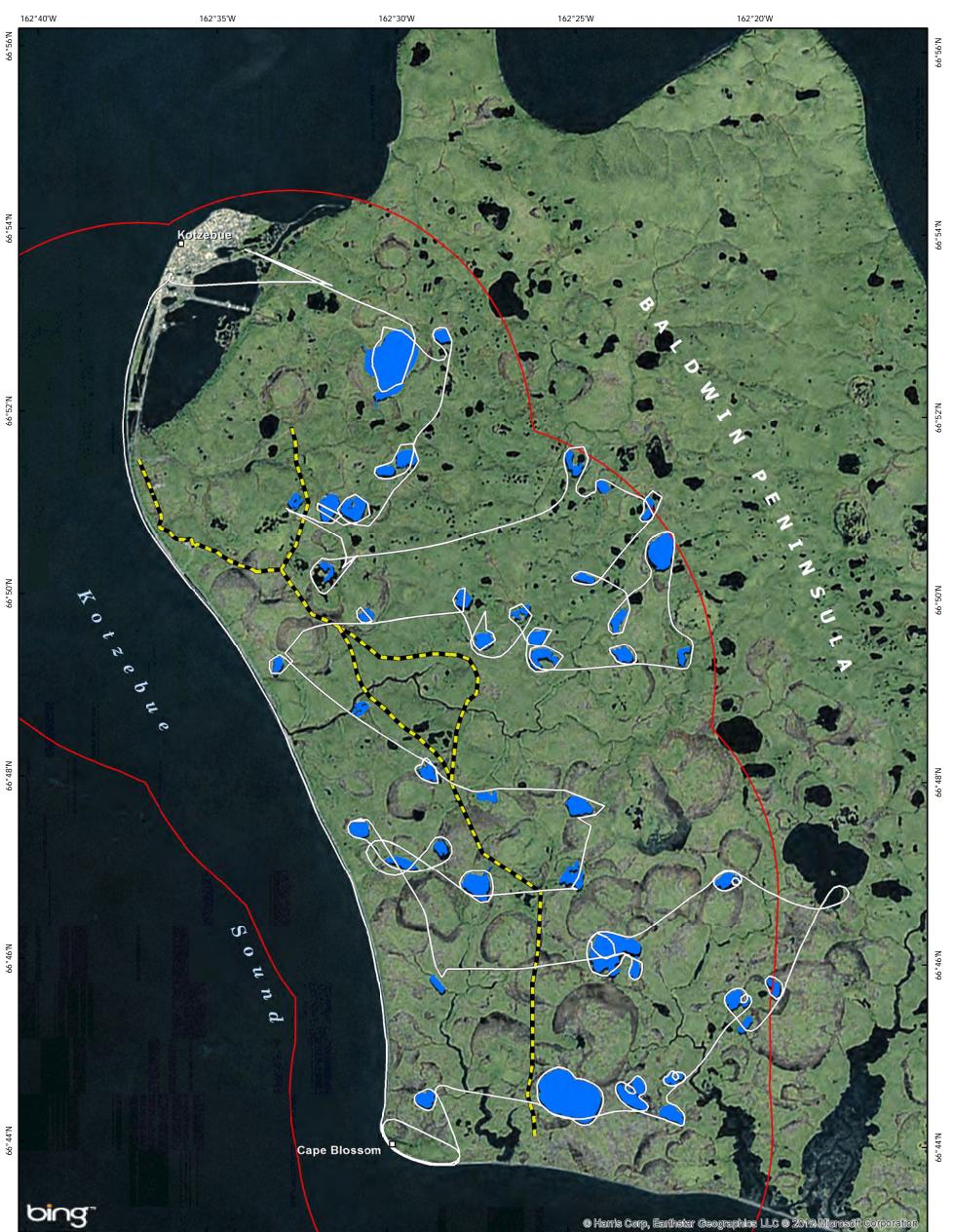


Figure 7. Distribution of values of fork length (mm) of northern pike caught in fyke nets and minnow traps in Sadie Creek and its tributaries near Kotzebue, Alaska, 26–28 July and 11–13 August 2012.





Cape Blossom Avian Surveys 2012

Sector Flight Routes

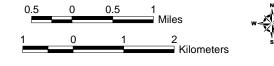


Lakes Surveyed

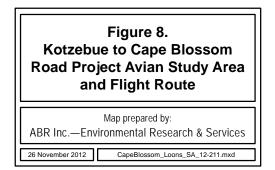


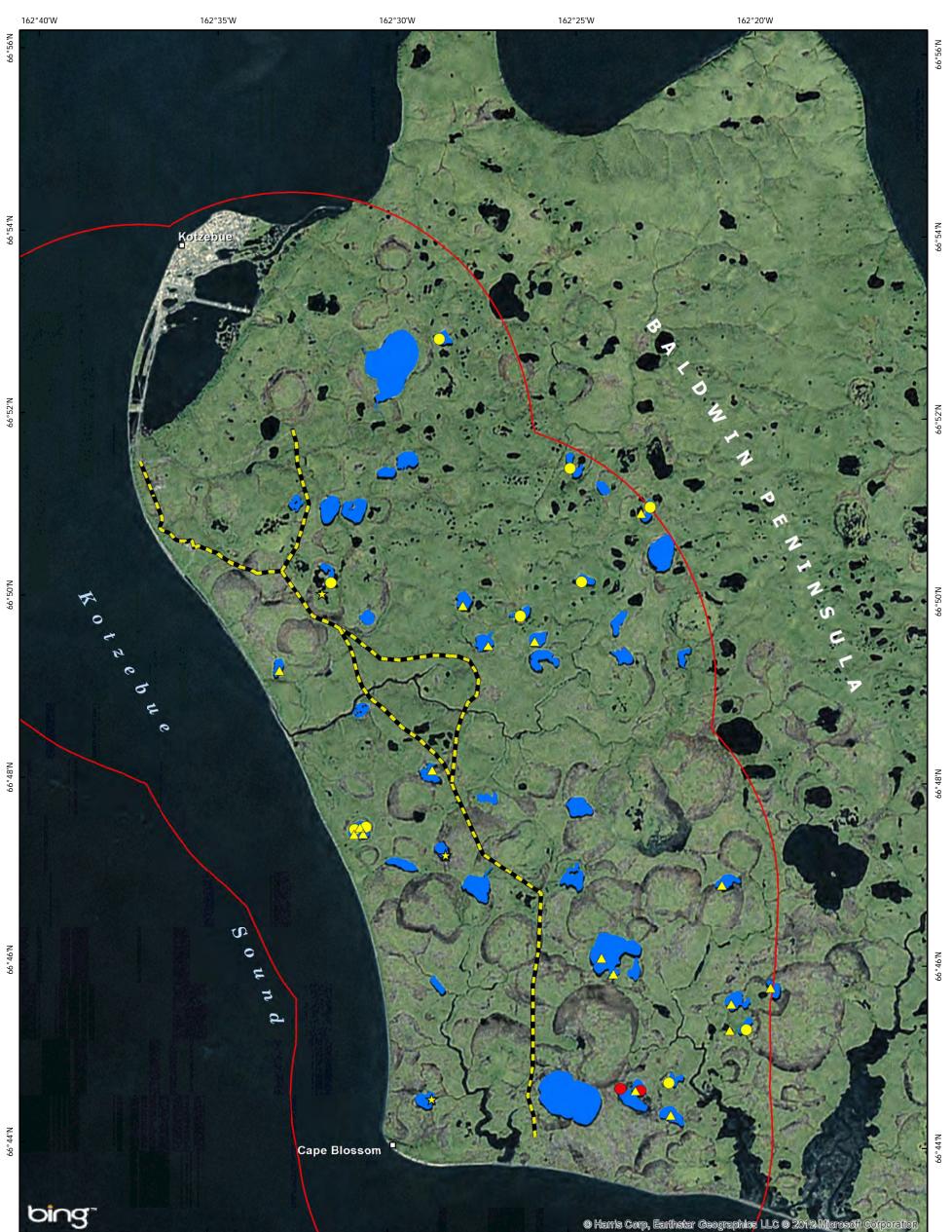
Study Area (3-mile Buffer of Proposed Road Alternatives)

Road Alignment Alternatives

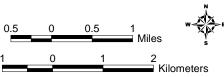


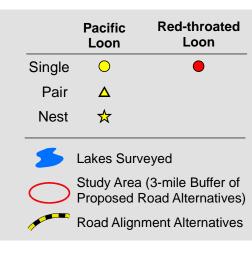
Notes: Inset map courtesy of NASA, Blue Marble Next Generation. Map projection: Alaska State Plane Zone 7, NAD 1983, U.S. feet. Map scale when printed at 11"x17" is 1:75,000 or 1" = 6,250'.











Notes: Inset map courtesy of NASA, Blue Marble Next Generation. Map projection: Alaska State Plane Zone 7, NAD 1983, U.S. feet. Map scale when printed at 11^*x17^* is 1:75,000 or $1^* = 6,250^{\circ}$.

Figure 9. Cape Blossom Road oon Observations
Map prepared by: onmental Research & Services

Appendix A. Wetland determination forms and verification plot data, Cape Blossom to Kotzebue Road, Alaska, 2012.

Applicant/Owner:Baker/ADOT&PF Sampling Point:CB_01 Investigator(s):SLI/EKJ Landform (hillside, terrace, hummocks etc.):Channel (active) Local relief (concave, convex, none):flat Slope:3.5 % / 2.0 ° Elevation: _40 Subregion :Northern Alaska Lat.:66 51.642 Long.:162 32.782 Datum: WGS84 Soil Map Unit Name:	Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough	Sampling Date: 24-Aug-12
Local relief (concave, convex, none): flat Slope: 3.5 % / 2.0 ° Elevation: 40 Subregion : Northern Alaska Lat.: 66 51.642 Long.: 162 32.782 Datum: WGS84 Soil Map Unit Name: NWI classification: R2UBH Are climatic/hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)	Applicant/Owner: Baker/ADOT&PF		Sampling Point: CB_01
Subregion : Northern Alaska Lat.: 66 51.642 Long.: 162 32.782 Datum: WGS84 Soil Map Unit Name: NWI classification: R2UBH Are climatic/hydrologic conditions on the site typical for this time of year? Yes O No O (If no, explain in Remarks.)	Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Channel (active)
Soil Map Unit Name: NWI classification: <u>R2UBH</u> Are climatic/hydrologic conditions on the site typical for this time of year? Yes O No O (If no, explain in Remarks.)	.ocal relief (concave, convex, none): <u>flat</u>	_ Slope:% / ° Elevation:	
Are climatic/hydrologic conditions on the site typical for this time of year? Yes 🖓 No 🔍 (If no, explain in Remarks.)	Subregion : Northern Alaska Lat.:	<u>. 66 51.642</u> Long.: <u>162 32.782</u>	Datum: WGS84
	Soil Map Unit Name:	NWI class	ification: R2UBH
Are Vegetation 🗌 , Soil 🗹 , or Hydrology 🗌 naturally problematic? (If needed, explain any answers in Remarks.)	Are Vegetation, Soil, or Hydrology significant	tly disturbed? Are "Normal Circumstances"	present? Yes • No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present?	Yes 🖲	No O	Is the Sampled Area			
Hydric Soil Present?	Yes 🖲	No O	•	Yes \bullet No \bigcirc		
Wetland Hydrology Present?	Yes 🖲	No 🔿	within a Wetland?			
Remarks: Sadie Creek - low gradient tundra stream flooded at time of site visit (submerged netfri calcan salix spn). Visible banks well vegetated						

nt tundra stream flooded at time of site visit (submerged petfri calcan salix spp). Visible banks well vegetated.

		Absolu	te Dominant	Indicator	Dominance Test worksheet:
Tree Stratum		<u>% Cov</u>	er Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)
1					Total Number of Dominant
					Species Across All Strata: 0 (B)
3					Percent of dominant Species That Are OBL, FACW, or FAC:0.0%(A/B)
5			. 🗌		
	Total Cover:	0	_		Prevalence Index worksheet:
Sapling/Shrub Stratum	50% of Total Cover:	0 20	% of Total Cover:	0	Total % Cover of: Multiply by:
1					OBL species $0 \times 1 = 0$
2					FACW species $0 \times 2 = 0$
3.					FAC species $0 \times 3 = 0$
4					FACU species $0 \times 4 = 0$
5					UPL species $0 \times 5 = 0$
6.					Column Totals:0_ (A)0_ (B)
7					Prevalence Index = $B/A = 0.000$
8					
9					Hydrophytic Vegetation Indicators:
10					Dominance Test is > 50%
10	Total Cover:	0	-		Prevalence Index is ≤3.0
Herb Stratum	50% of Total Cover:		– % of Total Cover:	0	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1					Problematic Hydrophytic Vegetation ¹ (Explain)
2.					¹ Indicators of hydric soil and wetland hydrology must
3					be present, unless disturbed or problematic.
4.			_		
5					Plot size (radius, or length x width) 2m x 5m
6					% Cover of Wetland Bryophytes
7					(Where applicable)
8					% Bare Ground
9					Total Cover of Bryophytes
10.					Hydrophytic
	Total Cover:	0	_		Vegetation
	50% of Total Cover:	0 20	– % of Total Cover:	0	Present? Yes \bullet No \bigcirc
Remarks: characterizing active of	channel of Sadie Creek - n	o visible	vegetation in th	is water of	the U.S.

	Matrix	deptilleede	ed to document the pres Redox Fe			cators	
Depth (inches)	Color (moist)	%	Color (moist) %	1	Loc²	Texture	Remarks
,					=		
,		. <u> </u>					
Type: C=Con	centration D=Depleti	ion RM=Redu	ced Matrix ² Location: PL	L=Pore Lining RC	=Root Ch	annel M=Matrix	
Hydric Soil I	Indicators:		Indicators for Probl	lematic Hydric §	ioils: ³		
	or Histel (A1)		Alaska Color Chan	4	ſ	🗌 Alaska Gleyed Without H	lue 5Y or Redder
_	ipedon (A2)		Alaska Alpine swal	les (TA5)		Underlying Layer	
Hydroger	n Sulfide (A4)		Alaska Redox With	ו 2.5Y Hue	ŀ	✓ Other (Explain in Remar	ks)
	rk Surface (A12)		• • • • • • •				
Alaska Gl	leyed (A13)		³ One indicator of hyd and an appropriate la			rimary indicator of wetland I present	nydrology,
Alaska Re	edox (A14)					prosent	
Alaska Gle	leyed Pores (A15)		⁴ Give details of color	change in Remai	KS		
Restrictive L	ayer (if present):						
Type:						Hydric Soil Present?	Yes $ullet$ No $igcap$
Depth (inc	:hes):						
Remarks:							
assume hydric	soil due to hydrophyt	tic vegetation a	and flowing water				
HYDROLC	DGY drology Indicators:					Casandary Ind	· · · · · · · · · · · · · · · · · · ·
-	arology indicators: ators (any one is sufficient	icient)					icators (two or more are required) ined Leaves (B9)
	Water (A1)	siont,	Inundation Visit	ble on Aerial Image	orv (R7)	_	Patterns (B10)
	ter Table (A2)			ited Concave Surfa	J · · ·		Rhizospheres along Living Roots (C3)
Saturatio			Marl Deposits (B			_	of Reduced Iron (C4)
Water Ma			Hydrogen Sulfide	•		Salt Depos	
	t Deposits (B2)		Dry-Season Wat				r Stressed Plants (D1)
	posits (B3)		Other (Explain in			_	nic Position (D2)
Algal Mat	t or Crust (B4)		— • •			Shallow A	quitard (D3)
Iron Dep	oosits (B5)					Microtopo	graphic Relief (D4)

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Depth (inches): 36

Depth (inches):

Depth (inches):

 $_{\rm Yes} \odot ~_{\rm No} \bigcirc$

Yes 🔿 No 🖲

Yes 🔘 No 🖲

Surface Soil Cracks (B6)

Field Observations:

Surface Water Present?

Water Table Present?

(includes capillary fringe)

Saturation Present?

Remarks:

FAC-neutral Test (D5)

Wetland Hydrology Present?

Yes 🖲

No 🔿

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 24-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point: CB_02
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Terrace
Local relief (concave, convex, none): none	Slope: <u>5.2</u> % / <u>3.0</u> ° Elevation: <u>75</u>	
Subregion : Northern Alaska Lat.:	<u>66.86086</u> Long.: <u>-162.546573</u>	333333 Datum: WGS84
Soil Map Unit Name:	NWI class	ification: PSS1B
	ear? Yes No (If no, explain in tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes • No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● No ○ Yes ● No ○ Yes ● No ○	Is the Sampled Area within a Wetland? Yes $ullet$ No $igodot$					
Remarks: STOW on small rise near creek. small microtopo variation, not quite hummocks but rolling ground. not a riverine system. salix tall-low, plot centered in tall shrubs.							

			solute	Dominant	Indicator	Dominance Test worksheet:		
Tr	ee Stratum	%	Cover	Species?	Status	Number of Dominant Species		
1.		-				That are OBL, FACW, or FAC: (A)		
2.						Total Number of Dominant Species Across All Strata: 4 (B)		
3.		_						
4.		_				Percent of dominant Species That Are OBL, FACW, or FAC:75.0% (A/B)		
5.		_						
	Total Cover:	_	0			Prevalence Index worksheet:		
Sap	ing/Shrub Stratum 50% of Total Cover:	0	20% c	of Total Cover:	0	Total % Cover of: Multiply by:		
1	Salix pulchra	_	60	\checkmark	FACW	OBL species $0 \times 1 = 0$		
2.	Vaccinium uliginosum	_	15		FAC	FACW species <u>110</u> x 2 = <u>220</u>		
3	Spiraea stevenii	_	20	\checkmark	FACU	FAC speci es $51 \times 3 = 153$		
		_				FACU species 27 x 4 = 108		
						UPL species x 5 =		
-						Column Totals: <u>188</u> (A) <u>481</u> (B)		
						Prevalence Index = B/A = 2.559		
						Hydrophytic Vegetation Indicators:		
•.						✓ Dominance Test is > 50%		
10.	Total Cover:		95			✓ Prevalence Index is ≤3.0		
н	stratum50% of Total Cover:4	7.5	20% (of Total Cover:	19	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)		
	Pubus arcticus		5		FAC	Problematic Hydrophytic Vegetation ¹ (Explain)		
1.	Potocitos frigidus	-	10		FACW			
2.	Chamerion angustifolium	_	2		FACU	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.		
3.	Equisetum pratense	-	40		FACW			
4.	Calamagrostis canadensis	-	30		FAC			
5.	Artomicio tilogli	_	5		FACU	Plot size (radius, or length x width) <u>10m</u>		
6.	A 14		1		FAC	% Cover of Wetland Bryophytes (Where applicable)		
7. 8.	· · · · · · · · · · · · · · · · · · ·					% Bare Ground <u>45</u>		
•						Total Cover of Bryophytes 50		
•.		_						
10.	Total Cover:	_	93			Hydrophytic Vegetation		
		6.5		of Total Cover:	18.6	Present? Yes No		
Rem	Remarks:							

Color (moist) % Color (moist) % Type ¹ Loc ² Texture Rem 0-2					-					•	Profile Desc
0.2 Hemic Organics 2.5 Sapric Organics 5.8 5Y 4/1 85 7.5YR 3/3 15 C PL Silly Clay Loam 8-25 10Y 4/1 70 10YR 3/4 30 C PL Silly Clay Loam ************************************	Remarks	Toyturo	1.002				Color (0/	Matrix (moist)	Color	Depth (inchos)
2.5 Sapric Organics 5.8 5Y 4/1 85 7.5YR 3/3 15 C PL Silly Clay Loam 8.25 10Y 4/1 70 10YR 3/4 30 C PL Silly Clay Loam ************************************	Remarks		LOC-	Туре	70	moist)		70	(moist)	COIDI	
5-8 5Y 4/1 85 7.5YR 3/3 15 C PL Sitty Clay Leam 8-25 10Y 4/1 70 10YR 3/4 30 C PL Sitty Clay Leam ************************************											-
8-25 10Y 4/1 70 10YR 3/4 30 C PL Silty Clay Loam ************************************						0				-14	
¹ Type: C=Concentration D=Depletion RM=Reduced Matrix ² Location: PL=Pore Lining RC=Root Channel M=Matrix Hydric Soil Indicators: Indicators for Problematic Hydric Soils: ³ Histosol or Histel (A1) Alaska Color Change (TA4) Image: Alaska Gleyed Without Hue 5Y or Redder Underlying Layer Hydrogen Sulfide (A4) Alaska Alpine swales (TA5) Underlying Layer Hydrogen Sulfide (A4) Alaska Redox With 2.5Y Hue Other (Explain in Remarks) Alaska Gleyed (A13) ³ One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present Alaska Gleyed Pores (A14) ⁴ Give details of color change in Remarks Restrictive Layer (if present): Type: i cl lo Depth (inches): 5 Hydric Soil Present? Yes Image: Nec HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient) Umder Stained Leaves (89)		Ity Clay Loam	PL	C	15	3/3	7.5YR	85	4/1	5Y	5-8
Hydric Soil Indicators: Indicators for Problematic Hydric Soils: ³ Histosol or Histel (A1) Alaska Color Change (TA4 ⁴) Alaska Gleyed Without Hue 5Y or Redder Underlying Layer Histic Epipedon (A2) Alaska Alpine swales (TA5) Other (Explain in Remarks) Hydrogen Sulfide (A4) Alaska Redox With 2.5Y Hue Other (Explain in Remarks) Thick Dark Surface (A12) ³ One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present Alaska Gleyed Pores (A15) ⁴ Give details of color change in Remarks Restrictive Layer (if present): Type: si cl lo Depth (inches): 5 Hydric Soil Present? Yes () Remarks: Yes () HYDROLOGY Secondary Indicators: Primary Indicators (any one is sufficient) Water Stained Leaves (B9)			PL	C	30	3/4	10YR	70	4/1	10Y	8-25
Hydric Soil Indicators: Indicators for Problematic Hydric Soils: ³ Histosol or Histel (A1) Alaska Color Change (TA4 ⁴) Alaska Gleyed Without Hue 5Y or Redder Underlying Layer Histic Epipedon (A2) Alaska Alpine swales (TA5) Other (Explain in Remarks) Hydrogen Sulfide (A4) Alaska Redox With 2.5Y Hue Other (Explain in Remarks) Thick Dark Surface (A12) ³ One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present Alaska Gleyed Pores (A15) ⁴ Give details of color change in Remarks Restrictive Layer (if present): Type: si cl lo Depth (inches): 5 Hydric Soil Present? Yes () Remarks: Yes ()						2. postio					1
□ Histosol or Histel (A1) □ Alaska Color Change (TA4) ⁴ ☑ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer □ Histic Epipedon (A2) □ Alaska Alpine swales (TA5) □ Underlying Layer □ Histic Epipedon (A2) □ Alaska Redox With 2.5Y Hue □ Other (Explain in Remarks) □ Thick Dark Surface (A12) □ 3 One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present □ Alaska Gleyed Pores (A13) □ Alaska Gleyed Pores (A15) 4 Give details of color change in Remarks ■ Restrictive Layer (if present): Type: si cl lo □ ■ ■ □ Depth (inches): 5 ■ ■ ■ ■ Remarks: ■		nnel M=Matrix						on KM=Ke			51
Wetland Hydrology Indicators: Secondary Indicators (two or mon Primary Indicators (any one is sufficient) Water Stained Leaves (B9)	<i>J.</i>	Underlying Layer Other (Explain in Remarks) mary indicator of wetland hydrology, resent	tation, one ion must be	TA4) ⁴ TA5) Y Hue hytic vege cape posit	Change (swales (With 2.5 of hydrop iate lands	aska Color aska Alpine aska Redox e indicator an appropri	Al. Al. Al. ³ One and a		1) 4) (A12) (A15)	or Histel (A1 pedon (A2) n Sulfide (A k Surface (eyed (A13) edox (A14) eyed Pores ayer (if pr	Histosol (Histic Epi Hydroger Thick Da Alaska G Alaska G Alaska G Restrictive L Type: si o Depth (ino
□ Surface Water (A1) □ Inundation Visible on Aerial Imagery (B7) □ Drainage Patterns (B10) ☑ High Water Table (A2) □ Sparsely Vegetated Concave Surface (B8) □ Oxidized Rhizospheres along	ves (B9) (B10)	Water Stained Leaves (E	0 5					cient)	one is suffic	drology In ators (any o Water (A1)	Wetland Hye
Saturation (A3) Marl Deposits (B15) Presence of Reduced Iron (C	ed Iron (C4)						_			. ,	
Water Marks (B1) Hydrogen Sulfide Odor (C1) Salt Deposits (C5)						, ,			(= -)		
Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed Plants (I Drift Deposits (B3) Other (Explain in Remarks) Geomorphic Position (D2)							_		(B2)	•	

Surface Water Present?	$_{ m Yes}$ \bigcirc	No 🖲	Depth (inches):	
Water Table Present?	Yes 🖲	No \bigcirc	Depth (inches):	11
Saturation Present?	Yes 🖲	No \bigcirc	Depth (inches):	5

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

small areas a standing water from previous night's precip. Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Algal Mat or Crust (B4)

Surface Soil Cracks (B6)

(includes capillary fringe)

Iron Deposits (B5)

Field Observations:

No \bigcirc

Shallow Aquitard (D3)

▼ FAC-neutral Test (D5)

Wetland Hydrology Present?

Microtopographic Relief (D4)

Yes 🖲

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 2	4-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_03
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none):	_ Slope:% /° Elevation: _5		
Subregion : Northern Alaska Lat.:	<u>66.8617816666667</u> Long.: <u>-162.54697</u>	Datur	n: WGS84
Soil Map Unit Name:	NWI class	ification: PEM1E	
Are climatic/hydrologic conditions on the site typical for this time of y	ear? Yes \bigcirc No $ullet$ (If no, explain in		\frown
	ttly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	•	No 🔾

Hydrophytic Vegetation Present? Yes No Is the Sampled Area Hydric Soil Present? Yes No within a Wetland? Wetland Hydrology Present? Yes No No Remarks: hgwst wet sedge meadow tundra. game trail. nonpatterned. Yes No

			Absolu	ute Dominant	Indicator	Dominance Test worksheet:
<u></u>	ree Stratum		% Co	/er Species?	Status	Number of Dominant Species
1.						That are OBL, FACW, or FAC:5_(A)
2.						Total Number of Dominant Species Across All Strata: 5 (B)
3.				- 📙		
4.				- 📙		Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5.						Prevalence Index worksheet:
		Total Cover:	0		_	Total % Cover of:Multiply by:
Sap	ling/Shrub Stratum 50%	of Total Cover:	020)% of Total Cover:	0	OBL species 31 x 1 = 31
1.	Vaccinium uliginosum		3		FAC	FACW species 6.5 x 2 = 13
2.	Ledum decumbens		1		FACW	· · ·
3.	Empetrum nigrum		1	_	FAC	FAC species $\frac{7}{2}$ x 3 = $\frac{21}{2}$
4.	Betula nana		3		FAC	FACU species $0 \times 4 = 0$
5.	Vaccinium oxycoccos		1		OBL	UPL species $0 \times 5 = 0$
6.	Chamaedaphne calyculata		2		FACW	Column Totals:(A)(B)
7.	Salix fuscescens		3	_	FACW	Prevalence Index = B/A = 1.461
8.	Andromeda polifolia		0.5		FACW	
9.						Hydrophytic Vegetation Indicators:
10.				_		
		Total Cover:	14.5	<u> </u>		
Ц	erb Stratum50%	of Total Cover:7.	25 20	0% of Total Cover:	2.9	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1	Carex aquatilis		20	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Eriophorum scheuchzeri		10		OBL	¹ Indicators of hydric soil and wetland hydrology must
3.				_		be present, unless disturbed or problematic.
4.						
_						Plot size (radius, or length x width) 5m
6.						% Cover of Wetland Bryophytes
7.						(Where applicable)
8.						% Bare Ground _0
9.						Total Cover of Bryophytes 98
10.						Hydrophytic
		Total Cover:	30			Vegetation
	50%	of Total Cover: 1	.5 20	% of Total Cover:	6	Present? Yes No
Rem	narks: 1% Pedicularis sp.					

Profile Description: De	Matrix			ox Featu				
(inches) Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
	<u>_</u>							
			,,					
¹ Type: C=Concentration	D=Depletic	on RM=Red	uced Matrix ² Locatio	n∙ PI =Pr	ore Lining	RC=Root (Channel M=Matrix	
Hydric Soil Indicators:			Indicators for					
Histosol or Histel (A1			Alaska Color		4	0 00113.	Alaska Gleyed Witho	ut Llup EV or Doddor
Histic Epipedon (A2))		Alaska Obio	5.	,		Underlying Layer	
Histic Epipedon (A2))		Alaska Redo		,		Other (Explain in Rei	marks)
Thick Dark Surface (A								
Alaska Gleyed (A13)	(12)		³ One indicator	of hydrop	hytic vege	ation, one	primary indicator of wetla	nd hydrology,
Alaska Redox (A14)			and an appropr	iate lands	cape posit	on must b	e present	
Alaska Gleyed Pores	(A15)		⁴ Give details of	color cha	nge in Rer	narks		
Restrictive Layer (if pro	esent):							
Type: active layer (fr							Hydric Soil Presen	t? Yes 🖲 No 🔾
Depth (inches): 16	52011)							
Remarks:								
assume hydric soil due to	hydrophyti	ic vegetatior	and standing water.	probing in	dicates fro	zen at 16i	n bas	
, , , , , , , , , , , , , , , , , , ,	J J .	J	<u> </u>	1 3				
HYDROLOGY Wetland Hydrology Inc	licators						Socondary	Indicators (two or more are required)
Primary Indicators (any o		cient)						Stained Leaves (B9)
Surface Water (A1)			Inundation	Visible or	n Aerial Im	agery (B7)		ge Patterns (B10)
High Water Table (A	2)		Sparsely V					ed Rhizospheres along Living Roots (C3)
Saturation (A3)			Marl Depos				_	ice of Reduced Iron (C4)
Water Marks (B1)			Hydrogen		lor (C1)		Salt De	eposits (C5)
Sediment Deposits (I	32)		Dry-Seaso	n Water T	able (C2)		Stunte	d or Stressed Plants (D1)
Drift Deposits (B3)			Other (Exp	lain in Re	marks)			orphic Position (D2)
Algal Mat or Crust (B	4)						Shallow	w Aquitard (D3)
Iron Deposits (B5)								opographic Relief (D4) eutral Test (D5)

Field Observations: Surface Water Present?

Water Table Present?

(includes capillary fringe)

Saturation Present?

Depth (inches): 2			
Depth (inches):	Wetland Hydrology Present?	Yes 🖲	No \bigcirc

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

Yes \bullet No \bigcirc

Yes 🔘 No 🖲

 $_{\rm Yes} \odot \ _{\rm No} \odot$

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Depth (inches):

Remarks:

standing water in large portions of site. Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 24-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point: CB_04
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.)	: Undulating
Local relief (concave, convex, none):	_ Slope: <u>8.7</u> % / <u>5.0</u> ° Elevation: <u>55</u>	
Subregion : Northern Alaska Lat.:	<u></u>	5 Datum: WGS84
Soil Map Unit Name:	NWI clas	ssification: PSS1B
	ear? Yes No (If no, explain tly disturbed? Are "Normal Circumstances problematic? (If needed, explain any ans	" present? Yes $ullet$ No $igodown$
CUMMADY OF FINDINCS Attach site man show	ing compling point locations, tran	aasta immantant faaturaa

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● No ○ Yes ● No ○ Yes ● No ○	Is the Sampled Area within a Wetland? Yes No
Remarks: SLOW on slight slope t	to emergent (CB_03). nonpatterned.	

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

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC:5_(A)
2				Total Number of Dominant Species Across All Strata: 5 (B)
3				
4				Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
5				
Total Cover:	0			Prevalence Index worksheet: Total % Cover of: Multiply by:
Sapling/Shrub Stratum 50% of Total Cover:	020%	of Total Cover:	0	
1. Vaccinium uliginosum	10		FAC	
2. Betula nana	10		FAC	FACW species $50 \times 2 = 100$
3. Vaccinium vitis-idaea	15	\checkmark	FAC	FAC species $58 \times 3 = 174$
4. Salix pulchra	40	\checkmark	FACW	FACU species 0.5 x 4 = 2
5. Ledum decumbens	5		FACW	UPL species $-\frac{0}{x 5} = -\frac{0}{x 5}$
6. Empetrum nigrum	3		FAC	Column Totals: <u>108.5</u> (A) <u>276</u> (B)
7				Prevalence Index = $B/A = 2.544$
8				
9				Hydrophytic Vegetation Indicators:
10				✓ Dominance Test is > 50%
Total Cover:	83			✓ Prevalence Index is ≤3.0
50% of Total Cover: 4	1.5 20%	of Total Cover:	16.6	Morphological Adaptations ¹ (Provide supporting
Herb Stratum		\checkmark	FACW	data in Remarks or on a separate sheet)
1. Petasites frigidus	 10		FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Calamagrostis canadensis	0.5		FAC	Indicators of hydric soil and wetland hydrology must
3. Chamerion angustifolium			FAC	be present, unless disturbed or problematic.
4. Aconitum delphinifolium	<u>1</u> 3		FAC	
5. Rubus arcticus	5		FAC	Plot size (radius, or length x width) 10m
6. Carex bigelowii			FAC	% Cover of Wetland Bryophytes
7. Luzula parviflora	_1		TAC	(Where applicable)
8				% Bare Ground <u>5</u>
9				Total Cover of Bryophytes 70
10	25.5			Hydrophytic
Total Cover: 50% of Total Cover: 12	25.5	of Total Cover:	5.1	Vegetation Present? Yes • No O
	.15 20%	or rotal Cover:	5.1	
Remarks: 20% lichen cover. trace pyrola sp, legume, lycop	odium. 19	% poa sp.		

US Army Corps of Engineers

Profile Desc	ription: Des	cribe to dep	th needed t	o documen	t the prese	nce or abs	ence of	indicators		
Depth	N	Matrix			Redox Feat	ures		_		
(inches)	Color (n	noist) 9	<u> </u>	olor (mois	t) %	Type ¹	Loc ²	Texture	Remarks	
0-7							10-	Fibric Organics		
7-8	10YR	3/2 10	00					Silty Clay Loam	organic inclusions	
8-14	5Y	4/1 7	5 10	YR 4/-	4 25	С	PL	Silty Clay Loam	organic and 7.5YR3/2 inclusions	
									-	
	·			,						
¹ Type: C=Cor	ncentration D	=Depletion R	M=Reduced	Matrix ² Lo	cation: PL=I	Pore Linina	RC=Roc	ot Channel M=Matrix	_	
Hydric Soil		Dopiotion 1			for Probler	-				
	or Histel (A1)			_	olor Change	4	10 30113.		ut Hue 5Y or Redder	
	ipedon (A2)			_	lpine swales			Underlying Layer		
	n Sulfide (A4)			_	edox With 2			Other (Explain in Re	marks)	
	rk Surface (A1									
🗌 Alaska G	leyed (A13)				ator of hydro propriate land			ne primary indicator of wetla t be present	ind hydrology,	
Alaska Re	edox (A14)				·			be present		
Alaska G	leyed Pores (A	415)		4 Give deta	ils of color ch	nange in Re	marks			
Restrictive L	ayer (if pre	sent):								
	tive layer (froz	zen)						Hydric Soil Presen	it? Yes $ullet$ No $igodom$	
Depth (inc	ches): 14									
Remarks:										
HYDROLO	OGY									
Wetland Hy	drology Indi	icators:						Secondary	Indicators (two or more are required)	
·		e is sufficient)							Stained Leaves (B9)	
	Water (A1)				ation Visible		0 5 .	,	age Patterns (B10)	
	iter Table (A2))			ely Vegetated		urface (E	,	ed Rhizospheres along Living Roots (C3)	
Saturatio	on (A3) Iarks (B1)				eposits (B15				nce of Reduced Iron (C4)	
	it Deposits (B1)	2)			gen Sulfide (eason Water			Salt Deposits (C5)		
	n Deposits (B3)	2)			(Explain in R			Stunted or Stressed Plants (D1) Geomorphic Position (D2)		
	it or Crust (B4	1)				Kennarks)		_	w Aquitard (D3)	
	posits (B5)	· /							opographic Relief (D4)	
	Soil Cracks (B	6)							eutral Test (D5)	
Field Observ	vations:	_								
Surface Wate	er Present?	Yes \bigcirc		Depth	(inches):					
Water Table	Present?	Yes 🖲	No \bigcirc	Depth	(inches): 1	1		Wetland Hydrology Prese	nt? Yes $ullet$ No $ightarrow$	
Saturation P (includes car	resent? pillary fringe)	Yes 🖲	No \bigcirc	Depth	(inches): 7	,				

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 24-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point: CB_05
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Undulating
Local relief (concave, convex, none): <u>tussocks</u>	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>55</u>	
Subregion : Northern Alaska Lat.:	<u>66.86249</u> Long.: <u>-162.54682</u>	Datum: WGS84
Soil Map Unit Name:	NWI class	ification: PSS3/EM1B
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes $lacksquare$ No $lacksquare$

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present?	Yes 🔍 No 🔾		Is the Sampled Area					
Hydric Soil Present?	Yes 🖲 No 🔾		•	Yes \bullet No \bigcirc				
Wetland Hydrology Present?	Yes 🖲 No 🔾		within a Wetland?					
Remarks: SLOTT Dettorn not visible at field man scale. Jarge level maint turspek palve what scales surges turspek palve are DSS1D stall (turspeke pat								

narks: SLOTT. Pattern not visible at field map scale - large level moist tussock polys w wet sedge swales.tussock polys are PSS1B sdel (tussocks not dominant), wet sedge swales are PEM1E hgwst (small pockets of standing water w rubcha, caraqu, vacvit, vaculi, sphagnum). Point in polys.

		Abso	olute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum		% C	over	r Species?	Status	Number of Dominant Species
1.						That are OBL, FACW, or FAC: <u>3</u> (A)
2.						Total Number of Dominant
3.						Species Across All Strata: (B)
4						Percent of dominant Species
						That Are OBL, FACW, or FAC:(A/B)
0.	Total Cover:	(0			Prevalence Index worksheet:
Sa	ling/Shrub Stratum50% of Total Cover:	0	20% o	f Total Cover:	0	Total % Cover of: Multiply by:
1.	Vaccinium uliginosum	1	10	\checkmark	FAC	OBL species <u>3</u> x 1 = <u>3</u>
2.	Ledum decumbens		5		FACW	FACW species 25 x 2 = 50
2. 3.	Vaccinium vitis-idaea	2	20	\checkmark	FAC	FAC species $43 \times 3 = 129$
3. 4	Empetrum nigrum		5		FAC	FACU species $0 \times 4 = 0$
4. 5	Potulo nono		5		FAC	UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
0.						Column Totals: <u>71</u> (A) <u>182</u> (B)
						Prevalence Index = $B/A = 2.563$
•••						Hydrophytic Vegetation Indicators:
						✓ Dominance Test is > 50%
10.	 Total Cover:		.5			✓ Prevalence Index is ≤3.0
	50% of Total Cover: 2		-	of Total Cover:	9	Morphological Adaptations ¹ (Provide supporting
	erb Stratum	2.5	20/00			data in Remarks or on a separate sheet)
1.	Eriophorum vaginatum	1	15		FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Rubus chamaemorus		5		FACW	¹ Indicators of hydric soil and wetland hydrology must
3.	Carex rotundata		3		OBL	be present, unless disturbed or problematic.
4.	Carex bigelowii	-	3		FAC	
5.						Plot size (radius, or length x width) 5m
6.						% Cover of Wetland Bryophytes
7.		_				(Where applicable)
8.						% Bare Ground 3
						Total Cover of Bryophytes 45
10.						Hydrophytic
	Total Cover:	2	6			Vegetation
	50% of Total Cover:	13	20% o	f Total Cover:	5.2	Present? Yes \bullet No \bigcirc
Ren	narks: 45% lichen cover					

Depth Matrix	(Red	ox Featu	res			
(inches) Color (moist)	%	, (Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-5							Fibric Organic	
5-13						-	Hemic Organic	
Type: C=Concentration D=Dep	letion RM	/=Reduced	Matrix ² Locatio	n: PL=P	ore Lining	RC=Root	Channel M=Matrix	
Hydric Soil Indicators:			Indicators for					
Histosol or Histel (A1)			Alaska Color		4		Alaska Gleyed Without H	lue 5Y or Redder
✓ Histic Epipedon (A2)			Alaska Alpine				Underlying Layer	
Hydrogen Sulfide (A4)			Alaska Redo	with 2.5	5Y Hue		Other (Explain in Remar	ks)
Thick Dark Surface (A12)			³ One indicator	of hydror	hytic yeae	tation one	e primary indicator of wetland	avdrology
Alaska Gleyed (A13)			and an appropr					ryurology,
Alaska Redox (A14)			⁴ Give details of	color ch	ange in Rer	narks		
Alaska Gleyed Pores (A15)			Give details of			nurks		
Restrictive Layer (if present)	:						Hydric Soil Present?	Yes $ullet$ No $igodot$
Type: active layer (frozen) Depth (inches): 13							nyunc son Fresent?	res \odot no \bigcirc
Remarks:								
IYDROLOGY Vetland Hydrology Indicator	s:						_Secondary Ind	icators (two or more are required)
Primary Indicators (any one is su	ufficient)						Water Sta	ined Leaves (B9)
Surface Water (A1)			Inundation	Visible o	n Aerial Im	agery (B7)) Drainage	Patterns (B10)
✓ High Water Table (A2)			Sparsely V	egetated	Concave S	urface (B8) 🗌 Oxidized F	Rhizospheres along Living Roots (C3
Saturation (A3)			Marl Depos	sits (B15)			Presence	of Reduced Iron (C4)
Water Marks (B1)			Hydrogen	Sulfide O	dor (C1)		Salt Depo	sits (C5)
Sediment Deposits (B2)			Dry-Seaso				Stunted o	r Stressed Plants (D1)
Drift Deposits (B3)			Other (Exp				Geomorph	nic Position (D2)
Algal Mat or Crust (B4)							Shallow A	quitard (D3)
Iron Deposits (B5)							_	graphic Relief (D4)
Surface Soil Cracks (B6)							✓ FAC-neutr	al Test (D5)
Field Observations:								
Surface Water Present?	Yes 🔿	No 🖲	Depth (inc	hes).				

Yes 💿 No 🔾 Depth (inches): 3 (includes capillary fringe) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Saturation Present?

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest A	rctic Borouah	Sampling Date:	24-Aug-12				
Applicant/Owner: _Baker/ADOT&PF			Sampling Point:	CB_06				
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terr	ace, hummocks etc.):	Hillside					
Local relief (concave, convex, none): <u>tussocks</u>	Slope: 8.7 % / 5.0	° Elevation: 50						
Subregion : Northern Alaska Lat.	66.86331	Long.:162.547005	Datu	m: WGS84				
Soil Map Unit Name:		NWI class	ification: 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 asignificantly 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 show	ing sampling point	locations, trans	ects, important	t features				

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \odot No \bigcirc
Remarks: SLOBE, tussocks prese	nt but not e	enough to classify as SLOTT		

			Abs	olute	Dominant	Indicator	Dominance Test worksheet:
Tree S	Stratum		% 0	over	Species?	Status	Number of Dominant Species
1						. <u></u>	That are OBL, FACW, or FAC:5_ (A)
2							Total Number of Dominant Species Across All Strata: 5 (B)
3			_				
			_				Percent of dominant Species That Are OBL_EACW_ or EAC: 100.0% (A/B)
5			_				That Are OBL, FACW, or FAC:(A/B)
0.1		Total Cover:		0			Prevalence Index worksheet:
Sapling/	/Shrub Stratum	50% of Total Cover:	0	20% o	f Total Cover:	0	Total % Cover of: Multiply by:
1. Vac	cinium uliginosum		C).5		FAC	0BL species x 1 =
· · · · · · · · · · · · · · · · · · ·	ula nana			20	\checkmark	FAC	FACW species 36 x 2 =72
	cinium uliginosum			5		FAC	FAC species $60 \times 3 = 180$
0	cinium vitis-idaea			20	\checkmark	FAC	FACU species $0 \times 4 = 0$
т	lum decumbens			10		FACW	UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
••	ix pulchra			10		FACW	Column Totals: <u>96</u> (A) <u>252</u> (B)
0							
							Prevalence Index = $B/A = 2.625$
			_				Hydrophytic Vegetation Indicators:
			_				✓ Dominance Test is > 50%
10		Total Cover:	61	5.5			✓ Prevalence Index is ≤3.0
Herb 9	Stratum_	50% of Total Cover: 32			f Total Cover:	13.1	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
-	ous chamaemorus			3		FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
· ·	ex bigelowii		_	15		FAC	1
Z	tagrostis latifolia		_	5		FACW	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
J	asites frigidus			3		FACW	
4	ophorum vaginatum			5		FACW	
J			_				Plot size (radius, or length x width) <u>5m</u>
-			_				% Cover of Wetland Bryophytes (Where applicable)
			_				% Bare Ground _0
•••			_				Total Cover of Bryophytes 90
•.			_				
10		Total Cover:	-	31			Hydrophytic Vegetation
			_		f Total Cover:	6.2	Vegetation Present? Yes • No O
		-	-				
Remarks	s: scattered lichens. carb	ig and erivag tussocks					

Donth						•			dicators	
Depth		Matrix				ox Featu				
(inches)	Color ((moist)	%	Colo	r (moist)	_%_	Type ¹	Loc ²	Texture	Remarks
0-4							·		Hemic Organics	
4-5	10YR	4/4	100	_					Silty Clay Loam	
5-8	10YR	4/1	100						Silty Clay Loam	
8-16	5Y	5/2	80	10YR	4/6	20	C	PL	Silty Clay Loam	
1					. 2					
Type: C=Cor	ncentration	D=Depletio	on RM=						Channel M=Matrix	
Hydric Soil	Indicators:	:			icators for		4	ic Soils:	_	
	or Histel (A1))			Alaska Color				Alaska Gleyed Withou	t Hue 5Y or Redder
Histic Ep	ipedon (A2)				Alaska Alpin				Underlying Layer	
	n Sulfide (A4	•			Alaska Redo	x With 2.	5Y Hue		Other (Explain in Rem	iarks)
	rk Surface (A	A12)		3 (ne indicator	of hydror	hytic yeae	tation one	primary indicator of wetlar	d hydrology
	leyed (A13)				an appropr					a nya ology,
Alaska R				4 G	ive details of	f color ch	ango in Po	marks		
🔄 Alaska G	leyed Pores	(A15)					ange in kei	TIdi KS		
Restrictive I	Layer (if pr	esent):								
Typo	tive layer (fr	0707)							Hydric Soil Present	? Yes 🖲 No 🔾
Type: ac	live layer (III	ozen)							riyune son riesent	
Depth (in		ozen)								
		ozen)								
Depth (in		ozenj								
Depth (in		ozen)								
Depth (in		ozen)								
Depth (in		ozen)								
Depth (in	ches): 16									
Depth (in Remarks:	ches): 16									
Depth (in Remarks: HYDROL(Wetland Hy	Ches): 16	dicators:	cient)						Secondary I	ndicators (two or more are required)
Depth (in Remarks: HYDROL(Wetland Hy Primary India	Ches): 16	dicators:	cient)			n Visihle c	n Aerial Im	anery (R7)		ndicators (two or more are required)
Depth (in Remarks: HYDROL(Wetland Hy Primary Indic Surface	DGY drology Inc cators (any o Water (A1)	dicators:	cient)] Inundatior					ndicators (two or more are required) Stained Leaves (B9) je Patterns (B10)
Depth (in Remarks: HYDROL(Wetland Hy Primary Indic Surface W High Wa	OGY drology Inc cators (any o Water (A1) iter Table (A	dicators:	cient)] Sparsely V	egetated	Concave S			ndicators (two or more are required) Stained Leaves (B9) je Patterns (B10) d Rhizospheres along Living Roots (C3)
Depth (in Remarks: HYDROL(Wetland Hy Primary India Surface Migh Wa Saturatio	DGY drology Inc ators (any o Water (A1) ater Table (A on (A3)	dicators:	cient)] Sparsely V] Marl Depo	/egetated sits (B15)	Concave S			ndicators (two or more are required) Stained Leaves (B9) Je Patterns (B10) d Rhizospheres along Living Roots (C3) se of Reduced Iron (C4)
Depth (in Remarks: HYDROL(Wetland Hy Primary India Surface Wigh Wa Saturatic Water M	DGY drology Inc ators (any o Water (A1) tter Table (A on (A3) larks (B1)	dicators: ne is suffic 2)	cient)] Sparsely V] Marl Depo] Hydrogen	/egetated sits (B15) Sulfide O	Concave S dor (C1)			ndicators (two or more are required) Stained Leaves (B9) Je Patterns (B10) d Rhizospheres along Living Roots (C3) te of Reduced Iron (C4) posits (C5)
Depth (in Remarks: HYDROL(Wetland Hy Primary India Surface High Wa Saturatia Water M Sedimer	DGY drology Inc cators (any o Water (A1) iter Table (A on (A3) larks (B1) it Deposits (I	dicators: ne is suffic 2)	cient)] Sparsely V] Marl Depo] Hydrogen] Dry-Seaso	Yegetated sits (B15) Sulfide O n Water ⊺	Concave S dor (C1) Table (C2)		Secondary I Water S Water S Drainag Oxidize Presend Salt De Sturted	ndicators (two or more are required) Stained Leaves (B9) ge Patterns (B10) d Rhizospheres along Living Roots (C3) te of Reduced Iron (C4) posits (C5) I or Stressed Plants (D1)
Depth (in Remarks: HYDROL(Wetland Hyu Primary India Surface Wigh Wa Saturatia Water M Sedimer Drift Dep	DGY drology Inc actors (any o Water (A1) ther Table (A on (A3) larks (B1) nt Deposits (I posits (B3)	dicators: one is suffic 2) B2)	cient)] Sparsely V] Marl Depo] Hydrogen	Yegetated sits (B15) Sulfide O n Water ⊺	Concave S dor (C1) Table (C2)		Secondary I Water S Water S Drainag Oxidize Presend Salt De Sturted Geomo	ndicators (two or more are required) Stained Leaves (B9) ge Patterns (B10) d Rhizospheres along Living Roots (C3) te of Reduced Iron (C4) posits (C5) I or Stressed Plants (D1) rphic Position (D2)
Depth (in Remarks: HYDROL(Wetland Hy Primary Indic Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma	DGY drology Inc cators (any o Water (A1) tter Table (A on (A3) larks (B1) nt Deposits (I posits (B3) tt or Crust (B	dicators: one is suffic 2) B2)	cient)] Sparsely V] Marl Depo] Hydrogen] Dry-Seaso	Yegetated sits (B15) Sulfide O n Water ⊺	Concave S dor (C1) Table (C2)		Secondary I Water S Drainag Oxidize Presend Salt De Stunted Geomo Shallow	ndicators (two or more are required) Stained Leaves (B9) ge Patterns (B10) d Rhizospheres along Living Roots (C3) te of Reduced Iron (C4) posits (C5) I or Stressed Plants (D1) rphic Position (D2) r Aquitard (D3)
Depth (in Remarks: HYDROL(Wetland Hyd Primary Indic Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep	DGY drology Inc cators (any o Water (A1) tter Table (A on (A3) larks (B1) nt Deposits (I posits (B3) tt or Crust (B posits (B5)	dicators: one is suffic 2) B2) B2)	cient)] Sparsely V] Marl Depo] Hydrogen] Dry-Seaso	Yegetated sits (B15) Sulfide O n Water ⊺	Concave S dor (C1) Table (C2)		Secondary I Secondary I Water S Drainag Drainag Oxidize Presend Salt De Stunted Geomo ✓ Shallow Microto	ndicators (two or more are required) Stained Leaves (B9) ge Patterns (B10) d Rhizospheres along Living Roots (C3) te of Reduced Iron (C4) posits (C5) I or Stressed Plants (D1) rphic Position (D2) r Aquitard (D3) pographic Relief (D4)
Depth (in Remarks: HYDROL(Wetland Hy Primary Indic Surface High Wa Saturatio Water M Sedimer Drift Dep Algal Ma Iron Dep Surface	DGY drology Inc cators (any o Water (A1) ater Table (A on (A3) larks (B1) nt Deposits (I posits (B3) at or Crust (B posits (B5) Soil Cracks (dicators: one is suffic 2) B2) B2)	cient)] Sparsely V] Marl Depo] Hydrogen] Dry-Seaso	Yegetated sits (B15) Sulfide O n Water ⊺	Concave S dor (C1) Table (C2)		Secondary I Secondary I Water S Drainag Drainag Oxidize Presend Salt De Stunted Geomo ✓ Shallow Microto	ndicators (two or more are required) Stained Leaves (B9) ge Patterns (B10) d Rhizospheres along Living Roots (C3) te of Reduced Iron (C4) posits (C5) I or Stressed Plants (D1) rphic Position (D2) r Aquitard (D3)
Depth (in Remarks: HYDROL(Wetland Hyu Primary Indic Surface High Wa Saturatic Water M Sedimer Drift Dep Algal Ma Iron Dep	DGY drology Inc ators (any o Water (A1) atter Table (A on (A3) larks (B1) nt Deposits (B3) at or Crust (B posits (B3) tt or Crust (B posits (B5) Soil Cracks (vations:	dicators: one is suffic 2) B2) B2) 34) (B6)	cient)] Sparsely V] Marl Depo] Hydrogen] Dry-Seaso	/egetated sits (B15) Sulfide O n Water ⊺ blain in R€	Concave S dor (C1) Table (C2)		Secondary I Secondary I Water S Drainag Drainag Oxidize Presend Salt De Stunted Geomo ✓ Shallow Microto	ndicators (two or more are required) Stained Leaves (B9) ge Patterns (B10) d Rhizospheres along Living Roots (C3) te of Reduced Iron (C4) posits (C5) I or Stressed Plants (D1) rphic Position (D2) r Aquitard (D3) pographic Relief (D4)
Depth (in Remarks: HYDROL(Wetland Hy Primary India Surface High Wa Saturatia Water M Sedimer Drift Dep Algal Ma Iron Dep Surface Field Observ	DGY drology Inc cators (any o Water (A1) ther Table (A on (A3) larks (B1) at Deposits (B3) th Deposits (B3) th or Crust (B posits (B5) Soil Cracks (vations: er Present?	dicators: one is suffic 2) B2) 34) (B6) Yes] Sparsely V] Marl Depo] Hydrogen] Dry-Seaso] Other (Exp	regetated sits (B15) Sulfide O n Water T olain in Re ches):	Concave S dor (C1) Table (C2) emarks)	urface (B8	Secondary I Secondary I Water S Drainag Drainag Oxidize Presend Salt De Stunted Geomo ✓ Shallow Microto	ndicators (two or more are required) Stained Leaves (B9) ge Patterns (B10) d Rhizospheres along Living Roots (C3) te of Reduced Iron (C4) posits (C5) H or Stressed Plants (D1) rphic Position (D2) Aquitard (D3) pographic Relief (D4) utral Test (D5)

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

(includes capillary fringe)

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough	Sampling Date: 24-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point: CB_07
Investigator(s): <u>_SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Flat
Local relief (concave, convex, none):	Slope: <u>5.2</u> % / <u>3.0</u> ° Elevation: 90	
Subregion : Northern Alaska La	t.: <u>66.839815</u> Long.: <u>-162.54651</u>	Datum: WGS84
Soil Map Unit Name:	NWI class	ification: PSS1B
	Yes No (If no, explain ir antly disturbed? Are "Normal Circumstances" Are "Normal Circumstances" Iy problematic? (If needed, explain any answer)	present? Yes No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present?	Yes 🖲	No 🔿	Is the Sampled Area	
Hydric Soil Present?	Yes 🖲	No O	within a Wetland?	Yes \bullet No \bigcirc
Wetland Hydrology Present?	Yes 🖲	No 🔿	within a wetland?	
Pomarks: manage and brown t				a lalves even fall CTCW semeniard salaty of salary

Remarks: moose scat, browse, trails. sam (cult adv) notes that they usually get a moose by these lakes every fall. STCW comprised solely of salpul.

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

		Ab	solute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum		%	Cover	Species?	Status	Number of Dominant Species
1						That are OBL, FACW, or FAC: (A)
2						Total Number of Dominant
3						Species Across All Strata: (B)
						Percent of dominant Species That Are OBL_EACW_ or EAC: 80.0% (A/B)
5						That Are OBL, FACW, or FAC: <u>80.0%</u> (A/B)
0.	Total Cove	er:	0			Prevalence Index worksheet:
Sapling/Shrub Strat	tum 50% of Total Cover:	0	20% c	of Total Cover:	0	Total % Cover of: Multiply by:
1 Salix pulchra			80	\checkmark	FACW	OBL species x 1 =
 Vaccinium vitis-i 	daea		3		FAC	FACW species <u>110.5</u> x 2 = <u>221</u>
3 Vaccinium uligin	00Um		7		FAC	FAC species 21.5 x 3 = 64.5
 Jaccentrum algin ∠ Empetrum nigru 			1		FAC	FACU species 16.5 x 4 =66
						UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
						Column Totals: <u>148.5</u> (A) <u>351.5</u> (B)
						Prevalence Index = $B/A = 2.367$
						Hydrophytic Vegetation Indicators:
						✓ Dominance Test is > 50%
10	Total Cove		01			✓ Prevalence Index is ≤3.0
		_	91	(=		Morphological Adaptations ¹ (Provide supporting
Herb Stratum	50% of Total Cover:	45.5	_ 20% (of Total Cover:	18.2	data in Remarks or on a separate sheet)
1 Lycopodium clav	vatum	_	3		FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
2 Rubus chamaem	iorus		0.5		FACW	¹ Indicators of hydric soil and wetland hydrology must
3. Chamerion angu	istifolium	_	0.5		FACU	be present, unless disturbed or problematic.
4. Calamagrostis ca	anadensis	_	10	\checkmark	FAC	
5. Equisetum prate	ense		20	\checkmark	FACW	Plot size (radius, or length x width) 10m
6. Petasites frigidu	s		10	\checkmark	FACW	% Cover of Wetland Bryophytes
7. Aconitum delphi	nifolium		0.5		FAC	(Where applicable)
8. Rubus arcticus		_	10	\checkmark	FACU	% Bare Ground _25
9. Artemisia tilesii			3		FACU	Total Cover of Bryophytes 70
•		_				
10.	Total Cove	er:	57.5			Hydrophytic Vegetation
	50% of Total Cover:			of Total Cover:	11.5	Present? Yes I No
Remarks: trace ste	llaria galium moelat legume valeri	an				

tellaría, galium, moelat, legume, valerían.

Profile Desc	ription: D	escribe to	depth ne	eded to doc	ument the	e preser	nce or abs	ence of ir	ndicators	
Depth		Matrix			Red	ox Featu				
(inches)	Color	(moist)	%	Color ((moist)	_%	Type ¹	Loc ²	Texture	Remarks
0-3									Hemic Organics	
3-4									Sapric Organics	
4-33	10YR	3/2	80	7.5YR	3/3	20	С	PL	Silty Clay Loam	very high organic content
1					2					
'Type: C=Cor	ncentration	D=Depleti	on RM=Re				0		Channel M=Matrix	
Hydric Soil	Indicators	5:					atic Hydr	ic Soils:		
Histosol	or Histel (A	1)			aska Color	0	• •			hout Hue 5Y or Redder
Histic Epipedon (A2) Alaska Alpine swales (TA5) Underlying Layer										
Hydroge	n Sulfide (A	4)			aska Redo	With 2.	5Y Hue		✓ Other (Explain in F	Remarks)
Thick Da	rk Surface	(A12)		3.0~	indicator	of hudrou	a hutia uaga	tation on	, primory indicator of wat	tional hydrology
Alaska G	leyed (A13))					scape posit		e primary indicator of we be present	tiana nyarology,
Alaska R	edox (A14)									
🔄 Alaska G	leyed Pores	s (A15)		4 GIV	e details of	color ch	ange in Rei	marks		
Restrictive I	Layer (if p	resent):								
Type: ac	tive layer (f	rozen)							Hydric Soil Prese	ent? Yes 🖲 No 🔾
Depth (in	ches): 33									
Remarks:									i.	
4-33: do not l	pelieve org	content is h	nigh enoug	h to qualify a	s an organ	ic soil, bu	ut there is a	a very high	organic content through	nout layer. given the landscape, hydro, and
veg, believe t	hat the org	anic staining	g masks lig	hter soil colo	rs, obscurii	ng the ne	ecessary co	lors for A1	4	
HYDROL	OGY									
Wetland Hy	drology I r	ndicators:							Secondar	ry Indicators (two or more are required)
Primary India	cators (any	one is suffic	cient)						Wate	er Stained Leaves (B9)
	Water (A1)				Inundation	Visible o	on Aerial Im	agery (B7) 🗌 Drai	nage Patterns (B10)
	iter Table (A2)			Sparsely V	egetated	Concave S	urface (B8) 🗌 Oxid	lized Rhizospheres along Living Roots (C3)
🗹 Saturatio	on (A3)				Marl Depos	sits (B15)			Pres	sence of Reduced Iron (C4)
Water Marks (B1)							Salt	Deposits (C5)		

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Yes 🔘 No 🖲

Yes \bullet No \bigcirc

Yes 💿 No 🔾

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Dry-Season Water Table (C2)

Other (Explain in Remarks)

Depth (inches):

Depth (inches): 9

Depth (inches): 3

Sediment Deposits (B2)

Algal Mat or Crust (B4)

Surface Soil Cracks (B6)

Drift Deposits (B3)

Iron Deposits (B5)

Field Observations:

Surface Water Present?

(includes capillary fringe)

Water Table Present?

Saturation Present?

No \bigcirc

Stunted or Stressed Plants (D1)

Geomorphic Position (D2)

Microtopographic Relief (D4)

Yes 🖲

Shallow Aquitard (D3)

▼ FAC-neutral Test (D5)

Wetland Hydrology Present?

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 24-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point: CB_08
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Kettle
Local relief (concave, convex, none): none	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>50</u>	
Subregion : Northern Alaska Lat.:	66.840435 Long.: -162.54633	Datum: WGS84
Soil Map Unit Name:	NWI class	ification: PEM1B
	ear? Yes O No O (If no, explain in itly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes No

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \odot No \bigcirc
Remarks: HGMBS. Possible that arcful and eriang.	this site is c	Irying out? General impressior	n is of a drying lake mai	rgin invaded by calcan. Adjacent pem pond fringe w

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

		Absolute		Indicator	Dominance Test worksheet:
Tree Stratum		% Cover	Species?	Status	Number of Dominant Species
1					That are OBL, FACW, or FAC: (A)
2					Total Number of Dominant
3					Species Across All Strata: (B)
4					Percent of dominant Species That Are OBL_EACW_or_EAC: 100.0% (A/B)
5					That Are OBL, FACW, or FAC:(A/B)
	Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cove	r: 0	20% (of Total Cover:	0	Total % Cover of: Multiply by:
1 Salix pulchra	-	10	\checkmark	FACW	OBL speci es <u>1.5</u> x 1 = <u>1.5</u>
••					FACW species40 x 2 =80
2					FAC species43 x 3 =129
3					FACU species $\frac{8}{100} \times 4 = \frac{32}{100}$
4					UPL species $0 \times 5 = 0$
5					•
6					Column Totals: (A) (B)
7					Prevalence Index = B/A = 2.622
8					Indrambutic Verstation Indicators.
9					Hydrophytic Vegetation Indicators: Dominance Test is > 50%
10					
Total	Cover:	10			✓ Prevalence Index is ≤3.0
Herb Stratum 50% of Total Cov	er:5	20%	of Total Cover:	2	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1 Chamerion angustifolium		5		FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Rubus arcticus		20	\checkmark	FAC	¹ Indicators of hydric soil and wetland hydrology must
3. Calamagrostis canadensis		20	\checkmark	FAC	be present, unless disturbed or problematic.
4 Rumex arcticus		3		FAC	
5. Petasites frigidus		30	\checkmark	FACW	Dist size (redius, or langth wouldth) (a)
6. Artemisia tilesii		3		FACU	Plot size (radius, or length x width) <u>10m</u>
7. Eriophorum angustifolium		1		OBL	% Cover of Wetland Bryophytes (Where applicable)
8. Comarum palustre		0.5		OBL	% Bare Ground 10
0:					Total Cover of Bryophytes 85
9					
10	Cover:	82.5			Hydrophytic Verstation
50% of Total Cove			of Total Cover:	16.5	Vegetation Present? Yes • No O

Remarks: trace legume, stellaria. eriang strongly tristichous lvs red-purple.

Sampling Point: CB_08

Profile Desc	ription: De	escribe to	depth ne	eded to doo	ument th	e presen	ice or abs	ence of i	ndicators	
Depth		Matrix			Red	ox Featu	ires			
(inches)	Color ((moist)	%	Color	(moist)	%	Type ¹	Loc ²	Texture	Remarks
0-2		. <u> </u>		-					Fibric Organics	
2-4	10YR	3/1	65	10YR	4/6	35	C	PL	Silty Clay Loam	7% oxidized rhizospheres around living roots
4-9	2.5Y	3/1	80	10YR	3/6	20	C	PL	Silty Clay Loam	5% oxidized rhizospheres around living roots
9-20	2.5Y	3/1	95	10YR	3/6	5	C	PL	Silty Clay Loam	5% oxidized rhizospheres around living roots
						-		-	<u></u>	
¹ Type: C=Con	centration	D=Depletic	on RM=R	educed Matrix	× ² Locatic	on: PL=Pr	ore Lining	RC=Root	Channel M=Matrix	
Hydric Soil		•			ators for					
	or Histel (A1				laska Color		4		Alaska Gleyed Witho	ut Hue 5Y or Redder
	pedon (A2)	1			laska Alpine				Underlying Layer	
Hydroger	n Sulfide (A4	4)		A	laska Redox	x With 2.5	5Y Hue		✓ Other (Explain in Rei	narks)
Thick Dar	rk Surface (A	A12)		3 On	o indicator	of hydror	butic yogo	station on	e primary indicator of wetla	nd hydrology
	eyed (A13)				an appropr					na nyarology,
	edox (A14) eyed Pores	(415)		⁴ Giv	e details of	f color cha	ange in Rei	marks		
	-									
Type:	Restrictive Layer (if present): Type: Hydric Soil Present? Yes Image:									
	Depth (inches):									
Remarks:									I	
see comments	for CB_07	soils. not as	s high of (organic conte	nt here, bu	ut still w fa	airly heavy	organic.		
HYDROLO	DGY									
Wetland Hyd		dicators:							Secondary	Indicators (two or more are required)
Primary Indic		one is suffic	ient)						_	Stained Leaves (B9)
	Water (A1)				Inundation					ige Patterns (B10)
	ter Table (A	(2)			Sparsely V	-		urface (B8	,	ed Rhizospheres along Living Roots (C3)
Saturatio					Marl Depos	• •				nce of Reduced Iron (C4)
	Water Marks (B1) Hydrogen Sulfide Odor (C1) Salt Deposits (C5) Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed Plants (D1)								eposits (C5) ed or Stressed Plants (D1)	
	osits (B3)	B2)			•					orphic Position (D2)
	t or Crust (E	>4)			Other (Exp)lain in Ke	emarksj		_	w Aquitard (D3)
	iosits (B5)	54)							_	opographic Relief (D4)
	Soil Cracks ((R6)								eutral Test (D5)
Field Observ		(80)								
Surface Wate		Yes	О No) (•)	Depth (inc	hes):				
Water Table	Present?	Yes	. 💿 🛛 No	\circ	Depth (inc	ches): 4		w	/etland Hydrology Prese	nt? Yes 🖲 No 🔾
Saturation Pr (includes cap) Yes	• No	\circ	Depth (inc					
Describe Reco			ge, monit	or well, aeria	l photos, pi	revious in	spection) i	f available	:	
Western Regio	nal Climate	Center data	a for the k	Kotzebue Airp	ort (Statior	ו 50576) I	long term ((1949-201	2)	

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date:24-Aug-12
Applicant/Owner: _Baker/ADOT&PF		Sampling Point: CB_09
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Flat
Local relief (concave, convex, none):	_ Slope:% /° Elevation:65	
Subregion : Northern Alaska Lat.	<u>66.83983</u> Long.: <u>-162.54817</u>	Datum: WGS84
Soil Map Unit Name:	NWI class	sification: PEM1E
	ear? Yes O No O (If no, explain in htly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes \odot No \bigcirc
SUMMARY OF FINDINGS - Attach site map show		

Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Remarks: wet sedge meadow tundra hgwst

			Ab	bsolute	Dominant	Indicator	Dominance Test worksheet:
	ee Stratum		_%	5 Cover	Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC:6(A)
							Total Number of Dominant Species Across All Strata: 6 (B)
							Percent of dominant Species
							That Are OBL, FACW, or FAC:100.0% (A/B)
5.		Total Cover:		0			Prevalence Index worksheet:
Sap	ling/Shrub Stratum	50% of Total Cover:	0	20% c	of Total Cover:	0	Total % Cover of: Multiply by:
1	Salix fuscescens			5	\checkmark	FACW	OBL species x 1 =
2.	Betula nana			5	\checkmark	FAC	FACW species $6 \times 2 = 12$
	Andromeda polifolia			1		FACW	FAC speci es 15 x 3 = 45
							FACU species $0 \times 4 = 0$
							UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
							Column Totals: <u>53</u> (A) <u>89</u> (B)
7.							Prevalence Index = $B/A = 1.679$
8.							
9.							Hydrophytic Vegetation Indicators: ✓ Dominance Test is > 50%
10.							
		Total Cover:	-	11			✓ Prevalence Index is ≤3.0
<u>, H</u>	erb Stratum_	50% of Total Cover:	5.5	20% c	of Total Cover:	2.2	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1.	Eriophorum scheuchzeri			7	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Eriophorum angustifolium			3		OBL	¹ Indicators of hydric soil and wetland hydrology must
3.	Carex chordorrhiza			10	\checkmark	OBL	be present, unless disturbed or problematic.
4	Carex crawfordii			10	\checkmark	FAC	
5.	Corox equatilie			5		OBL	Plot size (radius, or length x width) 5m
6.	Carex rotundata			7	\checkmark	OBL	% Cover of Wetland Bryophytes
•••							(Where applicable)
							% Bare Ground 35
							Total Cover of Bryophytes 60
10.							Hydrophytic
		Total Cover:	-	42			Vegetation
		50% of Total Cover:	21	20% c	of Total Cover:	8.4	Present? Yes No
Rem	arks: 5% unidentified small g	grass, no infloresence, in	ı sta	nding w	ater (possibly	a Puccine	llia sp). 2% unidentified Pedicularis sp.

	ed to document the presence or absence of indic Redox Features	ators
Depth <u>Matrix</u>	<u>Color (moist) % Type¹ Loc²</u>	Texture Remarks
		· · · · · · ·
	uced Matrix ² Location: PL=Pore Lining RC=Root Cha	nnel M=Matrix
Hydric Soil Indicators:	Indicators for Problematic Hydric Soils: ³	_
Histosol or Histel (A1)	Alaska Color Change (TA4) ⁴	Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
Histic Epipedon (A2)	Alaska Alpine swales (TA5)	Onderlying Layer Other (Explain in Remarks)
Hydrogen Sulfide (A4)	Alaska Redox With 2.5Y Hue	
Thick Dark Surface (A12)	³ One indicator of hydrophytic vegetation, one pri	imary indicator of wetland hydrology,
Alaska Gleyed (A13)	and an appropriate landscape position must be p	resent
Alaska Redox (A14)	⁴ Give details of color change in Remarks	
Alaska Gleyed Pores (A15)		Τ
Restrictive Layer (if present):		
Туре:		Hydric Soil Present? Yes No
Depth (inches):		
Remarks:		
assume hydric soil due to hydrophytic vegetation	and standing water	
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (two or more are required)
Primary Indicators (any one is sufficient)		Water Stained Leaves (B9)
Surface Water (A1)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)
High Water Table (A2)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3)
Saturation (A3)	Marl Deposits (B15)	Presence of Reduced Iron (C4)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)
Sediment Deposits (B2)	Dry-Season Water Table (C2)	Stunted or Stressed Plants (D1)
Drift Deposits (B3)	Other (Explain in Remarks)	Geomorphic Position (D2)
Algal Mat or Crust (B4)		Shallow Aquitard (D3)
Iron Deposits (B5)		Microtopographic Relief (D4)
Surface Soil Cracks (B6)		FAC-neutral Test (D5)

Field Observations: Surface Water Present?

Water Table Present?

Saturation Present?

Yes 🖲	No \bigcirc	Depth (inches): 4		
$_{\rm Yes} \bigcirc$	No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲
$_{\rm Yes}$ \bigcirc	No 🖲	Depth (inches):		

(includes capillary fringe) **Yes NO Depth** (incres): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No 🔿

Project/Site: Cape Blossom Wetlands	Borough/City:	Northwest Ar	ctic Borouah	Sampling Date:	24-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>				Sampling Poin	t: CB_10
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terra	ce, <mark>hummo</mark> cks e	etc.): Flat	
Local relief (concave, convex, none): <u>tussocks</u>	Slope:	% /	° Elevation:	55	
Subregion : Northern Alaska Lat.:	66.83964		Long.:162.548	8971666667 Da	atum: WGS84
Soil Map Unit Name:			NWI	classification: PSS3B	
	ear? Yes tly disturbed? problematic?	Are "Nor	mal Circumstan	ain in Remarks.) ces" present? Yes ⁽ answers in Remarks.)	• No ()
		`			

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: SLOBE				

		Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum		% Cover	Species?	Status	Number of Dominant Species
1					That are OBL, FACW, or FAC:5_ (A)
2					Total Number of Dominant
3					Species Across All Strata:5_ (B)
4					Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5					
0.1	Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum	60% of Total Cover:	20%	of Total Cover:	0	Total % Cover of: Multiply by:
1. Salix pulchra		5		FACW	OBL speciles <u>12</u> x 1 = <u>12</u>
2. Empetrum nigrum		5		FAC	FACW species X 2 =76
3. Ledum decumbens		20	\checkmark	FACW	FAC speci es 45 x 3 = 135
4 Vaccinium uliginosum		10		FAC	FACU species $1 \times 4 = 4$
		20	\checkmark	FAC	UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
6 Betula nana		10		FAC	Column Totals:
7 Arctostaphylos alpina		1		FACU	Prevalence Index = $B/A = 2.365$
8.					
9					Hydrophytic Vegetation Indicators:
10					✓ Dominance Test is > 50%
10.	Total Cover:	71			✓ Prevalence Index is ≤3.0
Herb Stratum	50% of Total Cover: 3	5.5 20%	of Total Cover:	14.2	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1 Carex aquatilis		10	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Eriophorum angustifolium		2		OBL	¹ Indicators of hydric soil and wetland hydrology must
		7	\checkmark	FACW	be present, unless disturbed or problematic.
4 Rubus chamaemorus		5	\checkmark	FACW	
5. Petasites frigidus		1		FACW	Plot size (radius, or length x width) 10m
6					% Cover of Wetland Bryophytes
7					(Where applicable)
8					% Bare Ground _0
9					Total Cover of Bryophytes 90
10					Hydrophytic
	Total Cover:	25			Vegetation
5	0% of Total Cover: 12	2.5 20%	of Total Cover:	5	Present? Yes \bullet No \bigcirc
Remarks: 5% lichen cover					

Depth		Matrix		Pod	ox Featu	roc			
(inches)	Color (n		%	Color (moist)	0x realu %	Type ¹	Loc ²	Texture	Remarks
0-6		noist)	100			Туре	LUC-	Fibric Organics	Remarks
								Hemic Organics	
6-14			100						
14-16	2.5Y	3/2	100					Silty Clay Loam	
								· ·	
,							u		
								·	
¹ Type: C=Con	ncentration D	=Depletio	n RM=Rec	luced Matrix ² Locatio				Channel M=Matrix	
Hydric Soil	Indicators:			Indicators for		4	ic Soils: ³	_	
_	or Histel (A1)			Alaska Color	0			Alaska Gleyed Without Underlying Layer	Hue 5Y or Redder
	ipedon (A2)			Alaska Alpino				Other (Explain in Rem	
	n Sulfide (A4)			Alaska Redo	x With 2.5	5Y Hue			arks)
	rk Surface (A	12)						e primary indicator of wetland	d hydrology,
	leyed (A13) edox (A14)			and an appropr	iate lands	scape posit	ion must b	e present	
	leyed Pores (A	A15)		⁴ Give details of	f color cha	ange in Re	marks		
Restrictive L									
Type: act		senty.						Hydric Soil Present?	Yes 🔍 No 🔾
Depth (inc	3								
Depth (inc	lies). To								
Remarks:	lies). To								
	JIES). 10								
Remarks:									
Remarks:	DGY	icators:						Secondary Ir	ndicators (two or more are required)
	DGY drology Indi		ent)						ndicators (two or more are required) tained Leaves (B9)
Remarks: HYDROLO Wetland Hyo Primary Indic	DGY drology Indi		ent)	Inundatior	1 Visible o	n Aerial Im	nagery (B7	Water S	
Remarks: HYDROLO Wetland Hyo Primary Indic Surface V	DGY drology Indi ators (any on	ne is suffici	ent)	Inundation) Water S	tained Leaves (B9)
Remarks: HYDROLO Wetland Hyo Primary Indic Surface V	DGY drology Indi sators (any on Water (A1) ter Table (A2	ne is suffici	ent)		egetated	Concave S		Water S Water S Drainage Oxidized	tained Leaves (B9) e Patterns (B10)
Remarks: HYDROLO Wetland Hyd Primary Indic Surface V V High Wa	DGY drology Indi ators (any on Water (A1) ter Table (A2 on (A3)	ne is suffici	ent)	Sparsely V	egetated sits (B15)	Concave S		Water S Water S Drainage Oxidized	tained Leaves (B9) e Patterns (B10) I Rhizospheres along Living Roots (C3) e of Reduced Iron (C4)
Remarks: HYDROL(Wetland Hyc Primary Indic Surface V Wigh Wa' Saturatic Water Ma	DGY drology Indi ators (any on Water (A1) ter Table (A2 on (A3)	ne is suffici	ent)	Sparsely V	egetated sits (B15) Sulfide O	Concave S dor (C1)		Water S Drainage Oxidized Presence Salt Dep	tained Leaves (B9) e Patterns (B10) I Rhizospheres along Living Roots (C3) e of Reduced Iron (C4)
Remarks: HYDROLO Wetland Hyo Primary Indic Surface V High Wa' Saturatic Water M: Sedimen	DGY drology Indi ators (any on Water (A1) ter Table (A2 on (A3) arks (B1)	ne is suffici	ent)	Sparsely V Marl Depo Hydrogen	egetated sits (B15) Sulfide O n Water T	Concave S dor (C1) Table (C2)		Water S Drainage Oxidized Oxidized Presence Salt Dep Stunted	tained Leaves (B9) e Patterns (B10) I Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) posits (C5)
Remarks: HYDROLO Wetland Hyc Primary Indic Surface W Withigh War Water Mark Sedimen Drift Dep	DGY drology Indi ators (any on Water (A1) ter Table (A2 on (A3) arks (B1) tt Deposits (B	n <u>e is suffici</u> 2) 2)	ent)	Sparsely V Sharl Deport Hydrogen Dry-Seaso	egetated sits (B15) Sulfide O n Water T	Concave S dor (C1) Table (C2)		Water S Constraints Water S Constraints Water S Constraints Drainage Oxidized Oxidized Presence Salt Dep Stunted Geomory	tained Leaves (B9) e Patterns (B10) I Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) posits (C5) or Stressed Plants (D1)
Remarks: HYDROLO Wetland Hyo Primary Indic Surface V V High Wa' V Saturatic Water M: Sedimen Drift Dep Algal Ma'	DGY drology Indi ators (any on Water (A1) ter Table (A2 on (A3) arks (B1) it Deposits (B posits (B3)	n <u>e is suffici</u> 2) 2)	ent)	Sparsely V Sharl Deport Hydrogen Dry-Seaso	egetated sits (B15) Sulfide O n Water T	Concave S dor (C1) Table (C2)			tained Leaves (B9) e Patterns (B10) I Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) posits (C5) or Stressed Plants (D1) phic Position (D2) Aquitard (D3) pographic Relief (D4)
Remarks: HYDROLC Wetland Hyc Primary Indic Surface V High Wa Saturatic Water M. Sedimen Drift Dep Algal Ma Iron Dep	DGY drology Indi ators (any on Water (A1) ter Table (A2 on (A3) arks (B1) it Deposits (B ososits (B3) t or Crust (B4	n <u>e is suffici</u> 2) 4)	ent)	Sparsely V Sharl Deport Hydrogen Dry-Seaso	egetated sits (B15) Sulfide O n Water T	Concave S dor (C1) Table (C2)			tained Leaves (B9) e Patterns (B10) I Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) posits (C5) or Stressed Plants (D1) phic Position (D2) Aquitard (D3)
Remarks: HYDROLC Wetland Hyc Primary Indic Surface V High Wa Saturatic Water M. Sedimen Drift Dep Algal Ma Iron Dep	DGY drology Indi ators (any on Water (A1) ter Table (A2 on (A3) arks (B1) t Deposits (B posits (B3) t or Crust (B4 posits (B5) Soil Cracks (B	n <u>e is suffici</u> 2) 2) 4) 36)		Sparsely V Marl Depo Hydrogen Dry-Seaso Other (Exp	egetated sits (B15) Sulfide O n Water T	Concave S dor (C1) Table (C2)			tained Leaves (B9) e Patterns (B10) I Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) posits (C5) or Stressed Plants (D1) phic Position (D2) Aquitard (D3) pographic Relief (D4)
Remarks: HYDROL(Wetland Hyc Primary Indic Surface V High Wa Saturatic Water Ma Sedimen Drift Dep Algal Ma Iron Dep Surface S	DGY drology Indi ators (any on Water (A1) ter Table (A2 on (A3) arks (B1) tt Deposits (B posits (B3) t or Crust (B4 posits (B5) Soil Cracks (B vations:	ne is suffici 2) 2) 4) 36) Yes	○ No 1	Sparsely V Marl Depo Hydrogen Dry-Seaso Other (Exp Depth (inc	egetated sits (B15) Sulfide O n Water T olain in Re	Concave S dor (C1) Table (C2)	urface (B8	Water S Drainage Oxidized Presence Salt Dep Stunted Geomor ✓ Shallow Microtop ✓ FAC-neu	tained Leaves (B9) e Patterns (B10) I Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) oosits (C5) or Stressed Plants (D1) phic Position (D2) Aquitard (D3) oographic Relief (D4) tral Test (D5)
Remarks: HYDROLC Wetland Hyc Primary Indic Surface V V High Wa Saturatic Water Ma Sedimen Drift Dep Algal Ma Iron Dep Surface S Field Observ	DGY drology Indi ators (any on Water (A1) ter Table (A2 on (A3) arks (B1) it Deposits (B3) t or Crust (B4 posits (B5) Soil Cracks (B vations: er Present?	ne is suffici 2) 2) 4) 36) Yes		Sparsely V Marl Depo Hydrogen Dry-Seaso Other (Exp Depth (inc	egetated sits (B15) Sulfide O n Water 1 olain in Re	Concave S dor (C1) Table (C2)	urface (B8		tained Leaves (B9) e Patterns (B10) I Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) oosits (C5) or Stressed Plants (D1) phic Position (D2) Aquitard (D3) oographic Relief (D4) tral Test (D5)
Remarks: HYDROLO Wetland Hyo Primary Indic Surface V High Wa' Saturatic Water M: Sedimen Drift Dep Algal Ma' Iron Dep Surface Starface	DGY drology Indi ators (any on Water (A1) ter Table (A2 on (A3) arks (B1) it Deposits (B or Crust (B4) oosits (B3) t or Crust (B4) oosits (B5) Soil Cracks (B vations: er Present? Present?	ne is suffici 2) 4) 36) Yes Yes	○ No 1	Sparsely V Marl Depo Hydrogen Dry-Seaso Other (Exp Depth (inc Depth (inc)	egetated sits (B15) Sulfide O n Water T lain in Re lain in Re	Concave S dor (C1) Table (C2)	urface (B8	Water S Drainage Oxidized Presence Salt Dep Stunted Geomor ✓ Shallow Microtop ✓ FAC-neu	tained Leaves (B9) e Patterns (B10) I Rhizospheres along Living Roots (C3) e of Reduced Iron (C4) oosits (C5) or Stressed Plants (D1) phic Position (D2) Aquitard (D3) oographic Relief (D4) tral Test (D5)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borouah	Sampling Date: 2	4-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_11
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): tussocks	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>75</u>		
Subregion : Northern Alaska	Lat.: <u>66.8379116666667</u> Long.: <u>-162.558888</u>	3333333 Datur	n: WGS84
Soil Map Unit Name:	NWI class	sification: PSS3/EM1B	
	e of year? Yes No (If no, explain i ficantly disturbed? Are "Normal Circumstances" rally problematic? (If needed, explain any answ	present? Yes 🖲	No O
			_

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \odot No \bigcirc
Remarks: SLOTT				

	Ał	bsolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	%	5 Cover	Species?	Status	Number of Dominant Species
1					That are OBL, FACW, or FAC:5_(A)
2					Total Number of Dominant
3					Species Across All Strata:5_(B)
4.					Percent of dominant Species That Are OBL_EACW_or_EAC: 100.0% (A/B)
5					That Are OBL, FACW, or FAC:(A/B)
5. Total Cover	: _	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover:	0	20% 0	of Total Cover:	0	Total % Cover of: Multiply by:
₁ Betula nana		15	\checkmark	FAC	OBL species <u>7</u> x 1 = <u>7</u>
2 Vaccinium vitis-idaea		20	\checkmark	FAC	FACW species 41_ x 2 = 82
3. Ledum decumbens		20	\checkmark	FACW	FAC species 49 x 3 = 147
4 Vaccinium uliginosum		7		FAC	FACU species $1 \times 4 = 4$
5. Empetrum nigrum		7		FAC	UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
6 Arctostaphylos alpina		1		FACU	Column Totals:98(A)240(B)
0					
7					Prevalence Index = $B/A = 2.449$
8					Hydrophytic Vegetation Indicators:
9					✓ Dominance Test is > 50%
10Total Cover		70			✓ Prevalence Index is ≤3.0
	-			14	Morphological Adaptations ¹ (Provide supporting
_Herb Stratum50% of Total Cover:	35	20% (of Total Cover:	14	data in Remarks or on a separate sheet)
1. Eriophorum vaginatum		15	\checkmark	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Carex aquatilis		7	\checkmark	OBL	¹ Indicators of hydric soil and wetland hydrology must
3 Rubus chamaemorus		5		FACW	be present, unless disturbed or problematic.
4 Pedicularis langsdorfii		1		FACW	
5					Plot size (radius, or length x width) 10m
6					% Cover of Wetland Bryophytes
7					(Where applicable)
8.					% Bare Ground
9	-				Total Cover of Bryophytes
10					
To: Total Cover		28			Hydrophytic Vegetation
50% of Total Cover:	14	20% (of Total Cover:	5.6	Present? Yes I No
Remarks:					

Depth		Matrix		Red	ox Featu	ires			
(inches) Color (moist) %				Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6								Fibric Organic	
6-11								Hemic Organic	
11-16	10YR	3/2	100					Sandy Clay Loam	
¹ Type: C=Cor	ncentration [D=Depletio	on RM=Re	duced Matrix ² Locatio	n: PL=P	ore Lining	RC=Root	Channel M=Matrix	
Hydric Soil	Indicators:			Indicators for	Problem	natic Hydr	ic Soils: ³		
Histosol	or Histel (A1))		Alaska Color	Change	(TA4) ⁴		Alaska Gleyed Withou	t Hue 5Y or Redder
Histic Ep	ipedon (A2)			Alaska Alpine				Underlying Layer	
	n Sulfide (A4			Alaska Redo	With 2.	5Y Hue		Other (Explain in Rem	narks)
	rk Surface (A	12)		³ One indicator	of hydro	phytic vege	tation, one	e primary indicator of wetlan	d hydrology,
	leyed (A13) edox (A14)			and an appropr					, , , , , , , , , , , , , , , , , , ,
	leyed Pores ((A15)		⁴ Give details of	color ch	ange in Rei	marks		
Restrictive I	-								
	tive layer (fro							Hydric Soil Present	? Yes 🖲 No 🔿
Depth (in		JZEII)							
Remarks:									
HYDROL	JGV								
Wetland Hy		licators:						Secondary I	ndicators (two or more are required)
Primary India	ators (any o	ne is suffic	cient)						Stained Leaves (B9)
Surface	Water (A1)			Inundation	Visible c	on Aerial Im	nagery (B7) Drainag	e Patterns (B10)
✓ High Wa	ter Table (A2	2)		Sparsely V	egetated	Concave S	urface (B8) Oxidized	d Rhizospheres along Living Roots (C3)
Saturatio	. ,			Marl Depos	sits (B15))		_	e of Reduced Iron (C4)
	arks (B1)			Hydrogen :	Sulfide O	dor (C1)			posits (C5)
Sedimer	it Deposits (E	32)		Dry-Seasor	n Water	Table (C2)		Stunted	or Stressed Plants (D1)
Drift De	oosits (B3)			Other (Exp	lain in Re	emarks)			phic Position (D2)
Algal Ma	t or Crust (B	4)						✓ Shallow	Aquitard (D3)
Iron Dep	oosits (B5)							Microto	pographic Relief (D4)
Surface	Soil Cracks (I	B6)						🗹 FAC-neu	utral Test (D5)

Field Observations:							
Surface Water Present?							

Surface Water Present?	$Yes \bigcirc$	No 🖲	Depth (inches):		
Water Table Present?	Yes 🖲	No \bigcirc	Depth (inches): 9	Wetland Hydrology Present?	Yes 🖲
Saturation Present? (includes capillary fringe)	Yes 🖲	No \bigcirc	Depth (inches): 5		

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No \bigcirc

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 24-A	Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_12
Investigator(s): <u>_SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): hummocky	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>85</u>		
Subregion : Northern Alaska Lat	.: <u>66.839135</u> Long.: <u>-162.569861</u>	666667 Datum:	WGS84
Soil Map Unit Name:	NWI class	ification: PEM1E	
	year? Yes No (If no, explain ir intly disturbed? Are "Normal Circumstances" y problematic? (If needed, explain any answ	present? Yes 🔍 N	I o ()

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: HGWST				

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

		Abso	lute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum		% C	over	Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC:6(A)
2						Total Number of Dominant Species Across All Strata:6(B)
3 4						Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5	Total Cover:)			Prevalence Index worksheet:
Sapling/Shrub Stratum	50% of Total Cover:	0 2	20% o	of Total Cover:	0	Total % Cover of: Multiply by:
1 Andromeda polifolia			5		FACW	OBL species <u>20</u> x 1 = <u>20</u>
Botulo papa			3		FAC	FACW species X 2 =20
Z		_	1		FAC	FAC speciles $5 x 3 = 15$
4 Empotrum pigrum			1		FAC	FACU species $0 \times 4 = 0$
			1		OBL	UPL species $\begin{array}{c} 0 \\ \hline \end{array} x 5 = \begin{array}{c} 0 \\ \hline \end{array}$
6.						Column Totals: <u>35</u> (A) <u>55</u> (B)
7			_			Prevalence Index = B/A = <u>1.571</u>
8						Hydrophytic Vegetation Indicators:
9		_	_			✓ Dominance Test is > 50%
10Total Cover:		1	1			✓ Prevalence Index is ≤3.0
				of Total Cover:	2.2	Morphological Adaptations ¹ (Provide supporting
Herb Stratum			20/00			data in Remarks or on a separate sheet)
			7		OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
<u> </u>			5		OBL	¹ Indicators of hydric soil and wetland hydrology must
0.			7	\checkmark	OBL	be present, unless disturbed or problematic.
4. Eriophorum russeolum		;	5		FACW	
5		_				Plot size (radius, or length x width) 10m
6						% Cover of Wetland Bryophytes (Where applicable)
7						% Bare Ground <u>60</u>
8						Total Cover of Bryophytes 35
9						
10	Total Cover:	2	4			Hydrophytic Vegetation
				of Total Cover:	4.8	Present? Yes \bullet No \bigcirc

Remarks: erirus - no seed heads, possibly a different single-headed species. bare ground includes open water, likely biased high due to high water. 1% unid Pedicularis sp.

Remarks Hue 5Y or Redder arks)
ırks)
arks)
l hydrology,
Yes 🖲 No 🔾
dicators (two or more are required)
ained Leaves (B9)
e Patterns (B10)
Rhizospheres along Living Roots (C3)
e of Reduced Iron (C4)
osits (C5)
or Stressed Plants (D1)
phic Position (D2) Aquitard (D3)

				'				
Iron Deposits (B5)			Microtopographic Relief (D4)					
Surface Soil Cracks (B6)			✓ FAC-neutral	Test (D5)				
Field Observations:	-	-						
Surface Water Present?	Yes 🖲	No 🔿	Depth (inches): 6					
Water Table Present?	Yes \bigcirc	No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲	No \bigcirc		
Saturation Present? (includes capillary fringe)	$_{\rm Yes} \bigcirc$	No 🖲	Depth (inches):					
Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:								
Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)								
Remarks:								

high water, fully submerged betnan. Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough	Sampling Date:	24-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_13
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.)	Hillside	
Local relief (concave, convex, none):	Slope: <u>8.7</u> % / <u>5.0</u> ° Elevation: <u>75</u>		
Subregion : Northern Alaska La	t.: <u>66.840925</u> Long.: <u>-162.58077</u>	1666667 Datu	m: <u>WGS84</u>
Soil Map Unit Name:	NWI class	sification: PSS1B	
	f year? Yes No (If no, explain i antly disturbed? Are "Normal Circumstances" ly problematic? (If needed, explain any answ	present? Yes 🖲	No 〇

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	\sim	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: STCAW				

		Absolut	e Dominant	Indicator	Dominance Test worksheet:
Tree Stratum		% Cove	r Species?	Status	Number of Dominant Species
1					That are OBL, FACW, or FAC: (A)
2					Total Number of Dominant Species Across All Strata: 4 (B)
3					Percent of dominant Species
4					That Are OBL, FACW, or FAC:100.0% (A/B)
5	Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum	50% of Total Cover:	0 20%	of Total Cover:	0	Total % Cover of: Multiply by:
1. Salix pulchra		60	\checkmark	FACW	OBL species x 1 =
2. Alnus viridis ssp. crispa		20	\checkmark	FAC	FACW species X 2 =
3 Vaccinium uliginosum		2		FAC	FAC species 60 x 3 =180
4 Linnaga bargalic		10		FACU	FACU specilles 13 x 4 = 52
5.					UPL species $-\frac{0}{x 5} = -\frac{0}{x 5}$
6.					Column Totals:(A)(B)
7					Prevalence Index = $B/A = 2.541$
8					Hydrophytic Vegetation Indicators:
9					\checkmark Dominance Test is > 50%
10					✓ Dominance rest is > 30.78 ✓ Prevalence Index is ≤ 3.0
	Total Cover:	92	-		
Herb Stratum	50% of Total Cover: 4	16 20%	6 of Total Cover:	18.4	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1. Chamerion angustifolium		0.5		FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Equisetum pratense		25		FACW	¹ Indicators of hydric soil and wetland hydrology must
3. Petasites frigidus		1		FACW	be present, unless disturbed or problematic.
4. Aconitum delphinifolium		1		FAC	
5. Artemisia tilesii		2		FACU	Plot size (radius, or length x width) 5m
6. Rubus arcticus		35		FAC	% Cover of Wetland Bryophytes
7. Saxifraga nelsoniana		1		FAC	(Where applicable)
8. Calamagrostis canadensis		1		FAC	% Bare Ground _80
9. Moehringia lateriflora		0.5		FACU	Total Cover of Bryophytes 15
10					Hydrophytic
	Total Cover:	67	ef Total Course	12.4	Vegetation Present? Yes • No O
	50% of Total Cover: 33	3.5 20%	6 of Total Cover:	13.4	Present? Yes \bullet No \bigcirc
Remarks: trace unid herbs					

S	O	I	L
-	~		-

Color (moist) % Color (moist) % Type1 Loc2 Texture Remarks 0-1	Depth		Matrix			Red	lox Featu	ures			
0-1 Fibric Granics 1-6 Henic Organics 6-10 Saptic Organics 10-12 10YR 10-12 10YR 12-15 5V 4/2 15-20 10Y 5/1 85 16/20 10Y 5/1 85 17/pec: C-Concentration D-Depletion RM=Reduced Matrix *Location: PL-Pore Lining RC-Rot Channel M=Matrix Hydrics Soll Indicators: Indicators for Problematic Hydric Solls? 1 Histo Epipedin (A2) Alaska Colery Change Svales (TAS) 1 Histo Bark Surface (A12) ³ One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present 1 Alaska Cleyed Pores (A15) 4 Give details of color change in Remarks Restrictive layer (frozen) Depin (inches): 20 No O		Color		%	Color				Loc ²	Texture	Remarks
A-10 Sapric Organics 1078471 Inclusion 10-12 10YR 3/1 100 Sapric Organics pockets of 2.57471 12-15 5Y 4/2 95 10YR 3/3 5 C PL sitty Clay Leam pockets of 2.57471 12-15 5Y 4/2 95 10YR 5/8 15 C PL sitty Clay Leam organic inclusions 15-20 10Y 5/1 85 10YR 5/8 15 C PL sitty Clay Leam organic inclusions 15-20 10Y 5/1 85 10YR 5/8 15 C PL sitty Clay Leam organic inclusions 17ype: C=Concentration D=Depletion RM=Reduced Matrix *Location: PL=Pore Lining RC=Root Channel M=Matrix Hydrics Soils? Alaska Cleyed Without Hue SY or Redder Underlying Layer Underlying Layer Underlying Layer Alaska Cleyed Without Hue SY or Redder Underlying Layer Underlying Layer Ore Indicator of hydrophytic vegetation, one primary Indicator of wetland hydrology. Alaska Cleyed (A13) and an appropriate landscape position must be present Secondary Indicators (two or more are required) Alaska Cleyed (forzen) Experiment Li	0-1									Fibric Organics	
10-12 10YR 3/1 100 Silly Clay Loam pockets of 2.5Y4/1 12-15 5Y 4/2 95 10YR 3/3 5 C PL Silly Clay Loam organic inclusions 15-20 10Y 5/1 85 10YR 5/8 15 C PL Silly Clay Loam organic inclusions "type: C-Concentration D=Depletion RM-Reduced Matrix *Location: PL=Pore Lining RC=Rot Channel M=Matrix Histic Store Histel (A1) Alaska Color Change (TA4) Alaska Gleyed Without Hue SY or Redder Underlying Layer Histic Epipedon (A2) Alaska Alpine swales (TA5) Other (Explain in Remarks) Other (Explain in Remarks) Histic Dark Surface (A12) Alaska Gleyed Nith 2.5 Hue Other (Explain in Remarks) Alaska Gleyed Nith 2.5 Hue Other (Explain in Remarks) "Alaska Gleyed Pores (A13) * One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present * One indicators: No Type: active layer (forseent): Type: active layer (forseent): Yes (* No (* Or more are regulared) Pather Marks: Startare (A1) Inundation Visible on Aerial Imagery (B7) Drainage Patterns (B10) Oxidicad Rhitospheres along Living Roots (C	1-6									Hemic Organics	
12-15 5Y 4/2 95 10YR 3/3 5 C PL Sity Clay Leam organic inclusions 15-20 10Y 5/1 85 10YR 5/8 15 C PL Sity Clay Leam organic inclusions "Type: C-Concentration D-Depletion RM-Reduced Matrix *Location: PL-Pore Lining RC-Root Channel M-Matrix Histic Soli Indicators: Indicators for Problematic Hydric Solis." Alaska Cleyed Without Hue 5Y or Redder Underlying Layer Histic Epipedion (A2) Alaska Color Change (TA4) Without Hue 5Y or Redder Underlying Layer Other (Explain in Remarks) Hydrogen Sulfide (A4) Alaska Alpine swales (TA5) Other (Explain in Remarks) Other (Explain in Remarks) Alaska Gleyed (A13) * One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present Alaska Gleyed (A14) Alaska Gleyed Pres (A15) * Give details of color change in Remarks Hydric Soil Present? Yeg No () VDENDLOGY Secondary Indicators: Yeg * No () Wetland Hydrology Indicators: Secondary Indicators (two or more are required) Immary Indicators (any one is sufficient) Water Marks (B1) Underlying Roots (C Surface Water (A1)	6-10									Sapric Organics	10YR4/1 inclusion
15-20 10Y 5/1 85 10YR 5/8 15 C PL Silly Clay Loam Type: C=Concentration D=Depletion RM=Reduced Matrix *Location: PL=Pore Lining RC=Root Channel M=Matrix Hydric Soil Indicators: Indicators for Problematic Hydric Soills? Maska Cleyed Without Hue 5Y or Redder Histosol or Histel (A1) Alaska Color Change (TA4) Maska Cleyed Without Hue 5Y or Redder Histosol or Histel (A1) Alaska Color Change (TA4) Maska Cleyed Without Hue 5Y or Redder Histosol or Histel (A1) Alaska Color Change (TA4) Maska Cleyed Without Hue 5Y or Redder Hydric Soil Indicators: Indicator of hydrophytic vegetation, one primary Indicator of wetland hydrology, and an appropriate landscape position must be present Alaska Cleyed Pores (A13) * Glove details of color change in Remarks Restrictive Layer (frozen) * Glove details of color change in Remarks Restrictive Layer (frozen) * Glove details of color change in Amarks Wetland Hydrology Indicators: * Secondary Indicators: (two or more are required) Brimary Indicator (A2) Sparsely Vegetated Concave Surface (B8) Oxditzet Rhizophres along Living Roots (C Water Marks (B1) Hydrogen Sulfide Odor (C1) Sath Deposits (C3)	10-12	10YR	3/1	100						Silty Clay Loam	pockets of 2.5Y4/1
Type: C-Concentration D-Depletion RM-Reduced Matrix ⁴ Location: PL-Pore Lining RC-Root Channel M-Matrix Hydric Soil Indicators: Indicators for Problematic Hydric Soils. ³ Maska Cleyed Without Hue 5Y or Redder Underlying Layer Underlying Layer Underlying Layer Mitic Epipedon (A2) Alaska Alpine swales (TA6) Underlying Layer Underlying Layer Mitic Epipedon (A2) Alaska Alpine swales (TA6) Underlying Layer Other (Explain in Remarks) Thick Dark Surface (A12) Alaska Redox With 2.5Y Hue Other (Explain in Remarks) Alaska Cleyed (A13) An en indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an apportiate landscape position must be present Alaska Redox (A14) Alaska Redox (A14) Alaska Redox (If forzen) Depth (Inches); 20 Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (Inv one is sufficient) Depth (Inches); 20 Remarks: Hydrogen Sufficient) Depth (Inches); 20 Mitter Marks (B1) Hydrogen Sufficient) Dirundation Visible on Aerial Imagery (B7) Diralage Patterns (B10) Mater Stained Leaves (B9) Oxidized Rhizospheres along Living Roots (C Mater Marks (B1) Hydrogen Suffice Or (C1) Saturation (A3) Math Deposits (B15) Presence of Reduced Iron (C4) Suthed or Stressed Plants (D1) Genomprive Dositin (B2) Other (Explain in Remarks) Centomprive Robits (B3) Other (Explain in Remarks) Shallow Aquitard (D3) Algal Mat or Crust (B4) Mithor Crust (B4) Mater Stale (C2)	12-15	5Y	4/2	95	10YR	3/3	5	С	PL	Silty Clay Loam	organic inclusions
Hydric Soil Indicators: Indicators for Problematic Hydric Soils. ³ Histosol or Histel (A1) Alaska Color Change (TA4) Histosol or Histel (A1) Alaska Color Change (TA4) Histo: Epipedon (A2) Alaska Alpine swales (TA5) Hydrogen Sulfide (A4) Alaska Redox With 2:5Y Hue Thick Dark Surface (A12) ³ One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present Alaska Redox (A14) Alaska Gleyed Pores (A15) Alaska Redox (A14) Give details of color change in Remarks Restrictive Layer (if present): Type: active layer (if present): Type: active layer (inches): 20 Persent Wetland Hydrology Indicators: Secondary Indicators (two or more are required) Primary Indicator (A1) Inundation Visible on Aerial Imagery (B7) Surface Water (A1) Inundation Visible on Aerial Imagery (B7) Water Marks (B1) Sparsely Vegetated Concave Surface (B8) Water Marks (B1) Hydrogen Suffice Altricopheres along Living Roots (C Marter Marks (B1) Hydrogen Suffice Altricopheres along Living Roots (C Marter Marks (B1) Hydrogen Suffice Altricopheres along Living Roots (C Saturation (A3) Or y-Season Water Table (C2)	15-20	10Y	5/1	85	10YR	5/8	15	С	PL	Silty Clay Loam	
I Histosol or Histel (A1) Alaska Color Change (TA4 ⁴) ✓ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer I Histic Epipedon (A2) Alaska Appine swales (TA5) Other (Explain in Remarks) I Hydrogen Sulfide (A4) Alaska Redox With 2.5Y Hue Other (Explain in Remarks) Alaska Gleyed (A13) ³ One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present Alaska Gleyed Pores (A15) ⁴ Give details of color change in Remarks Restrictive Layer (if present): Type: active layer (frozen) Depth (inches): 20 Hydric Soil Present? Yeg No WetTand Hydrology Indicators: Inundation Visible on Aerial Imagery (87) Primary Indicators (any one is sufficient) Inundation Visible on Aerial Imagery (87) Surface Water (A1) Inundation Visible on Aerial Imagery (87) Saturation (A3) Marl Deposits (815) Year Saturation (A3) Marl Deposits (815) Sediment Deposits (82) Dry-Season Water Table (C2) Staturation (A3) Marl Deposits (B15) Dry-Season Water Table (C2) Stature or Stressed Plants (D1) Dirth Deposits (82) Other (Explain in Remarks) Staturation (A3) Other (Explain in Remarks)	¹ Type: C=Cc	oncentration	D=Depleti	ion RM=Re				0		Channel M=Matrix	
Withit Epipedon (A2) Alaska Alpine swales (TA5) Underlying Layer Hydrogen Sulfide (A4) Alaska Redox With 2.5Y Hue Other (Explain in Remarks) Thick Dark Surface (A12) ³ One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present Alaska Gleyed Arias ⁴ Give details of color change in Remarks Restrictive Layer (If present): Type: active layer (frozen) Depth (inches): 20 Hydric Soil Present? Yes (No () Wetland Hydrology Indicators: Primary Indicators (hyo or more are required) Firmary Indicators (any one is sufficient) Inundation Visible on Aerial Imagery (B7) Drainage Patterns (B10) Surface Water (A1) Inundation Visible on Aerial Imagery (B7) Drainage Patterns (B10) Vinder Okized Phizospheres along Living Roots (C G) Saturation (A3) Mark B(1) Hydrogen Sufficient (C2) Saturation (A3) Saturation (A3) Presence of Reduced Iron (C4) Water Marks (B1) Hydrogen Sufficient (C2) Sature of Stressed Plants (D1) Geomorphic Positis (D2) Drint Deposits (B2) Dry-Season Water Table (C2) Sature of Stressed Plants (D1) Geomorphic Positis (D2) Drift Deposits (B3) Other (Explain in Remarks) Shallow Aquitard (D3)	Hydric Soil	Indicators	5:					4	ric Soils: ³		
Image:	Histosol	or Histel (A	.1)				-				hout Hue 5Y or Redder
Implying and sufface (A12) □ Thick Dark Surface (A12) □ Thick Dark Surface (A12) □ □ Alaska Gleyed (A13) □ ☑ Alaska Gleyed Pores (A15) ▲ Give details of color change in Remarks Restrictive Layer (if present): Type: active layer (frozen) □ Depth (inches): 20 ■ ■ Wettand Hydrology Indicators: Primary Indicators (two or more are required) Pimary Indicators (any one is sufficient) □ □ □ Surface Water (A1) □ □nundation Visible on Aerial Imagery (B7) □ ☑ Surface Water (A1) □ □nundation Visible on Aerial Imagery (B7) □ □ ☑ High Water Table (A2) □ □ □ □ □ ☑ Water Marks (B1) □ □ □ □ □ □ ☑ Water Marks (B1) □ □ □ □ □ □ □ ☑ beposits (B2) □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	Histic Ep	pipedon (A2))			•					
 Alaska Gleyed (A13) Alaska Gleyed (A13) Alaska Redox (A14) Alaska Redox (A14) Alaska Gleyed Pores (A15) Give details of color change in Remarks Restrictive Layer (if present): Type: active layer (frozen) Depth (inches): 20 Remarks: Semarks: Secondary Indicators: Primary Indicators (any one is sufficient) Inundation Visible on Aerial Imagery (B7) Statration (A3) Maid Deposits (B15) Presence of Reduced Iron (C4) Statre Mair (B13) Other (Explain in Remarks) 	Hydroge	en Sulfide (A	(4)			laska Redo	x With 2.5	5Y Hue		Other (Explain in F	Remarks)
Imaska Gleyed (113) and an appropriate landscape position must be present Imaska Gleyed (113) and an appropriate landscape position must be present Imaska Gleyed Pores (A15) * Give details of color change in Remarks Restrictive Layer (ff present): Type: active layer (frozen) Depth (inches): 20 Hydric Soil Present? Yes ● No ○ Remarks: Premarks: HyDROLOGY Secondary Indicators: Primary Indicators (any one is sufficient) Inundation Visible on Aerial Imagery (B7) Surface Water (A1) Inundation Visible on Aerial Imagery (B7) Image Patterns (B10) Valide Rhizospheres along Living Roots (C1) Water Marks (B1) Hydrogen Sulfide Odor (C1) Saturation (A3) Marl Deposits (B15) Water Marks (B1) Hydrogen Sulfide Odor (C1) Saturation (A3) Other (Explain in Remarks) Geomorphic Positin (D2) Stutued or Stressed Plants (D1) Algal Mat or Crust (B4) Water Table (C2)	Thick Da	ark Surface ((A12)		3 On	o indicator	of bydrou	nhytic yogr	station on	a primary indicator of wo	tland budrology
✓ Alaska Redox (A14) 4 Give details of color change in Remarks Alaska Gleyed Pores (A15) 4 Give details of color change in Remarks Restrictive Layer (if present): Type: active layer (frozen) Depth (inches): 20 Hydric Soil Present? Yes ● No ○ Remarks: Secondary Indicators: Primary Indicators: Secondary Indicators (two or more are required) Primary Indicators (any one is sufficient) Inundation Visible on Aerial Imagery (B7) 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) ✓ Seconder In Deposits (B2) Dry-Season Water Table (C2) Orther (Explain in Remarks) Geomorphic Position (D2) Alaska Redox (A1) Water Table (A2) Type: Secondary Indicators (C5) Saturation (A3)		3									aland hydrology,
Araska Gelgee Poiles (Aris)											
Type: active layer (frozen) Depth (inches): 20 Remarks: Hydric Soil Present? Yes No No No Remarks: Remarks:<td>Alaska C</td><td>Gleyed Pores</td><td>; (A15)</td><td></td><td>· 0iv</td><td>e details oi</td><td>COIOL CHA</td><td>ange in Ke</td><td>marks</td><td></td><td></td>	Alaska C	Gleyed Pores	; (A15)		· 0iv	e details oi	COIOL CHA	ange in Ke	marks		
Depth (inches): 20 Remarks: IYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient) Surface Water (A1) Inundation Visible on Aerial Imagery (B7) Value Raize Vater (A1) Inundation Visible on Aerial Imagery (B7) Value Raize Vater (A1) Inundation Visible on Aerial Imagery (B7) Value Raize Vater (A1) Inundation Visible on Aerial Imagery (B7) Value Raize Vater (A1) Image Patterns (B10) Value Raize Value (A2) Sparsely Vegetated Concave Surface (B8) Oxidized Rhizospheres along Living Roots (C Value Marks (B1) Hydrogen Sulfide Odor (C1) Satt Deposits (B2) Dry-Season Water Table (C2) Stude or Stressed Plants (D1) Geomorphic Position (D2) Drift Deposits (B3) Other (Explain in Remarks) Geomorphic Position (D2) Algal Mat or Crust (B4) Shallow Aquitard (D3)	Restrictive	Layer (if p	resent):								\sim
AYDROLOGY Wetland Hydrology Indicators: Secondary Indicators (two or more are required) Primary Indicators (any one is sufficient) Water Stained Leaves (B9) Surface Water (A1) Inundation Visible on Aerial Imagery (B7) Drainage Patterns (B10) Image: High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Oxidized Rhizospheres along Living Roots (C Saturation (A3) Marl Deposits (B15) Presence of Reduced Iron (C4) Water Marks (B1) Hydrogen Sulfide Odor (C1) Salt Deposits (C5) Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed Plants (D1) Drift Deposits (B3) Other (Explain in Remarks) Geomorphic Position (D2) Algal Mat or Crust (B4) Y Shallow Aquitard (D3)		-	irozen)							Hydric Soil Pres	ent? Yes $ullet$ No $igcup$
HYDROLOGY Wetland Hydrology Indicators: Secondary Indicators (two or more are required) Primary Indicators (any one is sufficient) Water Stained Leaves (B9) Surface Water (A1) Inundation Visible on Aerial Imagery (B7) Drainage Patterns (B10) Image Patterns (B10) Sparsely Vegetated Concave Surface (B8) Oxidized Rhizospheres along Living Roots (C Saturation (A3) Marl Deposits (B15) Presence of Reduced Iron (C4) Water Marks (B1) Hydrogen Sulfide Odor (C1) Satt Deposits (C5) Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed Plants (D1) Drift Deposits (B3) Other (Explain in Remarks) Geomorphic Position (D2) Algal Mat or Crust (B4) Shallow Aquitard (D3)	Depth (in	nches): 20									
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□ Surface Water (A1) □ Inundation Visible on Aerial Imagery (B7) □ Drainage Patterns (B10) ✓ High Water Table (A2) □ Sparsely Vegetated Concave Surface (B8) □ Oxidized Rhizospheres along Living Roots (C ✓ Saturation (A3) □ Marl Deposits (B15) □ Presence of Reduced Iron (C4) □ Water Marks (B1) □ Hydrogen Sulfide Odor (C1) □ Salt Deposits (C5) □ Sediment Deposits (B2) □ Dry-Season Water Table (C2) □ Stunted or Stressed Plants (D1) □ Drift Deposits (B3) □ Other (Explain in Remarks) □ Geomorphic Position (D2) □ Algal Mat or Crust (B4) ✓ Shallow Aquitard (D3)	5										
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□ Drift Deposits (B3) □ Other (Explain in Remarks) □ Geomorphic Position (D2) □ Algal Mat or Crust (B4) ☑ Shallow Aquitard (D3)		. ,	(0.0)								
Algal Mat or Crust (B4)		•	(BZ)			-					
	_		(D. A)			Other (Exp	Jain in Re	emarks)		_	
		-	(B4)								

Surface Soil Cracks (B6)

 $_{\rm Yes} \odot \ _{\rm No} \odot$

Yes \bullet No \bigcirc

 $_{\rm Yes} \odot ~_{\rm No} \bigcirc$

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

Field Observations:

Surface Water Present?

Water Table Present?

(includes capillary fringe)

Saturation Present?

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Depth (inches):

Depth (inches): 10

Depth (inches): 2

✓ FAC-neutral Test (D5)

Wetland Hydrology Present?

Yes 💿

No 🔿

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough	Sampling Date:	24-Aug-12
Applicant/Owner: _Baker/ADOT&PF		Sampling Point:	CB_14
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.)	Bench	
Local relief (concave, convex, none):	Slope: <u>3.5</u> % / <u>2.0</u> ° Elevation: <u>140</u>)	
Subregion : Northern Alaska Lat.	: <u>66.84339666666667</u> Long.: <u>-162.59712</u>	Datu	m: WGS84
Soil Map Unit Name:	NWI class	sification: PSS1B	
	year? Yes No (If no, explain i ntly disturbed? Are "Normal Circumstances" y problematic? (If needed, explain any answ	present? Yes 🖲	No O
			6

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: SLCW				

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata: 3 (B)
3				
4				Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5				
Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover: 0	20% o	of Total Cover:	0	Total % Cover of: Multiply by:
1. Salix pulchra	50	\checkmark	FACW	OBL species x 1 =
2. Betula nana	2		FAC	FACW species 143 x 2 = 286
3. Salix richardsonii	30	\checkmark	FACW	FAC species $7 \times 3 = 21$
4. Arctostaphylos alpina	1		FACU	FACU species 2.5 x 4 = 10
5. Empetrum nigrum	1		FAC	UPL species $0 \times 5 = 0$
6.				Column Totals: <u>152.5</u> (A) <u>317</u> (B)
7				
8.				Prevalence Index = $B/A = 2.079$
9.				Hydrophytic Vegetation Indicators:
10.				✓ Dominance Test is > 50%
Total Cover:	84			✓ Prevalence Index is ≤3.0
Herb Stratum 50% of Total Cover: 42		of Total Cover:	16.8	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1 Equisetum pratense	60	\checkmark	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Petasites frigidus	3		FACW	¹ Indicators of hydric soil and wetland hydrology must
Calamagrostis canadensis			FAC	be present, unless disturbed or problematic.
4. Pyrola asarifolia	_1		FACU	
5. Carex bigelowii	3		FAC	Plot size (radius, or length x width) 5m
6. Chamerion angustifolium	0.5		FACU	Plot size (radius, or length x width) <u>5m</u> % Cover of Wetland Bryophytes
7				(Where applicable)
8				% Bare Ground _75
9				Total Cover of Bryophytes 20
10				Hudronhutia
TO:	68.5			Hydrophytic Vegetation
50% of Total Cover:34.2	25 20% o	of Total Cover:	13.7	Present? Yes I No
Remarks: Trace galium sp, legume				

Profile Desc	ription: D		depth nee	eded to doc		•		ence of in	ndicators	
Depth		Matrix				ox Featu	1			. .
(inches)	Color	(moist)	%	Color	(moist)	%	Туре	Loc ²	Texture Fibric Organics	Remarks
0-6				<u>.</u>	·,	-				mineral incl, fugitive dust from road/white ali
6-7	2.5Y	3/2	100						Coarse Sandy Loam	likely from road or white alice fill.
7-10			100						Hemic Organics	
10-12		. <u></u> ,	100			-			Sapric Organics	
12-23	5Y	4/1	75	10YR	4/6	25	C	PL	Silty Clay Loam	organic inclusions
¹ Type: C=Cor		D. Doplati		duced Matrix				DC Doot	Channel M=Matrix	
51		•	UII KIVI=KE		ators for					
Histic Ep	or Histel (A [.] ipedon (A2) n Sulfide (A	1)			aska Color aska Alpine aska Redoz	Change (e swales ((TA4) (TA5)	. 50113.	 Alaska Gleyed W Underlying Layer Other (Explain ir 	
Thick Da	 Thick Dark Surface (A12) Alaska Gleyed (A13) ³ One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present 					vetland hydrology,				
Restrictive I Type: ac Depth (ind	tive layer (f	-							Hydric Soil Pre	isent? Yes 🖲 No 🔾
Remarks: rounded-angu	ılar gravels	in fibric org	janic layer.							
HYDROL	OGY									
Wetland Hy		dicators:							Second	lary Indicators (two or more are required)
Primary India	ators (any	one is suffic	cient)						W	ater Stained Leaves (B9)
Surface	Water (A1)				Inundation	visible o	n Aerial Im	nagery (B7) 🗌 Dr	ainage Patterns (B10)
	iter Table (A	42)			Sparsely V	egetated	Concave S	urface (B8	,	kidized Rhizospheres along Living Roots (C3)
✓ Saturatio					Marl Depos					esence of Reduced Iron (C4)
	arks (B1)				Hydrogen					It Deposits (C5)
	t Deposits	(B2)			Dry-Seaso				_	unted or Stressed Plants (D1)
	oosits (B3)				Other (Exp	lain in Re	emarks)		_	eomorphic Position (D2)
	t or Crust (B4)								allow Aquitard (D3)
	oosits (B5)									crotopographic Relief (D4)
Surface	Soil Cracks	(B6)							✓ FA	C-neutral Test (D5)

Field	Observations	:
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Surface Water Present?	$_{\rm Yes} \bigcirc$	No 🖲	Depth (inches):	
Water Table Present?	Yes 🖲	No \bigcirc	Depth (inches): 18	Wetland Hydrology Present?
Saturation Present? (includes capillary fringe)	Yes 🖲	No \bigcirc	Depth (inches): 12	

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Yes 🖲

No 🔿

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 24	1-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_15
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Kettle	
Local relief (concave, convex, none): <u>concave</u>	Slope:% / ° Elevation:		
Subregion : Northern Alaska	at.: <u>66.8434733333333</u> Long.: <u>-162.597345</u>	Datum	: WGS84
Soil Map Unit Name:	NWI class	ification: PUBH	
	of year? Yes O No O (If no, explain in cantly disturbed? Are "Normal Circumstances" nlly problematic? (If needed, explain any answ	present? Yes 🖲	No 〇
			<i>.</i> .

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: Vegetated fringe. tall b	anks slougl	hing.		

		Absolu	te Dominant	Indicator	Dominance Test worksheet:
		% Cov	er Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A)
2.					Total Number of Dominant Species Across All Strata: 3 (B)
3					Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5			. 🗆		
-	Total Cover:	0	_		Prevalence Index worksheet:
Sapling/Shrub Stratum 5	0% of Total Cover:	0 209	% of Total Cover:	0	Total % Cover of: Multiply by:
1					OBL speciles 30 x 1 = 30
2					FACW species 1.5 x 2 = 3
3.					FAC species $0 \times 3 = 0$
4					FACU species $0 \times 4 = 0$
5			_		UPL species $-\frac{0}{x 5} = -\frac{0}{x 5}$
6					Column Totals: <u>31.5</u> (A) <u>33</u> (B)
7			. 🗌		Prevalence Index = $B/A = 1.048$
8			. Ц		
9			. Ц		Hydrophytic Vegetation Indicators:
10			. 🗆		Dominance Test is > 50%
	Total Cover:	0	_		✓ Prevalence Index is ≤3.0
<u>Herb Stratum</u>	50% of Total Cover:	0 209	% of Total Cover:	0	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1. Glyceria pulchella		10	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Petasites frigidus		0.5	_	FACW	¹ Indicators of hydric soil and wetland hydrology must
3. Hippuris vulgaris		3		OBL	be present, unless disturbed or problematic.
 Equicatum paluetro 		1		FACW	
5. Eriophorum viridicarinatum		7	-	OBL	Plot size (radius, or length x width)
6. Eriophorum angustifolium		10		OBL	% Cover of Wetland Bryophytes
7					(Where applicable)
8			. 🗌		% Bare Ground 98
9			- Ц		Total Cover of Bryophytes _0
10			- 🗌		Hydrophytic
	Total Cover:		_		Vegetation
5	0% of Total Cover: 1	5.75 209	% of Total Cover:	6.3	Present? Yes No
Remarks: possibly sparganium and	utricularia in center of	pond			

S	O	I	L
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Type: C-Concentration D-Depletion RM-Reduced Matrix * Location: PL-Pore Lining RC-Root Channel M-Matrix Hydrosol or Histel (A1) Alaska Color Change (TA4) Histic Epipeadon (A2) Alaska Alpine swales (TA5) Histic Epipeadon (A2) Alaska Alpine swales (TA5) Matska Soleryed (A12) Alaska Alpine swales (TA5) Alaska Gleryed (A13) alaska Reco With 2.5Y Hue Alaska Gleryed (A13) alone indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present Alaska Gleryed Porce (A15) 4 Give details of color change in Remarks Restrictive Layer (If present): Type: Dipth (inches): Properties KetInclude Layer (If present): Properties Yuppe: Secondary Indicators (two or more are required) Mettand Hydrology Indicators: Prove (A13) Primary Indicators (any one is sufficient) Inundation Visible on Aerial Imagery (87) Startuer (A13) Sparsely Vegetated Concave Surface (B8) Oxidized Rhozopheros siong Living Roots (C1) Startue Kats (B1) Hydrogens Sufface (C1) Sature data Rhozopheros sing Living Roots (C3) Wethor Kater (A1) Inundation Visible on Aerial Imagery (B7) Sature dor Strossed Plants (D1)	Depth	Matrix			ox Featur	1			
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✓ Surface Water (A1) Inundation Visible on Aerial Imagery (B7) Drainage Patterns (B10) High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Oxidized Rhizospheres along Living Roots (C Saturation (A3) Marl Deposits (B15) Presence of Reduced Iron (C4) Water Marks (B1) Hydrogen Sulfide Odor (C1) Salt Deposits (C5) Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed Plants (D1) Drift Deposits (B3) Other (Explain in Remarks) Geomorphic Position (D2) Algal Mat or Crust (B4) Shallow Aquitard (D3)									
High Water Table (A2) Sparsely Vegetated Concave Surface (B8) Oxidized Rhizospheres along Living Roots (C Saturation (A3) Marl Deposits (B15) Presence of Reduced Iron (C4) Water Marks (B1) Hydrogen Sulfide Odor (C1) Salt Deposits (C5) Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed Plants (D1) Drift Deposits (B3) Other (Explain in Remarks) Geomorphic Position (D2) Algal Mat or Crust (B4) Shallow Aquitard (D3)			<u>cient)</u>						
Saturation (A3) Marl Deposits (B15) Presence of Reduced Iron (C4) Water Marks (B1) Hydrogen Sulfide Odor (C1) Salt Deposits (C5) Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed Plants (D1) Drift Deposits (B3) Other (Explain in Remarks) Geomorphic Position (D2) Algal Mat or Crust (B4) Shallow Aquitard (D3)		. ,		_			0 5		a
Water Marks (B1) Hydrogen Sulfide Odor (C1) Salt Deposits (C5) Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed Plants (D1) Drift Deposits (B3) Other (Explain in Remarks) Geomorphic Position (D2) Algal Mat or Crust (B4) Shallow Aquitard (D3)	~			_ · ,	0	Concave S	urface (B8)	_	
Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed Plants (D1) Drift Deposits (B3) Other (Explain in Remarks) Geomorphic Position (D2) Algal Mat or Crust (B4) Shallow Aquitard (D3)									
Drift Deposits (B3) Other (Explain in Remarks) Geomorphic Position (D2) Algal Mat or Crust (B4) Shallow Aquitard (D3)									
Algal Mat or Crust (B4)	_								
				U Other (Expl	ain in Ren	narks)		_	
	_ ~								Illow Aquitard (D3) rotopographic Relief (D4)

Yes \bullet No \bigcirc

Yes 🔿 No 🖲

Yes 🔿 No 👁

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Depth (inches): 20

pond, 20+ inches deep. Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Depth (inches):

Depth (inches):

Surface Soil Cracks (B6)

Field Observations:

Surface Water Present?

Water Table Present?

(includes capillary fringe)

Saturation Present?

Remarks:

✓ FAC-neutral Test (D5)

Wetland Hydrology Present?

Yes 🖲

No 🔿

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough	Sampling Date: 25	-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_16
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Bluff	
Local relief (concave, convex, none): <u>rolling</u>	_ Slope: _99.9 % / _45.0 ° Elevation: _13		
Subregion : Northern Alaska Lat.:	<u>66.84572</u> Long.: <u>-162.607905</u>	Datum	WGS84
Soil Map Unit Name:	NWI class	ification: U	
	ear? Yes O No O (If no, explain in tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No 〇
SUMMARY OF FINDINGS - Attach site map show	ing sampling point locations, trans	ects, important f	features

Hydrophytic Vegetation Present? Yes No Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No

Remarks: STCW on bluff to beach. winds gusting to ca 40knots, flooding, was told that a barge sunk this morning. All morning photos poor quality due to weather.

	Absolu		Indicator	Dominance Test worksheet:
Tree Stratum	<u>% Cov</u>	ver Species?	Status	Number of Dominant Species
1	-			That are OBL, FACW, or FAC:(A)
2				Total Number of Dominant Species Across All Strata: 3 (B)
3				
4				Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
5				
Total Cover:	0	_		Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover:	0 20	% of Total Cover:	0	Total % Cover of: Multiply by:
1. Salix pulchra	40	\checkmark	FACW	0BL species x 1 =
2. Salix glauca	10		FAC	FACW species <u>130</u> x 2 = <u>260</u>
3 Salix richardsonii	30		FACW	FAC species $22 \times 3 = 66$
4 Salix alaxensis	10		FAC	FACU species $\frac{7}{28}$ x 4 = $\frac{28}{28}$
5				UPL species x 5 =
6				Column Totals: <u>159</u> (A) <u>354</u> (B)
7				Prevalence Index = B/A = 2.226
8				
9				Hydrophytic Vegetation Indicators:
10				✓ Dominance Test is > 50%
Total Cover:	90	_		✓ Prevalence Index is ≤3.0
50% of Total Cover:	45 20	—)% of Total Cover:	18	Morphological Adaptations ¹ (Provide supporting
Herb Stratum				data in Remarks or on a separate sheet)
1. Chamerion angustifolium	5		FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Equisetum pratense	60		FACW	¹ Indicators of hydric soil and wetland hydrology must
3. Calamagrostis canadensis	1		FAC	be present, unless disturbed or problematic.
4. Artemisia tilesii	2		FACU	
5. Aconitum delphinifolium	0.5		FAC	Plot size (radius, or length x width) _5m
6. Rubus arcticus	0.5	- 📙	FAC	% Cover of Wetland Bryophytes
7				(Where applicable)
8		- 📙		% Bare Ground 98
9				Total Cover of Bryophytes _0
10				Hydrophytic
Total Cover:	69	_		Vegetation
50% of Total Cover:	4.5 20	% of Total Cover:	13.8	Present? Yes • No
Remarks:				

Depth (inches) 0-3	ivia	trix		Red	lox Featu	ires			
0-3	Color (mo	ist) 9	6 Col	or (moist)	%	Type ¹	Loc ²	Texture	Remarks
								Hemic Organics	
3-4		10	0					Sapric Organics	-
4-11	5Y 4	1/1 8	5 <u>7.5Y</u> F	R 3/4	15	C	PL	Silty Clay Loam	
11-24	10YR	1/2 9	5 <u>10</u> YF	4/3	5	C	PL	Silty Clay Loam	
Type: C=Con	centration D=E	Depletion R	M=Reduced M	atrix ² Locati	on: PL=P	ore Lining	RC=Root	Channel M=Matrix	
Hydric Soil I	ndicators:		Ir	dicators for	Problem	natic Hydr	ic Soils: ³		
Histosol o	r Histel (A1) pedon (A2) Sulfide (A4)] Alaska Color] Alaska Alpin] Alaska Redo	Change e swales	4 (TA4) (TA5)		 Alaska Gleyed Withou Underlying Layer Other (Explain in Rer 	
	k Surface (A12) eyed (A13) dox (A14)		а	nd an approp	riate land	scape posit	ion must b	e primary indicator of wetlan e present	nd hydrology,
Alaska Gle	eyed Pores (A15	5)	-	Give details o	r color cn	ange in Rei	marks		
Restrictive La Type: Depth (incl	ayer (if prese hes):	nt):						Hydric Soil Present	? Yes 🔿 No 🖲
Remarks:									
no hydric soil ii	ndicators								
)GY								
)GY Irology Indica	tors:						Secondary	ndicators (two or more are required)
-	-								ndicators (two or more are required) Stained Leaves (B9)
Wetland Hyd Primary Indica	Irology Indica			Inundatio	n Visible c	on Aerial Im	nagery (B7) Water	Stained Leaves (B9) ge Patterns (B10)
Vetland Hyd Primary Indica	Irology Indica ators (any one i Vater (A1) er Table (A2)					on Aerial Im Concave S	0 5) Water) Draina) Oxidize	Stained Leaves (B9) ge Patterns (B10) d Rhizospheres along Living Roots (C3)
Wetland Hyd Primary Indica Surface V High Wat Saturation	Irology Indica ators (any one i Vater (A1) er Table (A2) n (A3)			Sparsely \	/egetated sits (B15)	Concave S	0 5) Water) Draina) Oxidize Presen	Stained Leaves (B9) ge Patterns (B10) d Rhizospheres along Living Roots (C3 ce of Reduced Iron (C4)
Wetland Hyd Primary Indica Surface V High Wat Saturation Water Ma	Irology Indica ators (any one i Vater (A1) ter Table (A2) n (A3) arks (B1)			Sparsely V Marl Depo Hydrogen	/egetated sits (B15) Sulfide O	Concave S dor (C1)	0 5) Water) Draina) Oxidize Presen Salt De	Stained Leaves (B9) ge Patterns (B10) d Rhizospheres along Living Roots (C3) ce of Reduced Iron (C4) posits (C5)
Wetland Hyd Primary Indica Surface V High Wat Saturation Water Ma Sediment	Irology Indica ators (any one i Water (A1) ter Table (A2) n (A3) arks (B1) t Deposits (B2)			Sparsely V Marl Depo Hydrogen Dry-Seaso	/egetated sits (B15) Sulfide O on Water ⊺	Concave S dor (C1) Fable (C2)	0 5) Water) Draina) Oxidize Presen Salt De Sturter	Stained Leaves (B9) ge Patterns (B10) d Rhizospheres along Living Roots (C3) ce of Reduced Iron (C4) posits (C5) d or Stressed Plants (D1)
Wetland Hyd Primary Indica Surface V High Wat Saturation Water Ma Sediment Drift Dep	Tology Indica ators (any one i Water (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3)			Sparsely V Marl Depo Hydrogen	/egetated sits (B15) Sulfide O on Water ⊺	Concave S dor (C1) Fable (C2)	0 5) Water Draina Oxidize Presen Salt De Sturte Geore	Stained Leaves (B9) ge Patterns (B10) d Rhizospheres along Living Roots (C3) ce of Reduced Iron (C4) posits (C5) d or Stressed Plants (D1) rphic Position (D2)
Wetland Hyd Primary Indica Surface V High Wat Saturation Water Ma Sediment Drift Dep Algal Mat	Tology Indica ators (any one i Water (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) : or Crust (B4)			Sparsely V Marl Depo Hydrogen Dry-Seaso	/egetated sits (B15) Sulfide O on Water ⊺	Concave S dor (C1) Fable (C2)	0 5) Water) Draina) Oxidize Presen Salt De Stunter Geomo Shallow	Stained Leaves (B9) ge Patterns (B10) d Rhizospheres along Living Roots (C3) ce of Reduced Iron (C4) posits (C5) d or Stressed Plants (D1) rphic Position (D2) v Aquitard (D3)
Wetland Hyd Primary Indica Surface V High Wat Saturation Water Ma Sediment Drift Dep Algal Mat Iron Depo	Tology Indica ators (any one i Water (A1) er Table (A2) n (A3) arks (B1) t Deposits (B2) osits (B3) : or Crust (B4)			Sparsely V Marl Depo Hydrogen Dry-Seaso	/egetated sits (B15) Sulfide O on Water ⊺	Concave S dor (C1) Fable (C2)	0 5) Water) Draina) Oxidize Presen Salt De Stunter Geomo Shallow Microto	Stained Leaves (B9) ge Patterns (B10) d Rhizospheres along Living Roots (C3 ce of Reduced Iron (C4) posits (C5) d or Stressed Plants (D1) rphic Position (D2)

(includes capillary fringe) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012) Remarks:

Yes 🔘 No 🖲

Yes 💿 No 🔾

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Depth (inches):

Depth (inches): 21

Water Table Present?

Saturation Present?

No 🖲

Yes 🔿

Wetland Hydrology Present?

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 25	5-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_17
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Bench	
Local relief (concave, convex, none):	_ Slope:% /° Elevation:		
Subregion : Northern Alaska Lat.:	<u>66.8465433333333</u> Long.: <u>-162.608803</u>	333333 Datum	: WGS84
Soil Map Unit Name:	NWI class	ification: PSS1C	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O
SUMMARY OF FINDINGS - Attach site map show	ing sampling point locations, trans	ects, important	features

Hydrophytic Vegetation Present? Yes No Is the Sampled Area Hydric Soil Present? Yes No within a Wetland? Wetland Hydrology Present? Yes No No Remarks: SLOW. Small drainage feature Yes Yes

	Abso	lute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	<u>%</u> Co	over	Species?	Status	Number of Dominant Species
1					That are OBL, FACW, or FAC: (A)
2					Total Number of Dominant
3					Species Across All Strata: (B)
4.					Percent of dominant Species That Are OBL_EACW_or_EAC: 100.0% (A/B)
5					That Are OBL, FACW, or FAC:(A/B)
Total Cover:	0				Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover:	0 2	20% of	Total Cover:	0	Total % Cover of: Multiply by:
1 Betula nana	1(0		FAC	OBL species <u>10</u> x 1 = <u>10</u>
2. Salix pulchra	30	0	\checkmark	FACW	FACW species x 2 =106
3. Salix richardsonii	20	0	\checkmark	FACW	FAC speciles $22 \times 3 = 66$
4 Arctostaphylos alpina	5	5		FACU	FACU species $5 - x 4 = 20$
5 Ledum decumbens	1			FACW	UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
6. Vaccinium vitis-idaea	5	5		FAC	Column Totals: <u>90</u> (A) <u>202</u> (B)
7. Empetrum nigrum	5	5		FAC	Prevalence Index = $B/A = 2.244$
8. Vaccinium uliginosum	2	2		FAC	
9	_	_			Hydrophytic Vegetation Indicators:
10		_			✓ Dominance Test is > 50%
Total Cover:	78	3			✓ Prevalence Index is ≤3.0
Herb Stratum 50% of Total Cover:	39 2	20% of	Total Cover:	15.6	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1 Carex aquatilis	1	0	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Equisetum palustre	1	L		FACW	¹ Indicators of hydric soil and wetland hydrology must
2. Petasites frigidus	1	L		FACW	be present, unless disturbed or problematic.
4					
5					Plot size (radius, or length x width) 1m x 1m
6					% Cover of Wetland Bryophytes
7		_			(Where applicable)
8					% Bare Ground 10
9					Total Cover of Bryophytes 88
10					Hydrophytic
Total Cover:	12	2			Vegetation
50% of Total Cover:	6 2	20% of	Total Cover:	2.4	Present? Yes \bullet No \bigcirc
Remarks: bryophytes submerged.					

Depth <u>Matrix</u> (inches) Color (moist) %	<u> </u>	Loc ²	Texture	Remarks
			10/11/21	
Type: C=Concentration D=Depletion RM=	Reduced Matrix ² Location: PL=Pore Lining RC	C=Root Channel N	1=Matrix	
	Indicators for Problematic Hydric S			
Hydric Soil Indicators: Histosol or Histel (A1)	Alaska Color Change (TA4) 4		ka Cloved Withou	It Hue 5Y or Redder
Histic Epipedon (A2)	Alaska Alpine swales (TA5)		erlying Layer	
Hydrogen Sulfide (A4)	Alaska Redox With 2.5Y Hue	✓ Othe	er (Explain in Rer	narks)
Thick Dark Surface (A12)				
Alaska Gleyed (A13)	³ One indicator of hydrophytic vegetat and an appropriate landscape position		ndicator of wetla	nd hydrology,
Alaska Redox (A14)				
Alaska Gleyed Pores (A15)	⁴ Give details of color change in Rema	rks		
Restrictive Layer (if present):				
		Hyd	ric Soil Presen	:? Yes • No •
Restrictive Layer (if present):		Нус	ric Soil Presen	:? Yes 🖲 No
Restrictive Layer (if present): Type:		Нус	lric Soil Presen	i? Yes 🖲 No
Restrictive Layer (if present): Type: Depth (inches):	ation and standing water	Hyd	ric Soil Presen	? Yes • No ()
Restrictive Layer (if present): Type: Depth (inches): Remarks:	ation and standing water	Hyd	iric Soil Presen	? Yes • No 🔿
Restrictive Layer (if present): Type: Depth (inches): Remarks:	ation and standing water	Hyd	ric Soil Presen	? Yes • No O
Restrictive Layer (if present): Type: Depth (inches): Remarks:	ation and standing water	Hyd	iric Soil Presen	1? Yes • No O
Restrictive Layer (if present): Type: Depth (inches): Remarks: Issume hydric soil due to hydrophytic vegeta	ation and standing water	Hyd	Iric Soil Presen	:? Yes • No O
Restrictive Layer (if present): Type: Depth (inches): Remarks: Issume hydric soil due to hydrophytic vegeta IYDROLOGY	ation and standing water	Hyd		
Restrictive Layer (if present): Type: Depth (inches): Remarks: Issume hydric soil due to hydrophytic vegeta IYDROLOGY Wetland Hydrology Indicators:	ation and standing water	Hyd	Secondary	Indicators (two or more are required)
Restrictive Layer (if present): Type: Depth (inches): Remarks: assume hydric soil due to hydrophytic vegeta IYDROLOGY Netland Hydrology Indicators: Primary Indicators (any one is sufficient)			Water	Indicators (two or more are required) Stained Leaves (B9)
Restrictive Layer (if present): Type: Depth (inches): Remarks: assume hydric soil due to hydrophytic vegeta HYDROLOGY Netland Hydrology Indicators: Primary Indicators (any one is sufficient) Surface Water (A1)	Inundation Visible on Aerial Imag	ery (B7)	<u>Secondary</u> Water Draina	Indicators (two or more are required) Stained Leaves (B9) ge Patterns (B10)
Restrictive Layer (if present): Type: Depth (inches): Remarks: assume hydric soil due to hydrophytic vegeta IYDROLOGY Netland Hydrology Indicators: Primary Indicators (any one is sufficient)	Inundation Visible on Aerial Imag Sparsely Vegetated Concave Surf.	ery (B7)	Water Draina Oxidize	Indicators (two or more are required) Stained Leaves (B9)
Restrictive Layer (if present): Type: Depth (inches): Remarks: assume hydric soil due to hydrophytic vegeta IYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient) ✓ Surface Water (A1) High Water Table (A2) Saturation (A3)	 Inundation Visible on Aerial Imag Sparsely Vegetated Concave Surf. Marl Deposits (B15) 	ery (B7)	Secondary Water Draina Oxidize	Indicators (two or more are required) Stained Leaves (B9) ge Patterns (B10) rd Rhizospheres along Living Roots (C3)
Restrictive Layer (if present): Type: Depth (inches): Remarks: assume hydric soil due to hydrophytic vegeta HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient) Image: Surface Water (A1) High Water Table (A2)	Inundation Visible on Aerial Imag Sparsely Vegetated Concave Surf.	ery (B7)	Secondary Water Draina Oxidize Presen Salt De	Indicators (two or more are required) Stained Leaves (B9) ge Patterns (B10) rd Rhizospheres along Living Roots (C3) ce of Reduced Iron (C4)
Restrictive Layer (if present): Type: Depth (inches): Remarks: assume hydric soil due to hydrophytic vegeta HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	 Inundation Visible on Aerial Imag Sparsely Vegetated Concave Surface Marl Deposits (B15) Hydrogen Sulfide Odor (C1) 	ery (B7)	Secondary Water Draina Oxidize Presen Salt De Sturte	Indicators (two or more are required) Stained Leaves (B9) ge Patterns (B10) rd Rhizospheres along Living Roots (C3) ce of Reduced Iron (C4) rposits (C5)
Restrictive Layer (if present): Type: Depth (inches): Remarks: assume hydric soil due to hydrophytic vegeta HYDROLOGY Aveland Hydrology Indicators: Primary Indicators (any one is sufficient) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	Inundation Visible on Aerial Imag Sparsely Vegetated Concave Surf Marl Deposits (B15) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2)	ery (B7)	Secondary Water Draina Oxidize Salt De Sturte Geomo	Indicators (two or more are required) Stained Leaves (B9) ge Patterns (B10) ed Rhizospheres along Living Roots (C3) ce of Reduced Iron (C4) eposits (C5) d or Stressed Plants (D1)
Restrictive Layer (if present): Type: Depth (inches): Remarks: assume hydric soil due to hydrophytic vegeta 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)	Inundation Visible on Aerial Imag Sparsely Vegetated Concave Surf Marl Deposits (B15) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2)	ery (B7)	Secondary Water Draina Oxidize Salt De Sturte Geome Shallou	Indicators (two or more are required) Stained Leaves (B9) ge Patterns (B10) ed Rhizospheres along Living Roots (C3) ce of Reduced Iron (C4) eposits (C5) d or Stressed Plants (D1) rphic Position (D2)

Yes 🔘 No 🖲

Yes 🔿 No 🖲

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Depth (inches):

Depth (inches):

drainage feature, linear. Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

(includes capillary fringe)

Water Table Present?

Saturation Present?

Remarks:

No 🔿

Yes 🖲

Wetland Hydrology Present?

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borouah	Sampling Date:	25-Aug-12
Applicant/Owner: _Baker/ADOT&PF		Sampling Point:	CB_18
Investigator(s): <u>_SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Bench	
Local relief (concave, convex, none):	Slope: <u>5.2</u> % / <u>3.0</u> ° Elevation: <u>100</u>		
Subregion : Northern Alaska	Lat.: <u>66.84648666666667</u> Long.: <u>-162.608595</u>	Datu	m: WGS84
Soil Map Unit Name:	NWI class	ification: PSS1B	
	of year? Yes No (If no, explain in ficantly disturbed? Are "Normal Circumstances" rally problematic? (If needed, explain any answ	present? Yes 🖲	No 〇
			<i>c</i> .

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: SLOW				

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC:5_ (A)
2				Total Number of Dominant
3				Species Across All Strata:6_ (B)
4.				Percent of dominant Species That Are OBL_EACW_or_EAC: 83.3% (A/B)
5				That Are OBL, FACW, or FAC: <u>83.3%</u> (A/B)
5 Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover:	0 20% c	of Total Cover:	0	Total % Cover of: Multiply by:
1 Betula nana	10		FAC	OBL species x 1 =
l	30		FACW	FACW species54.5 x 2 =109
	20		FACW	FAC species27 x 3 =81
	5		FACU	FACU species 10 x 4 = 40
4. Arctostaphylos alpina	1		FACU	UPL species $-\frac{0}{x 5} = -\frac{0}{-x 5}$
5. Ledum decumbens				•
6. Vaccinium vitis-idaea	5		FAC	Column Totals: (A) (B)
7. Empetrum nigrum			FAC	Prevalence Index = B/A = <u>2.514</u>
8. Vaccinium uliginosum	2		FAC	Hydrophytic Vegetation Indicators:
9				Dominance Test is > 50%
10				$\mathbf{V} \text{Prevalence Index is } \le 3.0$
Total Cover:	78			
Herb Stratum 50% of Total Cover:	39 20% 0	of Total Cover:	15.6	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Detection frigidue	0.5		FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
· · · ·	0.5		FAC	
2 .	5		FACU	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Colomographia considencia	2		FAC	be present, uness disturbed of problematic.
4. Calamagrostis canadensis	2		FACW	
U	0.5		FAC	Plot size (radius, or length x width) <u>10m</u>
6. Carex bigelowii	1		FACW	% Cover of Wetland Bryophytes
7. Parnassia palustris				(Where applicable)
8. Luzula comosa	2		FAC	% Bare Ground 10
9				Total Cover of Bryophytes <u>85</u>
10				Hydrophytic
Total Cover:	13.5	(=		
50% of Total Cover:6.	.75 20% c	of Total Cover:	2.7	Present? Yes No
Remarks: trace anemone sp, 1% Pedicularis sp				

Depth		Matrix			Red	ox Featu	ires		
(inches)	Color	(moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks
0-1									Fibric Organics
1-6									Hemic Organics
6-7	7.5YR	3/1							Silty Clay Loam
7-15	5Y	4/1	80	10YR	4/6	20	C	PL	Silty Clay Loam
		D-Doploti			21 ocatio			PC-Poot	Channel M=Matrix
Hydric Soil		-	UII KIVI=Ke				atic Hydr		
Histic Ep Hydroge Hydroge Hick Da Alaska G Alaska R	or Histel (A' ipedon (A2) n Sulfide (A rk Surface (leyed (A13) edox (A14) leyed Pores	4) (A12)		Ala Ala ³ One and a	an appropr	e swales (x With 2.5 of hydrop iate lands	(TA5) 5Y Hue phytic vege	ion must b	 Alaska Gleyed Without Hue 5Y or Redder Underlying Layer Other (Explain in Remarks) e primary indicator of wetland hydrology, be present
Restrictive I Type: ac Depth (in	tive layer (f								Hydric Soil Present? Yes No
Remarks:									
HYDROL									
Wetland Hy									Secondary Indicators (two or more are required)
Primary India		one is suffic	cient)						Water Stained Leaves (B9)
	Water (A1)			_				nagery (B7	
_ ~	iter Table (A	42)		_				urface (B8	
Saturatio	• •				Marl Depo				Presence of Reduced Iron (C4)
	larks (B1)	(0.2)			Hydrogen				Salt Deposits (C5)
	nt Deposits	(в2)		_	Dry-Seaso				Stunted or Stressed Plants (D1)
	posits (B3)				Other (Exp	biain in Re	emarks)		Geomorphic Position (D2)

Iron Deposits (B5) Microtopographic Relief (D4) Surface Soil Cracks (B6) FAC-neutral Test (D5) Field Observations: Surface Water Present? Yes Ves No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Present? Wetland Hydrology Present? Yes No Depth (inches): Saturation Present? Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)	Algar Mat Or Crust (D4)					iitaitu (DS)	
Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Vetland Hydrology Present? Yes No	Iron Deposits (B5)				Microtopogr	aphic Relief ((D4)
Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Wetland Hydrology Present? Yes	Surface Soil Cracks (B6)				FAC-neutral	Test (D5)	
Water Table Present? Yes No Depth (inches): Wetland Hydrology Present? Yes No Saturation Present? (includes capillary fringe) Yes No Depth (inches): 9 Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Wetland Hydrology Present? Yes No	Field Observations:	-	-				
Saturation Present? (includes capillary fringe) Yes No Depth (incluse): 9 Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Image: Control of the stream gauge inspection in the stream gauge in the stream gaug	Surface Water Present?	$Yes \bigcirc$	No 🖲	Depth (inches):			
(includes capillary fringe) Yes No Depth (inches): 9 Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:	Water Table Present?	$_{ m Yes}$ \bigcirc	No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲	No \bigcirc
		Yes 🖲	No \bigcirc	Depth (inches): 9			
Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)	Describe Recorded Data (strea	am gauge, m	nonitor well,	aerial photos, previous inspection) if	f available:		
	Western Regional Climate Cen	ter data for t	he Kotzebue	Airport (Station 50576) long term ((1949-2012)		

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borouah	Sampling Date: 25	5-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_19
Investigator(s): <u>_SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.)	Bench	
Local relief (concave, convex, none):	Slope: <u>5.2</u> % / <u>3.0</u> ° Elevation: <u>60</u>		
Subregion : Northern Alaska Lat	t.: <u>66.85736</u> Long.: <u>-162.617791</u>	666667 Datum	n: WGS84
Soil Map Unit Name:	NWI class	sification: PSS1B	
	Fyear? Yes No (If no, explain i antly disturbed? Are "Normal Circumstances" ly problematic? (If needed, explain any answ	present? Yes 🖲	No 〇
			6 1

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: STCA				

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4				Percent of dominant Species That Are OBL_EACW_or_EAC: 75.0% (A/B)
5				That Are OBL, FACW, or FAC:(A/B)
5: Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover:	0 20% o	of Total Cover:	0	Total % Cover of: Multiply by:
1 Alnus viridis ssp. crispa	90	\checkmark	FAC	OBL species $0 \times 1 = 0$
2. Salix alaxensis	3		FAC	FACW species $3 \times 2 = 6$
3. Vaccinium uliginosum	1		FAC	FAC species x 3 =333
				FACU species11 x 4 =44
4				UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
5				Column Totals: <u>125</u> (A) <u>383</u> (B)
6				
7				Prevalence Index = $B/A = 3.064$
8				Hydrophytic Vegetation Indicators:
9				✓ Dominance Test is > 50%
10				Prevalence Index is ≤3.0
Total Cover:				Morphological Adaptations ¹ (Provide supporting
Herb Stratum 50% of Total Cover:	4/ 20% c	of Total Cover:	18.8	data in Remarks or on a separate sheet)
1. Artemisia tilesii	2		FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Chamerion angustifolium		\checkmark	FACU	¹ Indicators of hydric soil and wetland hydrology must
3. Rubus chamaemorus	3		FACW	be present, unless disturbed or problematic.
4. Calamagrostis canadensis	7	\checkmark	FAC	
5. Moehringia lateriflora	1		FACU	Plot size (radius, or length x width) 5m
6. Carex bigelowii	10	\checkmark	FAC	% Cover of Wetland Bryophytes
7. Mertensia paniculata	1		FACU	(Where applicable)
8				% Bare Ground 98
9				Total Cover of Bryophytes 0
10				Hydrophytic
Total Cover:	31			Vegetation
50% of Total Cover:	5.5 20% o	of Total Cover:	6.2	Present? Yes \bullet No \bigcirc
Remarks: trace valerian, legume				

Profile Desc	ription: Desc	cribe to dep	th need	ed to document the	e preser	nce or abs	ence of in	dicators	
Depth	N	/latrix		Red	ox Featu				
(inches)	Color (m	noist)	%	Color (moist)	_%	Type ¹	Loc ²	Texture	Remarks
0-1		1	00					Fibric Organics	
1-3		1	00					Hemic Organics	
3-14		1	00					Sapric Organics	fine gravels, mineral soils from road
14-17	10YR	3/1						Silty Clay Loam	
									_
¹ Type: C=Cor	centration D=	=Depletion	₹M=Redi	uced Matrix ² Locatio	n: PL=P	ore Lining	RC=Root	Channel M=Matrix	
Hydric Soil	Indicators:			Indicators for	Problem	natic Hydr	ic Soils: ³		
	or Histel (A1)			Alaska Color		4		Alaska Gleved With	out Hue 5Y or Redder
	pedon (A2)			🗌 Alaska Alpine	e swales i	(TA5)		Underlying Layer	
	n Sulfide (A4)			Alaska Redox	x With 2.	5Y Hue		Other (Explain in Re	emarks)
Thick Da	rk Surface (A1	2)							
🗌 Alaska Gl	eyed (A13)			³ One indicator and an appropr	of hydrop	ohytic vege scape posit	etation, one tion must b	e primary indicator of wetl	and hydrology,
Alaska Re	edox (A14)								
Alaska Gl	eyed Pores (A	.15)		⁴ Give details of		ange in Rei	marks		
	ayer (if pres	•						Undria Sail Draca	
	tive layer (froz	<u>r</u> en)						Hydric Soil Prese	nt? Yes 🖲 No 🔿
Depth (ind Remarks:	cnes): 17								
HYDROLO									
	JG Y drology India	cators:						Secondar	y Indicators (two or more are required)
	ators (any one)						er Stained Leaves (B9)
·	Water (A1)			Inundation	ı Visible c	on Aerial In	nagery (B7)		nage Patterns (B10)
	ter Table (A2))					Surface (B8)	·	ized Rhizospheres along Living Roots (C3)
Saturatio				Marl Depos	0			·	ence of Reduced Iron (C4)
	arks (B1)			Hydrogen				Salt [Deposits (C5)
Sedimen	t Deposits (B2	<u>2)</u>		Dry-Seasor					ted or Stressed Plants (D1)
Drift Dep	oosits (B3)			Other (Exp				Geon	norphic Position (D2)
🗌 Algal Ma	t or Crust (B4))						✓ Shall	ow Aquitard (D3)
Iron Dep	oosits (B5)							Micro	otopographic Relief (D4)
Surface :	Soil Cracks (Bé	6)						FAC-r	neutral Test (D5)
Field Observ	ations:	_	_						
Surface Wate	er Present?		No 🤆	1 1	hes):				
Water Table	Present?	Yes 🖲) No 🤇	Depth (inc	hes): 11	1	w	etland Hydrology Pres	ent? Yes 🖲 No 🔾
Saturation Pr (includes car		Yes 🖲	No	Depth (inc	hes): 4				
Describe Reco	rded Data (str	ream gauge,	monitor	well, aerial photos, pr	revious in	spection) i	if available:		
Western Regio	nal Climate Ce	enter data for	the Kotz	zebue Airport (Station	ı 50576)	long term	(1949-2012	2)	

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 2	5-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_20
Investigator(s): <u>_SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Bench	
Local relief (concave, convex, none): tussocks	Slope: <u>5.2</u> % / <u>3.0</u> ° Elevation: <u>80</u>		
Subregion : Northern Alaska La	at.: <u>66.855905</u> Long.: <u>-162.616108</u>	3333333 Datum	n: WGS84
Soil Map Unit Name:	NWI class	sification: <u>PEM1 / SS1</u>	3
	of year? Yes O No O (If no, explain i cantly disturbed? Are "Normal Circumstances" Illy problematic? (If needed, explain any ansv	present? Yes 🖲	No 〇
			6 1

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: SLOTT (lots of salix, no	ot quite hgr	nt)		

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

		Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum		% Cover	Species?	Status	Number of Dominant Species
1					That are OBL, FACW, or FAC: (A)
2					Total Number of Dominant
3					Species Across All Strata: (B)
4.					Percent of dominant Species
 5					That Are OBL, FACW, or FAC:100.0% (A/B)
5	Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of	Total Cover:	0 20%	of Total Cover:	0	Total % Cover of: Multiply by:
1 Salix richardsonii		5		FACW	OBL species <u>10</u> x 1 = <u>10</u>
I		10	\checkmark	FAC	FACW species 76.5 x 2 = 153
2		5		FACW	FAC species29 x 3 =87
J		10	\checkmark	FAC	FACU species 3.5 x 4 = 14
		7	 	FAC	UPL species $0 \times 5 = 0$
				FACW	
6. Ledum decumbens		3			Column Totals: <u>119</u> (A) <u>264</u> (B)
7. Empetrum nigrum				FAC	Prevalence Index = B/A =2.218_
8. Arctostaphylos alpina		2		FACU	
9					✓ Dominance Test is > 50%
10					✓ Prevalence Index is ≤ 3.0
	Total Cover:	43			
Herb Stratum 50% of	Total Cover: 2	1.5 20%	of Total Cover:	8.6	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1. Eriophorum vaginatum		60	\checkmark	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Carex aquatilis		10		OBL	¹ Indicators of hydric soil and wetland hydrology must
Colomographic considencia				FAC	be present, unless disturbed or problematic.
A Pubus chamaemorus		3		FACW	
- Artomisia tilosii		1		FACU	Plot size (radius, or length x width) 10m
 Darnassia nalustris 		0.5		FACW	% Cover of Wetland Bryophytes
7. Chamerion angustifolium		0.5		FACU	(Where applicable)
8					% Bare Ground _10
9					Total Cover of Bryophytes 30
9					
10	Total Cover:	76			Hydrophytic Vegetation
50% of			of Total Cover:	15.2	Present? Yes No
Remarks: trace legume, galium					

Depth		Matrix			Red	ox Featu				
(inches)	Color	(moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-2			100						Fibric Organics	
2-4	10YR	2/1	100						Coarse Loamy Sand	fine gravels
4-6			100						Hemic Organics	
6-11			100						Sapric Organics	
11-16	10Y	4/1	60	10YR	4/6	40	C	PL	Silty Clay Loam	C increase w depth
51			on RM=Re	duced Matrix				-	Channel M=Matrix	
Hydric Soil Histosol Histic Eg	or Histel (A	1)			ators for aska Color aska Alpine	Change (c Soils:	Alaska Gleyed With Underlying Layer	hout Hue 5Y or Redder
Ξ .	en Sulfide (A				aska Redo				Other (Explain in F	Remarks)
☐ Thick Da ☐ Alaska C ✔ Alaska F	ark Surface (Gleyed (A13) Redox (A14) Gleyed Pores	(A12)		and a	an appropr	iate lands	ohytic vege scape posit ange in Rer	ion must b	e primary indicator of we e present	tland hydrology,
Type: ad	Layer (if protective layer (for the ches): 16								Hydric Soil Pres	ent? Yes 🖲 No 🔿
) om orles										
temarks:										
IYDROL										
IYDROL Netland Hy	drology In									ry Indicators (two or more are required)
Vetland Hy Primary Indi	drology In cators (any		cient)						Wat	er Stained Leaves (B9)
Vetland Hy Primary Indi	rdrology In cators (any Water (A1)	one is suffi	cient)				n Aerial Im) Wat	er Stained Leaves (B9) inage Patterns (B10)
YDROL Vetland Hy Primary Indi Surface ✓ High W	drology In <u>cators (any</u> Water (A1) ater Table (A	one is suffi	cient)		Sparsely V	egetated	Concave S) Wat	er Stained Leaves (B9) inage Patterns (B10) lized Rhizospheres along Living Roots (C3
YDROL Vetland Hy Primary Indi Surface High W. Yearat Saturat	rdrology In cators (any Water (A1) ater Table (A ion (A3)	one is suffi	cient)		Sparsely V Marl Depo:	egetated sits (B15)	Concave S)	er Stained Leaves (B9) inage Patterns (B10) dized Rhizospheres along Living Roots (C3 sence of Reduced Iron (C4)
IYDROL Vetland Hy Primary Indi Surface Image: Surface Image: High Wi Image: Surface Image: Surface <td>rdrology In cators (any Water (A1) ater Table (<i>I</i> ton (A3) Marks (B1)</td> <td>one is suffic A2)</td> <td>cient)</td> <td></td> <td>Sparsely V Marl Depo: Hydrogen</td> <td>egetated sits (B15) Sulfide Oo</td> <td>Concave S dor (C1)</td> <td></td> <td>) Wat) Drai) Oxic] Pres] Salt</td> <td>er Stained Leaves (B9) inage Patterns (B10) dized Rhizospheres along Living Roots (C3 sence of Reduced Iron (C4) Deposits (C5)</td>	rdrology In cators (any Water (A1) ater Table (<i>I</i> ton (A3) Marks (B1)	one is suffic A2)	cient)		Sparsely V Marl Depo: Hydrogen	egetated sits (B15) Sulfide Oo	Concave S dor (C1)) Wat) Drai) Oxic] Pres] Salt	er Stained Leaves (B9) inage Patterns (B10) dized Rhizospheres along Living Roots (C3 sence of Reduced Iron (C4) Deposits (C5)
IYDROL Vetland Hy Primary Indi Surface Image: Surface Image: High With Image: Sedurat Image: Water N Sedime	rdrology In cators (any Water (A1) ater Table (<i>I</i> ion (A3) Marks (B1) nt Deposits	one is suffic A2)	cient)		Sparsely V Marl Depos Hydrogen Dry-Seaso	egetated sits (B15) Sulfide Oo n Water T	Concave Si dor (C1) Table (C2)) Wat) Drai) Oxic Pres Salt Stur	er Stained Leaves (B9) inage Patterns (B10) lized Rhizospheres along Living Roots (C3 sence of Reduced Iron (C4) Deposits (C5) nted or Stressed Plants (D1)
IYDROL Vetland Hy Primary Indi Surface ✓ High W. ✓ Saturat ✓ Water N Sedime Drift De	rdrology In cators (any Water (A1) ater Table (/ ion (A3) Marks (B1) nt Deposits posits (B3)	one is suffi A2) (B2)	cient)		Sparsely V Marl Depo: Hydrogen	egetated sits (B15) Sulfide Oo n Water T	Concave Si dor (C1) Table (C2)) Wat) Drai) Oxic Pres Salt Stur Geo	er Stained Leaves (B9) inage Patterns (B10) lized Rhizospheres along Living Roots (C3 sence of Reduced Iron (C4) Deposits (C5) nted or Stressed Plants (D1) morphic Position (D2)
IYDROL Vetland Hy Primary Indi Surface ✓ High W. ✓ Saturat Water M Sedime Drift De Algal M	drology In cators (any Water (A1) ater Table (/ ion (A3) Marks (B1) nt Deposits (B3) at or Crust (one is suffi A2) (B2)	cient)		Sparsely V Marl Depos Hydrogen Dry-Seaso	egetated sits (B15) Sulfide Oo n Water T	Concave Si dor (C1) Table (C2)) Wat) Drai) Oxic Pres Salt Stur Geo V Shal	er Stained Leaves (B9) inage Patterns (B10) lized Rhizospheres along Living Roots (C3 sence of Reduced Iron (C4) Deposits (C5) nted or Stressed Plants (D1) morphic Position (D2) llow Aquitard (D3)
 High W. Saturat Water M Sedime Drift De Algal M Iron De 	rdrology In cators (any Water (A1) ater Table (/ ion (A3) Marks (B1) nt Deposits posits (B3)	<u>one is suffi</u> A2) (B2) B4)	cient)		Sparsely V Marl Depos Hydrogen Dry-Seaso	egetated sits (B15) Sulfide Oo n Water T	Concave Si dor (C1) Table (C2)) Wat) Drai) Oxic Pres Salt Stur Geo V Shal Micr	er Stained Leaves (B9) inage Patterns (B10) lized Rhizospheres along Living Roots (C sence of Reduced Iron (C4) Deposits (C5) nted or Stressed Plants (D1) morphic Position (D2)

Surface Water Present?

(includes capillary fringe)

Water Table Present?

Saturation Present?

Remarks:

 $_{\rm Yes} \odot \ _{\rm No} \odot$

Yes \bullet No \bigcirc

 $_{\rm Yes} \odot ~_{\rm No} \bigcirc$

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Depth (inches):

Depth (inches): 10

Depth (inches): 4

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No \bigcirc

Yes 🖲

Wetland Hydrology Present?

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 25-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point: CB_21
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Floodplain
Local relief (concave, convex, none): tussocks	_ Slope:% /° Elevation:	
Subregion : Northern Alaska Lat.:	<u>66.81355</u> Long.: <u>-162.46647</u>	Datum: WGS84
Soil Map Unit Name:	NWI class	ification: PSS4B
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes $lacksquare$ No $lacksquare$

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●		Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc	
Remarks: SDEE along bank of Sadie Creek. Creek flooded, wetted width ca 50 ft. much of what appears to be emergent floodplain in field map is underwater. opposite bank STCW along small steep rise.					

			Absolute	Dominant	Indicator	Dominance Test worksheet:
Tr	ee Stratum	-	% Cover	Species?	Status	Number of Dominant Species
1.						That are OBL, FACW, or FAC: (A)
2.						Total Number of Dominant Species Across All Strata: 4 (B)
3.						
4.	P					Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5.						
	Total Cov	ver:	0			Prevalence Index worksheet:
Sap	ling/Shrub Stratum 50% of Total Cover:	0	20%	of Total Cover:	0	Total % Cover of: Multiply by:
1	Empetrum nigrum		30	\checkmark	FAC	OBL species <u>6</u> x 1 = <u>6</u>
2.	Betula nana		7		FAC	FACW species <u>16</u> x 2 = <u>32</u>
3.	Salix fuscescens		10	\checkmark	FACW	FAC species $38 \times 3 = 114$
						FACU species $0 \times 4 = 0$
						UPL species $-\frac{0}{x 5} = -\frac{0}{-x 5}$
-						Column Totals: <u>60</u> (A) <u>152</u> (B)
_						Prevalence Index = $B/A = 2.533$
						Hydrophytic Vegetation Indicators:
						✓ Dominance Test is > 50%
10.	Total Cov	ver:	47			✓ Prevalence Index is ≤3.0
	50% of Total Cover:	23.	5 20%	of Total Cover:	9.4	Morphological Adaptations ¹ (Provide supporting
<u>_H</u>	erb Stratum			\checkmark		data in Remarks or on a separate sheet)
1.	Eriophorum vaginatum		5		FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Rubus chamaemorus		1		FACW	¹ Indicators of hydric soil and wetland hydrology must
3.	Eriophorum angustifolium		 5		OBL	be present, unless disturbed or problematic.
4.	Eriophorum scheuchzeri				OBL FAC	
5.	Calamagrostis canadensis				FAC	Plot size (radius, or length x width) 5m
6.						% Cover of Wetland Bryophytes
7.						(Where applicable)
8.						% Bare Ground 2
9.						Total Cover of Bryophytes 95
10.	T.4.10		10			Hydrophytic
	Total Cov		13	of Total Covers	26	Vegetation Present? Yes • No O
	50% of Total Cover:	6.5	20%	of Total Cover:	2.6	
Rem	arks:					

Depth	M	latrix		Red	ox Featu	ires			
(inches)	Color (m	oist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	. <u> </u>			·······				Fibric Organic	
6-12								Hemic Organics	
12-14	2.5Y	3/2	100					Silty Clay Loam	
				,			-	-	
Type: C=Cor	ncentration D=	=Depletior	RM=Re	duced Matrix ² Locatio	n: PL=P	ore Lining	RC=Root	Channel M=Matrix	
Hydric Soil	Indicators:			Indicators for	Problem	atic Hydr	c Soils: ³		
Histosol	or Histel (A1)			🗌 Alaska Color	Change	(TA4) ⁴			nout Hue 5Y or Redder
✔ Histic Ep	ipedon (A2)			Alaska Alpine	e swales	(TA5)		Underlying Layer	
	n Sulfide (A4)			Alaska Redo	with 2.	5Y Hue		Other (Explain in R	emarks)
	rk Surface (A1	2)		³ One indicator	of hvdro	ohvtic veae	tation, one	primary indicator of wet	land hydrology.
	leyed (A13)			and an appropr					
	edox (A14) Ieyed Pores (A	15)		⁴ Give details of	color ch	ange in Rei	narks		
	ayer (if pres	-						Hydric Soil Prese	ent? Yes 🖲 No 🔾
Depth (in	tive layer (froz ches): 14	en)							
Remarks:									
Kemaiks.									
IYDROL									
	drology India								y Indicators (two or more are required)
	ators (any one	e is sufficie	ent)					_	er Stained Leaves (B9)
_	Water (A1)			Inundation					nage Patterns (B10)
	ter Table (A2)			Sparsely Vegetated Concave Surface (B8)				_	ized Rhizospheres along Living Roots (C3)
Saturatio				Marl Deposits (B15)				_	ence of Reduced Iron (C4)
	arks (B1)		Hydrogen Sulfide Odor (C1)						Deposits (C5)
Sediment Deposits (B2)						ted or Stressed Plants (D1)			
Drift Deposits (B3)							_	morphic Position (D2)	
Algal Ma	it or Crust (B4))						🖌 Shall	low Aquitard (D3)
	oosits (B5)								otopographic Relief (D4)
Surface	Soil Cracks (Bé	5)						✓ FAC-	neutral Test (D5)
ield Observ	vations:		_						
Surface Wat	er Present?	Yes	🔾 No	 Depth (inc 	hes):				

Depth (inches): 6 Saturation Present? Yes \bullet No \bigcirc Depth (inches): 2 (includes capillary fringe) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Yes 💿 No 🔾

Remarks:

Water Table Present?

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No \bigcirc

Yes 🖲

Wetland Hydrology Present?

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 25-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point: CB_22
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Terrace
Local relief (concave, convex, none): <u>tussocks</u>	Slope: <u>5.2</u> % / <u>3.0</u> ° Elevation: <u>31</u>	
Subregion : Northern Alaska Lat.:	66.81374Long.:162.46232	Datum: WGS84
Soil Map Unit Name:	NWI class	ification: PSS1B
	ear? Yes No (If no, explain in tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes $ullet$ No $igodot$

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●		Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc	
Remarks: STCW shrubs borderline low/tall. community varies from just over to just under 5ft tall.					

		Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum		% Cover	Species?	Status	Number of Dominant Species
1					That are OBL, FACW, or FAC: <u>2</u> (A)
2					Total Number of Dominant Species Across All Strata: 2 (B)
3					
4					Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
5.					
0.	Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum	50% of Total Cover:	0 20%	of Total Cover:	0	Total % Cover of: Multiply by:
1. Salix pulchra		80	\checkmark	FACW	OBL species <u>3</u> x 1 = <u>3</u>
2					FACW species 100 x 2 = 200
					FAC species 5.5 x 3 = 16.5
3					FACU species4 x 4 =16
4					UPL species $0 \times 5 = 0$
5		-			Column Totals: <u>112.5</u> (A) <u>235.5</u> (B)
6					
7					Prevalence Index = $B/A = 2.093$
8					Hydrophytic Vegetation Indicators:
9					✓ Dominance Test is > 50%
10					✓ Prevalence Index is ≤3.0
	Total Cover:	80			Morphological Adaptations ¹ (Provide supporting
Herb Stratum	50% of Total Cover:	10 20%	of Total Cover:	16	data in Remarks or on a separate sheet)
1 Petasites frigidus		20	\checkmark	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Angelica lucida		1		FACU	¹ Indicators of hydric soil and wetland hydrology must
3. Chamerion angustifolium		1		FACU	be present, unless disturbed or problematic.
Carox bigolowii		5		FAC	
Aconitum delabinifelium		0.5		FAC	Dist size (redius, or langth wouldth)
6. Carex aquatilis		3		OBL	Plot size (radius, or length x width) <u>5m</u>
		1		FACU	% Cover of Wetland Bryophytes (Where applicable)
/		1		FACU	% Bare Ground <u>80</u>
0					Total Cover of Bryophytes 15
9					
10	Total Cover:	32.5			Hydrophytic Vegetation
	50% of Total Cover: 16		of Total Cover:	6.5	Present? Yes \odot No \bigcirc
Pomorkov 20/ viala travela					
Remarks: 2% viola, trace legun	ne, deschampsia sp. scattel	ieu carbig	LUSSSUCKS.		

S	O	I	L
-	~		-

Depth		Matrix			Red	ox Featu			-
(inches)	Color	(moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture Remarks
0-4									Hemic Organics
4-6									Sapric Organics
6-11	10Y	4/1	60	10YR	3/4	40	C	PL	Silty Clay Loam
11-22	2.5Y	3/1	60	10YR	3/3	40	C	PL	Silty Clay Loam
Type: C=Co	ncentration	D=Depleti	on RM=Re	duced Matrix	² Locatio	on: PL=P	ore Lining	RC=Root	Channel M=Matrix
Hydric Soil	Indicators	5:		Indic	ators for	Problem	atic Hydri	ic Soils: ³	
Histic Ep Hydroge Thick Da Alaska G	or Histel (A ipedon (A2) n Sulfide (A rk Surface leyed (A13) edox (A14)	A1) Alaska Color Change (TA4) ⁴ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer b) Alaska Alpine swales (TA5) Underlying Layer CA4) Alaska Redox With 2.5Y Hue Other (Explain in Remarks) (A12) 3 One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present							
_	leyed Pores	(A15)		⁴ Give	e details of	f color cha	ange in Rer	marks	
		rozen), si c	l lo						Hydric Soil Present? Yes 💿 No 🔿
Remarks:									
IYDROL	OGY								
Vetland Hy									Secondary Indicators (two or more are required)
Primary India			cient)						Water Stained Leaves (B9)
	Water (A1)				Inundatior	n Visible o	n Aerial Im	agery (B7	
	iter Table (A	A2)			Sparsely V	egetated	Concave S	urface (B8	3) Oxidized Rhizospheres along Living Roots (C
✓ Saturation (A3)									

(includes capillary fringe)	Yes 💌	NO \bigcirc	Depth (inches): 3	
Describe Recorded Data (stream	n gauge, n	nonitor we	II, aerial photos, previous inspection) if availa	able:
Nestern Regional Climate Center	r data for	the Kotzeb	ue Airport (Station 50576) long term (1949-	2012)

Yes 🔘 No 🖲

Yes 🔘 No 🖲

Yes 💿 No 🔾

Remarks:

Water Marks (B1)

Drift Deposits (B3)

Field Observations:

Surface Water Present?

Water Table Present?

Saturation Present?

Sediment Deposits (B2)

Algal Mat or Crust (B4) Iron Deposits (B5)

Surface Soil Cracks (B6)

water perched atop si cl lo layer and pooling in bottom of pit. Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Hydrogen Sulfide Odor (C1)

Dry-Season Water Table (C2)

Other (Explain in Remarks)

Depth (inches):

Depth (inches):

Depth (inches): 3

No 🔿

Salt Deposits (C5)

Stunted or Stressed Plants (D1)

Geomorphic Position (D2) Shallow Aquitard (D3)

Microtopographic Relief (D4)

Yes 🖲

✓ FAC-neutral Test (D5)

Wetland Hydrology Present?

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 25	-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_23
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Terrace	
Local relief (concave, convex, none): <u>tussocks</u>	_ Slope:% /° Elevation: _50		
Subregion : Northern Alaska Lat.:	<u>66.8147233333333</u> Long.: <u>-162.462395</u>	Datum:	WGS84
Soil Map Unit Name:	NWI classi	ification: <u>PEM1 / SS3B</u>	
	ear? Yes No (If no, explain in tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No 🔿

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present?	Yes 🖲 No 🔾	Is the Sampled Area		
Hydric Soil Present?	Yes 🖲 No 🔾			
Wetland Hydrology Present?	Yes 🖲 No 🔾	within a Wetland? Tes VIO C		
Permarks: SLOTT elight polygonization visible in agrial more distinct further NE point characterizing tussely polygons. One faint trough in area (see				

arks: SLOTT. slight polygonization visible in aerial, more distinct further NE. point characterizing tussck polygons. One faint trough in area (see photo) w fewer tussocks and more sphagnum. Sandhill cranes observed in community.

		Ab	solute	Dominant	Indicator	Dominance Test worksheet:
<u></u>	ree Stratum	%	Cover	Species?	Status	Number of Dominant Species
1.		-				That are OBL, FACW, or FAC: (A)
2.		-				Total Number of Dominant Species Across All Strata: 4 (B)
3.		-				
4.		-				Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5.		-			!	
	Total Cover:	_	0			Prevalence Index worksheet: Total % Cover of: Multiply by:
Sap	ling/Shrub Stratum 50% of Total Cover:	0	_ 20% c	of Total Cover:		
1	Arctostaphylos alpina	_	3		FACU	OBL species 0 x 1 = 0
2.	Betula nana	_	20	\checkmark	FAC	FACW species46 x 2 =92
3.	Ledum decumbens	_	10		FACW	FAC species $_{63}$ x 3 = $_{189}$
4.	Vaccinium vitis-idaea	_	20	\checkmark	FAC	FACU speci es $3 - 3 + 4 = 12$
5.	Empetrum nigrum	_	3		FAC	UPL species $0 \times 5 = 0$
6		_				Column Totals: <u>112</u> (A) <u>293</u> (B)
						Prevalence Index = $B/A = 2.616$
		_				
		_				Hydrophytic Vegetation Indicators:
		_				✓ Dominance Test is > 50%
10.	Total Cover:		56			✓ Prevalence Index is ≤3.0
ц	erb Stratum50% of Total Cover:	28	20% (of Total Cover:	11.2	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
-			30	\checkmark	FACW	· · · · ·
1.	Erlophorum vaginatumRubus chamaemorus	-	5		FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Carex bigelowii	-	20		FAC	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
3.	Petasites frigidus		1		FACW	be present, unless disturbed of problematic.
4.						
0.						Plot size (radius, or length x width) <u>10m</u>
•.						% Cover of Wetland Bryophytes (Where applicable)
						% Bare Ground
-						Total Cover of Bryophytes 30
•••		-				
10.	Total Cover:	-	56			Hydrophytic
		28		of Total Cover:	11.2	Vegetation Present? Yes • No O
Don	narks:					
Ren	IAI NJ.					

S	O	I	L
-	~		

Depth	Matrix		Redox Features							
(inches)	Color	(moist)	%	Color	(moist)	%	Type ¹	Loc ²	Texture	Remarks
0-7									Fibric Organics	
7-9									Hemic Organics	
9-10									Sapric Organics	
10-14	10Y	4/1	97	10YR	4/4	3	C	PL	Silty Clay Loam	organic staining at top
14-20	10Y	4/1	75	10YR	4/4	25	C	PL	Silty Clay Loam	
Type: C=Cor			on RM=Re						Channel M=Matrix	
Histic Ep Hydroge Thick Da	or Histel (A pedon (A2) n Sulfide (A rk Surface (1) 4) (A12)		А А А	ators for aska Color aska Alpine aska Redo e indicator	Change (e swales (x With 2.5	4 (TA4) (TA5) 5Y Hue		Alaska Gleyed With Underlying Layer Other (Explain in F	
🖌 Alaska R	eyed (A13) edox (A14) eyed Pores				an appropr e details of			ion must b marks	e present	
		rozen), si c	l lo						Hydric Soil Prese	ent? Yes 🖲 No 🔾
Remarks:										
IYDROL										
Netland Hy			piont)							ry Indicators (two or more are required)
Primary Indicators (any one is sufficient) Surface Water (A1)			cient)	Inundation Visible on Aerial Imagery (B7)						er Stained Leaves (B9) inage Patterns (B10)
	ter Table (/	A2)						urface (B8)		lized Rhizospheres along Living Roots (C3)
Saturatio	•	-			Marl Depo:					sence of Reduced Iron (C4)
	arks (B1)				Hydrogen				Salt	Deposits (C5)
Sedimer	t Deposits	(B2)			Dry-Seaso				Stur	nted or Stressed Plants (D1)
Drift De	oosits (B3)			Other (Explain in Remarks)					Geo	morphic Position (D2)
Algal Ma	t or Crust (Algal Mat or Crust (B4)							✓ Shal	llow Aquitard (D3)

Field	Observations:	

Iron Deposits (B5)

Surface Soil Cracks (B6)				✓ FAC-neutral	Test (D5)
Field Observations:	-	-			
Surface Water Present?	$Yes \bigcirc$	No 🖲	Depth (inches):		
Water Table Present?	Yes \bigcirc	No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲
Saturation Present? (includes capillary fringe)	Yes 🖲	No \bigcirc	Depth (inches): 7		

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

water perched atop si cl lo, running into bottom of pit. Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No \bigcirc

Microtopographic Relief (D4)

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borouah	Sampling Date:	25-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_24
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): <u>tussocks</u>	_ Slope:% /° Elevation: _45		
Subregion : Northern Alaska Lat.:	Long.:162.4601066	66667 Datu	m: WGS84
Soil Map Unit Name:	NWI classif	ication: PEM1E	
	ear? Yes O No O (If no, explain in tly disturbed? Are "Normal Circumstances" p problematic? (If needed, explain any answe	resent? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present?	Yes 🖲	No 🔿	Is the Sampled Area				
Hydric Soil Present?	Yes 🖲	No 🔿	• • • •	Yes 🖲 No 🔿			
Wetland Hydrology Present?	Yes 🖲	No O	within a Wetland?				
Remarks: SLOTB flat-topped polys. Characterizing polys. PEM1E homst troughs w 4-6in standing water. 20% caragu, 5% erivag							

Characterizing polys. PEM1E hgmst troughs w 4-6in standing water, 20% caraqu, 5% erivag.

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata:4(B)
3				Percent of dominant Species
4				That Are OBL, FACW, or FAC:100.0% (A/B)
5. — Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover:	0 20% c	of Total Cover:	0	Total % Cover of: Multiply by:
1. Betula nana	7	\checkmark	FAC	OBL species <u>5</u> x 1 = <u>5</u>
2. Ledum decumbens	1		FACW	FACW species <u>11.5</u> x 2 = <u>23</u>
3. Vaccinium uliginosum	2		FAC	FAC speci es 15 x 3 = 45
4. Empetrum nigrum	1		FAC	FACU species $0 \times 4 = 0$
5. Andromeda polifolia	0.5		FACW	UPL species $0 \times 5 = 0$
6				Column Totals: <u>31.5</u> (A) <u>73</u> (B)
7				Prevalence Index = $B/A = 2.317$
8				
9				Hydrophytic Vegetation Indicators:
10				✓ Dominance Test is > 50%
Total Cover:	11.5			✓ Prevalence Index is ≤3.0
Herb Stratum 50% of Total Cover: 5	.75 20% (of Total Cover:	2.3	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1. Carex bigelowii	5	\checkmark	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Carex aquatilis	5	\checkmark	OBL	¹ Indicators of hydric soil and wetland hydrology must
3. Eriophorum vaginatum	10		FACW	be present, unless disturbed or problematic.
4				
5				Plot size (radius, or length x width) _5m
6				% Cover of Wetland Bryophytes
7				(Where applicable)
8				% Bare Ground 55
9				Total Cover of Bryophytes 45
10				Hydrophytic
Total Cover:	20			Vegetation
50% of Total Cover:	LO 20% o	of Total Cover:	4	Present? Yes • No O
Remarks: abundant dead bryophytes included in bare grou	und. 1% u	nidentified pe	dicularis sp).

Depth -	Matr	ix		Red	ox Featu	res			
(inches)	Color (moist		6	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-7								Fibric Organics	
7-14	<u>.</u>				-			Hemic Organics	
						·			
	ontration D Do	plation D		Matrix ² Logatic			DC Deet	Channel M=Matrix	
		ріецон кі	vi=Reduced	Indicators for					
Hydric Soil II				Alaska Color		4	ic sons:		us EV or Doddor
_	Histel (A1)				-			Alaska Gleyed Without H Underlying Layer	UE 5Y OF REDDEF
	Sulfide (A4)			Alaska Redo				Other (Explain in Remark	ks)
	Surface (A12)								
Alaska Gle								e primary indicator of wetland h	nydrology,
Alaska Rec				and an appropr	riate lands	scape posit	ion must b	be present	
	yed Pores (A15)			⁴ Give details of	f color cha	ange in Rer	marks		
		٠.							
Type:	yer (if present	.):						Hydric Soil Present?	Yes 🔍 No 🔿
Depth (inch	es):								
Remarks:									
Normar Ko.									
HYDROLO	-								
-	ology Indicato								cators (two or more are required)
	tors (any one is s	sufficient)						_	ned Leaves (B9)
Surface W	. ,					n Aerial Im	5 5 .	,	Patterns (B10)
High Water Table (A2)				Sparsely V	egetated	Concave S	urface (B8	,	Rhizospheres along Living Roots (C3)
Saturation (A3) Marl Deposits (B15)							Presence o	of Reduced Iron (C4)	
Water Marks (B1) Hydrogen Sulfide Odor (C1)							Salt Depos	sits (C5)	
Sediment Deposits (B2)							Stunted or Stressed Plants (D1)		
Drift Deposits (B3)							Geomorph	ic Position (D2)	
Algal Mat	or Crust (B4)							Shallow Ad	quitard (D3)
Iron Depo	sits (B5)							Microtopo	graphic Relief (D4)
Surface So	oil Cracks (B6)							FAC-neutra	al Test (D5)
Surface So								FAC-neutra	al Test (D5)
	tions:	Yes ○ Yes ●	No 🖲	Depth (inc	ches):			✓ FAC-neutra	al Test (D5)

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

Yes 💿 No 🔾

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Saturation Present?

(includes capillary fringe)

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Depth (inches): 6

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 2	5-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_25
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Floodplain	
Local relief (concave, convex, none): <u>flat</u>	_ Slope:% / ° Elevation: _5		
Subregion : Northern Alaska Lat.:	<u>66.8164083333333</u> Long.: <u>-162.514971</u>	666667 Datum	n: WGS84
Soil Map Unit Name:	NWI class	ification: PSS4B	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes () Yes () Yes ()	No () No () No ()	Is the Sampled Area within a Wetland?	Yes 🖲 No 🔿			
Remarks: SDEE, goose scat, west of pre-selected points. Sadie Creek flooded, wetted width ca 250ft, wrack indicates water was higher very recently.							

and that this community was flooded.

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata: 3 (B)
3				
4				Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
5Total Cover:	0			Prevalence Index worksheet:
		of Total Cover:	0	Total % Cover of: Multiply by:
	7		FACW	OBL species x 1 =37
1. Salix fuscescens	30		FAC	FACW species x 2 =14
2. Empetrum nigrum 3. Betula nana	10	 Image: A start of the start of	FAC	FAC species 43 x 3 = 129
0	3		FAC	FACU species $0 \times 4 = 0$
T			140	UPL species $-\frac{0}{x} \times 5 = -\frac{0}{x}$
5				Column Totals: 87 (A) 180 (B)
6				
7				Prevalence Index = $B/A = 2.069$
8				Hydrophytic Vegetation Indicators:
9		\square		✓ Dominance Test is > 50%
10Total Cover:	50			✓ Prevalence Index is ≤3.0
		of Total Cover:	10	Morphological Adaptations ¹ (Provide supporting
Herb Stratum				data in Remarks or on a separate sheet)
1. Eriophorum angustifolium	7		OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Carex aquatilis	30		OBL	¹ Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
4				
5				Plot size (radius, or length x width) 10m
6				% Cover of Wetland Bryophytes
7				(Where applicable)
8				% Bare Ground <u>10</u>
9				Total Cover of Bryophytes <u>85</u>
10				Hydrophytic
Total Cover: 50% of Total Cover: 1		of Total Cover:	7 /	Vegetation Present? Yes • No O
	0.5 20% (or rotal cover:	7.4	
Remarks: possibly other sedges, no seed heads. eriang id	based on r	ed bases and	fused leaf	tips, caraqu id based on gray-green color.

Depth	M	atrix	-		-			dicators	
(inches)	Color (me		%	Color (moist)	ox Featu %	Type ¹	Loc ²	Texture	Remarks
0-8		<u></u>	<u></u>			Туре		Fibric Organics	Remarks
8-13		<u>_</u>			-		-	Hemic Organics	
13-14								Sapric Organics	
14-17	10YR	3/1	100					Silty Clay Loam	
		<u>_</u>			-		-		
¹ Type: C=Con	centration D=	Depletion	RM=Redu	uced Matrix ² Locatio	on: PL=P	ore Linina	RC=Root	Channel M=Matrix	
Hydric Soil		Boplotion	inii itout	Indicators for					
_	or Histel (A1)			Alaska Color		4		Alaska Gleyed Without H	Hue 5Y or Redder
✔ Histic Epi	ipedon (A2)			🗌 Alaska Alpin	e swales (TA5)		Underlying Layer	
Hydroger	n Sulfide (A4)			🗌 Alaska Redo	x With 2.5	SY Hue		Other (Explain in Remai	rks)
	rk Surface (A12	2)		³ One indicator	of hydror	bytic year	station one	e primary indicator of wetland	bydrology
	leyed (A13)			and an appropr					nyurology,
	edox (A14)			⁴ Give details of	f color cha	ange in Re	marks		
Alaska Gl	leyed Pores (A1	15)							
	ayer (if pres							Hydric Soil Present?	Yes \bullet No \bigcirc
	tive layer (froze ches): 17, 14	en), si cl lo						Hydric Soll Present?	Yes $ullet$ No $igcup$
Domonico									
Remarks:									
	DGY								
HYDROLO	DGY drology Indic	ators:						Secondary Inc	licators (two or more are required)
HYDROLC Wetland Hyc			nt)					Water Sta	iined Leaves (B9)
HYDROLC Wetland Hyc Primary Indic.	drology Indic ators (any one Water (A1)		nt)	Inundation	n Visible o	n Aerial In	nagery (B7)) Water Sta	ined Leaves (B9) Patterns (B10)
HYDROLC Wetland Hyc Primary Indic Surface V W High Wat	drology Indic ators (any one Water (A1) ter Table (A2)		nt)	Sparsely V	egetated) Water Sta) Drainage) Oxidized	ined Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3)
HYDROLO Wetland Hyc Primary Indic Surface V W High Wal Saturatio	drology Indic ators (any one Water (A1) ter Table (A2) on (A3)		nt)	Sparsely V	'egetated sits (B15)	Concave S		Water Sta	ined Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3) of Reduced Iron (C4)
HYDROLO Wetland Hyc Primary Indic Surface V High Wat Saturatio Water Ma	drology Indic ators (any one Water (A1) ter Table (A2) on (A3) arks (B1)	<u>e is sufficier</u>	nt)	Sparsely V Marl Depo Hydrogen	'egetated sits (B15) Sulfide Oc	Concave S dor (C1)		Water Sta Water Sta Drainage Oxidized Presence	ined Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3) of Reduced Iron (C4) sits (C5)
HYDROLO Wetland Hyc Primary Indic Surface V High Wat Saturatio Water Ma Saturatio	drology Indic ators (any one Water (A1) ter Table (A2) on (A3) arks (B1) t Deposits (B2)	<u>e is sufficier</u>	nt)	Sparsely V Sparsely V Marl Depo Hydrogen Dry-Seaso	'egetated sits (B15) Sulfide O n Water T	Concave S dor (C1) Table (C2)		Water Sta Water Sta Drainage Oxidized Presence Salt Depo Stunted of	ined Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3) of Reduced Iron (C4) sits (C5) r Stressed Plants (D1)
HYDROLC Wetland Hyc Primary Indic Surface V High Wat Saturatio Water Ma Sedimen Drift Dep	drology Indic aators (any one Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) ti Deposits (B2) posits (B3)) <u>is sufficier</u>	nt)	Sparsely V Marl Depo Hydrogen	'egetated sits (B15) Sulfide O n Water T	Concave S dor (C1) Table (C2)		Water Sta Water Sta Drainage Oxidized Presence Salt Depo Stunted of Geomorph	ined Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3) of Reduced Iron (C4) sits (C5) r Stressed Plants (D1) hic Position (D2)
HYDROLC Wetland Hyc Primary Indic Surface V High Wat Saturatio Water Ma Sedimen Drift Dep Algal Mat	drology Indic aators (any one Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) tit Deposits (B2) posits (B3) t or Crust (B4)) <u>is sufficier</u>	nt)	Sparsely V Sparsely V Marl Depo Hydrogen Dry-Seaso	'egetated sits (B15) Sulfide O n Water T	Concave S dor (C1) Table (C2)		Water Sta Water Sta Drainage Oxidized Presence Salt Depo Stunted of Geomorpi V Shallow A	ined Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3) of Reduced Iron (C4) sits (C5) ir Stressed Plants (D1) hic Position (D2) quitard (D3)
HYDROLC Wetland Hyc Primary Indic: Surface V High Wa' Saturatio Water Ma Sedimen Drift Dep Algal Ma' Iron Dep	drology Indic ators (any one Water (A1) ter Table (A2) on (A3) arks (B1) at Deposits (B2) toosits (B3) t or Crust (B4) posits (B5)	<u>) is sufficier</u>	nt)	Sparsely V Sparsely V Marl Depo Hydrogen Dry-Seaso	'egetated sits (B15) Sulfide O n Water T	Concave S dor (C1) Table (C2)		Water Sta Water Sta Drainage Oxidized Presence Salt Depo Stunted of Geomorpl V Shallow A Microtopo	ined Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3) of Reduced Iron (C4) sits (C5) or Stressed Plants (D1) hic Position (D2) equitard (D3) ographic Relief (D4)
HYDROLO Wetland Hyc Primary Indic Surface V High Wal Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Dep Surface S	drology Indic aators (any one Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) t Deposits (B2) posits (B3) t or Crust (B4) posits (B5) Soil Cracks (B6	<u>) is sufficier</u>	nt)	Sparsely V Sparsely V Marl Depo Hydrogen Dry-Seaso	'egetated sits (B15) Sulfide O n Water T	Concave S dor (C1) Table (C2)		Water Sta Water Sta Drainage Oxidized Presence Salt Depo Stunted of Geomorpi V Shallow A	ined Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3) of Reduced Iron (C4) sits (C5) or Stressed Plants (D1) hic Position (D2) equitard (D3) ographic Relief (D4)
HYDROLO Wetland Hyc Primary Indic Surface V High Wat Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Dep Surface S Field Observ	drology Indic aators (any one Water (A1) ter Table (A2) on (A3) arks (B1) arks (B1) t Deposits (B3) t or Crust (B4) posits (B5) Soil Cracks (B6 /ations:)		Sparsely V Marl Depo Hydrogen Dry-Seaso Other (Exp	'egetated sits (B15) Sulfide Od n Water T blain in Re	Concave S dor (C1) Table (C2)		Water Sta Water Sta Drainage Oxidized Presence Salt Depo Stunted of Geomorpl V Shallow A Microtopo	ined Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3) of Reduced Iron (C4) sits (C5) or Stressed Plants (D1) hic Position (D2) equitard (D3) ographic Relief (D4)
HYDROLO Wetland Hyc Primary Indic Surface V High Wal Saturatio Water Ma Sedimen Drift Dep Algal Mat Iron Dep Surface S	drology Indic sators (any one Water (A1) ter Table (A2) on (A3) arks (B1) it Deposits (B2) oosits (B3) t or Crust (B4) oosits (B5) Soil Cracks (B6 /ations: er Present?))) Yes (Sparsely V Marl Depo Hydrogen Dry-Seaso Other (Exp	regetated sits (B15) Sulfide Or n Water T blain in Re ches):	Concave S dor (C1) Table (C2)	urface (B8	Water Sta Water Sta Drainage Oxidized Presence Salt Depo Stunted of Geomorpl V Shallow A Microtopo	ained Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3) of Reduced Iron (C4) sists (C5) rr Stressed Plants (D1) hic Position (D2) aquitard (D3) ographic Relief (D4) ral Test (D5)

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough	Sampling Date: 25-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point: CB_26
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Swale
Local relief (concave, convex, none): <u>flat</u>	Slope: <u>5.2</u> % / <u>3.0</u> ° Elevation: <u>20</u>	
Subregion : Northern Alaska La	t.: <u>66.816585</u> Long.: <u>-162.515391</u>	666667 Datum: WGS84
Soil Map Unit Name:	NWI class	ification: PEM1E
	year? Yes No (If no, explain ir antly disturbed? Are "Normal Circumstances" Are "Normal Circumstances" ly problematic? (If needed, explain any answer)	present? Yes $ullet$ No $igodot$

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc					
Remarks: HGWST wet sedge meadow tundra, suspect usually doesn't have flowing water, and this is because of recent heavy rains, bright green in									

Remarks: HGWS1 wet sedge meadow tundra. suspect usually doesn't have flowing water, and this is because of recent heavy rains. bright green in aerial.

		Abs	olute	Dominant	Indicator	Dominance Test worksheet:			
Tro	ee Stratum	%	Cover	Species?	Status	Number of Dominant Species			
1.						That are OBL, FACW, or FAC: <u>3</u> (A)			
2.						Total Number of Dominant			
3.		_				Species Across All Strata:3 (B)			
		_				Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)			
5.		_							
•	Total Cover:		0			Prevalence Index worksheet:			
Sapl	ing/Shrub Stratum 50% of Total Cover:	0	20% (of Total Cover:	0	Total % Cover of: Multiply by:			
1	Salix fuscescens	_	7	\checkmark	FACW	OBL species <u>30</u> x 1 = <u>30</u>			
2	Vaccinium uliginosum	_	7	\checkmark	FAC	FACW species $7 \times 2 = 14$			
3		_				FAC species $7 \times 3 = 21$			
						FACU species $0 \times 4 = 0$			
_						UPL species x 5 =			
						Column Totals:44 (A)65 (B)			
						Prevalence Index = $B/A = 1.477$			
						Hydrophytic Vegetation Indicators:			
						✓ Dominance Test is > 50%			
10.	Total Cover:		14			✓ Prevalence Index is ≤3.0			
	50% of Total Cover:	7	20%	of Total Cover:	2.8	Morphological Adaptations ¹ (Provide supporting			
He	erb Stratum	-	-			data in Remarks or on a separate sheet)			
1.	Eriophorum scheuchzeri	_	20		OBL	Problematic Hydrophytic Vegetation ¹ (Explain)			
2.	Eriophorum angustifolium	_	5		OBL	¹ Indicators of hydric soil and wetland hydrology must			
3.	Carex aquatilis		5		OBL	be present, unless disturbed or problematic.			
4.						-			
5.		_				Plot size (radius, or length x width) _5m			
6.		_				% Cover of Wetland Bryophytes			
7.		_				(Where applicable)			
8.		_				% Bare Ground			
9.		_				Total Cover of Bryophytes			
10.		_				Hydrophytic			
	Total Cover:		30			Vegetation			
	50% of Total Cover:	15	20% (of Total Cover:	6	Present? Yes No			
Rem	Remarks:								

(inches) Color (moist) % Co	olor (moist) <u>%</u> Type ¹ Loc ²	Texture Remarks
Type: C=Concentration D=Depletion RM=Reduced M	Matrix ² Location: PL=Pore Lining RC=Root Ch	hannel M=Matrix
Hydric Soil Indicators:	ndicators for Problematic Hydric Soils: ³	
Histosol or Histel (A1)	\square Alaska Color Change (TA4) ⁴	Alaska Gleyed Without Hue 5Y or Redder
Histic Epipedon (A2)	Alaska Alpine swales (TA5)	Underlying Layer
Hydrogen Sulfide (A4)		✓ Other (Explain in Remarks)
Thick Dark Surface (A12)		
Alaska Claused (A12)	³ One indicator of hydrophytic vegetation, one p	primary indicator of wetland hydrology,
Alaska Redox (A14)	and an appropriate landscape position must be	present
	⁴ Give details of color change in Remarks	
Restrictive Layer (if present):		
Type:		Hydric Soil Present? Yes No
Depth (inches):		
• • •		
emarks:		
ssume hydric soil due to hydrophytic vegetation and fle	owing water	
IYDROLOGY		
Vetland Hydrology Indicators:		Secondary Indicators (two or more are required)
Primary Indicators (any one is sufficient)		Water Stained Leaves (B9)
Surface Water (A1)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)
High Water Table (A2)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3
Saturation (A3)	Marl Deposits (B15)	Presence of Reduced Iron (C4)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)
Sediment Deposits (B2)	Dry-Season Water Table (C2)	Stunted or Stressed Plants (D1)
		Geomorphic Position (1)2)
Drift Deposits (B3)	Other (Explain in Remarks)	Geomorphic Position (D2)
Drift Deposits (B3) Algal Mat or Crust (B4) Iron Deposits (B5)	Uther (Explain in Remarks)	Shallow Aquitard (D3)

Field	Observations:
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(includes capillary fringe)

Surface Water Present?	Yes 🖲	No \bigcirc	Depth (inches): 4		
Water Table Present?	$_{ m Yes}$ \bigcirc	No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲
Saturation Present?	$_{ m Yes}$ \bigcirc	No 🖲	Depth (inches):		

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No \bigcirc

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 2	5-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_27
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Floodplain	
Local relief (concave, convex, none): tussocks	_ Slope:% /° Elevation:		
Subregion : Northern Alaska Lat.:	66.81692666666667 Long.:162.5134016	666667 Datur	n: WGS84
Soil Map Unit Name:	NWI class	ification: PSS4B	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present?	Yes 🖲	No () No ()	Is the Sampled Area	Yes \bullet No \bigcirc							
Wetland Hydrology Present?	Yes 🖲	No 🔿	within a wetland.								
Remarks: walking directly toward											

		Ab	solute	Dominant	Indicator	Dominance Test worksheet:			
Tree Stratum		%	Cover	r Species?	Status	Number of Dominant Species			
1.		-				That are OBL, FACW, or FAC:5(A)			
2.		-				Total Number of Dominant Species Across All Strata: 5 (B)			
3.		_							
4.		_				Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)			
5.		_							
	Total Cover:	_	0			Prevalence Index worksheet:			
Sap	ling/Shrub Stratum 50% of Total Cover:	0	20% c	of Total Cover:	0	Total % Cover of: Multiply by:			
1	Salix fuscescens	_	5		FACW	OBL speciles <u>15</u> x 1 = <u>15</u>			
2.	Vaccinium vitis-idaea	_	25	\checkmark	FAC	FACW species <u>10</u> x 2 = <u>20</u>			
3.	Empetrum nigrum	_	30	\checkmark	FAC	FAC species $70 \times 3 = 210$			
4.	Betula nana	_	10		FAC	FACU species $0 \times 4 = 0$			
5.	Vaccinium uliginosum	_	5		FAC	UPL species $0 \times 5 = 0$			
6		_				Column Totals: (A) (B)			
						Prevalence Index = $B/A = 2.579$			
		_				Hydrophytic Vegetation Indicators:			
		_				✓ Dominance Test is > 50%			
10.	Total Cover:		75			✓ Prevalence Index is ≤3.0			
Ц	erb Stratum50% of Total Cover:3	37.5	20% (of Total Cover:	15	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
 	Eriophorum angustifolium		5	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)			
1.	Eriophorum vaginatum	-	5		FACW				
2.	Carox aquatilis	-	10		OBL	¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.			
3.	· · · · ·		10			be present, unless disturbed of problematic.			
0.						Plot size (radius, or length x width) 5m			
•.						% Cover of Wetland Bryophytes (Where applicable)			
						% Bare Ground _5			
						Total Cover of Bryophytes 90			
•.		-							
10.	Total Cover:	-	20			Hydrophytic			
		_		of Total Cover:	4	Vegetation Present? Yes • No O			
Ren			50% of Total Cover: 10 20% of Total Cover: 4 Present? Yes Remarks:						

Profile Desc	ription: Desc	ribe to dep	th needeo	d to document the	presen	ce or abs	ence of in	dicators		
Depth		latrix			ox Featu					
(inches)	Color (m		<u> </u>	Color (moist)	_%	Type ¹	Loc ²	Texture Fibric Organics	F	Remarks
0-7			00							
7-9		1	00					Hemic Organics		
9-13	10YR	3/2 1	00					Silt Loam	high organic conte	ent
13-14						·		Sapric Organics	_	
14-17	10YR	3/2 1	00					Silt Loam	high organic conte	ent
¹ Type: C=Cor	centration D=	=Depletion !		ed Matrix ² Locatio	n: PL=Pc	ore Lining	RC=Root (Channel M=Matrix		
Hydric Soil				Indicators for						
	or Histel (A1)			Alaska Color		4		Alaska Gleyed Witho	out Hue 5Y or Redo	ler
	ipedon (A2)			🗌 Alaska Alpine	-			Underlying Layer		
	n Sulfide (A4)			Alaska Redo	With 2.5	Y Hue		Other (Explain in Re	emarks)	
Thick Da	rk Surface (A1	2)		30.00						
🗌 Alaska G	leyed (A13)			and an appropr				e primary indicator of wetla e present	and hydrology,	
	edox (A14)			⁴ Give details of						
🔄 Alaska G	leyed Pores (A	.15)		· Give details of		inge in kei	IIdi KS			
	ayer (if pres									\sim
	tive layer (froz	en)						Hydric Soil Preser	nt? Yes 🖲	No 🔿
Depth (in	ches): 17									
Remarks:										
HYDROL	OGY									
-	drology India									more are required)
	ators (any one	e is sufficient)					_	Stained Leaves (E	9)
	Water (A1)			Inundation					age Patterns (B10)	
Saturatio	ter Table (A2)			Sparsely Ve		Concave S	urface (B8)		zed Rhizospheres a nce of Reduced Irc	long Living Roots (C3)
Water M				Marl Depos		lor (C1)			Deposits (C5)	(1 (04)
	it Deposits (B2	2)		Dry-Seasor					ed or Stressed Plar	nts (D1)
	n Deposits (D2 posits (B3)	-)		Other (Exp				_	orphic Position (D2	
	t or Crust (B4))				marksy		_	ow Aquitard (D3)	-/
	osits (B5)	,						_	topographic Relief	(D4)
Surface	Soil Cracks (Bé	6)							eutral Test (D5)	. ,
Field Observ	vations:									
Surface Wat	er Present?	Yes $\mathbb C$) No 🖲	Depth (inc	nes):					
Water Table	Present?	Yes 🖲) No 🔿	Depth (inc	nes): 1		w	etland Hydrology Prese	ent? Yes 🖲	No \bigcirc
Saturation P (includes car	resent? billary fringe)	Yes 🖲	No O	Depth (inc	nes): 0					
Describe Reco	rded Data (str	ream gauge,	monitor we	ell, aerial photos, pr	evious ins	spection) i	f available:			

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date:	25-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_28
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Shoreline	
Local relief (concave, convex, none):	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>55</u>		
Subregion : Northern Alaska Lat.:	<u>66.8037283333333</u> Long.: <u>-162.483951</u>	<u>666667</u> Datu	m: WGS84
Soil Map Unit Name:	NWI class	ification: PEM1F	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No \bigcirc

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: HGWLSM (Hbbw?). La trail/tunnel through sp		nge floating sphagnum mat. O	ne pair of loons flying l	ow overhead. Sandhill cranes in distance. Vole

		Ab	solute	Dominant	Indicator	Dominance Test worksheet:
-	ee Stratum	<u>%</u>	Cover	Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC: 7(A)
••		-				Total Number of Dominant Species Across All Strata: 7 (B)
						Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5						
0.	Total Cover:		0			Prevalence Index worksheet:
Sap	ling/Shrub Stratum 50% of Total Cover:	0	_ 20% o	f Total Cover:	0	Total % Cover of: Multiply by:
1.	Andromeda polifolia		1	\checkmark	FACW	OBL species 48 x 1 = 48
2.	Salix fuscescens		3	\checkmark	FACW	FACW species $11 \times 2 = 22$
3.	Vaccinium oxycoccos		1	\checkmark	OBL	FAC species $1 \times 3 = 3$
4	Betula nana		1	\checkmark	FAC	FACU species $0 \times 4 = 0$
5.		-				UPL species $0 \times 5 = 0$
						Column Totals: <u>60</u> (A) <u>73</u> (B)
_						Prevalence Index = B/A = <u>1.217</u>
8.						Hydrophytic Vegetation Indicators:
9.						✓ Dominance Test is > 50%
10.						✓ Prevalence Index is ≤ 3.0
	Total Cover:	_	6			_
, Н	erb Stratum50% of Total Cover:	3	_ 20% c	of Total Cover:		Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1.	Comarum palustre		5		OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Carex aquatilis		10		OBL	¹ Indicators of hydric soil and wetland hydrology must
3.	Eriophorum angustifolium		7		OBL	be present, unless disturbed or problematic.
4.	Eriophorum scheuchzeri		10		OBL	
5.	Anthoxanthum arcticum		2		FACW	Plot size (radius, or length x width) 10m
6.	Carex laeviculmis		5		FACW	% Cover of Wetland Bryophytes
7.	Carex chordorrhiza		5		OBL	(Where applicable)
8.	Carex rotundata		10		OBL	% Bare Ground _0
9.						Total Cover of Bryophytes 98
10.						Hydrophytic
	Total Cover:	_	54	(10.0	Vegetation Present? Yes • No ·
	50% of Total Cover:	27	20% 0	f Total Cover:	10.8	Present?YesNo
Rem	arks:					

Depth	Matrix		Redo	x Features				
(inches)	Color (moist)	%	Color (moist)	% 1	Type ¹	Loc ²	Texture	Remarks
								<u>-</u>
Type: C=Cor	ncentration D=Depletion	on RM=Redu	ced Matrix ² Location	n: PL=Pore	Lining	RC=Root Cl	nannel M=Matrix	
Hydric Soil	Indicators:		Indicators for F	Problematic	: Hydri	c Soils: ³		
_	or Histel (A1)		Alaska Color				Alaska Gleyed Withou	it Hue 5Y or Redder
_	ipedon (A2)		Alaska Alpine				Underlying Layer	
= .	n Sulfide (A4)		Alaska Redox				✓ Other (Explain in Ren	narks)
- ⁻ ⁻	rk Surface (A12)							
_	leyed (A13)		³ One indicator of and an appropri				primary indicator of wetlar	nd hydrology,
_	edox (A14)				•		present	
	leyed Pores (A15)		⁴ Give details of	color change	e in Ren	narks		
Restrictive L	ayer (if present):							
Type:	•						Hydric Soil Present	t? Yes 🖲 No 🔾
Depth (ind	ches):							
emarks:								
ssume hydric	soil due to hydrophyt	ic vegetation	and standing water					
,	· · ·	5	Č,					
IYDROLO	JGY drology Indicators:						Secondary	Indicators (two or more are required)
2	ators (any one is suffic	cient)						Stained Leaves (B9)
Surface		510111)		Visible on A	erial Im	agery (B7)		ge Patterns (B10)
	ter Table (A2)			egetated Con		0 5		ed Rhizospheres along Living Roots (C3
Saturatio			Marl Depos	-	10410 01			ce of Reduced Iron (C4)
	arks (B1)			Sulfide Odor	(C1)		_	eposits (C5)
	t Deposits (B2)			Water Table				d or Stressed Plants (D1)
Drift Dep	oosits (B3)			ain in Remar			🗹 Geomo	orphic Position (D2)
Algal Ma	t or Crust (B4)						Shallov	v Aquitard (D3)
Iron Dep	oosits (B5)						Microto	ppographic Relief (D4)
Curfage .								utral Taat (DE)

Surface Soil Cracks (B6)				FAC-neutral	Test (D5)	
Field Observations:						
Surface Water Present?	Yes 🖲	No \bigcirc	Depth (inches): 2			
Water Table Present?	$_{ m Yes}$ \bigcirc	No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲	No \bigcirc
Saturation Present? (includes capillary fringe)	$_{\rm Yes} \bigcirc$	No 🖲	Depth (inches):			
Describe Recorded Data (strea	am gauge, n	nonitor well,	aerial photos, previous inspection) if avai	lable:		

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough	Sampling Date:	25-Aug-12
Applicant/Owner: _Baker/ADOT&PF		Sampling Point:	CB_29
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): tussocks	Slope: <u>3.5</u> % / <u>2.0</u> ° Elevation: <u>70</u>		
Subregion : Northern Alaska Lat.	: <u>66.8041216666667</u> Long.: <u>-162.47829</u>	Datu	m: WGS84
Soil Map Unit Name:	NWI class	ification: PSS1/EM1E	}
	year? Yes O No O (If no, explain ir ntly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes () Yes () Yes ()	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: SLOTT				

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC:(A)
2				Total Number of Dominant Species Across All Strata: 4 (B)
3				
4				Percent of dominant Species That Are OBL, FACW, or FAC:(A/B)
5				Prevalence Index worksheet:
Total Cover:				Total % Cover of: Multiply by:
Sapling/Shrub Stratum 50% of Total Cover:	020%	of Total Cover:	0	0BL specilles 0 x 1 = 0
1. Arctostaphylos alpina	20		FACU	
2. Betula nana	7		FAC	FACW species $30 \times 2 = 60$
3. Ledum decumbens	5		FACW	FAC speciles $46 \times 3 = 138$
4. Empetrum nigrum	7		FAC	FACU species 20 x 4 = 80
5. Vaccinium vitis-idaea	20		FAC	UPL species $-\frac{0}{x 5} = -\frac{0}{x 5}$
6. Vaccinium uliginosum	5		FAC	Column Totals: <u>96</u> (A) <u>278</u> (B)
7				Prevalence Index = B/A = 2.896
8				
9				Hydrophytic Vegetation Indicators:
10				✓ Dominance Test is > 50%
Total Cover:	64			✓ Prevalence Index is ≤3.0
Herb Stratum 50% of Total Cover:	32 20%	of Total Cover:	12.8	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1 Eriophorum vaginatum	20	\checkmark	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Carex bigelowii	7	\checkmark	FAC	¹ Indicators of hydric soil and wetland hydrology must
3. Rubus chamaemorus	5		FACW	be present, unless disturbed or problematic.
4				
5				Plot size (radius, or length x width) 10m
6				% Cover of Wetland Bryophytes
7				(Where applicable)
8				% Bare Ground 10
9				Total Cover of Bryophytes 60
10				Hydrophytic
Total Cover:				Vegetation
50% of Total Cover:	16 20%	of Total Cover:	6.4	Present? Yes No
Remarks: erivag and carbig tussocks				

	epth Matrix Redox Features							
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-8							Fibric Organics	
8-12	<u>-</u>	-					Hemic Organics	
			·					
			·	<u></u>				
	ntration D-Depleti	ion PM-P	Reduced Matrix ² Loca	tion: PI - P	ore Lining	PC-Poot (
			Indicators for					
Hydric Soil In Histosol or				or Change	4	C 30115.	Alaska Gleyed Without	Hue 5V or Redder
 Histosof of Histic Epipe 				ine swales			Underlying Layer	The ST OF Redder
Hydrogen S			Alaska Re	lox With 2.	5Y Hue		Other (Explain in Rem	arks)
Thick Dark	Surface (A12)		2					
Alaska Gley	red (A13)		³ One indicate and an approx				primary indicator of wetland e present	l hydrology,
Alaska Red	ox (A14)						o procont	
🗌 Alaska Gley	ed Pores (A15)		⁴ Give details	of color ch	ange in Rer	narks		
Restrictive Lay	yer (if present):							\sim
Type: active	e layer (frozen)						Hydric Soil Present?	Yes $oldsymbol{igstar}$ No $igodol{igstar}$
	es): 12							
Depth (inche	,							
	·							
Depth (inche Remarks:								
	<u>,</u>							
emarks:								
Remarks: IYDROLO(Wetland Hydro	GY ology Indicators:							dicators (two or more are required)
Remarks: IYDROLO(Wetland Hydro	GY	cient)					Water S	ained Leaves (B9)
Remarks:	GY ology Indicators: ors (any one is suffi ater (A1)	cient)			on Aerial Im		Water S	ained Leaves (B9) 9 Patterns (B10)
Remarks: IYDROLOO Netland Hydro Primary Indicator Surface Wa I High Water	GY ology Indicators: ors (any one is suffi ater (A1) r Table (A2)	cient)			on Aerial Im Concave So		Water S Water S Crainage Oxidized	ained Leaves (B9) 9 Patterns (B10) Rhizospheres along Living Roots (C3
Remarks: IYDROLO(Wetland Hydro Primary Indicate Surface Wa W High Water Migh Water Saturation	GY ology Indicators: ors (any one is suffi ater (A1) r Table (A2) (A3)	cient)	Sparsely		Concave S		Water S Drainage Oxidized Presence	ained Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3 of Reduced Iron (C4)
Remarks: IYDROLOO Wetland Hydro Primary Indicato Surface Wa Wigh Water Saturation Water Marl	GY ology Indicators: ors (any one is suffi ater (A1) r Table (A2) (A3) ks (B1)	cient)	Sparsely	Vegetated	Concave S		Water S Drainage Oxidized Presence Salt Dep	ained Leaves (B9) 9 Patterns (B10) Rhizospheres along Living Roots (C3 9 of Reduced Iron (C4) osits (C5)
Remarks: IYDROLOO Wetland Hydre Primary Indicate Surface Wa Image: Surface Wa Image: High Water Image: Saturation Water Marl	GY ology Indicators: ors (any one is suffi ater (A1) r Table (A2) (A3)	cient)	Sparsely Marl De Hydroge	Vegetated oosits (B15)	Concave S dor (C1)		Water S Drainage Oxidized Presence Salt Dep	ained Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3 of Reduced Iron (C4)
Remarks: IYDROLOO Wetland Hydro Primary Indicato Surface Wa Wigh Water Saturation Water Marl	GY ology Indicators: ors (any one is suffi ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2)	cient)	Sparsely Sparsely Marl Dep Hydroge Dry-Sea	Vegetated oosits (B15) n Sulfide O	Concave So dor (C1) Fable (C2)		Water S Constant of the second secon	ained Leaves (B9) 9 Patterns (B10) Rhizospheres along Living Roots (C3 9 of Reduced Iron (C4) osits (C5)
Remarks:	GY ology Indicators: ors (any one is suffi ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2)	cient)	Sparsely Sparsely Marl Dep Hydroge Dry-Sea	Vegetated posits (B15) n Sulfide O son Water 7	Concave So dor (C1) Fable (C2)		Water S Drainage Oxidized Presence Salt Dep Stunted Geomory	ained Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3 e of Reduced Iron (C4) osits (C5) or Stressed Plants (D1)
Remarks:	GY ology Indicators: ors (any one is suffi ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)	cient)	Sparsely Sparsely Marl Dep Hydroge Dry-Sea	Vegetated posits (B15) n Sulfide O son Water 7	Concave So dor (C1) Fable (C2)		□ Water S □ Drainage □ Oxidized □ Presence □ Salt Dep □ Stunted □ Geomor ✔ Shallow	ained Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3 of Reduced Iron (C4) osits (C5) or Stressed Plants (D1) ohic Position (D2)
Remarks: HYDROLOO Wetland Hydre Primary Indicate Surface Wa High Water High Water Saturation Water Mari Sediment I Drift Depose Algal Mat c Iron Depose	GY ology Indicators: ors (any one is suffi ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4)	cient)	Sparsely Sparsely Marl Dep Hydroge Dry-Sea	Vegetated posits (B15) n Sulfide O son Water 7	Concave So dor (C1) Fable (C2)		□ Water S □ Drainage □ Oxidized □ Presence □ Salt Dep □ Stunted □ Geomor ✓ Shallow □ Microtop	ained Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3 of Reduced Iron (C4) osits (C5) or Stressed Plants (D1) ohic Position (D2) Aquitard (D3)
Remarks: IYDROLOO Wetland Hydra Primary Indicate Surface Wa Image: Strate Wa <td< td=""><td>GY ology Indicators: ors (any one is suffi ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) il Cracks (B6)</td><td>cient)</td><td>Sparsely Sparsely Marl Dep Hydroge Dry-Sea</td><td>Vegetated posits (B15) n Sulfide O son Water 7</td><td>Concave So dor (C1) Fable (C2)</td><td></td><td>□ Water S □ Drainage □ Oxidized □ Presence □ Salt Dep □ Stunted □ Geomor ✓ Shallow □ Microtop</td><td>ained Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3 of Reduced Iron (C4) osits (C5) or Stressed Plants (D1) ohic Position (D2) Aquitard (D3) ographic Relief (D4)</td></td<>	GY ology Indicators: ors (any one is suffi ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) il Cracks (B6)	cient)	Sparsely Sparsely Marl Dep Hydroge Dry-Sea	Vegetated posits (B15) n Sulfide O son Water 7	Concave So dor (C1) Fable (C2)		□ Water S □ Drainage □ Oxidized □ Presence □ Salt Dep □ Stunted □ Geomor ✓ Shallow □ Microtop	ained Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3 of Reduced Iron (C4) osits (C5) or Stressed Plants (D1) ohic Position (D2) Aquitard (D3) ographic Relief (D4)
Remarks: HYDROLOO Watland Hydre Primary Indicate Water Mari Saturation Water Mari Sediment I Drift Depose Algal Mat of Iron Depose	GY ology Indicators: ors (any one is suffi ater (A1) r Table (A2) (A3) ks (B1) Deposits (B2) sits (B3) or Crust (B4) sits (B5) il Cracks (B6) tions:	cient)	Sparsely Marl Dep Hydroge Dry-Sea Other (E	Vegetated posits (B15) n Sulfide O son Water T xplain in Re	Concave So dor (C1) Fable (C2)		□ Water S □ Drainage □ Oxidized □ Presence □ Salt Dep □ Stunted □ Geomor ✓ Shallow □ Microtop	ained Leaves (B9) Patterns (B10) Rhizospheres along Living Roots (C3 of Reduced Iron (C4) osits (C5) or Stressed Plants (D1) ohic Position (D2) Aquitard (D3) ographic Relief (D4)

Depth (inches): 3 (includes capillary fringe) Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:

Yes 💿 No 🔾

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Saturation Present?

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 2	5-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_30
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): hummocky	_ Slope:% /° Elevation:80		
Subregion : Northern Alaska Lat.:	<u>66.803375</u> Long.: <u>-162.475636</u>	666667 Datum	n: WGS84
Soil Map Unit Name:	NWI class	sification: PEM1F	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	0	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc		
Remarks: HGWST wet sedge tundra w scattered hummocks and vermiculations. larger hummocks 2ft above water level w substantial lichen cover.						

goose, ptarmigan scatt on large hummocks.

		Absolu	ute Dominant	Indicator	Dominance Test worksheet:		
Tree Stratum		% Co\	/er Species?	Status	Number of Dominant Species		
1					That are OBL, FACW, or FAC:6(A)		
2					Total Number of Dominant Species Across All Strata: 6 (B)		
3							
					Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)		
5							
0.	Total Cover:	0	_		Prevalence Index worksheet:		
Sapling/Shrub Stratum	50% of Total Cover:	0 20	% of Total Cover:	0	Total % Cover of: Multiply by:		
1 Betula nana		2	\checkmark	FAC	OBL species 54.5 x 1 = 54.5		
2. Andromeda polifolia		0.5		FACW	FACW species 2.5 x 2 = 5		
3. Salix fuscescens		1		FACW	FAC species $2 \times 3 = 6$		
 Chamaedaphne calycu 	lata	1	_	FACW	FACU species $0 \times 4 = 0$		
5 Vaccinium oxycoccos		0.5		OBL	UPL species $-\frac{0}{x 5} = -\frac{0}{2}$		
5					Column Totals:59 (A)65.5 (B)		
					Prevalence Index = $B/A = 1.110$		
			-		Hydrophytic Vegetation Indicators:		
			-		✓ Dominance Test is > 50%		
10	Total Cover:	5			✓ Prevalence Index is ≤3.0		
			—	1	Morphological Adaptations ¹ (Provide supporting		
Herb Stratum	50% of Total Cover:	2.5 20	0% of Total Cover:	1	data in Remarks or on a separate sheet)		
1. Carex aquatilis		5		OBL	Problematic Hydrophytic Vegetation ¹ (Explain)		
2. Carex chordorrhiza		15	\checkmark	OBL	¹ Indicators of hydric soil and wetland hydrology must		
Carex rariflora		1		OBL	be present, unless disturbed or problematic.		
4. Carex rotundata		10	\checkmark	OBL			
5. Eriophorum angustifol	ium	5		OBL	Plot size (radius, or length x width) 10m		
6. Eriophorum scheuchze	eri	10		OBL	% Cover of Wetland Bryophytes		
7. Utricularia macrorhiza		5		OBL	(Where applicable)		
8. Comarum palustre		3		OBL	% Bare Ground 90		
0.					Total Cover of Bryophytes 5		
9 10							
10	Total Cover:	54			Hydrophytic Vegetation		
	50% of Total Cover:	27 20)% of Total Cover:	10.8	Present? Yes I No		
Remarks: trace pedicular	ris sp. bare ground includes open	water			1		

(inches) Color (moist)			x Featur		1 2	Tt	Demender
(inches) Color (moist)	%	Color (moist)	%	Туре	Loc ²	Texture	Remarks
						-	
							_
Type: C=Concentration D=Deplet	on RM=Reduce	d Matrix ² Locatio	n: PL=Po	re Lining	RC=Root (Channel M=Matrix	
Hydric Soil Indicators:		Indicators for I					
Histosol or Histel (A1)		Alaska Color				Alaska Cloud With	out Hue 5Y or Redder
Histic Epipedon (A2)		Alaska Oloi				Underlying Layer	but fide 51 of Reddel
Hydrogen Sulfide (A4)		Alaska Redox				✓ Other (Explain in Red)	emarks)
Thick Dark Surface (A12)							
Alaska Gleyed (A13)						primary indicator of wetl	and hydrology,
Alaska Redox (A14)		and an appropri	ate landso	ape posit	on must b	e present	
Alaska Gleyed Pores (A15)		⁴ Give details of	color char	nge in Rer	narks		
Restrictive Layer (if present):						Hydric Soil Prese	nt? Yes 🖲 No 🔿
Type:						Hydric Soli Frese	
Depth (inches):							
Remarks:							
assume hydric soil due to hydrophy	tic vegetation an	d standing water					
						Casardan	le l'ester (tur en ester i ester i ester d
Wetland Hydrology Indicators:	ciont)						/ Indicators (two or more are required)
Wetland Hydrology Indicators: Primary Indicators (any one is suffi	cient)			A		Wate	r Stained Leaves (B9)
Wetland Hydrology Indicators: Primary Indicators (any one is suffi Surface Water (A1)	cient)	Inundation				Wate	r Stained Leaves (B9) age Patterns (B10)
Wetland Hydrology Indicators: Primary Indicators (any one is suffi Surface Water (A1) High Water Table (A2)	cient)	Sparsely Ve	egetated C			Wate	r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3)
Wetland Hydrology Indicators: Primary Indicators (any one is suffi Image: Surface Water (A1) Image: High Water Table (A2) Image: Saturation (A3)	cient)	Sparsely Ve	egetated C its (B15)	Concave Si		Wate Drain Oxidi Prese	r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3) nce of Reduced Iron (C4)
Wetland Hydrology Indicators: Primary Indicators (any one is suffi ✓ Surface Water (A1) → High Water Table (A2) → Saturation (A3) → Water Marks (B1)	cient)	Sparsely Ve	egetated C its (B15) Sulfide Ode	Concave Si or (C1)		Wate Vate Orain Oxidi Prese Satt [r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3) nce of Reduced Iron (C4) Deposits (C5)
Wetland Hydrology Indicators: Primary Indicators (any one is suffi ✓ Surface Water (A1) □ High Water Table (A2) □ Saturation (A3) □ Water Marks (B1) □ Sediment Deposits (B2)	cient)	Sparsely Ve Marl Depos Hydrogen S	egetated C its (B15) Gulfide Ode Water Ta	Concave Si or (C1) able (C2)		Wate Urain Orain Oxidi Prese Satt I Stunt	r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3) nce of Reduced Iron (C4) Deposits (C5) ed or Stressed Plants (D1)
Wetland Hydrology Indicators: Primary Indicators (any one is suffi Image: Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	cient)	Sparsely Ve	egetated C its (B15) Gulfide Ode Water Ta	Concave Si or (C1) able (C2)		Wate Drain Oxidi Prese Satt [Stunt Geon	r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3) nce of Reduced Iron (C4) Deposits (C5) ed or Stressed Plants (D1) norphic Position (D2)
Wetland Hydrology Indicators: Primary Indicators (any one is suffi Image: Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) Algal Mat or Crust (B4)	cient)	Sparsely Ve Marl Depos Hydrogen S	egetated C its (B15) Gulfide Ode Water Ta	Concave Si or (C1) able (C2)		Wate Drain Oxidi Oxidi Prese Salt I Stunt Geon Shall	r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3) nce of Reduced Iron (C4) Deposits (C5) ed or Stressed Plants (D1) norphic Position (D2) ow Aquitard (D3)
 High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) 	cient)	Sparsely Ve Marl Depos Hydrogen S	egetated C its (B15) Gulfide Ode Water Ta	Concave Si or (C1) able (C2)		Wate Drain Oxidi Oxidi Prese Salt I Stunt Geon Shalle Micro	r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3) nce of Reduced Iron (C4) Deposits (C5) ed or Stressed Plants (D1) norphic Position (D2)

Surface Water Present? Water Table Present?

Saturation Present?

(includes capillary fringe)

Yes \bullet No \bigcirc Depth (inches): 6 Yes 🔘 No 🖲 No 🔿 Wetland Hydrology Present? Yes 🖲 Depth (inches): Yes 🔿 No 👁

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Depth (inches):

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 2	5-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_31
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): <u></u>	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>90</u>		
Subregion : Northern Alaska Lat.:	<u>66.8023033333334</u> Long.: <u>-162.471563</u>	333333 Datur	n: WGS84
Soil Map Unit Name:	NWI class	ification: <u>PEM1/SS1E</u>	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc	
Domarks: Jour contact noise, subtle missioner difference between contact and time contacted hummonie/twoenelse in noise contacts. High degrees of					

narks: low-center polys, subtle microtopo difference between centers and rims. scattered hummocks/tussocks in poly centers. High degree of interspersion between hummocks, rims, poly centers - mapping all as one community: hgwswt

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

			Ab	solute	Dominant	Indicator	Dominance Test worksheet:
-	ree Stratum		%	Cover	Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC: 7 (A)
1.	P						
							Total Number of Dominant Species Across All Strata: (B)
							Percent of dominant Species
							That Are OBL, FACW, or FAC:100.0% (A/B)
5.		Total Cover:	_	0			Prevalence Index worksheet:
Sap	ling/Shrub Stratum	50% of Total Cover:	0	20% c	of Total Cover:	0	Total % Cover of: Multiply by:
1	Andromeda polifolia			3	\checkmark	FACW	OBL species <u>25.5</u> x 1 = <u>25.5</u>
2.	Betula nana			1	\checkmark	FAC	FACW species x 2 =18
2. 3.	Energy administration of annume			1	\checkmark	FAC	FAC species 3.5 x 3 = 10.5
4	Ledum decumbens			1	\checkmark	FACW	FACU species $0 \times 4 = 0$
5.	Vaccinium uliginosum			1	\checkmark	FAC	UPL species $-\frac{0}{x 5} = -\frac{0}{x 5}$
6.	Vaccinium vitis-idaea			0.5		FAC	Column Totals: <u>38</u> (A) <u>54</u> (B)
7.	Vaccipium oxycoccos			0.5		OBL	Prevalence Index = $B/A = 1.421$
8.							
							Hydrophytic Vegetation Indicators:
							✓ Dominance Test is > 50%
		Total Cover:		8			✓ Prevalence Index is ≤3.0
_Н	erb Stratum	50% of Total Cover:	4	20% (of Total Cover:	1.6	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1	Carex aquatilis			10	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Carex rotundata			5		OBL	¹ Indicators of hydric soil and wetland hydrology must
3.	Eriophorum scheuchzeri			10	\checkmark	OBL	be present, unless disturbed or problematic.
4.	Eriophorum vaginatum			5		FACW	
5.							Plot size (radius, or length x width) _5m
6.							% Cover of Wetland Bryophytes
7.							(Where applicable)
8.							% Bare Ground _85
9.							Total Cover of Bryophytes <u>10</u>
10.							Hydrophytic
		Total Cover:	_	30	of Total Cover	c	Vegetation Present? Yes • No O
		50% of Total Cover:	15	_ 20% (of Total Cover:	6	Present? Yes \bullet No \bigcirc

Remarks: bare ground includes open water. likely other sedges present, but no other infloresences. poly rims and hummocks w erivag and shrubs, poly centers w standing water and sedges.

	ded to document the presence or absence of indic Redox Features	ators
Depth <u>Matrix</u> (inches) Color (moist) %	Color (moist) % Type ¹ Loc ²	Texture Remarks
		TEALUIE Romarks
		·
¹ Type: C=Concentration D=Depletion RM=Red	uced Matrix ² Location: PL=Pore Lining RC=Root Cha	nnel M=Matrix
Hydric Soil Indicators:	Indicators for Problematic Hydric Soils: ³	
Histosol or Histel (A1)	Alaska Color Change (TA4)	Alaska Gleyed Without Hue 5Y or Redder
Histic Epipedon (A2)	Alaska Alpine swales (TA5)	Underlying Layer
Hydrogen Sulfide (A4)	Alaska Redox With 2.5Y Hue	Other (Explain in Remarks)
Thick Dark Surface (A12)	-	
Alaska Gleyed (A13)	³ One indicator of hydrophytic vegetation, one pri and an appropriate landscape position must be p	imary indicator of wetland hydrology,
Alaska Redox (A14)		resent
Alaska Gleyed Pores (A15)	⁴ Give details of color change in Remarks	
Restrictive Layer (if present):		
Туре:		Hydric Soil Present? Yes 💿 No 🔿
Depth (inches):		
Remarks:		1
assume hydric soil due to hydrophytic vegetation	and standing water	
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (two or more are required)
Primary Indicators (any one is sufficient)		Water Stained Leaves (B9)
Surface Water (A1)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)
High Water Table (A2)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3)
Saturation (A3)	Marl Deposits (B15)	Presence of Reduced Iron (C4)
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)
Sediment Deposits (B2)	Dry-Season Water Table (C2)	Stunted or Stressed Plants (D1)
Drift Deposits (B3)	Other (Explain in Remarks)	Geomorphic Position (D2)
Algal Mat or Crust (B4)		Shallow Aquitard (D3)
Iron Deposits (B5)		Microtopographic Relief (D4)
Surface Soil Cracks (B6)		FAC-neutral Test (D5)

Field Observations:					
Surface Water Present?	Yes 🖲	No \bigcirc	Depth (inches): 6		
Water Table Present?	$_{ m Yes}$ \bigcirc	No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes
Saturation Present? (includes capillary fringe)	$_{\rm Yes} \bigcirc$	No 🖲	Depth (inches):		

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

 \bullet No \bigcirc

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date:2	25-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_32
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Knob	
Local relief (concave, convex, none):	Slope: <u>5.2</u> % / <u>3.0</u> ° Elevation: <u>100</u>		
Subregion : Northern Alaska Lat.:	<u>66.7994633333333</u> Long.: <u>-162.467095</u>	Datur	m: WGS84
Soil Map Unit Name:	NWI classi	ification: U	
	ear? Yes No (If no, explain in tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● No ○ Yes ○ No ● Yes ○ No ●	Is the Sampled Area within a Wetland? Yes \bigcirc No \textcircled{ullet}			
Remarks: sdev point at very top of pingo. South of point has collapsed into small pond. Southern aspect withland SI CW and mass wasting. North of					

arks: sdev point at very top of pingo. South of point has collapsed into small pond. Southern aspect w upland SLCW and mass wasting. North of point w near-surface active layer (8in bgs). Communities change marks sub-surface change.

			Absolute		Indicator	Dominance Test worksheet:
Tr	ee Stratum		% Cover	Species?	Status	Number of Dominant Species
1.						That are OBL, FACW, or FAC: <u>6</u> (A)
						Total Number of Dominant Species Across All Strata:6(B)
						Percent of dominant Species
	<u></u>				<u>.</u>	That Are OBL, FACW, or FAC:100.0% (A/B)
э.		Total Cover:	0			Prevalence Index worksheet:
Sap	ling/Shrub Stratum	50% of Total Cover:	0 20%	of Total Cover:	0	Total % Cover of: Multiply by:
1.	Vaccinium uliginosum		20	\checkmark	FAC	OBL species x 1 =
2.	Empetrum nigrum		20	\checkmark	FAC	FACW species <u>12</u> x 2 = <u>24</u>
3.	Vaccinium vitis-idaea		20	\checkmark	FAC	FAC species $102 \times 3 = 306$
4	Salix pulchra		7		FACW	FACU speciles 3.5 x 4 = 14
5	Botula nana		20	\checkmark	FAC	UPL species $-\frac{0}{x 5} = -\frac{0}{x 5}$
6.			7		FAC	Column Totals: <u>117.5</u> (A) <u>344</u> (B)
7.						Prevalence Index = B/A = 2.928
8.						Hydrophytic Vegetation Indicators:
9.						Dominance Test is > 50%
10.						$\mathbf{V} \text{Prevalence Index is } \le 3.0$
		Total Cover:	94			
<u>H</u>	erb Stratum	50% of Total Cover:	17 20%	of Total Cover:	18.8	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1.	Petasites frigidus		1		FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Equisetum arvense		10		FAC	¹ Indicators of hydric soil and wetland hydrology must
3.	Arctagrostis latifolia		3		FACW	be present, unless disturbed or problematic.
4.	Rubus chamaemorus		1		FACW	
5.	Carex bigelowii		5		FAC	Plot size (radius, or length x width) 10m
6.	Angelica lucida		0.5		FACU	% Cover of Wetland Bryophytes
7.	Chamerion angustifolium		2		FACU	(Where applicable)
8.	Artemisia tilesii		1		FACU	% Bare Ground _65
9.						Total Cover of Bryophytes <u>30</u>
10.						Hydrophytic
		Total Cover:	23.5	(Vegetation Present? Yes • No O
		50% of Total Cover: 11	.75 20%	of Total Cover:	4.7	Present? Yes \bullet No \bigcirc
Rem	arks: trace legume, poa.					

Depth Matrix					lox Featu	ures					
(inches)	Color (r	moist)	%	Color ((moist)	%	Type ¹	Loc ²	Те	ture	Remarks
0-1									Fibric Organio	cs	
1-2			100						Hemic Organ	ics	
2-7	10YR	3/2	100						Silty Clay Loa	m	
7-22	10YR	3/2	85	7.5YR	3/3	15	С	PL	Silty Clay Loa	m	organic inclusions
1 _{1,100} , 0-00					21 ocativ			DC Poot	Channal M-N	lotriv	
			on RIVI=Red						Channel M=N	latrix	
_	Indicators:						natic Hydr	ic Solls:	□		
_	or Histel (A1)	,			laska Color laska Alpine	-				Gleyed With ing Layer	nout Hue 5Y or Redder
	oipedon (A2) en Sulfide (A4)	١			laska Redo					Explain in R	(emarks)
	ark Surface (A4)				10100 1122	<i>x</i>	51			·	-
	Gleyed (A13)	12)								ator of wet	tland hydrology,
	Redox (A14)			anu a	an appropr	'late lanus	lscape posit	tion must b	be present		
🗌 Alaska G	Gleyed Pores (A	(A15)		⁴ Giv	e details of	f color cha	ange in Re	marks			
Restrictive	Layer (if pre	esent):									
Type:									Hydric	Soil Prese	ent? Yes 🔾 No 🖲
Depth (in	iches):										
Remarks:											
no hydric soil	indicators										
HYDROL	OGY									<u> </u>	
-	drology Ind	licators:								Secondar	ry Indicators (two or more are required)
Primary India	icators (any or	<u>ne is suffi</u> c	cient)								er Stained Leaves (B9)
Surface	Water (A1)				Inundatior	n Visible c	on Aerial Im	nagery (B7	')	🗌 Draiı	nage Patterns (B10)
🗌 High Wa	ater Table (A2	2)			Sparsely V	egetated/	Concave S	Surface (B8	3)		lized Rhizospheres along Living Roots (C3)
Saturatio	ion (A3)				Marl Depos	sits (B15))			Pres	ence of Reduced Iron (C4)
Water N	Marks (B1)				Hydrogen	Sulfide O	dor (C1)				Deposits (C5)
	nt Deposits (B	32)			Dry-Seasor						ted or Stressed Plants (D1)
	eposits (B3)				Other (Exp	alain in Re	emarks)				morphic Position (D2)
~	at or Crust (B4	4)									low Aquitard (D3)
	eposits (B5)									_	otopographic Relief (D4)
Surface	Soil Cracks (E	36)								FAC-	neutral Test (D5)
Field Observ			\frown	\bigcirc							
Surface Wat	ter Present?	Yes	s 🔘 No	\bullet	Depth (inc	ches):					

 Water Table Present?
 Yes
 No
 Depth (inches):
 Wetland Hydrology Present?

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

 Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:
 Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)
 Vestand Hydrology Present?

Remarks:

no wetland hydrology indicators. Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No 💿

Yes 🔿

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arcti	c Borough Sampling Date: 26-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point: CB_33
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace	e, hummocks etc.):
Local relief (concave, convex, none): hummocky	Slope: <u>0.0</u> % / <u>0.0</u> °	Elevation:
Subregion : Northern Alaska Lat.:	<u> </u>	Datum: WGS84
Soil Map Unit Name:		NWI classification: PEM1E
	tly disturbed? Are "Norm	(If no, explain in Remarks.) al Circumstances" present? Yes ● No ○ I, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● No ○ Yes ● No ○ Yes ● No ○	Is the Sampled Area within a Wetland? Yes • No ·				
Remarks: HGWST mosaic of level wet sedge tundra and slightly elevated features w shrubby vegetation. subtle microtopo differences. sandhill cranes						

and loons nearby.

		Absolu	te Dominant	Indicator	Dominance Test worksheet:
_ <u>_</u>	ee Stratum	% Cov	er Species?	Status	Number of Dominant Species
1.		L			That are OBL, FACW, or FAC:5_ (A)
2.			. Ц		Total Number of Dominant
3.					Species Across All Strata:5 (B)
					Percent of dominant Species That Are OBL_EACW_or EAC: 100.0% (A/B)
					That Are OBL, FACW, or FAC:(A/B)
5.	Total Cover:	0	_		Prevalence Index worksheet:
Sap	ling/Shrub Stratum50% of Total Cover:	0 20	% of Total Cover:	0	Total % Cover of: Multiply by:
1	Betula nana	5	\checkmark	FAC	OBL species x 1 =
2.	Vaccinium uliginosum	1		FAC	FACW species $3 \times 2 = 6$
2. 3.	0.116	2		FACW	FAC species $8 - x 3 = 24$
3. 4		1		FACW	FACU species $0 \times 4 = 0$
					UPL species x 5 =
					Column Totals:(A)(B)
_					Prevalence Index = B/A = 1.572
					Hydrophytic Vegetation Indicators:
					✓ Dominance Test is > 50%
10.	Total Cover:	9			✓ Prevalence Index is ≤3.0
, H	erb Stratum50% of Total Cover:4	1.5 20	– % of Total Cover:	1.8	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1.	Eriophorum angustifolium	5	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Carex aquatilis	3	_	OBL	¹ Indicators of hydric soil and wetland hydrology must
3.	Calamagrostis canadensis	2	_	FAC	be present, unless disturbed or problematic.
4.	Comarum palustre	1		OBL	
5.	Carex chordorrhiza	5		OBL	Plot size (radius, or length x width) 10m
6.	Carex rotundata	3		OBL	% Cover of Wetland Bryophytes
7.	Eriophorum scheuchzeri	5	\checkmark	OBL	(Where applicable)
8.	Luzula wahlenbergii	0.1	_	OBL	% Bare Ground _0
9.	Glyceria borealis	0.1		OBL	Total Cover of Bryophytes 99
10.					Hydrophytic
	Total Cover:	24.2	_		Vegetation
	50% of Total Cover:1	2.1 20	% of Total Cover:	4.84	Present? Yes \bullet No \bigcirc
Ren	narks:				

Depth	Ма	ıtrix		Red	ox Featu	res			
(inches)	Color (mo			Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-3								Fibric Organics	
3-11								Hemic Organics	
11-12	2.5Y 3	3/2 10	0					Silty Clay Loam	
					a-				
¹ Type: C=Con	centration D=[Depletion R	M=Reduced	d Matrix ² Locatio	on: PL=Po	ore Lining	RC=Root	Channel M=Matrix	
Hydric Soil	Indicators:			Indicators for	Problem	atic Hydri	ic Soils: ³		
	or Histel (A1)			Alaska Color				Alaska Gleyed Without Hue 5 Underlying Layer	Y or Redder
	pedon (A2) n Sulfide (A4)			Alaska Alpin	-			Other (Explain in Remarks)	
	k Surface (A4))							
Alaska Gl	eyed (A13)			³ One indicator and an appropri				e primary indicator of wetland hydro e present	ology,
	edox (A14)	F \		⁴ Give details of	f color cha	ange in Rer	narks		
	eyed Pores (A1	· · · · · · · · · · · · · · · · · · ·				5			
	ayer (if prese ive layer (frozer	-						Hydric Soil Present?	/es \bullet No \bigcirc
Depth (inc									
Remarks:									
	DGY Irology Indica	tors						Cocondonu Indicato	re (two or more are required)
-	ators (any one i							Water Stained	<u>rs (two or more are required)</u> Leaves (B9)
	Nater (A1)			Inundation	n Visible o	n Aerial Im	agery (B7)		
🖌 High Wa	ter Table (A2)			Sparsely V					spheres along Living Roots (C3)
✓ Saturatio	n (A3)			Marl Depo	sits (B15)			Presence of Re	educed Iron (C4)
Water M	arks (B1)			Hydrogen	Sulfide Od	dor (C1)		Salt Deposits (C5)
	t Deposits (B2)			Dry-Seaso					essed Plants (D1)
	osits (B3)			Other (Exp				Geomorphic Po	
	t or Crust (B4)					marksy		Shallow Aquita	
	osits (B5)							Microtopograp	
	Soil Cracks (B6)							FAC-neutral Te	
Field Observ	. ,								
Surface Wate		$_{\rm Yes}$ \bigcirc	No 🖲	Depth (inc	hes):				
Water Table	Present?	Yes 🖲	$_{\rm No}$ O	Depth (inc	hes): 1		w	etland Hydrology Present?	Yes \bullet No \bigcirc
Saturation Pr (includes cap		Yes 🖲	$_{\rm No}$ \bigcirc	Depth (inc	hes): 1				

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

small pockets of standing water. Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borouah	Sampling Date: 26-Aug-12
Applicant/Owner: _Baker/ADOT&PF		Sampling Point: CB_34
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Flat
Local relief (concave, convex, none): <u>flat</u>	_ Slope:% /° Elevation:	
Subregion : Northern Alaska Lat.	<u>66.78289</u> Long.: <u>-162.436313</u>	333333 Datum: WGS84
Soil Map Unit Name:	NWI class	ification: PEM1H
	ear? Yes No (If no, explain in htly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes \odot No \bigcirc
SUMMARY OF FINDINGS - Attach site map show	ing sampling point locations, trans	ects, important features

Hydrophytic Vegetation Present? Yes No Is the Sampled Area Hydric Soil Present? Yes No within a Wetland? Wetland Hydrology Present? Yes No Veslow Remarks: HGWSHT level wet sedge tundra, few scattered low hummocks. Veslow

			Absolut	e Dominant	Indicator	Dominance Test worksheet:
Tre	ee Stratum		% Cove	er Species?	Status	Number of Dominant Species
1			-			That are OBL, FACW, or FAC: (A)
2.						Total Number of Dominant
3.						Species Across All Strata:3_(B)
						Percent of dominant Species That Are OBL_EACW_or EAC: 100.0% (A/B)
						That Are OBL, FACW, or FAC:(A/B)
5.		Total Cover:	0	_		Prevalence Index worksheet:
Sapl	ing/Shrub Stratum	50% of Total Cover: (20%	6 of Total Cover:	0	Total % Cover of: Multiply by:
						OBL species <u>17</u> x 1 = <u>17</u>
						FACW species x 2 =14
						FAC species x 3 =
						FACU species $1 \times 4 = 4$
						UPL species $0 \times 5 = 0$
5.						
6						Column Totals: (A) (B)
						Prevalence Index = $B/A = 1.400$
						Hydrophytic Vegetation Indicators:
						✓ Dominance Test is > 50%
10						✓ Prevalence Index is ≤3.0
		Total Cover:	0			Morphological Adaptations ¹ (Provide supporting
He	erb Stratum	50% of Total Cover:	0 20%	% of Total Cover:	0	data in Remarks or on a separate sheet)
1.	Comarum palustre		5		OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Equisetum fluviatile		3		OBL	¹ Indicators of hydric soil and wetland hydrology must
3.	Eriophorum scheuchzeri		5		OBL	be present, unless disturbed or problematic.
4.	Pedicularis sudetica		1		FACW	
5.	Arctagrostis latifolia		1		FACW	Plot size (radius, or length x width) 10m
6.	Eriophorum angustifolium		3		OBL	% Cover of Wetland Bryophytes
7.	Menyanthes trifoliata		1		OBL	(Where applicable)
8.	Anthoxanthum arcticum		5		FACW	% Bare Ground 10
9.	Luzula arcuata		1		FACU	Total Cover of Bryophytes 88
10.						Undrankutia
10.		Total Cover:	25			Hydrophytic Vegetation
		50% of Total Cover: 12	2.5 20%	- 6 of Total Cover:	5	Present? Yes • No O
Rem	arks:					1

Depth <u>Matrix</u>			ox Featu		1 2	T	Demonster
(inches) Color (moist)	<u>%</u> Colo	or (moist)	_%	Туре	Loc ²	Texture	e Remarks
					-		
					-		
						-	
Type: C=Concentration D=Depletion	n RM=Reduced Ma	trix ² Locatio	n: PL=Pc	ore Lining	RC=Root	Channel M=Matrix	(
Hydric Soil Indicators:	Inc	dicators for	Problema	atic Hvdr	ic Soils: ³		
Histosol or Histel (A1)		Alaska Color				Alaska Gleve	ed Without Hue 5Y or Redder
Histic Epipedon (A2)		Alaska Alpine				Underlying L	
Hydrogen Sulfide (A4)		Alaska Redox				V Other (Expla	iin in Remarks)
Thick Dark Surface (A12)							
Alaska Gleyed (A13)							of wetland hydrology,
Alaska Redox (A14)	an	nd an appropr	late lands	cape posit	ion must d	e present	
Alaska Gleyed Pores (A15)	4 (Give details of	color cha	nge in Rei	marks		
Restrictive Layer (if present):							
Type:						Hydric Soil	Present? Yes 🖲 No 🔿
Depth (inches):							
Remarks:							
	vogetation and sta	nding water					
assume hydric soil due to hydrophytic	vegetation and sta	nuing water					
IYDROLOGY							
						Se	condary Indicators (two or more are required)
Wetland Hydrology Indicators:							
Wetland Hydrology Indicators: Primary Indicators (any one is sufficie	ent)						Water Stained Leaves (B9)
	ent)	Inundation	Visible or	n Aerial Im	agery (B7)	L	Water Stained Leaves (B9) Drainage Patterns (B10)
Primary Indicators (any one is sufficie Surface Water (A1) High Water Table (A2)	ent)	Inundation				_	Drainage Patterns (B10) Oxidized Rhizospheres along Living Roots (C3)
Primary Indicators (any one is sufficient Surface Water (A1) High Water Table (A2) Saturation (A3)	ent)	_	egetated (_	Drainage Patterns (B10) Oxidized Rhizospheres along Living Roots (C3) Presence of Reduced Iron (C4)
Primary Indicators (any one is sufficie Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	ent)	Sparsely Vo Marl Depos Hydrogen S	egetated (sits (B15) Sulfide Od	Concave S Ior (C1)		_	Drainage Patterns (B10)Oxidized Rhizospheres along Living Roots (C3)Presence of Reduced Iron (C4)Salt Deposits (C5)
Primary Indicators (any one is sufficie Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	ent) C C C C	Sparsely Vo Marl Depos Hydrogen S Dry-Seasor	egetated (sits (B15) Sulfide Od n Water Ta	Concave S lor (C1) able (C2)		_	 Drainage Patterns (B10) Oxidized Rhizospheres along Living Roots (C3) Presence of Reduced Iron (C4) Salt Deposits (C5) Stunted or Stressed Plants (D1)
Primary Indicators (any one is sufficient Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	ent) [[[[[[[[Sparsely Vo Marl Depos Hydrogen S	egetated (sits (B15) Sulfide Od n Water Ta	Concave S lor (C1) able (C2)		_	 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)
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)	ent) [[[[[[Sparsely Vo Marl Depos Hydrogen S Dry-Seasor	egetated (sits (B15) Sulfide Od n Water Ta	Concave S lor (C1) able (C2)		_	 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)
 Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) 	ent) [[[[[[[Sparsely Vo Marl Depos Hydrogen S Dry-Seasor	egetated (sits (B15) Sulfide Od n Water Ta	Concave S lor (C1) able (C2)			 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)

Surface Water Present?

(includes capillary fringe)

Water Table Present?

Saturation Present?

Remarks:

Yes \bullet No \bigcirc

Yes 🔘 No 🖲

Yes 🔿 No 👁

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Depth (inches): 8

Depth (inches):

Depth (inches):

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No \bigcirc

Yes 🖲

Wetland Hydrology Present?

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 26-	Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_35
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): <u>flat</u>	_ Slope:% / ° Elevation:		
Subregion : Northern Alaska Lat.:	<u>66.78205166666667</u> Long.: <u>-162.4360066</u>	666667 Datum:	WGS84
Soil Map Unit Name:	NWI classi	ification: PEM1E	
	ear? Yes No (If no, explain in tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🔍 I	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc		
Remarks: HGWST less wet than previous plot (where all boots were topped!), few scattered low hummocks, subtle microtopo differences, sandhill						

marks: HGWS1 less wet than previous plot (where all boots were topped!). tew scattered low hummocks, subtle microtopo differences. sandhill cranes, loons, ducks, geese, gulls flying over/calling in vicinity.

		Absolute	Dominant	Indicator	Dominance Test worksheet:
	ee Stratum	% Cover	Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC:6(A)
2.					Total Number of Dominant Species Across All Strata:6(B)
					Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
5.	Total Cover:	0			Prevalence Index worksheet:
			of Total Cover:	0	Total % Cover of: Multiply by:
Sap					OBL species x 1 =
1.	Betula nana	2		FAC	FACW speci es 8 x 2 = 16
2.	Andromeda polifolia			FACW	FAC species 2.5 x 3 = 7.5
3.	Salix fuscescens	2		FACW	FACU species $1 \times 4 = 4$
4.	Vaccinium vitis-idaea	0.5		 OBL	
5.	Vaccinium oxycoccos	0.5			•
					Column Totals: <u>33</u> (A) <u>49</u> (B)
7.					Prevalence Index = $B/A = 1.485$
					Hydrophytic Vegetation Indicators:
					✓ Dominance Test is > 50%
10.	Total Cover:				✓ Prevalence Index is ≤3.0
Ц			of Total Cover:	1.2	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1	Luzula arcuata	1		FACU	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Comarum palustre	7	\checkmark	OBL	¹ Indicators of hydric soil and wetland hydrology must
3.	Anthoxanthum arcticum	5	\checkmark	FACW	be present, unless disturbed or problematic.
4.	Carex aquatilis	1		OBL	
5.	Eriophorum angustifolium	5	\checkmark	OBL	Plot size (radius, or length x width) 10m
6.	Eriophorum scheuchzeri	3		OBL	% Cover of Wetland Bryophytes
7.	Carex chordorrhiza	5	\checkmark	OBL	(Where applicable)
8.					% Bare Ground 10
9.					Total Cover of Bryophytes 85
10.					Hydrophytic
	Total Cover:	27			Vegetation
	50% of Total Cover:	3.5 20% c	of Total Cover:	5.4	Present? Yes No
Ren	narks: many submerged bryophytes				

	ription: Describe to Matrix	depth nee	ded to document the Red	e presence ox Feature		ence of in	dicators	
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
(1101100)					1 3 6 0	200		Remarks
			······································					
· ·			······································				-	
							P	
¹ Type: C=Con	centration D=Depleti	on RM=Rec	duced Matrix ² Locatio	n: PL=Pore	e Lining	RC=Root (Channel M=Matrix	
Hydric Soil I	Indicators:		Indicators for	Problemat	ic Hydri	c Soils: ³		
Histosol d	or Histel (A1)		Alaska Color	Change (TA	4 (4)		Alaska Gleyed Witho	ut Hue 5Y or Redder
Histic Epi	pedon (A2)		🗌 Alaska Alpine	swales (TA	.5)		Underlying Layer	
Hydroger	n Sulfide (A4)		Alaska Redo	With 2.5Y	Hue		Other (Explain in Rei	marks)
Thick Dar	k Surface (A12)							
🗌 Alaska Gl	eyed (A13)		³ One indicator and an appropri	of hydrophy	rtic veget	ation, one	primary indicator of wetla	nd hydrology,
🗌 Alaska Re	edox (A14)						e present	
🗌 Alaska Gl	eyed Pores (A15)		⁴ Give details of	color chang	ge in Rer	narks		
Restrictive L	ayer (if present):							
Type:	J L L J						Hydric Soil Presen	t? Yes 🖲 No 🔾
Depth (inc	hes):							
Remarks:	•							
	soil due to hydrophyt	ic vegetatio	and standing water					
assume myunc		ic vegetatio	n and standing water					
HYDROLO	DGY							
Wetland Hyd	rology Indicators:						Secondary	Indicators (two or more are required)
Primary Indic	ators (any one is suffi	cient)					Water	Stained Leaves (B9)
Surface \	Nater (A1)		Inundation	Visible on A	Aerial Im	agery (B7)	🗌 Draina	ge Patterns (B10)
High Wat	ter Table (A2)		Sparsely Ve	egetated Co	ncave Su	ırface (B8)	Oxidize	ed Rhizospheres along Living Roots (C3)
Saturatio	in (A3)		Marl Depos	its (B15)			Preser	ce of Reduced Iron (C4)
Water Ma	arks (B1)		Hydrogen S	Sulfide Odor	[.] (C1)		Salt De	eposits (C5)
Sedimen	t Deposits (B2)		Dry-Seasor	n Water Tab	le (C2)		Stunte	d or Stressed Plants (D1)
Drift Dep	oosits (B3)		Other (Exp	lain in Rema	arks)		Geomo	orphic Position (D2)
Algal Mat	t or Crust (B4)						Shallov	w Aquitard (D3)
Iron Dep	osits (B5)							opographic Relief (D4)
	Soil Cracks (B6)						FAC-ne	eutral Test (D5)

Field Observations: Surface Water Present?

Water Table Present? Saturation Present?

Yes 💿 No 🔾	Depth (inches): 6		
Yes 🔾 No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲
Yes 🔾 No 🖲	Depth (inches):		

(includes capillary fringe) **Yes NO** Depth (incres): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No 🔿

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough	Sampling Date: 2	6-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_36
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none):	_ Slope:% /° Elevation:75		
Subregion : Northern Alaska Lat.:	<u>66.78030666666667</u> Long.: <u>-162.434321</u>	666667 Datur	n: WGS84
Soil Map Unit Name:	NWI class	ification: <u>PEM1/SS1F</u>	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No 〇

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc					
5 1	Remarks: HGWSS. Weakly patterned low-centered polys, closer to LCPs than to strangmoor. This point characterizes low wet areas, see CB_37 for characterization of high areas.								

		Ab	solute	Dominant	Indicator	Dominance Test worksheet:
	ee Stratum	_%	Cover	Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC: <u>3</u> (A)
2.						Total Number of Dominant Species Across All Strata: <u>3</u> (B)
						Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5.	Total Cover:		0			Prevalence Index worksheet:
		_		f Total Cover:	0	Total % Cover of: Multiply by:
Sap	ling/Shrub Stratum 50% of Total Cover:	0	_ 20% 0			OBL speci es <u>25</u> x 1 = <u>25</u>
						FACW species $1 \times 2 = 2$
						FAC species $0 \times 3 = 0$
3.						FACU species $0 \times 4 = 0$
4.						UPL species $-\frac{0}{x 5} = -\frac{0}{-x 5}$
-						Column Totals: 26 (A) 27 (B)
						Prevalence Index = $B/A = 1.038$
						Hydrophytic Vegetation Indicators:
						✓ Dominance Test is > 50%
10.	Total Cover:		0			✓ Prevalence Index is ≤3.0
_ <u>H</u>	50% of Total Cover:	0	-	of Total Cover:	0	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1	Carex aquatilis		3		OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Eriophorum angustifolium		3		OBL	¹ Indicators of hydric soil and wetland hydrology must
3.	Carex chordorrhiza		5	\checkmark	OBL	be present, unless disturbed or problematic.
4.	Carex rotundata		5		OBL	
5.	Carex magellanica		1		OBL	Plot size (radius, or length x width) 5m
6.	Carex livida		2		OBL	% Cover of Wetland Bryophytes
7.	Pedicularis sudetica		1		FACW	(Where applicable)
8.	Eriophorum scheuchzeri		5		OBL	% Bare Ground 95
9.	Utricularia intermedia		1		OBL	Total Cover of Bryophytes 0
10.						Hydrophytic
	Total Cover: 50% of Total Cover:	: 13	26	f Total Cover:	5.2	Vegetation Present? Yes • No O
	50% 01 10(al Cover:	13	_ 20% 0	i iotai cover:	5.2	
Rem	arks:					

Profile Description: Describe to depth needed to document the presence or absence of indicators Denth Matrix Redox Features								
Depth <u>Matrix</u>	<u>Color (moist) % Type¹ Loc²</u>	Texture Remarks						
		· · · · · · ·						
	uced Matrix ² Location: PL=Pore Lining RC=Root Cha	nnel M=Matrix						
Hydric Soil Indicators:	Indicators for Problematic Hydric Soils: ³	_						
Histosol or Histel (A1)	Alaska Color Change (TA4) ⁴	Alaska Gleyed Without Hue 5Y or Redder Underlying Layer						
Histic Epipedon (A2)	Alaska Alpine swales (TA5)	Onderlying Layer Other (Explain in Remarks)						
Hydrogen Sulfide (A4)	Alaska Redox With 2.5Y Hue							
Thick Dark Surface (A12)	³ One indicator of hydrophytic vegetation, one pri	imary indicator of wetland hydrology,						
Alaska Gleyed (A13)	and an appropriate landscape position must be p	resent						
Alaska Redox (A14)	⁴ Give details of color change in Remarks							
Alaska Gleyed Pores (A15)		Τ						
Restrictive Layer (if present):								
Туре:		Hydric Soil Present? Yes No						
Depth (inches):								
Remarks:								
assume hydric soil due to hydrophytic vegetation	and standing water							
HYDROLOGY								
Wetland Hydrology Indicators:		Secondary Indicators (two or more are required)						
Primary Indicators (any one is sufficient)		Water Stained Leaves (B9)						
Surface Water (A1)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)						
High Water Table (A2)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3)						
Saturation (A3)	Marl Deposits (B15)	Presence of Reduced Iron (C4)						
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)						
Sediment Deposits (B2)	Dry-Season Water Table (C2)	Stunted or Stressed Plants (D1)						
Drift Deposits (B3)	Other (Explain in Remarks)	Geomorphic Position (D2)						
Algal Mat or Crust (B4)		Shallow Aquitard (D3)						
Iron Deposits (B5)		Microtopographic Relief (D4)						
Surface Soil Cracks (B6)		FAC-neutral Test (D5)						

Field Observations: Surface Water Present?

Water Table Present? Saturation Present?

Yes 🖲	No \bigcirc	Depth (inches): 4		
$_{\rm Yes} \bigcirc$	No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲
$_{\rm Yes}$ \bigcirc	No 🖲	Depth (inches):		

(includes capillary fringe) **Yes NO Depth** (incres): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No 🔿

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borouah	Sampling Date: 26-Aug-12
Applicant/Owner: _Baker/ADOT&PF		Sampling Point: CB_37
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Flat
Local relief (concave, convex, none):	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>50</u>	
Subregion : Northern Alaska Lat.	66.78033 Long.: -162.43438	Datum: WGS84
Soil Map Unit Name:	NWI class	ification: PEM1/SS1F
	ear? Yes No (If no, explain in tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🔍 No 🔾

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \odot No \bigcirc
Remarks: HGWSS. see notes for	CB_36. cari	bou scat, goose scat.		

		Ab	solute	Dominant	Indicator	Dominance Test worksheet:
Tr	ee Stratum	%	Cover	Species?	Status	Number of Dominant Species
1.		-				That are OBL, FACW, or FAC: (A)
2.		-				Total Number of Dominant Species Across All Strata: 4 (B)
3.		-				()
4.		-				Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5.		-				
0.	Total Cover:	_	0			Prevalence Index worksheet:
Sap	ling/Shrub Stratum 50% of Total Cover:	0	_ 20% c	of Total Cover:	0	Total % Cover of: Multiply by:
1	Betula nana	_	20	\checkmark	FAC	OBL species <u>5</u> x 1 = <u>5</u>
2	Ledum decumbens		10		FACW	FACW species <u>13</u> x 2 = <u>26</u>
3.	Andromeda polifolia		3		FACW	FAC speciles $70 \times 3 = 210$
4	Vaccinium vitis-idaea		20	\checkmark	FAC	FACU species $0 \times 4 = 0$
5.	Vaccinium uliginosum		25	\checkmark	FAC	UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
6	Empetrum nigrum	_	5		FAC	Column Totals:
0.						Prevalence Index = $B/A = 2.739$
-						
-						Hydrophytic Vegetation Indicators:
						✓ Dominance Test is > 50%
10.	Total Cover:		83			✓ Prevalence Index is ≤3.0
	50% of Total Cover: 4	1.5	20%	of Total Cover:	16.6	Morphological Adaptations ¹ (Provide supporting
H	erb Stratum		_			data in Remarks or on a separate sheet)
1.	Carex aquatilis		5		OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2.		-				¹ Indicators of hydric soil and wetland hydrology must
3.		-				be present, unless disturbed or problematic.
4.		-				
5.						Plot size (radius, or length x width) _5m
6.						% Cover of Wetland Bryophytes
7.						(Where applicable)
8.						% Bare Ground _2
9.						Total Cover of Bryophytes 30
10.						Hydrophytic
	Total Cover:	_	5	of Total Cours	4	Vegetation Present? Yes • No ·
	50% of Total Cover:	2.5	_ 20% (of Total Cover:	1	Present?YesNo
Rem	arks: 65% lichen cover					

Profile Descrip	otion: Describe	e to depti	h needed	to document the	e preser	ice or abs	ence of in	ndicators	
Depth _	Matri	ix		Red	ox Featu	ires			
(inches)	Color (moist	t) %	<u> </u>	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-13		100	o					Hemic Organics	
									·
								· .	-
								· .	-
<u> </u>									
¹ Type: C=Conce	entration D=Dep	pletion RN	<i>I</i> =Reduced			-		Channel M=Matrix	
Hydric Soil In	dicators:			Indicators for	Problem	atic Hydri	ic Soils: ³		
Histosol or	Histel (A1)			Alaska Color	Change ((TA4) ⁴		Alaska Gleyed Witho	ut Hue 5Y or Redder
Histic Epipe	edon (A2)			Alaska Alpine	e swales ((TA5)		Underlying Layer	
Hydrogen S	Sulfide (A4)			Alaska Redox	x With 2.5	5Y Hue		Other (Explain in Rer	marks)
Thick Dark	Surface (A12)			2	·				
🗌 Alaska Gley	/ed (A13)			³ One indicator and an appropri				e primary indicator of wetla	nd hydrology,
Alaska Rede	ox (A14)							e present	
🗌 Alaska Gley	ed Pores (A15)			⁴ Give details of	color cha	ange in Rer	narks		
Restrictive La	yer (if present)): 							
-	e layer (frozen)	,-						Hydric Soil Presen	it? Yes 🖲 No 🔾
Depth (inche	J							-	
Remarks:									
Kemarka.									
HYDROLOG	GY								
Wetland Hydro		vrs:						Secondary	Indicators (two or more are required)
Primary Indicat	ors (any one is s	sufficient)							Stained Leaves (B9)
Surface Wa	ater (A1)			Inundation	ı Visible o	on Aerial Im	nagery (B7)) Draina	age Patterns (B10)
✓ High Water	r Table (A2)			Sparsely V	egetated	Concave Su	urface (B8) Oxidize	ed Rhizospheres along Living Roots (C3)
Saturation				Marl Depos	sits (B15)	j		Preser	nce of Reduced Iron (C4)
Water Marl	ks (B1)			Hydrogen S				Salt De	eposits (C5)
	Deposits (B2)			Dry-Seasor					ed or Stressed Plants (D1)
Drift Depos	sits (B3)			Other (Exp				Geomo	orphic Position (D2)
🗌 Algal Mat d	or Crust (B4)							Shallov	w Aquitard (D3)
Iron Depos	sits (B5)							Microt	opographic Relief (D4)
Surface So	il Cracks (B6)							✓ FAC-ne	eutral Test (D5)
Field Observat	tions:								
Surface Water	Present?	Yes \bigcirc	No 🖲	Depth (inc	hes):				
Water Table Pr	esent?	Yes 🖲	No \bigcirc	Depth (inc	.hes): 11	I	w	/etland Hydrology Prese	nt? Yes 🖲 No 🔿
Saturation Pres (includes capill		Yes 🖲	No \bigcirc	Depth (incl					

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 2	26-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_38
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Shoreline	
Local relief (concave, convex, none):	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>50</u>		
Subregion : Northern Alaska Lat.:	<u>66.77838166666667</u> Long.: <u>-162.434176</u>	666667 Datur	n: <u>WGS84</u>
Soil Map Unit Name:	NWI class	ification: U	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ○ Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes 🔿 No 🖲	
Remarks: HFMM meadow adjace uplands extend to pon		se pond (possibly better desc	ribed as herb-grass mea	adow?). no real microtopography. caribou scat.	

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

		Absolu	ite Dominant	Indicator	Dominance Test worksheet:
_Tree Stratum		% Cov	ver Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC:4(A)
2		<u>.</u>	-		Total Number of Dominant Species Across All Strata:4(B)
3 4					Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
5	Total Cover:	0			Prevalence Index worksheet:
Conting (Chrysh Ctratum			— % of Total Cover:	0	Total % Cover of: Multiply by:
Sapling/Shrub Stratum					OBL speciles <u>10</u> x 1 = <u>10</u>
1. Salix pulchra		5		FACW	FACW species 8 x 2 = 16
		2	- 🖂	FAC	FAC species 17 x 3 = 51
		2		FAC	FACU species $1 \times 4 = 4$
		3	-	FAC OBL	UPL species $0 \times 5 = 0$
					·····
		1	- □	FACU	Column Totals: <u>36</u> (A) <u>81</u> (B)
7			- 🖂		Prevalence Index = $B/A = 2.250$
8			- 🖂		Hydrophytic Vegetation Indicators:
9			- 🖂		\checkmark Dominance Test is > 50%
10					 ✓ Prevalence Index is ≤3.0
	Total Cover:	14	_		
Herb Stratum	50% of Total Cover:	7 20	% of Total Cover:	2.8	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1. Bistorta vivipara		1		FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Equisetum fluviatile		2		OBL	¹ Indicators of hydric soil and wetland hydrology must
3. Eriophorum angustifolium		1		OBL	be present, unless disturbed or problematic.
4. Comarum palustre		5		OBL	
5. Parnassia palustris		1		FACW	Plot size (radius, or length x width) 10m
6. Polemonium acutiflorum		1		FAC	% Cover of Wetland Bryophytes
7. Stellaria longipes		1		FAC	(Where applicable)
8. Deschampsia caespitosa		7	_	FAC	% Bare Ground
9. Saxifraga hirculus		1	- Ц	OBL	Total Cover of Bryophytes
10. Petasites frigidus		2	_	FACW	Hydrophytic
	Total Cover:	22	_		Vegetation
	50% of Total Cover:1	20	% of Total Cover:	4.4	Present? Yes No

Remarks: low salix, trace salala. descae w deschampsia lvs, not cespitose, collected. trace pyrasa, luzmul, moelat. 1% luzwah. 3% rubarc, 1% poamac.

Depth		Matrix			Red	ox Featu	ires			
(inches)	Color ((moist)	%	Color	(moist)	%	Type ¹	Loc ²	Texture	Remarks
0-2				5					Fibric Organics	
2-6									Hemic Organics	
6-22	5Y	3/1	90	10YR	3/3	5	С	PL	Silty Clay Loam	
+mottle				10Y	3/1	5	D	. PL		
						8-				
					2					
Type: C=Con		•	on RM=Re						Channel M=Matrix	
Hydric Soil I	ndicators: r Histel (A1				ators for aska Color		atic Hydr	IC SOIIS:	Alaska Gleyed Without F	lue EV or Poddor
_	bedon (A2))			aska Alpin	-			Underlying Layer	
	Sulfide (A4	1)			aska Redo	x With 2.	5Y Hue		Other (Explain in Remar	ks)
Thick Dar	k Surface (<i>i</i>	A12)		3.0						
_	eyed (A13)						onytic vege scape posit		e primary indicator of wetland e present	nyarology,
Alaska Re				4 Civ	o details of	f color ch	ange in Re	marks		
Alaska Gle	eyed Pores	(A15)		OIV	e details of		ange in Ke	indi K3		
Restrictive L	ayer (if pr	esent):								
Туре:									Hydric Soil Present?	Yes 🔾 No 🖲
Depth (inc	hes):									
Remarks:										
no hydric soil i	ndicators, n	nottle valu	e/chroma t	oo low to me	et A14					
IYDROLC	ΟGΥ									
Wetland Hyd	rology Ind	dicators:							Secondary Ind	icators (two or more are required)
Primary Indica	ators (any c	one is suffic	<u>cient)</u>						Water Sta	ined Leaves (B9)
	Vater (A1)				Inundatior	n Visible o	on Aerial Im	nagery (B7)		Patterns (B10)
	er Table (A	.2)			. ,	0	Concave S	urface (B8)		Rhizospheres along Living Roots (C3)
Saturatio	• •				Marl Depo				_	of Reduced Iron (C4)
Water Ma					Hydrogen				Salt Depo	• •
	Deposits (B2)			Dry-Seaso				_	r Stressed Plants (D1)
_ ·	osits (B3)				Other (Exp	olain in Re	emarks)			hic Position (D2)
	or Crust (E	34)							_	quitard (D3)
_ '	osits (B5)									graphic Relief (D4)
Surface S	oil Cracks ((B6)							✓ FAC-neutr	ai iest (D5)

Field Observations:								
Surface Water Present?	Yes \bigcirc	No 🖲	Depth (inches):					
Water Table Present?	Yes 🖲	No \bigcirc	Depth (inches): 12	Wetland Hydrology Present?	Yes 🖲			
Saturation Present? (includes capillary fringe)	Yes 🖲	No \bigcirc	Depth (inches): 4					
Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:								

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No \bigcirc

Project/Site: Cape Blossom Wetlands	Borough/City:	Northwest Arcti	: Borouah	Sampling Date:	26-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>				Sampling Poin	nt: CB_39
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace	, hummocks	etc.): Flat	
Local relief (concave, convex, none): none	Slope:	%/°	Elevation:	40	
Subregion : Northern Alaska Lat.:	66.77823	Lo	ng .: <u>-162.43</u>	3905 D	atum: WGS84
Soil Map Unit Name:			NWI	classification: PEM1E	
	ear? Ye: tly disturbed? problematic?	Are "Norm	al Circumstar	lain in Remarks.) nces" present? Yes answers in Remarks.)	● _{No} ○

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: HGWSHT level wet sed	lge. Slightly	v lower elevation than adjacen	it tundra, bright green s	trip in aerial.

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

			Absol	lute	Dominant	Indicator	Dominance Test worksheet:
-	ee Stratum		<u>% Co</u>	over	Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)
							Total Number of Dominant
							Species Across All Strata:5_ (B)
				_			Percent of dominant Species
4.				_			That Are OBL, FACW, or FAC: 100.0% (A/B)
5.		Total Cover:	0	_			Prevalence Index worksheet:
					f Total Cover:	0	Total % Cover of: Multiply by:
Sap	ling/Shrub Stratum		<u> </u>	0% 01			OBL speciles 29 x 1 = 29
1.							FACW species $3 \times 2 = 6$
2.							FAC species $4 \times 3 = 12$
3.							
4.							FACU species $\underbrace{0}_{0}$ x 4 = $\underbrace{0}_{0}$
5.							UPL species $0 \times 5 = 0$
6.							Column Totals: <u>36</u> (A) <u>47</u> (B)
_							Prevalence Index = $B/A = 1.306$
8.							
							Hydrophytic Vegetation Indicators:
							✓ Dominance Test is > 50%
		Total Cover:	0				✓ Prevalence Index is ≤3.0
_He	erb Stratum	50% of Total Cover:	0 2	20% o	f Total Cover:	0	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1	Comarum palustre		5	5	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Deschampsia caespitosa		3	8		FAC	¹ Indicators of hydric soil and wetland hydrology must
2. 3.	Eriophorum angustifolium		7	,	\checkmark	OBL	be present, unless disturbed or problematic.
4	Equisetum fluviatile		5	5	\checkmark	OBL	
5.	Carex aquatilis		7		\checkmark	OBL	Plot size (radius, or length x width) 5m
6.	Caltha palustris		5	5	\checkmark	OBL	% Cover of Wetland Bryophytes
7.	Arctagrostis latifolia		3	3		FACW	(Where applicable)
8.	Polemonium acutiflorum		1			FAC	% Bare Ground
9.			_				Total Cover of Bryophytes 98
•.				_			
10.		Total Cover:	36	 5			Hydrophytic Vegetation
		50% of Total Cover: 1	18 2	20% of	f Total Cover:	7.2	Present? Yes \bullet No \bigcirc
_							

Remarks: deschampsia as collected for cb_38. bryophytes dominated by liverworts.

Depth Matrix	Redox Features	
(inches) Color (moist) %	Color (moist) % Type' Loc ²	Texture Remarks
¹ Type: C=Concentration D=Depletion RM	1=Reduced Matrix ² Location: PL=Pore Lining RC=Root	Channel M=Matrix
Hydric Soil Indicators:	Indicators for Problematic Hydric Soils: ³	
Histosol or Histel (A1)	Alaska Color Change (TA4)	Alaska Gleyed Without Hue 5Y or Redder
Histic Epipedon (A2)	Alaska Alpine swales (TA5)	Underlying Layer
Hydrogen Sulfide (A4)	Alaska Redox With 2.5Y Hue	✓ Other (Explain in Remarks)
Thick Dark Surface (A12)		
Alaska Gleyed (A13)	³ One indicator of hydrophytic vegetation, on and an appropriate landscape position must be and an appropriate landscape position must be and an appropriate landscape position	
Alaska Redox (A14)		je present
Alaska Gleyed Pores (A15)	⁴ Give details of color change in Remarks	
Restrictive Layer (if present):		
Type:		Hydric Soil Present? Yes 💿 No 🔾
Depth (inches):		
Depth (inches):		
Depth (inches): Remarks:	station and standing water	
Depth (inches):	etation and standing water	
Depth (inches): Remarks:	etation and standing water	
Depth (inches): Remarks:	etation and standing water	
Depth (inches): Remarks:	etation and standing water	
Depth (inches): Remarks: assume hydric soil due to hydrophytic vege	etation and standing water	
Depth (inches): Remarks:	etation and standing water	
Depth (inches): Remarks: assume hydric soil due to hydrophytic vege HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient)	etation and standing water	Water Stained Leaves (B9)
Depth (inches): Remarks: assume hydric soil due to hydrophytic vege HYDROLOGY Wetland Hydrology Indicators:	etation and standing water	Water Stained Leaves (B9) Drainage Patterns (B10)
Depth (inches): Remarks: assume hydric soil due to hydrophytic vege HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient) Surface Water (A1) High Water Table (A2)	Inundation Visible on Aerial Imagery (B7 Sparsely Vegetated Concave Surface (B8	Water Stained Leaves (B9) Drainage Patterns (B10) Oxidized Rhizospheres along Living Roots (C3)
Depth (inches): Remarks: assume hydric soil due to hydrophytic vege HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient) ✓ Surface Water (A1) High Water Table (A2) Saturation (A3)	☐ Inundation Visible on Aerial Imagery (B7 ☐ Sparsely Vegetated Concave Surface (B8 ☐ Marl Deposits (B15)	Water Stained Leaves (B9) Drainage Patterns (B10) Oxidized Rhizospheres along Living Roots (C3) Presence of Reduced Iron (C4)
Depth (inches): Remarks: assume hydric soil due to hydrophytic vege HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one is sufficient) ✓ Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	Inundation Visible on Aerial Imagery (B7 Sparsely Vegetated Concave Surface (B8 Marl Deposits (B15) Hydrogen Sulfide Odor (C1)	Water Stained Leaves (B9) Drainage Patterns (B10) Oxidized Rhizospheres along Living Roots (C3) Presence of Reduced Iron (C4) Salt Deposits (C5)
Depth (inches): Remarks: assume hydric soil due to hydrophytic vege 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)	Inundation Visible on Aerial Imagery (B7 Sparsely Vegetated Concave Surface (B8 Marl Deposits (B15) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2)	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)
Depth (inches): Remarks: assume hydric soil due to hydrophytic vege 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)	Inundation Visible on Aerial Imagery (B7 Sparsely Vegetated Concave Surface (B8 Marl Deposits (B15) Hydrogen Sulfide Odor (C1)	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)
Depth (inches): Remarks: assume hydric soil due to hydrophytic vege 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)	Inundation Visible on Aerial Imagery (B7 Sparsely Vegetated Concave Surface (B8 Marl Deposits (B15) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2)	Water Stained Leaves (B9) 7) Drainage Patterns (B10) 8) 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) Shallow Aquitard (D3)
Depth (inches): Remarks: assume hydric soil due to hydrophytic vege 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)	Inundation Visible on Aerial Imagery (B7 Sparsely Vegetated Concave Surface (B8 Marl Deposits (B15) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2)	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)

Surface Water Present?	Yes 🔍	No 🔾	Depth (inches): 3		
Water Table Present?	$_{\rm Yes} \bigcirc$	No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲
Saturation Present? (includes capillary fringe)	$_{\rm Yes} \bigcirc$	No 🖲	Depth (inches):		

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No 🔿

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 2	6-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_40
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Toeslope	
Local relief (concave, convex, none): <u>flat</u>	_ Slope:% /° Elevation:		
Subregion : Northern Alaska Lat.:	<u>66.7775183333333</u> Long.: <u>-162.43369</u>	Datum	n: WGS84
Soil Map Unit Name:	NWI class	ification: PEM1F	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No Yes No	0	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: toeslope emergent we	land w pockets (of standing water, caribo	u scat, trails, two caribo	ou sheds. HFWH Willows immediately to the south w

standing water. Imediately N is steep slope to willows at crest.

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

			Ab	solute	Dominant	Indicator	Dominance Test worksheet:
	ee Stratum		<u>%</u>	Cover	Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC:6(A)
2.							Total Number of Dominant Species Across All Strata: <u>6</u> (B)
4.			-				Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
5.		Total Cover:	-	0			Prevalence Index worksheet:
Sap	ling/Shrub Stratum	50% of Total Cover:	0	20% c	of Total Cover:	0	Total % Cover of: Multiply by:
	College and the set			- 1		FACW	OBL species <u>22</u> x 1 = <u>22</u>
			-				FACW species X 2 =38
							FAC species 11 x 3 = 33
							FACU species $0 \times 4 = 0$
							UPL species $-\frac{0}{x 5} = -\frac{0}{x 5}$
							Column Totals: <u>52</u> (A) <u>93</u> (B)
_							Prevalence Index = $B/A = 1.788$
8.			_				
9.			_				Hydrophytic Vegetation Indicators:
			-				✓ Dominance Test is > 50%
		Total Cover:	_	1			✓ Prevalence Index is ≤3.0
_He	erb Stratum	50% of Total Cover:	0.5	_ 20% (of Total Cover:	0.2	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1.	Comarum palustre		-	10		OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Caltha palustris		-	5		OBL	¹ Indicators of hydric soil and wetland hydrology must
3.	Arctagrostis latifolia		-	10		FACW	be present, unless disturbed or problematic.
4.	Carex aquatilis		-	5		OBL	
5.	Eriophorum angustifolium			2		OBL	Plot size (radius, or length x width) 5m
6.	Equisetum palustre		-	3		FACW	% Cover of Wetland Bryophytes
7.	Anemone richardsonii		-	5		FAC	(Where applicable)
8.	Valeriana sitchensis		-	3		FAC	% Bare Ground 5
9.	Trisetum spicatum		-	3		FAC	Total Cover of Bryophytes 90
10.	Parnassia palustris		-	5	\checkmark	FACW	Hydrophytic
		Total Cover:	_	51			Vegetation
		50% of Total Cover: 2	5.5	_ 20% c	of Total Cover:	10.2	Present? Yes No

Remarks: tr petfri, polviv, stellaria. 5% caraqu. 1% polacu, saxhir. 2% rumex arcticus. Include salpul in herbs for dominance test as total shrub cover <5%.

Depth			Redo	ox Featu	ires					
(inches)	Color (m	noist)	%	Color (I	moist)	%	Type ¹	Loc ²	Texture Remarks	
0-1									Fibric Organics	
1-6									Hemic Organics	
6-22	5Y	4/1 8	85 1	0YR	4/4	15	С	PL	Silty Clay Loam	
	. <u> </u>				p					
¹ Type: C=Cor	ncentration D	=Depletion	RM=Reduce	d Matrix	² Locatio	n: PL=P	ore Linina	RC=Root	Channel M=Matrix	
Hydric Soil							atic Hydr			
_	or Histel (A1)				iska Color		4	10 30113.	Alaska Gleyed Without Hue 5Y or Redder	
	ipedon (A2)				iska Alpine	-			Underlying Layer	
Ξ .	n Sulfide (A4)				iska Redox				Other (Explain in Remarks)	
	rk Surface (A1	12)								
🗌 Alaska G	leyed (A13)							etation, one tion must b	e primary indicator of wetland hydrology, be present	
🖌 Alaska R	edox (A14)									
🗌 Alaska G	leyed Pores (A	15)		⁴ Give	details of	color cha	ange in Re	marks		
Restrictive I	ayer (if pres	sent):								
Type: ac	tive layer (froz	zen)							Hydric Soil Present? Yes 🖲 No 🔿	
Depth (in	ches): 29									
Remarks:										
HYDROL	JCV									
-	drology Indi	cators:							_Secondary Indicators (two or more are requ	ired)
-	ators (any on		t)						Water Stained Leaves (B9)	
Surface	Water (A1)			🗌 I	nundation	Visible o	n Aerial In	nagery (B7	7) Drainage Patterns (B10)	
✓ High Wa	iter Table (A2))		<u> </u>	Sparsely Ve	egetated	Concave S	Surface (B8	3) Oxidized Rhizospheres along Living Roo	ts (C3)
✓ Saturatio	on (A3)				Aarl Depos	its (B15)			Presence of Reduced Iron (C4)	
Water M	arks (B1)			H	lydrogen S	Sulfide O	dor (C1)		Salt Deposits (C5)	
Sedimer	nt Deposits (B2	2)		🗌 (Dry-Seasor	n Water T	able (C2)		Stunted or Stressed Plants (D1)	
Drift De	oosits (B3)				Other (Exp	lain in Re	emarks)		Geomorphic Position (D2)	
Algal Ma	t or Crust (B4)							Shallow Aquitard (D3)	
Iron Dep	oosits (B5)								Microtopographic Relief (D4)	
Surface	Soil Cracks (B	6)							FAC-neutral Test (D5)	
Field Observ	vations:									
Surface Wat	er Present?	Yes C		ĺ	Depth (inc	hes):				
Water Table	Present?	Yes 🖲) No ()	[Depth (incl	hes): 6		w	Vetland Hydrology Present? Yes 🖲 No 🔿	
Saturation P		Yes 🖲) No 🔿	[Depth (incl	hes): 1				

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

(includes capillary fringe)

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough	Sampling Date: 2	26-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_41
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.)	: <u>Flat</u>	
Local relief (concave, convex, none): <u>concave</u>	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>10</u>		
Subregion : Northern Alaska	at.: <u>66.77288883333333</u> Long.: <u>-162.431763</u>	3333333 Datur	n: WGS84
Soil Map Unit Name:	NWI class	sification: <u>PEM1/SS1F</u>	
	of year? Yes O No O (If no, explain i cantly disturbed? Are "Normal Circumstances" Illy problematic? (If needed, explain any answ	' present? Yes 🖲	No 〇
			f

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: Point in HGWSS, humm	nocks domi	nated by betnan and caraqu		

			Abs	olute	Dominant	Indicator	Dominance Test worksheet:
Tree	Stratum		% 0	over	Species?	Status	Number of Dominant Species
1. —							That are OBL, FACW, or FAC: (A)
2							Total Number of Dominant
							Species Across All Strata: (B)
							Percent of dominant Species
							That Are OBL, FACW, or FAC:100.0% (A/B)
э. —		Total Cover:		0			Prevalence Index worksheet:
Saplin	g/Shrub Stratum	50% of Total Cover:	0	20% o	f Total Cover:	0	Total % Cover of: Multiply by:
							OBL species x 1 =7
							FACW species $2 \times 2 = 4$
			_				FAC species $2 \times 3 = 6$
3			_				FACU species $0 \times 4 = 0$
			_				
5							•
6			_				Column Totals: <u>31</u> (A) <u>37</u> (B)
7			_				Prevalence Index = $B/A = 1.194$
8			_				
9							Hydrophytic Vegetation Indicators:
			_				Dominance Test is > 50%
		Total Cover:		0			✓ Prevalence Index is ≤3.0
Lloub	Christian	50% of Total Cover:	0	20% o	f Total Cover:	0	Morphological Adaptations ¹ (Provide supporting
	<u>Stratum</u>			1			data in Remarks or on a separate sheet)
· · ·	tricularia macrorhiza		_	1		OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
Z	arex aquatilis		_	10	\checkmark	OBL	¹ Indicators of hydric soil and wetland hydrology must
3 ^{Er}	riophorum scheuchzeri					OBL	be present, unless disturbed or problematic.
4. Pe	edicularis sudetica			1		FACW	
5 ^{Ca}	arex limosa			3		OBL	Plot size (radius, or length x width) _5m
6	arex chordorrhiza		_	3		OBL	% Cover of Wetland Bryophytes
7. Er	riophorum angustifolium		_	3		OBL	(Where applicable)
8. <u>A</u> r	ndromeda polifolia		_	1		FACW	% Bare Ground 60
9. ^{Be}	etula nana		_	2		FAC	Total Cover of Bryophytes 35
10			_				Hydrophytic
		Total Cover:	3	81			Vegetation
		50% of Total Cover: 1	5.5	20% o	f Total Cover:	6.2	Present? Yes No
Remark	ks: Andpol and betnan in	cluded in herb layer for do	minar	nct tes	t, as total shr	rub cover «	<5%

Depth	Matrix	•	led to document the Redo	ox Features			
(inches)	Color (moist)	%	Color (moist)	<u>%</u> Type ¹	Loc ²	Texture	Remarks
,							
,	<u>_</u>						
,				,			
	D. D		2 ,			—	
51		on RM=Reau	uced Matrix ² Locatior		•	hannel M=Matrix	
Hydric Soil I			Indicators for P	4	iric Soils:	_	
	or Histel (A1)		Alaska Color (-		Alaska Gleyed Without H Underlying Layer	lue 5Y or Redder
= .	ipedon (A2)		Alaska Alpine			Other (Explain in Remar	1X
	n Sulfide (A4)		🔲 Alaska Redox	With 2.5Y Hue			ks)
	rk Surface (A12)		³ One indicator (of hydrophytic ver	etation, one	primary indicator of wetland I	hvdroloav.
	leyed (A13)			ate landscape pos			
	edox (A14) Ieyed Pores (A15)		⁴ Give details of	color change in R	emarks		
				-			
	Layer (if present):					Hydric Soil Present?	Yes \bullet No \bigcirc
Type:						Hydric son Present:	Yes $ullet$ No $igcup$
Depth (inc	;hes):						
Remarks:							
assume hydric	c soil due to hydrophyt	tic vegetation	and standing water				
HYDROLO	JGY						
	drology Indicators:					Secondary Ind	icators (two or more are required)
	cators (any one is sufficient	cient)				Water Sta	ined Leaves (B9)
	Water (A1)			Visible on Aerial I	0, 1, 1,	_ ~	Patterns (B10)
	iter Table (A2)			egetated Concave	Surface (B8)		Rhizospheres along Living Roots (C3
Saturatio			Marl Deposi			_	of Reduced Iron (C4)
	larks (B1)			Sulfide Odor (C1)		Salt Depos	
	nt Deposits (B2)			Water Table (C2))	_	r Stressed Plants (D1)
	posits (B3)		U Other (Expl	ain in Remarks)			hic Position (D2)
	t or Crust (B4)					_	quitard (D3)
Iron Dep	oosits (B5)					🛄 Microtopo	graphic Relief (D4)

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Yes \bullet No \bigcirc

Yes 🔿 No 🖲

Yes 🔘 No 🖲

Depth (inches): 6

Depth (inches):

Depth (inches):

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Surface Soil Cracks (B6)

Field Observations:

Surface Water Present?

(includes capillary fringe)

Water Table Present?

Saturation Present?

Remarks:

No 🔿

Yes 🖲

✓ FAC-neutral Test (D5)

Wetland Hydrology Present?

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 26-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point: CB_42
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Flat
Local relief (concave, convex, none): hummocky	_ Slope:% /° Elevation:75	
Subregion : Northern Alaska Lat.:	<u>66d 49m 42.23s</u> Long.: <u>162d 32m 2.4</u>	118s Datum: WGS84
Soil Map Unit Name:	NWI classi	fication: _PEM1/SS1E
Are climatic/hydrologic conditions on the site typical for this time of ye	ear? Yes \bigcirc No $oldsymbol{igen}$ (If no, explain in	Remarks.)
Are Vegetation 🗌 , Soil 🗌 , or Hydrology 🗌 significant	tly disturbed? Are "Normal Circumstances"	present? Yes 🔍 No 🔾
Are Vegetation 🗌 , Soil 🗹 , or Hydrology 🗌 naturally	problematic? (If needed, explain any answe	ers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present?	Yes 🖲	No O	Is the Sampled Area			
Hydric Soil Present?	Yes 🖲	No O	within a Wetland?	Yes \odot No \bigcirc		
Wetland Hydrology Present?	Yes 🖲	No 🔾	within a wetland:			
Pemarks: prodominantly UCWCC		mmaaka aamman aa 2004 liiu	mmodulo dominatod by	hotnon yoguli laddag and liphon LICWCT w goottarad		

emarks: predominantly HGWSS. SDET hummocks common, ca 20%. Hummocks dominated by betnan vaculi leddec and lichen. HGWST w scattered shrubs not on hummocks, indicating this level of flooding is unusual (submerged betnan/salfus). Both communities captured in plot.

		Absolut	e Dominant	Indicator	Dominance Test worksheet:
Tree Stratum		% Cove	er Species?	Status	Number of Dominant Species
1					That are OBL, FACW, or FAC: (A)
2					Total Number of Dominant Species Across All Strata: 4 (B)
3					
4					Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5					
0.1	Total Cover:	0	-		Prevalence Index worksheet:
Sapling/Shrub Stratum 50	0% of Total Cover:	0 20%	6 of Total Cover:	0	Total % Cover of: Multiply by:
1. Betula nana		5	\checkmark	FAC	OBL speciles 52 x 1 = 52
2. Salix fuscescens		2		FACW	FACW species $4 \times 2 = 8$
3. Andromeda polifolia		1		FACW	FAC species $10 \times 3 = 30$
		5	\checkmark	FAC	FACU species $0 \times 4 = 0$
5					UPL species $-\frac{0}{x 5} = -\frac{0}{x 5}$
6					Column Totals:
7					Prevalence Index = $B/A = 1.364$
8					
9					Hydrophytic Vegetation Indicators:
10					✓ Dominance Test is > 50%
10	Total Cover:	13			✓ Prevalence Index is ≤3.0
Herb Stratum	0% of Total Cover:6	5.5 20%	- 6 of Total Cover:	2.6	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1 Carex aquatilis		15	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Eriophorum scheuchzeri		20	\checkmark	OBL	¹ Indicators of hydric soil and wetland hydrology must
Corey shordershire		10		OBL	be present, unless disturbed or problematic.
 Carox rotundata 		7		OBL	
5. Pedicularis sudetica		1		FACW	Plot size (radius, or length x width) 10m
6					% Cover of Wetland Bryophytes
7					(Where applicable)
8					% Bare Ground 85
9					Total Cover of Bryophytes 5
10					Hydrophytic
-	Total Cover:	53	_		Vegetation
50	0% of Total Cover:26	5.5 20%	6 of Total Cover:	10.6	Present? Yes No
Remarks: ca 5% lichen (on hummo	cks)				

	ription: Describe to Matrix	depth neede		e presenc ox Featur		ence of inc	licators	
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
(mones)					Турс	LUC	Texture	Kentarks
	·				· ·			
	,,		· · · · · ·					
¹ Type: C=Cor	ncentration D=Depletion	on RM=Redu	ced Matrix ² Locatio	n: PL=Po	re Lining	RC=Root C	hannel M=Matrix	
Hydric Soil	Indicators:		Indicators for	Problema	tic Hydri	c Soils: ³		
Histosol	or Histel (A1)		Alaska Color	Change (1	а ГА4)		Alaska Gleyed Withou	It Hue 5Y or Redder
Histic Ep	ipedon (A2)		🗌 Alaska Alpine	swales (1	FA5)		Underlying Layer	
Hydroge	n Sulfide (A4)		Alaska Redo	With 2.5	Y Hue		✓ Other (Explain in Ren	narks)
Thick Da	rk Surface (A12)		_					
🗌 Alaska G	leyed (A13)		³ One indicator and an appropri				primary indicator of wetlar	nd hydrology,
🗌 Alaska R	edox (A14)						present	
🗌 Alaska G	leyed Pores (A15)		⁴ Give details of	color cha	nge in Rer	narks		
Restrictive I	_ayer (if present):							
Type:							Hydric Soil Present	t? Yes $ullet$ No $igodom$
Depth (in	ches):							
Remarks:								
assume hydrid	soil due to hydrophyt	ic vegetation	and standing water					
5	5 . 5	0	Ū					
HYDROL								
5	drology Indicators:							Indicators (two or more are required)
	ators (any one is suffic	cient)					_	Stained Leaves (B9)
	Water (A1)		Inundation			0 5		ge Patterns (B10)
	ter Table (A2)		Sparsely Ve	0	Concave Si	urface (B8)		ed Rhizospheres along Living Roots (C3)
Saturatio			Marl Depos					ce of Reduced Iron (C4)
	arks (B1)		Hydrogen S					posits (C5)
	t Deposits (B2)		Dry-Seasor					d or Stressed Plants (D1)
	posits (B3)		Other (Exp	ain in Rer	marks)			rphic Position (D2)
	t or Crust (B4)							v Aquitard (D3)
	posits (B5)							pographic Relief (D4)
Surface	Soil Cracks (B6)						IME I FAC-ne	utral Test (D5)

Field Observations:

Surface Water Present?	Yes 🖲	No \bigcirc	Depth (inches): 6		
Water Table Present?	$_{\rm Yes} \bigcirc$	No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲
Saturation Present? (includes capillary fringe)	$_{\rm Yes} \bigcirc$	No 🖲	Depth (inches):		

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No 🔿

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 26-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point: CB_4
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Flat
Local relief (concave, convex, none): tussocks	Slope: <u>5.2</u> % / <u>3.0</u> ° Elevation: <u>55</u>	
Subregion : Northern Alaska Lat	: <u>66.82940166666667</u> Long.: <u>-162.53292</u>	Datum: WGS84
Soil Map Unit Name:	NWI class	ification: PSS3/EM1B
	year? Yes No (If no, explain in antly disturbed? Are "Normal Circumstances" y problematic? (If needed, explain any answ	present? Yes • No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \odot No \bigcirc
Remarks: SLOTT				

		Abso	lute	Dominant	Indicator	Dominance Test worksheet:
<u></u>	ree Stratum	<u>%</u> Co	over	Species?	Status	Number of Dominant Species
1.						That are OBL, FACW, or FAC:5_ (A)
2.						Total Number of Dominant
3.						Species Across All Strata:5 (B)
4						Percent of dominant Species That Are OBL_EACW_or_EAC: 100.0% (A/B)
						That Are OBL, FACW, or FAC:(A/B)
5.	Total Cover:	0)			Prevalence Index worksheet:
Sap	ling/Shrub Stratum 50% of Total Cover:	0 2	20% o	f Total Cover:	0	Total % Cover of: Multiply by:
	Betula nana	1	0	\checkmark	FAC	OBL species x 1 =
ו. כ	Ledum decumbens		7		FACW	FACW species <u>36</u> x 2 = <u>72</u>
2. 3.	Vaccinium vitis-idaea	2	0	\checkmark	FAC	FAC species45_ x 3 =135
3. 4	Vaccinium uliginosum		0		FAC	FACU species $1 \times 4 = 4$
4. 5.	Empetrum nigrum		5		FAC	UPL species $0 \times 5 = 0$
5. 6	Arctastanhulas alnina	1			FACU	Column Totals: <u>82</u> (A) <u>211</u> (B)
0.						
						Prevalence Index = $B/A = 2.573$
						Hydrophytic Vegetation Indicators:
						✓ Dominance Test is > 50%
10.	Total Cover:					✓ Prevalence Index is ≤3.0
		5		(10.0	Morphological Adaptations ¹ (Provide supporting
_Н	erb Stratum 50% of Total Cover: 2	6.5	20% C	of Total Cover:	10.6	data in Remarks or on a separate sheet)
1	Eriophorum vaginatum	2	20	\checkmark	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Rubus chamaemorus		7	\checkmark	FACW	¹ Indicators of hydric soil and wetland hydrology must
3	Arctagrostis latifolia		2		FACW	be present, unless disturbed or problematic.
0.						
						Plot size (radius, or length x width) 10m
6						% Cover of Wetland Bryophytes
7						(Where applicable)
						% Bare Ground _0
9						Total Cover of Bryophytes 40
۰.						Hydrophytic
10.	Total Cover:	29	9			Hydrophytic Vegetation
	50% of Total Cover:14	4.5 2	20% o	f Total Cover:	5.8	Present? Yes \bullet No \bigcirc
Dor						
Ren	harks: 40% lichen cover					

Donth	Ma	atrix		Redo	ox Featu	ures			
Depth (inches)	Color (mo		, ,	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-8								Hemic Organics	varying degrees of decomposition
8-15	10YR :	3/2 10	0					Silty Clay Loam	high organic content
	<u> </u>			, , ,					_
	. <u> </u>								
Type: C=Cor	ncentration D=I	Depletion RI	M=Reduced					Channel M=Matrix	
Hydric Soil	Indicators:			Indicators for F		4	ic Soils:		
_	or Histel (A1)			Alaska Color (0			Alaska Gleyed With Underlying Layer	out Hue 5Y or Redder
	ipedon (A2)			Alaska Alpine				Other (Explain in Re	omarke)
	n Sulfide (A4) rk Surface (A12)	`		Alaska Redox	WITH 2.3	or Hue			(IIIdi K5)
_	rk Surface (A12) leyed (A13))						e primary indicator of wetl	and hydrology,
	edox (A14)			and an appropria	ate lands	scape posit	ion must b	be present	
_	leyed Pores (A1	5)		⁴ Give details of	color cha	ange in Rer	marks		
Restrictive I	ayer (if prese	ent):							
	tive layer (frozei							Hydric Soil Prese	nt? Yes 🖲 No 🔿
Depth (in									
Remarks:									
IYDROL	DGY								
	drology Indica	ators:						Secondary	y Indicators (two or more are required)
Primary India	ators (any one	is sufficient)						Wate	r Stained Leaves (B9)
	Water (A1)			Inundation	Visible o	on Aerial Im	agery (B7	<i>,</i>	age Patterns (B10)
	ter Table (A2)			Sparsely Ve	-		urface (B8	,	zed Rhizospheres along Living Roots (C3)
Saturatio				Marl Deposi					ence of Reduced Iron (C4)
	arks (B1)			Hydrogen S	Sulfide O	dor (C1)			Deposits (C5)
_	it Deposits (B2)			Dry-Season	Water T	fable (C2)		_	ed or Stressed Plants (D1)
	oosits (B3)			Other (Expl	ain in Re	emarks)		_	norphic Position (D2)
Algal Ma	t or Crust (B4)							_	ow Aquitard (D3)
	oosits (B5)								topographic Relief (D4)
Surface	Soil Cracks (B6)							FAC-r	neutral Test (D5)
Field Observ	ations:								
Surface Wat	er Present?	Yes O	_	Depth (inch	nes):				
Water Table		Yes \bigcirc	No 🖲	Depth (inch	າes): 12	2	W	etland Hydrology Pres	ent? Yes 🖲 No 🔾
Saturation P	resent? Sillary fringe)	$_{\sf Yes}$ \bigcirc	No 🖲	Depth (inch	nes): 3				

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

(includes capillary fringe)

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough	Sampling Date: 2	6-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_44
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): <u>hummocky</u>	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>75</u>		
Subregion : Northern Alaska Lat.:	66.83009666666667 Long.: _162.531805	Datur	n: WGS84
Soil Map Unit Name:	NWI class	ification: PEM1/SS1F	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present?	Yes 🖲	No	Is the Sampled Area	Yes 🖲 No 🔿			
Hydric Soil Present?	Yes 🖲	No	within a Wetland?				
Wetland Hydrology Present?	Yes 🖲	No 🔾					
Remarks: scattered hummocks w empnig betnan and lichens. hummocks included in plot. HGWSS							

		Abs	olute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum		%(Cover	Species?	Status	Number of Dominant Species
1						That are OBL, FACW, or FAC: (A)
2		-				Total Number of Dominant Species Across All Strata: 4 (B)
3		_				
4		_				Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5		_				
	Total Cover:		0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50	0% of Total Cover:	0	20% o	f Total Cover:	0	Total % Cover of: Multiply by:
1 Andromeda polifolia			1		FACW	OBL species <u>37.5</u> x 1 = <u>37.5</u>
· · · · ·		_	1		FACW	FACW species $3 \times 2 = 6$
3. Betula nana			3	\checkmark	FAC	FAC species 7.5 x 3 = 22.5
4 Empetrum plarum			1		FAC	FACU species $0 \times 4 = 0$
			3	\checkmark	FAC	UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
6						Column Totals: <u>48</u> (A) <u>66</u> (B)
• ·						
7						Prevalence Index = $B/A = 1.375$
8		_				Hydrophytic Vegetation Indicators:
9		_				✓ Dominance Test is > 50%
10	Total Cover:	_	9			✓ Prevalence Index is ≤3.0
		_	_	(4.0	Morphological Adaptations ¹ (Provide supporting
Herb Stratum	0% of Total Cover:	4.5	20% 0	of Total Cover:	1.8	data in Remarks or on a separate sheet)
1. Utricularia intermedia		_	3		OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
 Podicularis sudotica 		_	1		FACW	¹ Indicators of hydric soil and wetland hydrology must
 Carey chordorrhiza 			10	\checkmark	OBL	be present, unless disturbed or problematic.
Carey rotundata		_	5		OBL	
5. Eriophorum scheuchzeri		_	15	\checkmark	OBL	Plot size (radius, or length x width) <u>10m</u>
6. Eriophorum angustifolium		_	1		OBL	% Cover of Wetland Bryophytes
7. Carex aquatilis		_	3		OBL	(Where applicable)
8. Trichophorum caespitosum		_	0.5		OBL	% Bare Ground 90
9. Tofieldia pusilla			0.5		FAC	Total Cover of Bryophytes 5
10						
10.	Total Cover:		39			Hydrophytic Vegetation
50	% of Total Cover: 1	9.5	20% o	f Total Cover:	7.8	Present? Yes • No O
Remarks: 3% lichen cover						

Profile Description: Describe to depth needed to document the presence or absence of indicators						
Depth <u>Matrix</u> (inches) Color (moist) %	Redox Features Color (moist) % Type ¹ Loc ²	Texture Remarks				
¹ Type: C=Concentration D=Depletion RM=Reduc	ced Matrix ² Location: PL=Pore Lining RC=Root Cha	annel M=Matrix				
Hydric Soil Indicators:	Indicators for Problematic Hydric Soils: ³					
Histosol or Histel (A1)	Alaska Color Change (TA4)	Alaska Gleyed Without Hue 5Y or Redder				
Histic Epipedon (A2)	Alaska Alpine swales (TA5)					
Hydrogen Sulfide (A4)	Alaska Redox With 2.5Y Hue	Other (Explain in Remarks)				
Thick Dark Surface (A12)	³ One indicator of hydrophytic vegetation, one pr	rimary indicator of wetland bydrology				
Alaska Gleyed (A13)	and an appropriate landscape position must be p					
📙 Alaska Redox (A14)	⁴ Give details of color change in Remarks					
Alaska Gleyed Pores (A15)						
Restrictive Layer (if present):						
Туре:		Hydric Soil Present? Yes $ullet$ No $ightarrow$				
Depth (inches):						
Remarks:						
assume hydric soil due to hydrophytic vegetation a	and standing water					
HYDROLOGY						
Wetland Hydrology Indicators:		Secondary Indicators (two or more are required)				
Primary Indicators (any one is sufficient)		Water Stained Leaves (B9)				
Surface Water (A1)	Inundation Visible on Aerial Imagery (B7)	Drainage Patterns (B10)				
High Water Table (A2)	Sparsely Vegetated Concave Surface (B8)	Oxidized Rhizospheres along Living Roots (C3)				
Saturation (A3)	Marl Deposits (B15)	Presence of Reduced Iron (C4)				
Water Marks (B1)	Hydrogen Sulfide Odor (C1)	Salt Deposits (C5)				
Sediment Deposits (B2)	Dry-Season Water Table (C2)	Stunted or Stressed Plants (D1)				
Drift Deposits (B3)	Other (Explain in Remarks)	Geomorphic Position (D2)				
Algal Mat or Crust (B4)	· · ·	Shallow Aquitard (D3)				
Iron Deposits (B5)		Microtopographic Relief (D4)				
Surface Soil Cracks (B6)		FAC-neutral Test (D5)				

Saturation Present?

Yes 💿 No 🔾	Depth (inches): 6			
Yes 🔾 No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲	No \bigcirc
Yes 🔾 No 🖲	Depth (inches):			

 (includes capillary fringe)
 res
 No
 Depth (inches):

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 2	26-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_45
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Hillside	
Local relief (concave, convex, none): tussocks	Slope: <u>8.7</u> % / <u>5.0</u> ° Elevation: 95		
Subregion : Northern Alaska Lat.:	<u>66.8272583333333</u> Long.: <u>-162.521895</u>	Datur	m: WGS84
Soil Map Unit Name:	NWI class	ification: PSS3/EM1B	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes Yes Yes	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: SLOTT atop rounded ri	ise. one car	ibou grazing in community to	the south.	

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC:5_ (A)
2				Total Number of Dominant
3.				Species Across All Strata:5 (B)
4				Percent of dominant Species
5				That Are OBL, FACW, or FAC:(A/B)
5. Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover: 0	20% c	of Total Cover:	0	Total % Cover of: Multiply by:
1. Betula nana	10	\checkmark	FAC	OBL species <u>0</u> x 1 = <u>0</u>
2. Ledum decumbens	5		FACW	FACW species $36 \times 2 = 72$
3. Vaccinium uliginosum	7		FAC	FAC speci es 52 x 3 = 156
4 Vaccinium vitis-idaea	20	\checkmark	FAC	FACU species $0 \times 4 = 0$
5. Empetrum nigrum	10	\checkmark	FAC	UPL species $0 \times 5 = 0$
6. Salix pulchra	7		FACW	Column Totals: <u>88</u> (A) <u>228</u> (B)
7				Prevalence Index = $B/A = 2.591$
8				
9				Hydrophytic Vegetation Indicators:
10				✓ Dominance Test is > 50%
Total Cover:	59			✓ Prevalence Index is ≤3.0
Herb Stratum50% of Total Cover: 25	9.5 20% 0	of Total Cover:	11.8	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1 Eriophorum vaginatum	15	\checkmark	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Carex bigelowii	5		FAC	¹ Indicators of hydric soil and wetland hydrology must
3. Arctagrostis latifolia	1		FACW	be present, unless disturbed or problematic.
4 Rubus chamaemorus	7	\checkmark	FACW	
5. Petasites frigidus	1		FACW	Plot size (radius, or length x width) 10m
6				% Cover of Wetland Bryophytes
7				(Where applicable)
8				% Bare Ground 5
9				Total Cover of Bryophytes 40
10				Hydrophytic
Total Cover:	29			Hydrophytic Vegetation
50% of Total Cover:14	1.5 20% c	of Total Cover:	5.8	Present? Yes No
Remarks: 40% lichen				

Depth	Ma	atrix		Red	ox Featu	ıres			
(inches)	Color (mo	oist) %	, 	Color (moist)	%	Type ¹	Loc ²	Texture Fibric Organics	Remarks
0-3							<u></u>		
3-10								Hemic Organics Sapric Organics	varying degrees of decomposition
10-11									
11-14	10YR	3/2						Silty Clay Loam	
Type: C=Cor	ncentration D=	Depletion RI	M=Reduce	d Matrix ² Locatic	on: PL=P	ore Lining	RC=Root	Channel M=Matrix	
Hydric Soil	Indicators:			Indicators for	Problem	natic Hydr	ic Soils: ³		
Histosol (or Histel (A1)			Alaska Color	Change	(TA4)			hout Hue 5Y or Redder
	ipedon (A2)			Alaska Alpine				Underlying Layer	Domarke)
	n Sulfide (A4)			Alaska Redo	X VVIl⊓∠.;	5Y Hue			
_	rk Surface (A12 leyed (A13))						e primary indicator of we	tland hydrology,
	edox (A13)			and an appropr	riate land	scape posit	ion must b	e present	
	leyed Pores (A1	5)		⁴ Give details of	f color ch	ange in Rer	marks		
Restrictive I	Layer (if prese	ent):							
	tive layer (froze	n), si cl lo						Hydric Soil Prese	ent? Yes 🖲 No 🔿
Depth (ind	ches): 14, 11								
HYDROLO	OGY drology Indica	ators:						Seconda	ry Indicators (two or more are required)
-	cators (any one								er Stained Leaves (B9)
Surface '	Water (A1)			Inundation	۱ Visible c	on Aerial Im	nagery (B7) 🗌 Drai	nage Patterns (B10)
🗌 High Wa	iter Table (A2)					Concave S			lized Rhizospheres along Living Roots (C3
Saturatio	on (A3)			Marl Depos	sits (B15)	I		_	ence of Reduced Iron (C4)
Water M	larks (B1)			Hydrogen	Sulfide O	dor (C1)			Deposits (C5)
_	nt Deposits (B2)			Dry-Seaso				_	nted or Stressed Plants (D1)
	posits (B3)			Other (Exp	olain in Re	emarks)		_	morphic Position (D2)
	it or Crust (B4)							_	llow Aquitard (D3)
	oosits (B5)							_	otopographic Relief (D4)
	Soil Cracks (B6)							Y FAC-	neutral Test (D5)
Field Observ		$_{ m Yes}$ \bigcirc	No 🖲	Darath (in a	. 、				
Surface Wate		~	-	Depth (inc	;hes):				
Water Table	Present?	Yes \bigcirc	No 🖲	Depth (inc	hes):		W	etland Hydrology Pres	sent? Yes $ullet$ No $igodom$

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

 $_{\rm Yes} \bullet _{\rm No} \bigcirc$

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Saturation Present?

(includes capillary fringe)

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Depth (inches): 8

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date:	26-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_46
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Hillside	
Local relief (concave, convex, none): tussocks	Slope: <u>5.2</u> % / <u>3.0</u> ° Elevation: <u>90</u>		
Subregion : Northern Alaska	at.: <u>66.82676666666667</u> Long.: <u>-162.52006</u>	Datu	ım: WGS84
Soil Map Unit Name:	NWI class	sification: PSS1B	
	of year? Yes O No O (If no, explain i cantly disturbed? Are "Normal Circumstances" Illy problematic? (If needed, explain any answ	present? Yes •	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \odot No \bigcirc
Remarks: SLOW atop rounded ris	6e.			

		Abso	olute		Indicator	Dominance Test worksheet:
Tree	Stratum	<u>% C</u>	over	Species?	Status	Number of Dominant Species
1. –						That are OBL, FACW, or FAC: (A)
2						Total Number of Dominant Species Across All Strata: 7 (B)
3						Percent of dominant Species
4						That Are OBL, FACW, or FAC:100.0% (A/B)
5. –	Total Cover:)			Prevalence Index worksheet:
Sanlin				f Total Cover:	0	Total % Cover of: Multiply by:
	<u></u>		0		FACW	OBL species x 1 =
· · ·	alix pulchra		3		FACU	FACW species56 x 2 =112
Z	piraea stevenii		5		FAC	FAC species 68.5 x 3 =205.5
J	alix glauca					FACU species $5 \times 4 = 20$
· · · ·	etula nana		0 5		FAC FAC	UPL species $0 \times 5 = 0$
0	mpetrum nigrum			\checkmark		1
0	accinium uliginosum		5		FAC	Column Totals: <u>129.5</u> (A) <u>337.5</u> (B)
· · -	accinium vitis-idaea		5		FAC	Prevalence Index = $B/A = 2.606$
0	edum decumbens		3		FACW	
9						✓ Dominance Test is > 50%
10		_				✓ Prevalence Index is ≤ 3.0
	Total Cover:	10				
Her	b Stratum50% of Total Cover:	53	20% o	of Total Cover:	21.2	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1. <u>P</u>	etasites frigidus		5	\checkmark	FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. 🖡	ubus chamaemorus		3		FACW	¹ Indicators of hydric soil and wetland hydrology must
3	hamerion angustifolium		1		FACU	be present, unless disturbed or problematic.
-	arex bigelowii		5	\checkmark	FAC	
5. <u>L</u>	ycopodium clavatum		1		FACU	Plot size (radius, or length x width) _10m
6. 4	rctagrostis latifolia		5	\checkmark	FACW	% Cover of Wetland Bryophytes
7	Deschampsia caespitosa		3		FAC	(Where applicable)
8. <u>P</u>	olemonium acutiflorum	_0	.5		FAC	% Bare Ground
9		_				Total Cover of Bryophytes
10		_				Hydrophytic
	Total Cover:	23	.5			Vegetation
	50% of Total Cover:	75	20% o	f Total Cover:	4.7	Present? Yes No
Remar	ks:					

Depth		Matrix			Red	ox Featu	ires			
(inches)	Color	(moist)	%	Color ((moist)	%	Type ¹	Loc ²	Texture	Remarks
0-2									Fibric Organics	
2-4			-		-				Hemic Organics	
4-16	10Y	5/1	85	10YR	4/6	15	С	PL	Silty Clay Loam	
16-23	10Y	4/1	60	10YR	4/6	40	C	PL	Silty Clay Loam	w linear streaks of 10Y4/1 along root channe
¹ Type: C=Cor	centration	D=Depleti	on RM=Re	duced Matrix	2Locatio	on: PL=P	ore Lining	RC=Root	Channel M=Matrix	
Hydric Soil	Indicators			Indic			atic Hydr			
Histosol d Histic Epi Hydroger Thick Dat Alaska G Alaska G Restrictive L	or Histel (A pedon (A2) n Sulfide (A rk Surface (eyed (A13) edox (A14) eyed Pores .ayer (if pi tive layer (fi ches): 23	1) (A12) (A15) resent): rozen)	n organic la	AI AI AI 3 One and 3 4 Give	aska Color aska Alpin aska Redo e indicator an approp e details o	[•] Change (e swales (x With 2.5 of hydrop riate lands	(TA4) (TA5) 5Y Hue ohytic vege	etation, one tion must b	Underlying Layer Uther (Explain in F primary indicator of we	tland hydrology,
HYDROLO										
Wetland Hyd		dicators:							Seconda	ry Indicators (two or more are required)
Primary Indic			cient)							er Stained Leaves (B9)
Surface	Water (A1)				Inundatior	n Visible o	n Aerial In	nagery (B7) 🗌 Drai	nage Patterns (B10)
🗌 High Wa	ter Table (A	A2)			Sparsely V	egetated	Concave S	urface (B8) 🗌 Oxid	lized Rhizospheres along Living Roots (C3)
Saturatio	on (A3)				Marl Depo	sits (B15)			Pres	ence of Reduced Iron (C4)
	arks (B1)				Hydrogen	Sulfide O	dor (C1)		_	Deposits (C5)
_	t Deposits ((B2)			Dry-Seaso				_	nted or Stressed Plants (D1)
	oosits (B3)				Other (Exp	olain in Re	emarks)		_	morphic Position (D2)
	t or Crust (B4)							_	llow Aquitard (D3)
Iron Dep	osits (B5)								_	otopographic Relief (D4)

Surface Soil Cracks (B6)				FAC-neutral	Test (D5)
Field Observations:	_	_			
Surface Water Present?	Yes \bigcirc	No 🖲	Depth (inches):		
Water Table Present?	$_{ m Yes}$ \bigcirc	No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲
Saturation Present? (includes capillary fringe)	Yes 🖲	No \bigcirc	Depth (inches): 7		
Describe Recorded Data (stre	am gauge, n	nonitor well, a	erial photos, previous inspection)	if available:	

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No 🔿

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borouah	Sampling Date: 2	26-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_47
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Hillside	
Local relief (concave, convex, none): tussocks	Slope: <u>12.2</u> % / <u>7.0</u> ° Elevation: <u>80</u>		
Subregion : Northern Alaska La	t.: <u>66.8221183333333</u> Long.: <u>-162.505238</u>	3333333 Datur	m: WGS84
Soil Map Unit Name:	NWI class	sification: PSS1/EM1B	
	f year? Yes No (If no, explain in antly disturbed? Are "Normal Circumstances" Ily problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes 🖲 No	◦ ○ ◦ ○ ◦ ○	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: SLOTT, but w scattered	d salix and few	ver tussocks		

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3.				Species Across All Strata: (B)
4				Percent of dominant Species
5				That Are OBL, FACW, or FAC:(A/B)
5. Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover:	0 20% o	of Total Cover:	0	Total % Cover of: Multiply by:
1 Salix pulchra	7		FACW	OBL species x 1 =
1. Salix pulchra 2. Betula nana	20	\checkmark	FAC	FACW species 39 x 2 =78
3. Vaccinium vitis-idaea	30		FAC	FAC species x 3 =
0	7		FAC	FACU species $1 \times 4 = 4$
5. Ledum decumbens	7		FACW	UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
6 Empetrum nigrum	5		FAC	Column Totals: 117.5 (A) 314.5 (B)
7. Arctostaphylos alpina	1		FACU	Prevalence Index = $B/A = 2.677$
8 Salix glauca	0.5		FAC	
9				Hydrophytic Vegetation Indicators:
10				✓ Dominance Test is > 50%
Total Cover:	77.5			✓ Prevalence Index is ≤3.0
_Herb Stratum50% of Total Cover:38	3.75 20% c	of Total Cover:	15.5	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1. Petasites frigidus	5		FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Rubus chamaemorus	5		FACW	¹ Indicators of hydric soil and wetland hydrology must
Carex bigelowii	15	\checkmark	FAC	be present, unless disturbed or problematic.
4. Eriophorum vaginatum	15	\checkmark	FACW	
5				Plot size (radius, or length x width) 10m
6				% Cover of Wetland Bryophytes
7				(Where applicable)
8				% Bare Ground 5
9				Total Cover of Bryophytes 40
10				Hydrophytic
Total Cover:	40			Vegetation
50% of Total Cover:2	20 20% o	of Total Cover:		Present? Yes \bullet No \bigcirc
Remarks: 40% lichen cover, erivag and carbig tussocks.				

S	O	I	L
-	~		

Depth	Matrix Redox Fea				ox Featu	ires				
(inches)	Color	(moist)	%	Color	(moist)	%	Type ¹	Loc ²	Texture	Remarks
0-3									Fibric Organics	
3-6									Hemic Organics	
6-8	7.5YR	3/2	100						Silty Clay Loam	
8-11	10YR	3/2							Silty Clay Loam	
11-16	5Y	4/1	60	2.5Y	4/4	40	С	PL	Silty Clay Loam	
Type: C=Cor	ncentration	D=Depleti	on RM=Re	duced Matrix	² Locatio	on: PL=P	ore Lining	RC=Root	Channel M=Matrix	
Hydric Soil	Indicators			Indic	ators for	Problem	natic Hydr	ric Soils: ³		
Histosol	or Histel (A1	1)			laska Color		4		Alaska Gleyed Withou	t Hue 5Y or Redder
Histic Ep	Histic Epipedon (A2)				Alaska Alpine swales (TA5) Underlying Layer					
Hydroge	en Sulfide (A4	4)			Alaska Redox With 2.5Y Hue Other (Explain in Remarks)					
Thick Da	ark Surface ((A12)		3.0		.				
🗌 Alaska G	Gleyed (A13)							etation, one tion must b	e primary indicator of wetlan	d hydrology,
🗸 Alaska Re	Redox (A14)						• •		e present	
🗌 Alaska G	leyed Pores	(A15)		⁴ Giv	e details of	f color cha	ange in Re	marks		
Restrictive L	Layer (if pr	resent):								_
Type: ac	tive layer (fr	rozen), si c	l lo						Hydric Soil Present	? Yes 🖲 No 🔾
	iches): 16, 6									
Remarks:										
IYDROLO										
Wetland Hy		dicators:							Secondary II	ndicators (two or more are required)
Primary India			cient)							stained Leaves (B9)
	Water (A1)				Inundation	n Visible o	n Aerial In	nagery (B7)		e Patterns (B10)
	ater Table (A	42)						Surface (B8	,	d Rhizospheres along Living Roots (C3
Saturatio	•	12)			Marl Depo:	0			,	e of Reduced Iron (C4)
	Aarks (B1)				Hydrogen					posits (C5)
	nt Deposits ((R)			Dry-Seaso					or Stressed Plants (D1)
	posits (B3)	,DZ)			2					phic Position (D2)
		D 4)			Other (Exp)lain in ke	emarks)		_	
_ ~	at or Crust (E	84)								Aquitard (D3)
	posits (B5)									pographic Relief (D4)
Surface	Soil Cracks	(B6)							🗹 FAC-neu	ıtral Test (D5)

Field	Observations:	
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Surface Water Present?	$_{ m Yes}$ \bigcirc	No 🖲	Depth (inches):			
Water Table Present?	$_{ m Yes}$ \bigcirc	No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲	No \bigcirc
Saturation Present? (includes capillary fringe)	Yes 🖲	$_{\rm No}$ \bigcirc	Depth (inches): 7			

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date:	26-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_48
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Hillside	
Local relief (concave, convex, none): tussocks	Slope: <u>8.7</u> % / <u>5.0</u> ° Elevation: 75		
Subregion : Northern Alaska	at.: <u>66.79666166666667</u> Long.: <u>-162.466501</u>	666667 Datu	m: WGS84
Soil Map Unit Name:	NWI class	sification: _PEM1/SS1E	}
	of year? Yes O No O (If no, explain in icantly disturbed? Are "Normal Circumstances" ally problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: SLOTT on gentle hillsid	le			

	Abso	olute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	<u>%</u> C	over	Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)
1					Total Number of Dominant
2					Species Across All Strata:4_ (B)
3 4					Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
5Total Cover:		0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover:			of Total Cover:	0	Total % Cover of: Multiply by:
1 Betula nana	1	15	\checkmark	FAC	OBL species <u>1</u> x 1 = <u>1</u>
2 Arctostaphylos alpina		7		FACU	FACW species35_ x 2 =70
3. Vaccinium vitis-idaea		15		FAC	FAC species x 3 =156
4 Vaccinium uliginosum		5		FAC	FACU species x 4 =28
5. Ledum decumbens		5		FACW	UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
6. Empetrum nigrum		7		FAC	Column Totals: (A) (B)
7. Vaccinium oxycoccos		1		OBL	Prevalence Index = $B/A = 2.684$
8					
9					Hydrophytic Vegetation Indicators:
10	_				✓ Dominance Test is > 50%
Total Cover:	5	5			✓ Prevalence Index is ≤3.0
_Herb Stratum50% of Total Cover:	27.5	20% o	of Total Cover:		Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1. Rubus chamaemorus		5		FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Carex bigelowii		10		FAC	¹ Indicators of hydric soil and wetland hydrology must
3. Eriophorum vaginatum		25		FACW	be present, unless disturbed or problematic.
4				-	
5	_				Plot size (radius, or length x width) 10m
6					% Cover of Wetland Bryophytes
7					(Where applicable)
8					Total Cover of Bryophytes
9					
10Total Cover:		0			Hydrophytic Vegetation
			of Total Cover:	8	Present? Yes \bullet No \bigcirc
Remarks:				<u>-</u>	

Depth	Matri	x		Red	ox Featu	res			
(inches)	Color (moist) %		Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-5								Fibric Organics	
5-11								Hemic Organics	
11-14								Sapric Organics	
·									
				,,					
Type: C=Con	centration D=Dep	oletion RI	M=Reduced	d Matrix ² Locatio	n: PL=P	ore Lining	RC=Root (Channel M=Matrix	
Hydric Soil	Indicators:			Indicators for	Problem	atic Hydri	c Soils: ³		
	or Histel (A1)			Alaska Color		4		Alaska Gleyed Without Hue	5Y or Redder
Histic Epi	pedon (A2)			Alaska Alpine				Underlying Layer	
	n Sulfide (A4)			Alaska Redo	With 2.5	5Y Hue		Uther (Explain in Remarks)	
_	rk Surface (A12)			³ One indicator	of hydrog	hytic veget	ation, one	primary indicator of wetland hyd	rology,
	eyed (A13)			and an appropr					
_	edox (A14) eyed Pores (A15)			⁴ Give details of	color cha	ange in Rer	narks		
						0			
	ayer (if present):						Hydric Soil Present?	Yes \bullet No \bigcirc
Depth (inc	tive layer (frozen)							Tryane Son Tresent.	
Remarks:	51037. 11								
Kernarks.									
IYDROLO	DGY drology Indicato								<i>(</i> , , , , , , , , , , , , , , , , , , ,
	ators (any one is s							Water Stained	ors (two or more are required)
	Water (A1)	sumcient)		Inundation	Vicible o	n Aorial Im			
	ter Table (A2)			Sparsely V					ospheres along Living Roots (C3)
	. ,			Marl Depos	-		inace (bo)		
									educed Iron (C4)
Saturatio	. ,								Reduced Iron (C4)
Saturation	arks (B1)			Hydrogen	Sulfide O	dor (C1)		Salt Deposits	(C5)
Saturation Water M. Sedimen	arks (B1) t Deposits (B2)			Hydrogen	Sulfide O Water T	dor (C1) able (C2)		Salt Deposits	(C5) ressed Plants (D1)
Saturation Water M Sedimen	arks (B1) t Deposits (B2) posits (B3)			Hydrogen	Sulfide O Water T	dor (C1) able (C2)		Salt Deposits Stunted or St Geomorphic F	(C5) ressed Plants (D1) Position (D2)
Saturatic Water M Sedimen Drift Dep	arks (B1) t Deposits (B2) posits (B3) t or Crust (B4)			Hydrogen	Sulfide O Water T	dor (C1) able (C2)		Salt Deposits Stunted or St Geomorphic F Shallow Aquit	(C5) ressed Plants (D1) Position (D2)
Saturatic Water M Sedimen Drift Dep Algal Ma	arks (B1) t Deposits (B2) posits (B3)			Hydrogen	Sulfide O Water T	dor (C1) able (C2)		Salt Deposits Stunted or St Geomorphic F Shallow Aquit	(C5) ressed Plants (D1) Position (D2) ard (D3) phic Relief (D4)
Saturatic Water M Sedimen Drift Dep Algal Ma Iron Dep Surface	arks (B1) t Deposits (B2) posits (B3) t or Crust (B4) posits (B5) Soil Cracks (B6)			Hydrogen	Sulfide O Water T	dor (C1) able (C2)		Salt Deposits Stunted or St Geomorphic F Shallow Aquit Microtopogra	(C5) ressed Plants (D1) Position (D2) ard (D3) phic Relief (D4)
Saturatic Water M Sedimen Drift Dep Algal Ma	arks (B1) t Deposits (B2) posits (B3) t or Crust (B4) posits (B5) Soil Cracks (B6) vations:	Yes 〇	No •	Hydrogen	Sulfide Oo n Water T Iain in Re	dor (C1) able (C2)		Salt Deposits Stunted or St Geomorphic F Shallow Aquit Microtopogra	(C5) ressed Plants (D1) Position (D2) ard (D3) phic Relief (D4)

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

Yes 💿 No 🔾

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Saturation Present?

(includes capillary fringe)

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Depth (inches): 7

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough Sampling Date: 26-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>	Sampling Point: CB_49
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.): <u>Flat</u>
Local relief (concave, convex, none): hummocky	_ Slope:% / ° Elevation:
Subregion : Northern Alaska Lat.:	<u>66.7935583333333</u> Long.: <u>-162.465163333333</u> Datum: <u>WGS84</u>
Soil Map Unit Name:	NWI classification: PEM1/SS1F
Are climatic/hydrologic conditions on the site typical for this time of ye	
Are Vegetation, Soil, or Hydrology significant	tly disturbed? Are "Normal Circumstances" present? Yes $ullet$ No $igodot$
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? Hydric Soil Present?	Yes 🖲 Yes 🖲	No O No O	Is the Sampled Area	Yes 💿 No 🔿	
Wetland Hydrology Present?	Yes 🖲	No O	within a Wetland?	res \bigcirc no \bigcirc	
Remarks: mosaic of HGWSS and sphagnum hummocks w SLOBE. High degree of interspersion, 65% wet sedge 35% sphagnum hummocks.					

Hummocks 1-2 ft above water surface. One caribou in community, goose scat.

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

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata: 4 (B)
3				
4				Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5				
Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover:	0 20% o	of Total Cover:	0	Total % Cover of: Multiply by:
1. Betula nana	7	\checkmark	FAC	OBL species <u>38</u> x 1 = <u>38</u>
2. Vaccinium uliginosum	7	\checkmark	FAC	FACW species $6 \times 2 = 12$
2. Andromeda nolifolia	2		FACW	FAC species 14.5 x 3 = 43.5
Chamaadanhna calvaulata	3		FACW	FACU species $0 \times 4 = 0$
	1		FACW	UPL species $0 \times 5 = 0$
0				Column Totals: <u>58.5</u> (A) <u>93.5</u> (B)
6				
7				Prevalence Index = $B/A = 1.598$
8				Hydrophytic Vegetation Indicators:
9				✓ Dominance Test is > 50%
10Total Cover:				✓ Prevalence Index is ≤3.0
	20	(Morphological Adaptations ¹ (Provide supporting
_Herb Stratum50% of Total Cover:1	LO 20% c	of Total Cover:	4	data in Remarks or on a separate sheet)
1 Pinguicula villosa	0.5		OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Eriophorum scheuchzeri	7		OBL	¹ Indicators of hydric soil and wetland hydrology must
Carex aquatilis	10	\checkmark	OBL	be present, unless disturbed or problematic.
4 Carex limosa	3		OBL	
5. Carex rotundata	7		OBL	Plot size (radius, or length x width) 10m
6. Eriophorum angustifolium	10	\checkmark	OBL	% Cover of Wetland Bryophytes
7. Spiranthes romanzoffiana	0.5		OBL	(Where applicable)
8. Tofieldia pusilla	0.5		FAC	% Bare Ground
9				Total Cover of Bryophytes
9 10				
TO:Total Cover:	38.5			Hydrophytic Vegetation
		of Total Cover:	7.7	Present? Yes \bullet No \bigcirc
Remarks: caraqu as collected earlier - yellow-green				

US Army Corps of Engineers

	ription: Describe to Matrix	depth neede		e preseno ox Featur		ence of ind	dicators	
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
(110103)		/0					Texture	Komurks
· ·	······································		,,					
, ,								
1 _T 0 0 0 m	centration D=Depletion	DM Dodu	21 a contin		- Uning			
51		DN KIVI=Reduc			5		nannei M=Matrix	
Hydric Soil			Indicators for		4	ic Soils:	_	
	or Histel (A1)		Alaska Color				Alaska Gleyed V Underlying Laye	Nithout Hue 5Y or Redder
	pedon (A2)		Alaska Alpine				✓ Other (Explain i	
	Sulfide (A4)		Alaska Redo	K WITH 2.5	Y Hue			
	k Surface (A12)						primary indicator of	wetland hydrology,
	eyed (A13) edox (A14)		and an appropr					
	eyed Pores (A15)		⁴ Give details of	color cha	inge in Rei	marks		
	<u> </u>				·			
	ayer (if present):						Hydric Soil Pro	esent? Yes \bullet No \bigcirc
Type: Depth (inc	haa).							
	nes).							
Remarks:								
assume hydric	soil due to hydrophyt	ic vegetation a	and standing water					
HYDROLO	DGY							
2	Irology Indicators:							dary Indicators (two or more are required)
·	ators (any one is suffic	cient)					_	Vater Stained Leaves (B9)
Surface \						nagery (B7)	_	Drainage Patterns (B10)
	ter Table (A2)		Sparsely Ve	0	Concave S	urface (B8)	_	Oxidized Rhizospheres along Living Roots (C3)
Saturatio			Marl Depos				_	resence of Reduced Iron (C4)
Water Ma	. ,		Hydrogen S				_	alt Deposits (C5)
	t Deposits (B2)		Dry-Seasor				_	tunted or Stressed Plants (D1)
	osits (B3)		Other (Exp	lain in Rer	marks)		_	Geomorphic Position (D2)
	t or Crust (B4)						_	hallow Aquitard (D3)
·	osits (B5)							Acrosofted Test (D5)
Surface S	Soil Cracks (B6)						▼ F/	AC-neutral Test (D5)

Saturation Present?

Yes 💿 No 🔾	Depth (inches): 6			
Yes 🔾 No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲	No \bigcirc
Yes 🔾 No 🖲	Depth (inches):			

(includes capillary fringe) **Tes NO Depth** (incres): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 2	6-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_50
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): hummocky	_ Slope:% /° Elevation:35		
Subregion : Northern Alaska Lat.:	<u>66.79211166666667</u> Long.: <u>-162.4645666</u>	<u>666667</u> Datum	n: WGS84
Soil Map Unit Name:	NWI class	ification: PSS1B	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present?	Yes 🔍 No 🤇	\bigcirc	Is the Sampled Area		
Hydric Soil Present?	Yes 🔍 No 🤇	C	•	Yes \bullet No \bigcirc	
Wetland Hydrology Present?	Yes 🔍 No 🤇	C	within a Wetland?		
Pemarks: UCMSS Devicementally sphagnum hummasks w small paskets of wat codes. Overall, estimate 200/ UCWST and 200/ SDEV on sphagnum					

emarks: HGMSS. Predominantly sphagnum hummocks w small pockets of wet sedge. Overall, estimate 20% HGWST and 80% SDEV on sphagnum hummocks. Consider water modifier B - majority of community wouldn't flood, and we're seeing high water during site visit.

		Absolu	te Dominant	Indicator	Dominance Test worksheet:
Tree Stratum		% Cov	er Species?	Status	Number of Dominant Species
1		<u>.</u>			That are OBL, FACW, or FAC:6(A)
2.		<u>.</u>	- Ц		Total Number of Dominant
3			. Ц		Species Across All Strata:6(B)
4.			- <u> </u>		Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5					
0.	Total Cover:	0	_		Prevalence Index worksheet:
Sapling/Shrub Stratum 509	% of Total Cover:	0 20	% of Total Cover:	0	Total % Cover of: Multiply by:
1 Betula nana		10	\checkmark	FAC	OBL species <u>19</u> x 1 = <u>19</u>
2. Empetrum nigrum		7		FAC	FACW species 20 x 2 = 40
2		7		FACW	FAC species 27 x 3 = 81
		10		FAC	FACU species $0 \times 4 = 0$
		5		FACW	UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
o Salix fuscoscons		3		FACW	Column Totals: <u>66</u> (A) <u>140</u> (B)
		1		OBL	
8. Andromeda polifolia		2		FACW	Prevalence Index = B/A =
0					Hydrophytic Vegetation Indicators:
					✓ Dominance Test is > 50%
10	Total Cover:	45			✓ Prevalence Index is ≤3.0
50			– % of Total Cover:	9	Morphological Adaptations ¹ (Provide supporting
<u>Herb Stratum</u>		2.5 20			data in Remarks or on a separate sheet)
1. Carex aquatilis		7		OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Carex limosa		1		OBL	¹ Indicators of hydric soil and wetland hydrology must
3. Eriophorum scheuchzeri		10	\checkmark	OBL	be present, unless disturbed or problematic.
4. Eriophorum vaginatum		3		FACW	
5					Plot size (radius, or length x width) 10m
6					% Cover of Wetland Bryophytes
7					(Where applicable)
8			_		% Bare Ground 10
9					Total Cover of Bryophytes 85
10					Hydrophytic
	Total Cover:	21	_		Vegetation
50%	% of Total Cover: 10	0.5 20	% of Total Cover:	4.2	Present? Yes • No
Remarks: bar ground includes open v	vater. 1% Pedicularis	sp.			·

Depth (inches)	Matrix		Red	ox Featur	es			
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-2							Fibric Organics	
2-12							Hemic Organics	
			·		ı			
			,					
Type: C=Concen	tration D=Deplet	ion RM=R	educed Matrix ² Locatio		re Linina	RC=Root C		
Hydric Soil Ind			Indicators for					
Histosol or H			🗌 Alaska Color		4		Alaska Gleyed Without Hu	e 5Y or Redder
 Histic Epiped 			🗌 Alaska Alpine	swales (1	TA5)		Underlying Layer	
🗌 Hydrogen Su	lfide (A4)		Alaska Redox	(With 2.5)	Y Hue		Other (Explain in Remarks)
Thick Dark S	urface (A12)		30.000					
Alaska Gleye	d (A13)		³ One indicator and an appropr	of hydropi	nytic veget cape positi	ation, one on must be	primary indicator of wetland hy	drology,
Alaska Redox	(A14)						o prosoni	
Alaska Gleye	d Pores (A15)		⁴ Give details of	color cha	nge in Ren	narks		
Restrictive Laye	er (if present):							
Type: active							Hydric Soil Present?	Yes 🔍 No 🔾
Depth (inches): 12							
Remarks:								
	v							
	Y ogy Indicators:						_Secondary Indica	ators (two or more are required)
Vetland Hydrol								ators (two or more are required) ed Leaves (B9)
Wetland Hydrol	ogy Indicators: (any one is suffi		Inundation	Visible on	Aerial Im	agery (B7)	Water Stain	ed Leaves (B9)
Vetland Hydrol Primary Indicator Surface Wate	ogy Indicators: (any one is suffi er (A1)		Inundation				Water Stain	ed Leaves (B9)
Vetland Hydrol Primary Indicator Surface Wate High Water	ogy Indicators: s (any one is suffi er (A1) Table (A2)			egetated C			Under Stain Under Stain Drainage Pa	ed Leaves (B9) tterns (B10)
Vetland Hydrol Primary Indicator Surface Wate High Water	ogy Indicators: <u>s (any one is suffi</u> er (A1) Table (A2) A3)		Sparsely V Marl Depos	egetated (sits (B15)	Concave Su		Under Stain Under Stain Drainage Pa	ed Leaves (B9) tterns (B10) izospheres along Living Roots (C3 Reduced Iron (C4)
Vetland Hydrol Primary Indicator Surface Wate High Water	ogy Indicators: <u>s (any one is suffi</u> er (A1) Table (A2) A3) (B1)		Sparsely V	egetated (sits (B15) Sulfide Od	Concave Su or (C1)		Water Stain Crainage Pa Crain	ed Leaves (B9) tterns (B10) izospheres along Living Roots (C3 Reduced Iron (C4)
Wetland Hydrol Primary Indicator Surface Wate High Water Saturation (/ Water Marks	ogy Indicators: <u>s (any one is suffi</u> er (A1) Table (A2) A3) (B1) eposits (B2)		Sparsely V Marl Depos Hydrogen Dry-Seasor	egetated (sits (B15) Sulfide Od n Water Ta	Concave Su or (C1) able (C2)		Water Stain Water Stain Drainage Pa Oxidized Rh Presence of Salt Deposit Stunted or S	ed Leaves (B9) tterns (B10) izospheres along Living Roots (C3 Reduced Iron (C4) s (C5)
Wetland Hydrol Primary Indicator Surface Wate Image: Surface Wate High Water Saturation (J Water Marks Sediment Deciment Deciment Deciment	ogy Indicators: s (any one is suffi er (A1) Table (A2) A3) (B1) eposits (B2) s (B3)		Sparsely V Marl Depos	egetated (sits (B15) Sulfide Od n Water Ta	Concave Su or (C1) able (C2)		Water Stain Water Stain Drainage Pa Oxidized Rh Presence of Salt Deposit Stunted or S	ed Leaves (B9) tterns (B10) izospheres along Living Roots (C3 Reduced Iron (C4) s (C5) Stressed Plants (D1) Position (D2)
Wetland Hydrol Primary Indicator Surface Wate ✓ High Water ✓ Saturation (/ Water Marks Sediment De Drift Deposit	ogy Indicators: s (any one is suffi er (A1) Table (A2) A3) (B1) eposits (B2) s (B3) Crust (B4)		Sparsely V Marl Depos Hydrogen Dry-Seasor	egetated (sits (B15) Sulfide Od n Water Ta	Concave Su or (C1) able (C2)		Water Stain Drainage Pa Oxidized Rh Oxidized Rh Presence of Salt Deposit Stunted or S Geomorphic V Shallow Aqu	ed Leaves (B9) tterns (B10) izospheres along Living Roots (C3 Reduced Iron (C4) s (C5) Stressed Plants (D1) Position (D2)
Wetland Hydrol Primary Indicator Surface Wat Image: High Water Saturation (/ Water Marks Sediment Def Drift Deposit Algal Mat or	ogy Indicators: <u>s</u> (any one is suffi er (A1) Table (A2) A3) (B1) eposits (B2) s (B3) Crust (B4) s (B5)		Sparsely V Marl Depos Hydrogen Dry-Seasor	egetated (sits (B15) Sulfide Od n Water Ta	Concave Su or (C1) able (C2)		Water Stain Drainage Pa Oxidized Rh Oxidized Rh Presence of Salt Deposit Stunted or S Geomorphic V Shallow Aqu	ed Leaves (B9) tterns (B10) izospheres along Living Roots (C3 Reduced Iron (C4) s (C5) Stressed Plants (D1) Position (D2) itard (D3) aphic Relief (D4)
Wetland Hydrol Primary Indicator Surface Wat ✓ High Water ✓ Saturation (/ ✓ Saturation (/ ✓ Badumation Decommons ○ Drift Deposit ○ Iron Deposit ○ Surface Soil	ogy Indicators: <u>s (any one is suffi</u> er (A1) Table (A2) A3) (B1) eposits (B2) s (B3) Crust (B4) s (B5) Cracks (B6)		Sparsely V Marl Depos Hydrogen Dry-Seasor	egetated (sits (B15) Sulfide Od n Water Ta	Concave Su or (C1) able (C2)		□ Water Stain □ Drainage Pa □ Oxidized Rh □ Presence of □ Salt Deposit □ Stunted or S □ Geomorphic ☑ Shallow Aqu □ Microtopogr	ed Leaves (B9) tterns (B10) izospheres along Living Roots (C3 Reduced Iron (C4) s (C5) Stressed Plants (D1) Position (D2) itard (D3) aphic Relief (D4)
Primary Indicator Surface Water High Water Saturation (/ Water Marks Sediment De Drift Deposit Algal Mat or Iron Deposit	ogy Indicators: <u>s (any one is suffi</u> er (A1) Table (A2) A3) (B1) eposits (B2) s (B3) Crust (B4) s (B5) Cracks (B6) ons:	icient)	Sparsely V Marl Depos Hydrogen Dry-Seasor	egetated C sits (B15) Sulfide Od n Water Ta Iain in Rer	Concave Su or (C1) able (C2)		□ Water Stain □ Drainage Pa □ Oxidized Rh □ Presence of □ Salt Deposit □ Stunted or S □ Geomorphic ☑ Shallow Aqu □ Microtopogr	ed Leaves (B9) tterns (B10) izospheres along Living Roots (C3 Reduced Iron (C4) s (C5) Stressed Plants (D1) Position (D2) itard (D3) aphic Relief (D4)

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

Yes 💿 No 🔿

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Saturation Present?

(includes capillary fringe)

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Depth (inches): 1

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 27-	Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_51
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): tussocks	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>20</u>		
Subregion : Northern Alaska Lat.:	<u>66.7437433333333</u> Long.: <u>-162.433846</u>	666667 Datum:	WGS84
Soil Map Unit Name:	NWI class	ification: PSS1B	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🔍	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc	
Remarks: HGMSS no obvious patterning. Tussock microtopo and gentle gradations from wetter to drier.					

	Abs	solute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	%	Cover	Species?	Status	Number of Dominant Species
1					That are OBL, FACW, or FAC:5_ (A)
2					Total Number of Dominant
3					Species Across All Strata:5 (B)
4.					Percent of dominant Species
5					That Are OBL, FACW, or FAC:100.0% (A/B)
5. Total Cover:	: -	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover:	0	20% o	f Total Cover:	0	Total % Cover of: Multiply by:
1 Betula nana		20	\checkmark	FAC	OBL species <u>11</u> x 1 = <u>11</u>
2. Ledum decumbens		7		FACW	FACW species x 2 =44
3. Vaccinium vitis-idaea		7		FAC	FAC speciles $59 \times 3 = 177$
4 Empetrum nigrum		7		FAC	FACU species $0 \times 4 = 0$
5. Vaccinium uliginosum		15	\checkmark	FAC	UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
6. Andromeda polifolia	_	5		FACW	Column Totals: <u>92</u> (A) <u>232</u> (B)
7. Salix fuscescens		2		FACW	Prevalence Index = $B/A = 2.522$
8. Vaccinium oxycoccos	_	1		OBL	
9	_				Hydrophytic Vegetation Indicators:
10					✓ Dominance Test is > 50%
Total Cover:		64			✓ Prevalence Index is ≤3.0
_Herb Stratum50% of Total Cover:	32	20% c	of Total Cover:	12.8	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1. Rubus chamaemorus	_	1		FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Carex aquatilis	_	10	\checkmark	OBL	¹ Indicators of hydric soil and wetland hydrology must
3. Eriophorum vaginatum	_	7	\checkmark	FACW	be present, unless disturbed or problematic.
4. Carex bigelowii		10	\checkmark	FAC	
5	_				Plot size (radius, or length x width) 10m
6.					% Cover of Wetland Bryophytes
7					(Where applicable)
8					% Bare Ground 5
9					Total Cover of Bryophytes 70
10	. –				Hydrophytic
Total Cover:	:	28			Vegetation
50% of Total Cover:	14	20% o	f Total Cover:	5.6	Present? Yes \bullet No \bigcirc
Remarks: 20% lichen cover					

Depth Matrix		Redo	ox Feature	es			
Depth Matrix (inches) Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-6	100					Fibric Organics	
6-11	100	p				Hemic Organics	
11-16 2.5Y 3/1	100					Silty Clay Loam	. *
		,,					
¹ Type: C=Concentration D=Depletion	n RM=Redu	Indicators for I				Channel M=Matrix	
Hydric Soil Indicators: Histosol or Histel (A1)		Alaska Color		4	c Solis:	Alaska Gleyed Withou	ut Huo EV or Poddor
Histic Epipedon (A2)		Alaska ebior	0.			Underlying Layer	at flue 51 of Redder
Hydrogen Sulfide (A4)		Alaska Redox	With 2.5Y	' Hue		Other (Explain in Rer	marks)
Thick Dark Surface (A12)		³ One indicator	of hydroph	vtic veae	tation, one	primary indicator of wetla	nd hydrology.
Alaska Gleyed (A13)		and an appropri					
Alaska Gleyed Pores (A15)		⁴ Give details of	color chan	ige in Rer	marks		
Restrictive Layer (if present):							
Type: active layer (frozen), si cl l	0					Hydric Soil Presen	t? Yes 🖲 No 🔿
Depth (inches): 16, 11							
Remarks:							
HYDROLOGY Wetland Hydrology Indicators:						Secondary	Indicators (two or more are required)
Primary Indicators (any one is sufficient	ent)						Stained Leaves (B9)
Surface Water (A1)		Inundation	Visible on	Aerial Im	agery (B7)		ge Patterns (B10)
✓ High Water Table (A2)		Sparsely Ve					ed Rhizospheres along Living Roots (C3)
Saturation (A3)		Marl Depos	-	oncave o			ce of Reduced Iron (C4)
Water Marks (B1)		Hydrogen S		or (C1)		_	eposits (C5)
Sediment Deposits (B2)		Dry-Seasor					d or Stressed Plants (D1)
Drift Deposits (B3)		Other (Exp					prphic Position (D2)
Algal Mat or Crust (B4)				Idi KS)			v Aquitard (D3)
Iron Deposits (B5)							ppographic Relief (D4)
Surface Soil Cracks (B6)							eutral Test (D5)
Field Observations: Surface Water Present? Yes		Depth (incl	haa).				

 Water Table Present?
 Yes
 No
 Depth (inches): 10
 Wetland Hydrology Present?

 Saturation Present? (includes capillary fringe)
 Yes
 No
 Depth (inches): 4
 Wetland Hydrology Present?

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No \bigcirc

Yes 🖲

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough Sa	mpling Date: 27-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point: CB_52
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.): Fla	at
Local relief (concave, convex, none): <u></u>	_ Slope:% / ° Elevation:	
Subregion : Northern Alaska Lat.:	<u>66.7297133333333</u> Long.: <u>-162.421763333</u>	333 Datum: WGS84
Soil Map Unit Name:	NWI classifica	ation: PSS1/EM1B
Are climatic/hydrologic conditions on the site typical for this time of yo	ear? Yes ONO (If no, explain in Re tly disturbed? Are "Normal Circumstances" pres	
	problematic? (If needed, explain any answers	Sont.

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present?	Yes 🖲	No 🔿	Is the Sampled Area		
Hydric Soil Present?	Yes 🖲	No O	within a Wetland?	Yes 🖲 No 🔾	
Wetland Hydrology Present?	Yes 🖲	No 🔾	within a wetland?		
Remarks: HCMSS High center polys at coast. Characterizing poly centers, soil nit ca 30ft from hluff. Looks like heavy ATV use and likely ice/wind					

arks: HGMSS. High center polys at coast. Characterizing poly centers, soil pit ca 30ft from bluff. Looks like heavy ATV use and likely ice/wind scour, all poly tops damaged. Standing water in poly troughs (see CB_53).

			Ab	solute	Dominant	Indicator	Dominance Test worksheet:
	ee Stratum		%	Cover	Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC: 7 (A)
			-				Total Number of Dominant Species Across All Strata: 7 (B)
							Percent of dominant Species
			-				That Are OBL, FACW, or FAC:100.0% (A/B)
5.		Total Cover:	_	0			Prevalence Index worksheet:
Sap	ling/Shrub Stratum	50% of Total Cover:	0	20% c	of Total Cover:	0	Total % Cover of: Multiply by:
1.	Betula nana		_	10	\checkmark	FAC	0BL species x 1 =
2.	Vaccinium uliginosum			10	\checkmark	FAC	FACW species 15 x 2 = 30
3.	Empotrum planum		_	20	\checkmark	FAC	FAC species45_ x 3 =135
4.	Ledum decumbens		_	10	\checkmark	FACW	FACU species $1 \times 4 = 4$
5.	Vaccinium vitis-idaea		-	5		FAC	UPL species $0 \times 5 = 0$
6.	Arctostaphylos alpina		-	1		FACU	Column Totals: <u>61</u> (A) <u>169</u> (B)
7.			-				Prevalence Index = $B/A = 2.770$
8.			-				
9.			-				Hydrophytic Vegetation Indicators: ✓ Dominance Test is > 50%
10.			-				$\checkmark \text{ Prevalence Index is } 30.0$
		Total Cover:	_	56			
<u>_H</u>	erb Stratum	50% of Total Cover:	28	_ 20% (of Total Cover:		Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1.	Rubus chamaemorus			2		FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Arctagrostis latifolia			1		FACW	¹ Indicators of hydric soil and wetland hydrology must
3.	Eriophorum vaginatum			2		FACW	be present, unless disturbed or problematic.
4.			-				
5.			-				Plot size (radius, or length x width) 10m
6.							% Cover of Wetland Bryophytes
7.			-				(Where applicable)
8.							% Bare Ground 60
•••							Total Cover of Bryophytes _0
10.			-				Hydrophytic
		Total Cover : 50% of Total Cover:	2.5	5 20% (of Total Cover:	1	Vegetation Present? Yes • No O
		p		_			
Rem	arks: crushed tusdocks from	n ATV traffic stressed ven	etati	ion he	er cans and be	ottle cans	ca 35% lichen cover

Depth	Matrix		Redo	ox Featu				
(inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	e Remarks
0-18							Hemic Organics	varying degrees of decomposition
						·		
·					·	·		
Type: C=Con	ncentration D=Depletion	n RM=Redu					Channel M=Matrix	
Hydrogen Hydrogen Hydrogen Alaska Glu Alaska Re Alaska Glu Restrictive L	or Histel (A1) ipedon (A2) n Sulfide (A4) rk Surface (A12) leyed (A13) edox (A14) leyed Pores (A15) Layer (if present):		Indicators for F Alaska Color (Alaska Alpine Alaska Redox One indicator of and an appropri Give details of	Change (e swales (< With 2.5 of hydrop iate lands	(TA4) (TA5) 5Y Hue phytic vege Iscape posit	etation, one tion must b	Underlying La	of wetland hydrology,
Type: act Depth (inc	tive layer (frozen) ches): 18							
Remarks:								
HYDROLC								
	drology Indicators:						Sec	condary Indicators (two or more are required)
Surface V	. ,	<u>ent)</u>	Inundation Sparsely Ve Marl Depos Hydrogen S	egetated sits (B15)	Concave S)	0 5	·	Water Stained Leaves (B9) Drainage Patterns (B10) Oxidized Rhizospheres along Living Roots (C3) Presence of Reduced Iron (C4) Salt Deposits (C5)
Drift Dep	nt Deposits (B2) posits (B3) nt or Crust (B4) posits (B5)		Dry-Season	n Water T	Table (C2)			Stunted or Stressed Plants (D1) Geomorphic Position (D2) Shallow Aquitard (D3) Microtopographic Relief (D4)

Surface Soil Cracks (B6)			✓ FAC-neutral Test (D5)
Field Observations:			
Surface Water Present?	Yes 🔾 🛛 No 🖲	Depth (inches):	

Depth (inches):

Depth (inches):

Wetland Hydrology Present?	Yes 🖲	No O
wettand right blogy riesent.		100 \bigcirc

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

Yes 🔘 No 🖲

Yes 🔿 No 🖲

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

(includes capillary fringe)

Water Table Present?

Saturation Present?

no saturation, but site does have two secondary hydrology indicators. Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough	Sampling Date:	27-Aug-12
Applicant/Owner: _Baker/ADOT&PF		Sampling Point:	CB_53
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.)	Flat	
Local relief (concave, convex, none): <u></u>	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>15</u>		
Subregion : Northern Alaska	.at.: <u>66.7297983333333</u> Long.: <u>-162.421735</u>	j Datu	m: WGS84
Soil Map Unit Name:	NWI class	sification: PSS1/EM1E	}
	of year? Yes No (If no, explain i icantly disturbed? Are "Normal Circumstances" ally problematic? (If needed, explain any answ	present? Yes •	No O
	owing compling point locations, trans	anto incontoni

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \odot No \bigcirc
Remarks: poly trough, HGMSS				

	Absolute Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u>	<u>% Cover Species?</u>	Status	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A)
2			Total Number of Dominant Species Across All Strata:(B)
3 4			Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5Total Cover:	0		Prevalence Index worksheet:
	0 20% of Total Cover:	0	Total % Cover of: Multiply by:
			OBL species x 1 =
1			FACW species x 2 =
2			FAC species x 3 =
3			FACU species $0 \times 4 = 0$
4			UPL species $0 \times 5 = 0$
5			
6			Column Totals: <u>7</u> (A) <u>7</u> (B)
7			Prevalence Index = $B/A = 1.000$
8			Hydrophytic Vegetation Indicators:
9			✓ Dominance Test is > 50%
10			✓ Prevalence Index is ≤3.0
Total Cover:		0	Morphological Adaptations ¹ (Provide supporting
_Herb Stratum50% of Total Cover:	0 20% of Total Cover:	0	data in Remarks or on a separate sheet)
1. Carex aquatilis	5	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2 Eriophorum scheuchzeri	2	OBL	¹ Indicators of hydric soil and wetland hydrology must
3.			be present, unless disturbed or problematic.
4			
5			Plot size (radius, or length x width) 2m
6			% Cover of Wetland Bryophytes
7			(Where applicable)
8			% Bare Ground 98
9			Total Cover of Bryophytes 0
10			
Total Cover:	7		Hydrophytic Vegetation
50% of Total Cover: 3.	.5 20% of Total Cover:	1.4	Present? Yes • No
Remarks:			·

	ription: Describe to Matrix	depth need		e presen ox Featu		ence of ind	dicators	
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
(11101100)					1,100			Kondrks
	·							
					· ·			
¹ Type: C=Cor	ncentration D=Depletion	on RM=Redu					Channel M=Matrix	
Hydric Soil	Indicators:		Indicators for			ic Soils: ³		
Histosol	or Histel (A1)		🗌 Alaska Color	Change (TA4)		Alaska Gleyed With	out Hue 5Y or Redder
Histic Ep	ipedon (A2)		Alaska Alpine	swales (TA5)		Underlying Layer	
Hydroge	n Sulfide (A4)		Alaska Redox	With 2.5	iY Hue		✓ Other (Explain in R	emarks)
Thick Da	rk Surface (A12)		3 On a indiantar	- 6	h			
Alaska G	leyed (A13)		and an appropr				primary indicator of wet present	land hydrology,
Alaska R	edox (A14)				• •			
🗌 Alaska G	leyed Pores (A15)		⁴ Give details of	color cha	inge in Rei	marks		
Restrictive I	Layer (if present):							
Type:							Hydric Soil Prese	nt? Yes 🖲 No 🔾
Depth (in	ches):							
Remarks:								
assume hydrie	c soil due to hydrophyt	ic vegetation	and standing water					
HYDROL								
	drology Indicators:	iont)						y Indicators (two or more are required)
·	cators (any one is suffic	lient)				()		er Stained Leaves (B9)
	Water (A1)							hage Patterns (B10)
	iter Table (A2)		Sparsely Ve	•	Concave S	urface (B8)		ized Rhizospheres along Living Roots (C3)
Saturatio	on (A3) Iarks (B1)		Marl Depos		lor (01)		_	ence of Reduced Iron (C4) Deposits (C5)
	iarks (BT) nt Deposits (B2)		Hydrogen S				_	ted or Stressed Plants (D1)
_	posits (B3)		Dry-Seasor				_	norphic Position (D2)
	it or Crust (B4)		U Other (Exp	iain in Re	marks)		_	ow Aquitard (D3)
	posits (B5)						_	ow Aquitard (D3) otopographic Relief (D4)
	Soil Cracks (B6)						_	neutral Test (D5)
	JUII CI dUKS (DO)					1	I FAC-	

Field Observations: Surface Water Present?

Surface Water Present?	Yes 🖲	No \bigcirc	Depth (inches): 8		
Water Table Present?	$_{ m Yes}$ \bigcirc	No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲
Saturation Present?	$_{ m Yes}$ \bigcirc	No 🖲	Depth (inches):		

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No 🔿

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough	Sampling Date:	27-Aug-12
Applicant/Owner: _Baker/ADOT&PF		Sampling Point:	CB_54
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): hummocky			
Subregion : Northern Alaska Lat.	: <u>66.7474233333333</u> Long.: <u>-162.438848</u>	333333 Datu	m: WGS84
Soil Map Unit Name:	NWI class	sification: <u>PEM1/SS1E</u>	
	year? Yes No (If no, explain in ntly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O
			_

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \odot No \bigcirc
Remarks: generally level. commo HGWSWT	on low, subt	tle sphagnum hummocks with	shrubby vegetation. sc	il pit on hummock, low areas w standing water.

		Absolute	e Dominant	Indicator	Dominance Test worksheet:
Tree Stratum		% Cove	r Species?	Status	Number of Dominant Species
1					That are OBL, FACW, or FAC: (A)
2					Total Number of Dominant Species Across All Strata: 4 (B)
3					
4					Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5					
	Total Cover:				Prevalence Index worksheet: Total % Cover of: Multiply by:
Sapling/Shrub Stratum	50% of Total Cover:	0 20%	of Total Cover:	0	
1. Betula nana		10	\checkmark	FAC	
2. Salix fuscescens		1		FACW	FACW species 13.5 x 2 = 27
3. Salix pulchra		5	\checkmark	FACW	FAC species $22 \times 3 = 66$
4. Andromeda polifolia		1		FACW	FACU species $0 \times 4 = 0$
5. Chamaedaphne calyculata		3		FACW	UPL species $-\frac{0}{x 5} = -\frac{0}{-x 5}$
6. Vaccinium oxycoccos		1		OBL	Column Totals: <u>57.5</u> (A) <u>115</u> (B)
7. Ledum decumbens		2		FACW	Prevalence Index = $B/A = 2.000$
8. Empetrum nigrum		2		FAC	
9					Hydrophytic Vegetation Indicators:
10.					✓ Dominance Test is > 50%
	Total Cover:	25			✓ Prevalence Index is ≤3.0
Hank Stratum	50% of Total Cover: 12	2.5 20%	of Total Cover:	5	Morphological Adaptations ¹ (Provide supporting
Herb Stratum		5		OBL	data in Remarks or on a separate sheet)
1. Carex limosa		10		FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Calamagrostis canadensis		10	 ✓ 	OBL	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
3. Eriophorum scheuchzeri		-10		OBL	be present, unless disturbed of problematic.
4.		1		FACW	
J		0.5		FACW	Plot size (radius, or length x width) <u>10m</u>
0		5		OBL	% Cover of Wetland Bryophytes (Where applicable)
/				002	
8					% Bare Ground <u>7</u> Total Cover of Bryophytes 90
9					
10	Total Cover:	32.5			Hydrophytic
	50% of Total Cover: 16		of Total Cover:	6.5	Vegetation Present? Yes • No O
Remarks: Sphagnum					

Color (moist) % Color (moist) % Type Loc² Textre Remarks 0-10	Depth Matrix		Rede	ox Featu	ires						
0-10 Fibric Organics 10-12 Hemic Organics 10-12 Hemic Organics			%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks		
*Type: C=Concentration D=Depletion RM=Reduced Matrix *Location: PL=Pore Lining RC=Root Channel M=Matrix *Type: C=Concentration D=Depletion RM=Reduced Matrix *Location: PL=Pore Lining RC=Root Channel M=Matrix Hydric Soil Indicators: Indicators for Problematic Hydric Soils. ² Histosol or Histel (A1) Alaska Color Change (TA4) Histosol or Histel (A1) Alaska Redox With 2.5Y Hue Other (Explain in Remarks) Other (Explain in Remarks) Thick Dark Surface (A12) ³ One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present Alaska Gleyed Pores (A15) ⁴ Give details of color change in Remarks Restrictive Layer (frozen): Type: active layer (frozen) Type: active layer (frozen) Hydric Soil Present? Yes No O Depth (inches): 12 Inundation Visible on Aerial Imagery (B7) Surface Water (A1) Inundation Visible on Aerial Imagery (B7) Surface Water (A1) Sasarsely Vegetated Concave Surface (B8) Water Marks (B1) Hydrogon Suffice Ondor (C1) Saturation (A3) Inundation Visible on Aerial Imagery (B7) Saturation (A3) Hydrogon Suffice Ondor (C1) Saturation (A3) Hydrogon Suffice Ondor (C1) Saturation (A3)	0-10							Fibric Organics			
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Remarks: HYDROLOGY Wetland Hydrology Indicators:		3									
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				☐ Other (Exp	iain in Re	emarks)					
□ Iron Deposits (B5) □ Microtopographic Relief (D4) □ Surface Soil Cracks (B6) ☑ FAC-neutral Test (D5)								_			

Field Observations:				
Surface Water Present?	Yes 🔾 No 🖲	Depth (inches):		
Water Table Present?	Yes 🖲 No 🔾	Depth (inches): 4	Wetland Hydrology Present?	Yes
Saturation Present? (includes capillary fringe)	Yes \bullet No \bigcirc	Depth (inches): 2		

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

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No \bigcirc

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 27	7-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_55
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Swale	
Local relief (concave, convex, none): <u>concave</u>	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>25</u>		
Subregion : Northern Alaska	at.: <u>66.748195</u> Long.: <u>-162.434628</u>	3333333 Datum	: WGS84
Soil Map Unit Name:	NWI class	sification: PEM1E	
	of year? Yes O No O (If no, explain i cantly disturbed? Are "Normal Circumstances" ally problematic? (If needed, explain any answ	present? Yes 🔍	No 〇
			<i>~</i> .

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: hgwst				

		Abs	olute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum		% (Cover	Species?	Status	Number of Dominant Species
1						That are OBL, FACW, or FAC:5_ (A)
2		-				Total Number of Dominant
3		_				Species Across All Strata:5_(B)
4		_				Percent of dominant Species That Are OBL_EACW_or_EAC: 100.0% (A/B)
5		_				That Are OBL, FACW, or FAC:(A/B)
0.	Total Cover:		0			Prevalence Index worksheet:
Sapling/Shrub Stratum	50% of Total Cover:	0	20% o	f Total Cover:	0	Total % Cover of: Multiply by:
1 Andromeda polifolia			1		FACW	OBL species <u>45</u> x 1 = <u>45</u>
a Cally and has			3	\checkmark	FACW	FACW species $6 \times 2 = 12$
2			2	\checkmark	FACW	FAC speciles $10 \times 3 = 30$
C		_	3		FAC	FACU species $0 \times 4 = 0$
т.		_	0			UPL species $-\frac{0}{x 5} = -\frac{0}{-x 5}$
5						
6		_				Column Totals: <u>61</u> (A) <u>87</u> (B)
7		-				Prevalence Index = $B/A = 1.426$
8		-				Hydrophytic Vegetation Indicators:
9		_				\checkmark Dominance Test is > 50%
10		_				✓ Prevalence Index is ≤ 3.0
	Total Cover:		9			
Herb Stratum	50% of Total Cover:	1.5	20% c	of Total Cover:	1.8	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1 Eriophorum angustifolium			15	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
			10		OBL	
		_	15	\checkmark	OBL	Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
J			7		FAC	
4		-	5		OBL	
5. <u> </u>		_				Plot size (radius, or length x width) <u>10m</u>
6		_				% Cover of Wetland Bryophytes (Where applicable)
7		_				
8		-				% Bare Ground <u>55</u>
9		-				Total Cover of Bryophytes 40
10		-				Hydrophytic
	Total Cover:		52	f Total Causer	10.4	Vegetation Present? Yes • No O
	50% of Total Cover:	26	20% 0	f Total Cover:	10.4	Present? Yes \bullet No \bigcirc
Remarks: shrub cover decreases	s toward bank, submerged	spha	anum	likely undere	estimate b	rvophyte cover.

Depth <u>Matrix</u>			ox Featu		1 2	T	De me antre
(inches) Color (moist)	% Colo	or (moist)	_%	Туре	Loc ²	Texture	e Remarks
					-		
					-		
						-	
Type: C=Concentration D=Depletion	n RM=Reduced Ma	trix ² Locatio	n: PL=Pc	ore Lining	RC=Root	Channel M=Matrix	(
Hydric Soil Indicators:	Inc	dicators for	Problema	atic Hvdr	ic Soils: ³		
Histosol or Histel (A1)		Alaska Color				Alaska Gleve	ed Without Hue 5Y or Redder
Histic Epipedon (A2)		Alaska Alpine				Underlying L	
Hydrogen Sulfide (A4)		Alaska Redox				V Other (Expla	iin in Remarks)
Thick Dark Surface (A12)							
Alaska Gleyed (A13)							of wetland hydrology,
Alaska Redox (A14)	an	nd an appropr	late lands	cape posit	ion must d	e present	
Alaska Gleyed Pores (A15)	4 (Give details of	color cha	nge in Rei	marks		
Restrictive Layer (if present):							
Type:						Hydric Soil	Present? Yes 🖲 No 🔿
Depth (inches):							
Remarks:							
	vogetation and sta	nding water					
assume hydric soil due to hydrophytic	vegetation and sta	nuing water					
IYDROLOGY							
						Se	condary Indicators (two or more are required)
Wetland Hydrology Indicators:							
Wetland Hydrology Indicators: Primary Indicators (any one is sufficie	ent)						Water Stained Leaves (B9)
	ent)	Inundation	Visible or	n Aerial Im	agery (B7)	L	Water Stained Leaves (B9) Drainage Patterns (B10)
Primary Indicators (any one is sufficie Surface Water (A1) High Water Table (A2)	ent)	Inundation				_	Drainage Patterns (B10) Oxidized Rhizospheres along Living Roots (C3)
Primary Indicators (any one is sufficient Surface Water (A1) High Water Table (A2) Saturation (A3)	ent)	_	egetated (_	Drainage Patterns (B10) Oxidized Rhizospheres along Living Roots (C3) Presence of Reduced Iron (C4)
Primary Indicators (any one is sufficie Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1)	ent)	Sparsely Vo Marl Depos Hydrogen S	egetated (sits (B15) Sulfide Od	Concave S Ior (C1)		_	Drainage Patterns (B10)Oxidized Rhizospheres along Living Roots (C3)Presence of Reduced Iron (C4)Salt Deposits (C5)
Primary Indicators (any one is sufficie Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2)	ent) C C C C	Sparsely Vo Marl Depos Hydrogen S Dry-Seasor	egetated (sits (B15) Sulfide Od n Water Ta	Concave S lor (C1) able (C2)		_	 Drainage Patterns (B10) Oxidized Rhizospheres along Living Roots (C3) Presence of Reduced Iron (C4) Salt Deposits (C5) Stunted or Stressed Plants (D1)
Primary Indicators (any one is sufficient Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3)	ent) [[[[[[[[Sparsely Vo Marl Depos Hydrogen S	egetated (sits (B15) Sulfide Od n Water Ta	Concave S lor (C1) able (C2)		_	 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)
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)	ent) [[[[[[Sparsely Vo Marl Depos Hydrogen S Dry-Seasor	egetated (sits (B15) Sulfide Od n Water Ta	Concave S lor (C1) able (C2)		_	 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)
 Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) Sediment Deposits (B2) Drift Deposits (B3) 	ent) [[[[[[[Sparsely Vo Marl Depos Hydrogen S Dry-Seasor	egetated (sits (B15) Sulfide Od n Water Ta	Concave S lor (C1) able (C2)			 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)

Surface Water Present? Water Table Present?

Saturation Present?

(includes capillary fringe)

Yes \bullet No \bigcirc Depth (inches): 8 Yes 🔘 No 🖲 No 🔿 Wetland Hydrology Present? Yes 🖲 Depth (inches): Yes 🔿 No 🖲

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Depth (inches):

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borouah	Sampling Date:	27-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_56
Investigator(s): <u>_SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): tussocks	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>40</u>		
Subregion : Northern Alaska	Lat.: <u>66.75408166666667</u> Long.: <u>-162.433398</u>	3333333 Datu	m: WGS84
Soil Map Unit Name:	NWI class	sification: <u>PEM1/SS1</u>	3
	of year? Yes No (If no, explain in ficantly disturbed? Are "Normal Circumstances" rally problematic? (If needed, explain any answ	present? Yes •	No \bigcirc

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \odot No \bigcirc
Remarks: SLOTT				

	bsolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum 9	6 Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC:(A)
2				Total Number of Dominant Species Across All Strata: 5 (B)
3				
4				Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5				
Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover: 0	20% of	Total Cover:	0	Total % Cover of: Multiply by:
1. Betula nana	5	\checkmark	FAC	OBL species 0.5 x 1 = 0.5
2. Vaccinium vitis-idaea	10	\checkmark	FAC	FACW species $75 \times 2 = 150$
3. Vaccinium uliginosum	5	\checkmark	FAC	FAC speci es 35 x 3 =105
4 Ledum decumbens	3		FACW	FACU species $3 \times 4 = 12$
5. Arctostaphylos alpina	3		FACU	UPL species $0 \times 5 = 0$
6. Empetrum nigrum	5	\checkmark	FAC	Column Totals: <u>113.5</u> (A) <u>267.5</u> (B)
7				
8				Prevalence Index = $B/A = 2.357$
9				Hydrophytic Vegetation Indicators:
				✓ Dominance Test is > 50%
10 Total Cover:	31			✓ Prevalence Index is ≤3.0
50% of Total Cover: 15.5		f Total Cover:	6.2	Morphological Adaptations ¹ (Provide supporting
Herb Stratum	20%01			data in Remarks or on a separate sheet)
1. Eriophorum vaginatum	70		FACW	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Calamagrostis canadensis	5		FAC	¹ Indicators of hydric soil and wetland hydrology must
3. Carex bigelowii	5		FAC	be present, unless disturbed or problematic.
4. Carex aquatilis	0.5		OBL	
5. Rubus chamaemorus	2		FACW	Plot size (radius, or length x width) 10m
6				% Cover of Wetland Bryophytes
7				(Where applicable)
8				% Bare Ground 1
9				Total Cover of Bryophytes 15
10				Hydrophytic
Total Cover:	82.5			Vegetation
50% of Total Cover: 41.25	5 20% of	Total Cover:	16.5	Present? Yes \bullet No \bigcirc
Remarks: ca 15% lichen cover				

Depth (inches)	N/-	triv		Dode	-			dicators	
	Color (mo	ntrix vist) %	<u> </u>	Color (moist)	ox Featu %	Type ¹	Loc ²	Texture	Remarks
0-5		10				туре		Fibric Organics	Remarks
	<u>_</u>					·		Hemic Organics	varying degrees of decomposition
5-11 -			<u> </u>						
11-18	10YR	2/2 10	0					Silty Clay Loam	
						· ·			
¹ Type: C=Con	centration D=	Depletion R	M=Reduce	d Matrix ² Locatio	n: PL=P	ore Lining	RC=Root	Channel M=Matrix	
Hydric Soil I	Indicators:			Indicators for I	Problem	atic Hydri	c Soils: ³		
Histosol c	or Histel (A1)			Alaska Color	Change ((TA4) ⁴		Alaska Gleyed Withou	ut Hue 5Y or Redder
Histic Epi	pedon (A2)			Alaska Alpine				Underlying Layer	
Hydrogen	n Sulfide (A4)			Alaska Redox	With 2.5	5Y Hue		Other (Explain in Rer	narks)
	rk Surface (A12)		³ One indicator	of hydror	hytic vege	tation one	primary indicator of wetla	nd hydrology
	eyed (A13)			and an appropri					
	edox (A14)	F)		⁴ Give details of	color cha	ange in Rer	narks		
	eyed Pores (A1								
	ayer (if prese							Hydric Soil Presen	t? Yes 🖲 No 🔿
	ive layer (froze	n)						Hydric Soli Presen	\mathbf{Y} res \mathbf{S} no \mathbf{C}
Depth (inc	ines): To								
Remarks:									
HYDROLC									
-	drology Indica								Indicators (two or more are required)
	<u>ators (anv one</u> Water (A1)	is sumcient)			Visible e	n Aarial In			Stained Leaves (B9) ge Patterns (B10)
	ter Table (A2)			Inundation Sparsely Ve					ed Rhizospheres along Living Roots (C3)
Saturatio				Marl Depos	-				ce of Reduced Iron (C4)
	. ,								
	arks (R1)					dor $(C1)$		I Salt De	anosits (C5)
Water Ma				Hydrogen S					eposits (C5) d or Stressed Plants (D1)
Water Ma	t Deposits (B2)			Dry-Seasor	Water T	able (C2)		Stunte	d or Stressed Plants (D1)
Water Ma	t Deposits (B2) posits (B3)				Water T	able (C2)		Stunte	d or Stressed Plants (D1) orphic Position (D2)
Water Ma	t Deposits (B2) posits (B3) t or Crust (B4)			Dry-Seasor	Water T	able (C2)		Stunte	d or Stressed Plants (D1) orphic Position (D2) v Aquitard (D3)
Water Ma	t Deposits (B2) posits (B3) t or Crust (B4) posits (B5)			Dry-Seasor	Water T	able (C2)		☐ Stunte ☐ Geomo ✔ Shallov ☐ Microto	d or Stressed Plants (D1) orphic Position (D2) v Aquitard (D3) opographic Relief (D4)
Water Ma	t Deposits (B2) posits (B3) t or Crust (B4) posits (B5) Soil Cracks (B6)			Dry-Seasor	Water T	able (C2)		☐ Stunte ☐ Geomo ✔ Shallov ☐ Microto	d or Stressed Plants (D1) orphic Position (D2) v Aquitard (D3)
Water Ma Sediment Drift Dep Algal Mat Iron Dep Surface S Field Observ	t Deposits (B2) posits (B3) t or Crust (B4) posits (B5) Soil Cracks (B6) vations:		No •	Dry-Seasor	i Water T ain in Re	able (C2)		☐ Stunte ☐ Geomo ✔ Shallov ☐ Microto	d or Stressed Plants (D1) orphic Position (D2) v Aquitard (D3) opographic Relief (D4)
Water Ma	t Deposits (B2) posits (B3) t or Crust (B4) posits (B5) Soil Cracks (B6) rations: er Present?	Yes O		Dry-Seasor	u Water T lain in Re	able (C2) emarks)	w	☐ Stunte ☐ Geomo ✔ Shallov ☐ Microto ✔ FAC-ne	d or Stressed Plants (D1) orphic Position (D2) v Aquitard (D3) opographic Relief (D4) eutral Test (D5)
Water Ma Sediment Drift Dep Algal Mat Iron Dep Surface S Field Observ Surface Wate	t Deposits (B2) posits (B3) t or Crust (B4) posits (B5) Soil Cracks (B6) rations: er Present? Present? resent?	Yes O	No \bigcirc	Dry-Seasor	Water T lain in Re nes): nes): 12	able (C2) emarks)	w	☐ Stunte ☐ Geomo ✔ Shallov ☐ Microto	d or Stressed Plants (D1) orphic Position (D2) v Aquitard (D3) opographic Relief (D4) eutral Test (D5)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 2	7-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_57
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): <u>concave</u>	_ Slope:% /° Elevation:40		
Subregion : Northern Alaska Lat.:	<u>66.76014</u> Long.: <u>-162.434803</u>	333333 Datum	n: WGS84
Soil Map Unit Name:	NWI class	sification: <u>PEM1/SS1E</u>	
	ear? Yes No (If no, explain in tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc			
Remarks: HGWSWT low-center polys, characterizing poly centers. See CB_V11 for poly rims. Sandhill cranes in community. Distict polygonization, rims							

ca 2ft above centers.

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: <u>3</u> (B)
4				Percent of dominant Species
5				That Are OBL, FACW, or FAC:100.0% (A/B)
D. — Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover: 0	20% o	of Total Cover:	0	Total % Cover of: Multiply by:
1 Andromeda polifolia	5	\checkmark	FACW	OBL species <u>27.5</u> x 1 = <u>27.5</u>
2. Betula nana	1		FAC	FACW species $6 \times 2 = 12$
3. Vaccinium oxycoccos	0.5		OBL	FAC species $1 \times 3 = 3$
4. Chamaedaphne calyculata	1		FACW	FACU species $0 \times 4 = 0$
5				UPL species $-\frac{0}{x 5} = -\frac{0}{x 5}$
6				Column Totals: <u>34.5</u> (A) <u>42.5</u> (B)
7				Prevalence Index = $B/A = 1.232$
8				
9				Hydrophytic Vegetation Indicators:
10				✓ Dominance Test is > 50%
Total Cover:	7.5			✓ Prevalence Index is ≤3.0
Herb Stratum 50% of Total Cover: 3.7	20% c	of Total Cover:	1.5	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1. Carex rotundata	10	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Carex limosa	1		OBL	¹ Indicators of hydric soil and wetland hydrology must
3. Carex aquatilis	3		OBL	be present, unless disturbed or problematic.
4. Eriophorum angustifolium	3		OBL	
5. Eriophorum scheuchzeri	10		OBL	Plot size (radius, or length x width) 10m
6				% Cover of Wetland Bryophytes
7				(Where applicable)
8.				% Bare Ground 88
9				Total Cover of Bryophytes <u>10</u>
10				Hydrophytic
Total Cover:	27			Vegetation
50% of Total Cover:13.	5 20% o	of Total Cover:	5.4	Present? Yes \bullet No \bigcirc
Remarks: bare ground includes open water.				

	ription: Describe to Matrix	depth need		e presen ox Featu		ence of ind	dicators	
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
(11101100)					1 300			Kondrks
	·							
					· ·			
¹ Type: C=Cor	ncentration D=Depletion	on RM=Redu					Channel M=Matrix	
Hydric Soil	Indicators:		Indicators for			ic Soils: ³		
Histosol	or Histel (A1)		🗌 Alaska Color	Change (TA4)		Alaska Gleyed With	out Hue 5Y or Redder
Histic Ep	ipedon (A2)		Alaska Alpine	swales (TA5)		Underlying Layer	
Hydroge	n Sulfide (A4)		Alaska Redox	With 2.5	iY Hue		✓ Other (Explain in R	emarks)
Thick Da	rk Surface (A12)		3 On a indiantar	- 6 la	h			
Alaska G	leyed (A13)		and an appropr				primary indicator of wet present	land hydrology,
Alaska R	edox (A14)				• •			
🗌 Alaska G	leyed Pores (A15)		⁴ Give details of	color cha	inge in Rei	marks		
Restrictive I	Layer (if present):							
Type:							Hydric Soil Prese	nt? Yes 🖲 No 🔾
Depth (in	ches):							
Remarks:								
assume hydrie	c soil due to hydrophyt	ic vegetation	and standing water					
HYDROL								
	drology Indicators:	iont)						y Indicators (two or more are required)
·	cators (any one is suffic	lient)				()		er Stained Leaves (B9)
	Water (A1)							hage Patterns (B10)
	iter Table (A2)		Sparsely Ve	•	Concave S	urface (B8)		ized Rhizospheres along Living Roots (C3)
Saturatio	on (A3) Iarks (B1)		Marl Depos		lor (01)		_	ence of Reduced Iron (C4) Deposits (C5)
	iarks (BT) nt Deposits (B2)		Hydrogen S				_	ted or Stressed Plants (D1)
_	posits (B3)		Dry-Seasor				_	norphic Position (D2)
	it or Crust (B4)		U Other (Exp	iain in Re	marks)		_	ow Aquitard (D3)
	posits (B5)						_	ow Aquitard (D3) otopographic Relief (D4)
	Soil Cracks (B6)						_	neutral Test (D5)
	JUII CI dUKS (DO)					1	I FAC-	

Field Observations: Surface Water Present?

Water Table Present? Saturation Present?

Yes 🖲	No 🔿	Depth (inches): 4		
$_{ m Yes}$ \bigcirc	No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲
$_{ m Yes}$ \bigcirc	No 🖲	Depth (inches):		

 (includes capillary fringe)
 res
 No
 Depth (inches):

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

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No 🔿

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 27-Aug-12	2
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point: CB_	58
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none):	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>20</u>		
Subregion : Northern Alaska Lat.:	<u>66.7636216666667</u> Long.: <u>-162.43291</u>	Datum: WGS8	}4
Soil Map Unit Name:	NWI class	fication: PEM1/SS1E	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes \odot No \bigcirc	

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	\sim	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc		
Remarks: high reflectance low-center polys are sphagnum/sedge wet tundra. HGWSWT						

oiy ay iy

			Absolute	Dominant	Indicator	Dominance Test worksheet:
-	ee Stratum		% Cover	Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A)
2.						Total Number of Dominant Species Across All Strata:(B)
4.						Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5.	Total	Cover:	0			Prevalence Index worksheet:
Sap	ling/Shrub Stratum 50% of Total Cove			of Total Cover:	0	Total % Cover of: Multiply by:
1	Ledum decumbens		0.5		FACW	OBL speciles <u>15</u> x 1 = <u>15</u>
	Vaccinium vitic idaga		0.5		FAC	FACW species 4.5 x 2 = 9
	Andromeda polifolia		2	\checkmark	FACW	FAC species x 3 =
						FACU species $0 \times 4 = 0$
						UPL species $-\frac{0}{x 5} = -\frac{0}{2}$
						Column Totals:(A)(B)
						Prevalence Index = $B/A = 1.275$
						Hydrophytic Vegetation Indicators:
						✓ Dominance Test is > 50%
		Cover:	3			✓ Prevalence Index is ≤3.0
_Н	erb Stratum50% of Total Cove	r:1	.5 20% (of Total Cover:	0.6	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1.	Carex aquatilis		15	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Rubus chamaemorus		2		FACW	¹ Indicators of hydric soil and wetland hydrology must
3.						be present, unless disturbed or problematic.
4.						
5.						Plot size (radius, or length x width) 5m
6.						% Cover of Wetland Bryophytes
7.						(Where applicable)
8.						% Bare Ground _0
9.						Total Cover of Bryophytes 98
10.						Hydrophytic
		Cover:	17			Vegetation
	50% of Total Cove	r: <u>8</u>	.5 20% c	of Total Cover:	3.4	Present? Yes No
Rem	arks:					

Depth	Mat	rix		Red	ox Featu	res			
(inches)	Color (mois		,	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-13								Fibric Organics	
						·			
Type: C=Con	centration D=De	epletion RI	M=Reduced					Channel M=Matrix	
Hydric Soil I	ndicators:			Indicators for	Problem	atic Hydr	c Soils: ³		
Histosol o	or Histel (A1)			Alaska Color	Change (TA4)			thout Hue 5Y or Redder
✔ Histic Epip	pedon (A2)			Alaska Alpine	e swales (TA5)		Underlying Layer	
Hydrogen	sulfide (A4)			Alaska Redo	x With 2.5	5Y Hue		Other (Explain in	Remarks)
Thick Dar	k Surface (A12)								
🗌 Alaska Gle	eyed (A13)			³ One indicator and an appropr				primary indicator of we	etland hydrology,
🗌 Alaska Re	edox (A14)					scape posit	ion must b	e present	
Alaska Gle	eyed Pores (A15)			⁴ Give details of	color cha	ange in Rei	narks		
Restrictive L	ayer (if presen	t):							
Type: acti	ive layer (frozen)							Hydric Soil Pres	ent? Yes 🖲 No 🔾
Depth (inc	, ,								
Remarks:									
HYDROLC	DGY								
2	Irology Indicat							Seconda	ary Indicators (two or more are required)
Primary Indica	ators (any one is	sufficient)						_	ter Stained Leaves (B9)
	Water (A1)			Inundation	Visible o	n Aerial Im	agery (B7)		inage Patterns (B10)
High Wat	ter Table (A2)			Sparsely V	egetated	Concave S	urface (B8)) 🗌 Oxi	dized Rhizospheres along Living Roots (C3)
✓ Saturatio	n (A3)			Marl Depos	sits (B15)			Pre	sence of Reduced Iron (C4)
Water Ma	arks (B1)			Hydrogen	Sulfide O	dor (C1)		Sal	t Deposits (C5)
Sediment	t Deposits (B2)			Dry-Seaso	n Water T	able (C2)		Stu	nted or Stressed Plants (D1)
Drift Dep	osits (B3)			Other (Exp	lain in Re	marks)		Geo	omorphic Position (D2)
Algal Mat	t or Crust (B4)							🗹 Sha	allow Aquitard (D3)
Iron Dep	osits (B5)							Mic	rotopographic Relief (D4)
Surface S	Soil Cracks (B6)							✓ FAC	c-neutral Test (D5)
Field Observ	ations:								
Surface Wate	er Present?	$Yes \bigcirc$	No 🖲	Depth (inc	hes):				

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

Yes 💿 No 🔿

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Saturation Present?

(includes capillary fringe)

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Depth (inches): 7

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough	Sampling Date:	27-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_59
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Hillside	
Local relief (concave, convex, none): tussocks	Slope: <u>8.7</u> % / <u>5.0</u> ° Elevation: <u>10</u>		
Subregion : Northern Alaska	at.: <u>66.7691083333333</u> Long.: <u>-162.426288</u>	3333333 Datu	n: WGS84
Soil Map Unit Name:	NWI class	sification: PSS1/3B	
	of year? Yes O No O (If no, explain i cantly disturbed? Are "Normal Circumstances" ally problematic? (If needed, explain any answ	present? Yes 🖲	No O
			<i>c</i> .

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: SDET with small carbig	tussocks o	n gentle hillslope		

	Absolut	e Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cove	r Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata:5_(B)
4.				Percent of dominant Species
5				That Are OBL, FACW, or FAC: <u>80.0%</u> (A/B)
Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover:	0 20%	of Total Cover:	0	Total % Cover of: Multiply by:
1 Betula nana	20	\checkmark	FAC	OBL species $0 \times 1 = 0$
2. Ledum decumbens	5		FACW	FACW species <u>19</u> x 2 = <u>38</u>
3. Vaccinium vitis-idaea	15	\checkmark	FAC	FAC species $_{68}$ x 3 = $_{204}$
4 Vaccinium uliginosum	3		FAC	FACU species 20 x 4 = 80
5 Empetrum nigrum	10		FAC	UPL species $-\frac{0}{x 5} = -\frac{0}{x 5}$
6. Arctostaphylos alpina	20	\checkmark	FACU	Column Totals: <u>107</u> (A) <u>322</u> (B)
7				Prevalence Index = $B/A = 3.009$
8				
9				Hydrophytic Vegetation Indicators:
10				✓ Dominance Test is > 50%
Total Cover:	73			Prevalence Index is ≤3.0
Herb Stratum 50% of Total Cover: 3	6.5 20%	6 of Total Cover:	14.6	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1 Carex bigelowii	20	\checkmark	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Arctagrostis latifolia	10	\checkmark	FACW	¹ Indicators of hydric soil and wetland hydrology must
3. Petasites frigidus	2		FACW	be present, unless disturbed or problematic.
4. Rubus chamaemorus	2		FACW	
5				Plot size (radius, or length x width) 10m
6				% Cover of Wetland Bryophytes
7				(Where applicable)
8				% Bare Ground
9				Total Cover of Bryophytes
10				Hydrophytic
Total Cover:	34			Vegetation
50% of Total Cover:	17 20%	of Total Cover:	6.8	Present? Yes \bullet No \bigcirc
Remarks:				

Depth –		Matrix			Redo	x Featu	res				
(inches)	Color ((moist)	%	Color ((moist)	%	Type ¹	Loc ²	Te	xture	Remarks
0-2			100						Fibric Organ	lics	
2-9									Hemic Orga	nics	
9-12	10YR	3/2	100						Silty Clay Lo	am	
	,										
¹ Type: C=Conce	entration	D=Depletion	RM=Re						Channel M=	Matrix	
Hydric Soil In	ndicators	:			ators for P		4	ic Soils: ³			
Histosol or	-)			aska Color (aska Alpipa	•				Gleyed Without Hu lying Layer	e 5Y or Redder
Histic Epipe		•			aska Alpine aska Redox				_	(Explain in Remarks	;)
Hydrogen S		,		L. / W		WILLI Z.C	I nuc			(
Alaska Gley		(12)								icator of wetland hy	/drology,
Alaska Red				and a	an appropria	ate lands	cape posit	ion must d	e present		
🗌 Alaska Gley	yed Pores	(A15)		4 Give	e details of	color cha	inge in Re	marks			
Restrictive La	yer (if pr	esent):									
Type: active	e layer (fr	ozen)							Hydri	c Soil Present?	Yes $ullet$ No $igcap$
Danth /!	> 40										
Depth (inche Remarks:	es): 12										
	es): 12										
Remarks:											
Remarks: HYDROLO(Wetland Hydro	GY ology Ind										ators (two or more are required)
Remarks: HYDROLO(Wetland Hydro Primary Indicat	GY rology Ind		ent)							Water Stain	ed Leaves (B9)
Remarks: HYDROLO(Wetland Hydro Primary Indicat	GY ology Ind tors (any c ater (A1)	one is sufficie	ent)		Inundation					Water Stain	ed Leaves (B9) atterns (B10)
Remarks: HYDROLOO Wetland Hydro Primary Indicat Surface Wa I High Water	GY ology Ind tors (any c ater (A1) r Table (A	one is sufficie	ent)		Sparsely Ve	getated				Water Stain Urainage Pa Oxidized Rh	ed Leaves (B9) atterns (B10) izospheres along Living Roots (C
Remarks: HYDROLO(Wetland Hydro Primary Indicat	GY ology Ind ors (any c ater (A1) r Table (A (A3)	one is sufficie	ent)			getated its (B15)	Concave S			Water Stain Urainage Pa Oxidized Rh	ed Leaves (B9) atterns (B10) izospheres along Living Roots (C Reduced Iron (C4)
Remarks: HYDROLOO Wetland Hydr Primary Indicat Surface Wa W High Wate M High Wate Saturation	GY ology Ind ors (any c ater (A1) r Table (A (A3) ks (B1)	one is sufficie 2)	ent)		Sparsely Ve Marl Deposi	getated its (B15) Sulfide Od	Concave S dor (C1)			Water Stain Urainage Pa Oxidized Rh Presence of Salt Deposit	ed Leaves (B9) atterns (B10) izospheres along Living Roots (C Reduced Iron (C4)
Remarks: HYDROLO(Wetland Hydre Primary Indicat Surface Wa W High Wate Migh Wate Saturation Water Mar	GY ology Inc ors (any c ater (A1) ir Table (A (A3) ks (B1) Deposits (one is sufficie 2)	ent)		Sparsely Ve Marl Deposi Hydrogen S	getated its (B15) Sulfide Oc Water T	Concave S dor (C1) able (C2)			Water Stain Drainage Pa Oxidized Rh Presence of Salt Deposit Stunted or \$	ed Leaves (B9) atterns (B10) izospheres along Living Roots (C Reduced Iron (C4) is (C5)
Remarks: HYDROLOO Wetland Hydri Primary Indicat Surface Wa Wigh Watel Migh Watel Saturation Water Mar Sediment I	GY ology Ind tors (any c ater (A1) ir Table (A (A3) iks (B1) Deposits (sits (B3)	one is sufficie .2) B2)	ent)		Sparsely Ve Marl Deposi Hydrogen S Dry-Season	getated its (B15) Sulfide Oc Water T	Concave S dor (C1) able (C2)			Water Stain Drainage Pa Oxidized Rh Presence of Salt Deposit Stunted or \$	ed Leaves (B9) atterns (B10) izospheres along Living Roots (C Reduced Iron (C4) is (C5) Stressed Plants (D1) : Position (D2)
Remarks: HYDROLOO Wetland Hydro Primary Indicat Surface Wa V High Water Migh Water Mar Sediment I Drift Depos Algal Mat c Iron Depos	GY ology Ind tors (any c ater (A1) r Table (A (A3) ks (B1) Deposits (sits (B3) or Crust (E sits (B5)	one is sufficie .2) B2) 34)	ent)		Sparsely Ve Marl Deposi Hydrogen S Dry-Season	getated its (B15) Sulfide Oc Water T	Concave S dor (C1) able (C2)			Water Stain Drainage Pa Oxidized Rh Presence of Salt Deposit Stunted or S Geomorphic Shallow Aqu Microtopogr	ed Leaves (B9) atterns (B10) iizospheres along Living Roots (C Reduced Iron (C4) ts (C5) Stressed Plants (D1) : Position (D2) uitard (D3) raphic Relief (D4)
Remarks: HYDROLOO Wetland Hydr Primary Indicat Surface Wa V High Water Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So	GY ology Ind ater (A1) r Table (A (A3) ks (B1) Deposits (sits (B3) or Crust (E sits (B5) jil Cracks (one is sufficie .2) B2) 34)	ent)		Sparsely Ve Marl Deposi Hydrogen S Dry-Season	getated its (B15) Sulfide Oc Water T	Concave S dor (C1) able (C2)			Water Stain Drainage Pa Oxidized Rh Presence of Salt Deposit Stunted or S Geomorphic V Shallow Aqu	ed Leaves (B9) atterns (B10) iizospheres along Living Roots (C Reduced Iron (C4) ts (C5) Stressed Plants (D1) : Position (D2) uitard (D3) raphic Relief (D4)
Remarks: HYDROLOO Wetland Hydre Primary Indicat Surface Wa W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Field Observar	GY ology Inc ors (any c ater (A1) r Table (A (A3) r Table (A) r Ta	one is sufficie (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)			Sparsely Ve Marl Deposi Hydrogen S Dry-Season Other (Expl:	getated its (B15) sulfide Oo Water T ain in Re	Concave S dor (C1) able (C2)			Water Stain Drainage Pa Oxidized Rh Presence of Salt Deposit Stunted or S Geomorphic Shallow Aqu Microtopogr	ed Leaves (B9) atterns (B10) iizospheres along Living Roots (C Reduced Iron (C4) ts (C5) Stressed Plants (D1) : Position (D2) uitard (D3) raphic Relief (D4)
Remarks: HYDROLOO Wetland Hydro Primary Indicat Surface Wa Migh Water Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Field Observat Surface Water	GY ology Ind tors (any c ater (A1) r Table (A (A3) ks (B1) Deposits (sits (B3) or Crust (E sits (B5) bil Cracks (tions: Present?	nne is sufficie 2) B2) 34) (B6) Yes	○ No	•	Sparsely Ve Marl Deposi Hydrogen S Dry-Season Other (Expl:	getated its (B15) sulfide Oo Water T ain in Re	Concave S dor (C1) able (C2) marks)	urface (B8)		Water Stain Drainage Pa Oxidized Rh Presence of Salt Deposit Stunted or S Geomorphic V Shallow Aqu Microtopogr FAC-neutral	ed Leaves (B9) atterns (B10) iizospheres along Living Roots (C Reduced Iron (C4) is (C5) Stressed Plants (D1) : Position (D2) uitard (D3) raphic Relief (D4) Test (D5)
Remarks: HYDROLOO Wetland Hydre Primary Indicat Surface Wa W High Wate Saturation Water Mar Sediment I Drift Depos Algal Mat o Iron Depos Surface So Field Observar	GY ology Ind tors (any c ater (A1) r Table (A (A3) rks (B1) Deposits (sits (B3) or Crust (E sits (B5) iil Cracks (tions: Present?	ne is sufficie (2) (82) (86) Yes (Yes (•	Sparsely Ve Marl Deposi Hydrogen S Dry-Season Other (Expl:	getated its (B15) sulfide Oo Water T ain in Re	Concave S dor (C1) able (C2) marks)	urface (B8)		Water Stain Drainage Pa Oxidized Rh Presence of Salt Deposit Stunted or S Geomorphic Shallow Aqu Microtopogr	ed Leaves (B9) atterns (B10) iizospheres along Living Roots (C Reduced Iron (C4) ts (C5) Stressed Plants (D1) : Position (D2) uitard (D3) raphic Relief (D4)

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borough Sampling Date: 27-Aug-1.
Applicant/Owner: <u>Baker/ADOT&PF</u>	Sampling Point: CB_
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.): Flat
Local relief (concave, convex, none):	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>40</u>
Subregion : Northern Alaska La	at.: <u>66.769495</u> Long.: <u>-162.434413333333</u> Datum: <u>WGS8</u>
Soil Map Unit Name:	NWI classification: PSS3/EM1B
	of year? Yes O No O (If no, explain in Remarks.) cantly disturbed? Are "Normal Circumstances" present? Yes O No O Ily problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●		Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: HGMSS. Community a	mosaic of I	HGWST lows, as characterized	by this point, and SDE	T sphagnum hummocks, as characterized by CB_61.

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata:4(B)
3				Percent of dominant Species
4				That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
5. — Total Cover:	0			Prevalence Index worksheet:
		of Total Cover:	0	Total % Cover of: Multiply by:
1 Andromeda polifolia	5	\checkmark	FACW	OBL species <u>32</u> x 1 = <u>32</u>
2. Betula nana	2	\checkmark	FAC	FACW species <u>8</u> x 2 = <u>16</u>
3. Ledum decumbens	1		FACW	FAC species $3 \times 3 = 9$
4. Empetrum nigrum	1		FAC	FACU species $0 \times 4 = 0$
5				UPL species $-\frac{0}{x 5} = -\frac{0}{x 5}$
6				Column Totals: <u>43</u> (A) <u>57</u> (B)
7				Prevalence Index = $B/A = 1.326$
8				
9				Hydrophytic Vegetation Indicators:
10				✓ Dominance Test is > 50%
Total Cover:	9			✓ Prevalence Index is ≤3.0
Herb Stratum50% of Total Cover:	4.5 20% (of Total Cover:	1.8	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1. Eriophorum scheuchzeri	15	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Carex aquatilis	15	\checkmark	OBL	¹ Indicators of hydric soil and wetland hydrology must
3. Rubus chamaemorus	2		FACW	be present, unless disturbed or problematic.
4. Carex limosa	2		OBL	
5				Plot size (radius, or length x width) _5m
6				% Cover of Wetland Bryophytes
7				(Where applicable)
8				% Bare Ground 18
9				Total Cover of Bryophytes 80
10				Hydrophytic
Total Cover:	34			Vegetation
50% of Total Cover:	17 20% (of Total Cover:	6.8	Present? Yes \bullet No \bigcirc
Remarks: submerged betnan and rubcha, high water, like	ly underest	imate bryoph	yte cover	

Depth	Matrix (moist)	0/		dox Featu	1	1.002	Toxturo	Domorko
(inches) Color	(moist)	%	Color (moist)	%	Туре	Loc ²	Texture	Remarks
								_
								_
						-	·	
¹ Type: C=Concentration	D=Depletic	on RM=Red	uced Matrix ² Loca	tion: PL=P	ore Linina	RC=Root	Channel M=Matrix	
5.	•		Indicators fo		0			
Hydric Soil Indicators			_		4	IC SOIIS:	□	
Histosol or Histel (A	,			or Change (Alaska Gleyed With Underlying Layer	out Hue 5Y or Redder
Histic Epipedon (A2)				ine swales (dox With 2.5			Other (Explain in R	emarks)
Hydrogen Sulfide (A	•			tox with 2.5	or Hue			
Thick Dark Surface	. ,		³ One indicate	or of hydrop	ohytic vege	tation, one	e primary indicator of wetl	and hydrology,
Alaska Gleyed (A13)			and an appro					
Alaska Redox (A14)	(, , =)		⁴ Give details	of color cha	ange in Rei	marks		
Alaska Gleyed Pores	s (A15)							
Restrictive Layer (if p	resent):							
							Hydric Soil Prese	nt? Yes 🔍 No 🔾
Туре:							,	$100 \odot$
	·						-	
Туре:	-							
Type: Depth (inches): Remarks:		ic vegetatior	n and standing wate	r				
Type: Depth (inches):		ic vegetatior	and standing wate	r				
Type: Depth (inches): Remarks:		ic vegetatior	and standing wate	r				
Type: Depth (inches): Remarks:		ic vegetatior	and standing wate	r				
Type: Depth (inches): Remarks:		ic vegetatior	and standing wate	r				
Type: Depth (inches): Remarks: assume hydric soil due to		ic vegetatior	n and standing wate	r				
Type: Depth (inches): Remarks:) hydrophyti	ic vegetatior	and standing wate	r				/ Indicators (two or more are required)
Type: Depth (inches): Remarks: assume hydric soil due to	o hydrophyti ndicators:		and standing wate	r			Secondar	
Type: Depth (inches): Remarks: assume hydric soil due to HYDROLOGY Wetland Hydrology Ir	o hydrophyti ndicators:			r on Visible o	n Aerial Im	agery (B7		/ Indicators (two or more are required)
Type: Depth (inches): Remarks: assume hydric soil due to HYDROLOGY Wetland Hydrology Ir Primary Indicators (any	o hydrophyti ndicators: one is suffic					0 .	<u>Secondar</u> Wate) Drair	<u>/ Indicators (two or more are required)</u> r Stained Leaves (B9)
Type: Depth (inches): Remarks: assume hydric soil due to HYDROLOGY Wetland Hydrology Ir Primar∨ Indicators (any ✓ Surface Water (A1) ☐ High Water Table (A ☐ Saturation (A3)	o hydrophyti ndicators: one is suffic		Inundati	on Visible o	Concave S	0 .		<u>y Indicators (two or more are required)</u> r Stained Leaves (B9) age Patterns (B10)
Type: Depth (inches): Remarks: assume hydric soil due to HYDROLOGY Wetland Hydrology Ir Primary Indicators (any Surface Water (A1)	o hydrophyti ndicators: one is suffic		Inundati Sparsely Marl Dep	on Visible o Vegetated	Concave S	0 .	<u>Secondar</u> Wate) Drain) Oxidi Prese	/ Indicators (two or more are required) r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3)
Type: Depth (inches): Remarks: assume hydric soil due to HYDROLOGY Wetland Hydrology Ir Primary Indicators (any ✓ Surface Water (A1) ☐ High Water Table (A ☐ Saturation (A3)	o hydrophyti ndicators: one is suffic A2)		Inundati Sparsely Marl Deg Hydroge	on Visible o Vegetated posits (B15)	Concave S dor (C1)	0 .	Secondar Wate) Drain) Oxidi Oxidi Prese Salt I	/ Indicators (two or more are required) r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3) nce of Reduced Iron (C4)
Type: Depth (inches): Remarks: assume hydric soil due to HYDROLOGY Wetland Hydrology Ir Primary Indicators (any Surface Water (A1) High Water Table (A Saturation (A3) Water Marks (B1)	o hydrophyti ndicators: one is suffic A2)		Inundati Sparsely Marl Deg Hydroge Dry-Sea:	on Visible o Vegetated posits (B15) n Sulfide Od	Concave S dor (C1) Table (C2)	0 .	Secondar Wate) Drair) Oxidi Oxidi Prese Satt I Stunt	/ Indicators (two or more are required) r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3) nce of Reduced Iron (C4) Deposits (C5)
Type: Depth (inches): Remarks: assume hydric soil due to Atype: A	o hydrophyti ndicators: one is suffic A2) (B2)		Inundati Sparsely Marl Deg Hydroge Dry-Sea:	on Visible o Vegetated posits (B15) n Sulfide O son Water T	Concave S dor (C1) Table (C2)	0 .	Secondar Wate) Drain) Oxidi Oxidi Prese Salt I Stuni Geon	/ Indicators (two or more are required) r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3) nce of Reduced Iron (C4) Deposits (C5) ed or Stressed Plants (D1)
Type: Depth (inches): Remarks: assume hydric soil due to Atype: Soil d	o hydrophyti ndicators: one is suffic A2) (B2)		Inundati Sparsely Marl Deg Hydroge Dry-Sea:	on Visible o Vegetated posits (B15) n Sulfide O son Water T	Concave S dor (C1) Table (C2)	0 .	Secondar Wate) Drair) Oxidi Oxidi Prese Salt I Stuni Stuni Shali	/ Indicators (two or more are required) r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3) nce of Reduced Iron (C4) Deposits (C5) ed or Stressed Plants (D1) norphic Position (D2)

Surface Water Present? Water Table Present?

Saturation Present?

(includes capillary fringe)

Depth (inches): 4 Yes 🔘 No 🖲 No 🔿 Wetland Hydrology Present? Yes 🖲 Depth (inches): Yes 🔿 No 🖲 Depth (inches):

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

Yes \bullet No \bigcirc

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 27-Aug	g-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point: C	B_61
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): hummocky	_ Slope:% /° Elevation:40		
Subregion : Northern Alaska Lat.:	<u>66.7696</u> Long.: <u>-162.434353</u>	3333333 Datum: W	GS84
Soil Map Unit Name:	NWI class	sification: PSS3/EM1B	
	ear? Yes O No O (If no, explain in tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes • No	0

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●		Is the Sampled Area within a Wetland?	Yes 🖲 No 🔿
0	, ,	agnum hummocks in mosaic v pes, ca 60% SDEV 40% HGWS		_60). Hummocks ca 1ft above lows, high degree of

		Abs	solute		Indicator	Dominance Test worksheet:
	ee Stratum	%	Cover	Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)
1.		-				
						Total Number of Dominant Species Across All Strata: <u>3</u> (B)
υ.						Percent of dominant Species
		_				That Are OBL, FACW, or FAC:100.0% (A/B)
5.	Total Cover:	_	0			Prevalence Index worksheet:
Com		0	-	f Total Cover:	0	Total % Cover of: Multiply by:
Sap		0	-			OBL speciles 1.5 x 1 = 1.5
1.	Betula nana	-	3		FAC	FACW species <u>11</u> x 2 = <u>22</u>
2.	Vaccinium vitis-idaea	-	35		FAC	FAC species $48 \times 3 = 144$
3.	Vaccinium uliginosum	-	5		FAC	······
4.	Ledum decumbens	-	5		FACW	FACU species $\frac{1}{2}$ x 4 = $\frac{4}{2}$
5.	Empetrum nigrum	-	2		FAC	UPL species $0 \times 5 = 0$
6.	Arctostaphylos alpina	_	1		FACU	Column Totals: <u>61.5</u> (A) <u>171.5</u> (B)
7.		-				Prevalence Index = B/A =2.789_
8.		-				Hydrophytic Vegetation Indicators:
9.		-				Dominance Test is $> 50\%$
10.		-				
	Total Cover:		51			✓ Prevalence Index is ≤3.0
<u>_H</u>	erb Stratum50% of Total Cover:2	25.5	_ 20% o	of Total Cover:	10.2	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1.	Carex bigelowii	_	3	\checkmark	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Rubus chamaemorus	_	5	\checkmark	FACW	¹ Indicators of hydric soil and wetland hydrology must
3.	Carex aquatilis	_	1		OBL	be present, unless disturbed or problematic.
4	Eriophorum angustifolium	_	0.5		OBL	
5.	Eriophorum vaginatum	_	1		FACW	Plot size (radius, or length x width) 5m
6.		-				% Cover of Wetland Bryophytes
7.		-				(Where applicable)
8.		_				% Bare Ground
9.		-				Total Cover of Bryophytes
10.		_				Hydrophytic
	Total Cover:	_1	10.5			Vegetation
	50% of Total Cover: 5	5.25	_ 20% o	f Total Cover:	2.1	Present? Yes \bullet No \bigcirc
Rem	arks:					

Depth		Matrix		Red	ox Featu				
(inches)	Color	(moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
0-2								Fibric Organics	
2-10								Hemic Organics	
10-15	10YR	3/1	100					Silty Clay Loam	
		- <u>-</u>		······································					
¹ Type: C=Co	ncentration	D=Depleti	ion RM=Re	duced Matrix ² Locatio	on: PL=F	ore Lining	RC=Root	Channel M=Matrix	-
Hydric Soil		-		Indicators for					
Histosol d	or Histel (A1	1)		Alaska Color	Change ((TA4) ⁴		Alaska Gleyed Withou Underlying Layer	ut Hue 5Y or Redder
	oipedon (A2) en Sulfide (A4			Alaska Alpine				Other (Explain in Rer	marks)
	ark Surface (•			< ₩101 <u>-</u>	51 1140		— 、.	
	Gleyed (A13)	• •						e primary indicator of wetla	nd hydrology,
_	Redox (A14)			and an appropr	iate lands	scape posit	ion must b	e present	
	Gleyed Pores	(A15)		⁴ Give details of	i color cha	ange in Rer	marks		
Restrictive L									···· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·· ·
	ctive layer (fr	-	l lo					Hydric Soil Presen	it? Yes 🖲 No 🔾
Depth (in	nches): 15, 1	0							
Remarks:									
HYDROLO	OGY								
Wetland Hy		dicators:						Secondary	Indicators (two or more are required)
Primary Indic									Stained Leaves (B9)
	Water (A1)			Inundatior	ייי Visible c	on Aerial Im	nadery (B7		ige Patterns (B10)
	ater Table (A	A2)		_		I Concave S	0 5	·	ed Rhizospheres along Living Roots (C3)
✓ Saturatio		-		Marl Depos	-			,	nce of Reduced Iron (C4)
Water N	/larks (B1)			Hydrogen S				Salt De	eposits (C5)
Sedimer	nt Deposits ((B2)		Dry-Seasor				Stunte	ed or Stressed Plants (D1)
Drift De	posits (B3)			Other (Exp	blain in Re	emarks)		Geomo	orphic Position (D2)
Algal Ma	at or Crust (I	B4)						Shallov	w Aquitard (D3)

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

Yes 🔿 No 🖲

Yes 🔿 No 🖲

 $_{\rm Yes} \odot ~_{\rm No} \bigcirc$

Depth (inches):

Depth (inches):

Depth (inches): 6

Iron Deposits (B5)

Field Observations:

Surface Water Present?

Water Table Present?

(includes capillary fringe)

Saturation Present?

Surface Soil Cracks (B6)

No 🔿

Microtopographic Relief (D4)

Yes 🖲

✓ FAC-neutral Test (D5)

Wetland Hydrology Present?

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 27	7-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_62
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Toeslope	
Local relief (concave, convex, none): <u>hummocky</u>	_ Slope:% /° Elevation:65		
Subregion : Northern Alaska Lat.:	<u></u>	333333 Datum	n: WGS84
Soil Map Unit Name:	NWI class	ification: PEM1E	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?		No	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: HGWST toeslope wetla	nd with fev	v, scattered hummocks. game	trails	

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC: (A)
2				Total Number of Dominant Species Across All Strata: 5 (B)
3				
4				Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5				Prevalence Index worksheet:
Total Cover:			-	Total % Cover of: Multiply by:
Sapling/Shrub Stratum 50% of Total Cover:	0 20% c	of Total Cover:		OBL species 36 x 1 = 36
1. Betula nana	2		FAC	FACW species $4 \times 2 = 8$
2. Andromeda polifolia	2		FACW	•
3. Vaccinium uliginosum	1		FAC	FAC species $4 \times 3 = 12$
4. Empetrum nigrum	1		FAC	FACU species $\begin{array}{c} 0 \\ \end{array}$ x 4 = $\begin{array}{c} 0 \\ \end{array}$
5. Ledum decumbens	2		FACW	UPL species $-\frac{0}{x 5} = -\frac{0}{x 5}$
6				Column Totals: <u>44</u> (A) <u>56</u> (B)
7				Prevalence Index = $B/A = 1.273$
8				
9				Hydrophytic Vegetation Indicators: ✓ Dominance Test is > 50%
10				
Total Cover:	8			✓ Prevalence Index is ≤3.0
_Herb Stratum50% of Total Cover:	4 20% 0	of Total Cover:	1.6	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1. Carex aquatilis	15	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Eriophorum scheuchzeri	5		OBL	¹ Indicators of hydric soil and wetland hydrology must
3. Carex rotundata	15	\checkmark	OBL	be present, unless disturbed or problematic.
4. Trichophorum caespitosum			OBL	
5				Plot size (radius, or length x width) 10m
6				% Cover of Wetland Bryophytes
7				(Where applicable)
8				% Bare Ground 10
9				Total Cover of Bryophytes 65
10				Hydrophytic
Total Cover:				Vegetation
50% of Total Cover:	18 20% c	of Total Cover:	7.2	Present? Yes No
Remarks: 20% lichen cover. Sphagnum mosses.				

Profile Desc	ription: De	scribe to d	epth nec	ed to doci	ument the	presenc	e or abs	ence of in	dicators			
Depth		Matrix			Redo	x Featur						
(inches)	Color ((moist)	%	Color (r	moist)	%	Type ¹	Loc ²	Texture		R	emarks
0-1									Fibric Organics			
1-10									Hemic Organics			
10-15	10YR	3/1	100						Silty Clay Loam			
									<u>.</u>			
¹ Type: C=Cor	ncentration	D=Depletion	RM=Rer	duced Matrix	² Location	1: PL=Po	re Lining	RC=Root (Channel M=Matrix			
Hydric Soil	Indicators	:		Indica	ators for P	roblema	atic Hydr	ic Soils: ³				
Histosol d	or Histel (A1)			aska Color C	. .			Alaska Gleyed		e 5Y or Redd	er
	ipedon (A2)				aska Alpine	-			Underlying La	5	`	
	n Sulfide (A4	•		L Ala	aska Redox	With 2.5	Y Hue		U Other (Explain	1 In Kendins)	
	rk Surface (/ leyed (A13)	A12)							e primary indicator o	f wetland hy	drology,	
	edox (A13)				in appropria							
	leyed Pores	(A15)		⁴ Give	e details of o	color cha	nge in Rer	marks				
Restrictive L	ayer (if pr	esent):										
	tive layer (fr	-							Hydric Soil F	Present?	Yes 🖲	No 🔿
Depth (ind	ches): 15	-										
Remarks:												
soil pit in large	est hummoc	k within plot	•									
HYDROLO												
Wetland Hyd												more are required)
Primary India		one is sufficie	<u>nt)</u>								ed Leaves (B	9)
	Water (A1)	~			Inundation V				·	Drainage Pa		Lister - Deate (C2)
 High Wa Saturation 	•	.2)			Sparsely Ve	-	Concave Si	urface (B8)	·		izospheres al Reduced Iroi	ong Living Roots (C3)
	on (A3) arks (B1)				Marl Deposi					Salt Deposit		n (C4)
	it Deposits (I	RJ)			Hydrogen Si Dry-Season						s (CS) Stressed Plani	te (D1)
	n Deposits (posits (B3)	62)		_	Other (Expla				_		Position (D2	
	t or Crust (E	34)					llai käj		_	Shallow Aqu	-)
	osits (B5)	,							_	-	aphic Relief ((AU
	Soil Cracks ((B6)								FAC-neutral		
Field Observ												
Surface Wate	er Present?	Yes	O No	• r	Depth (inch	ies):						
Water Table	Present?	Yes	No	0 ,	Depth (inch	ies): 13		w	etland Hydrology	Present?	Yes 🖲	No O
Saturation Pr (includes cap		Yes '	• No	О I	Depth (inch	ies): 8						
Describe Reco			e, monitc	or well, aerial	photos, pre	evious ins	spection) i	f available:				

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borouah	Sampling Date: 2	27-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_63
Investigator(s): <u>_SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Hillside	
Local relief (concave, convex, none): <u>tussocks</u>	Slope: <u>17.6</u> % / <u>10.0</u> ° Elevation: <u>90</u>		
Subregion : Northern Alaska Lat	t.: <u>66.85676666666667</u> Long.: <u>-162.546018</u>	3333333 Datu	m: WGS84
Soil Map Unit Name:	NWI class	sification: PSS1B	
	Fyear? Yes No (If no, explain i antly disturbed? Are "Normal Circumstances" ly problematic? (If needed, explain any answ	present? Yes 🖲	No 🔿
			6

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: SLOBE on N aspect hill:	side w carb	ig tussocks and hummocks.		

			Absolu		nt Indicator	Dominance Test worksheet:
<u> </u>	ree Stratum		% Co\	ver Species	s? Status	Number of Dominant Species
1.			-		-	That are OBL, FACW, or FAC: (A)
2.						Total Number of Dominant
3.						Species Across All Strata: (B)
4				_		Percent of dominant Species That Are OBL_EACW_or_EAC100.0% (A/B)
						That Are OBL, FACW, or FAC:(A/B)
0.	-	Total Cover:	0	_		Prevalence Index worksheet:
Sa	bling/Shrub Stratum 50%	of Total Cover:	0 20	% of Total Co	ver: 0	Total % Cover of: Multiply by:
1	Alnus viridis ssp. crispa		10	\checkmark	FAC	OBL species x 1 =
2.	Betula nana		15	\checkmark	FAC	FACW species $12 \times 2 = 24$
3.	Empetrum nigrum		5		FAC	FAC species X 3 =
4	Ledum decumbens		5		FACW	FACU species $0 \times 4 = 0$
	Vaccinium vitis-idaea		5		FAC	UPL species $0 \times 5 = 0$
6. 6			2		FAC	Column Totals:(A)(B)
7.	Salix pulchra		1		FACW	Prevalence Index = B/A = 2.826
						Hydrophytic Vegetation Indicators:
						✓ Dominance Test is > 50%
10.		Total Cover:	43	-		✓ Prevalence Index is ≤3.0
Ŀ	lerb Stratum50%	of Total Cover: 2	1.5 20	—)% of Total Co	ver: 8.6	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1.	Carex bigelowii		20	\checkmark	FAC	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Eriophorum vaginatum		1		FACW	¹ Indicators of hydric soil and wetland hydrology must
3.	Rubus chamaemorus		5		FACW	be present, unless disturbed or problematic.
-						
5.						Plot size (radius, or length x width) 10m
6.				_		% Cover of Wetland Bryophytes
7						(Where applicable)
8.						% Bare Ground _0
						Total Cover of Bryophytes <u>60</u>
•.						Hydrophytic
		Total Cover:	26	_		Vegetation
	50%	of Total Cover:	13 20	% of Total Co	ver: 5.2	Present? Yes • No O
Rer	narks: ca 20% lichen cover					

		Matrix		eded to document the Redd	ox Featu						
Depth (inches)	Color	(moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture		Remarks	
0-4								Fibric Organics			
4-8	-		;	,				Hemic Organics			
8-11	2.5Y	4/1	100					Silty Clay Loam	plat	ey	
				,			-				
				·							
¹ Type: C=Cor	ncentration	D=Depleti	on RM=Rec	duced Matrix ² Locatio	n: PL=P	ore Lining	RC=Root	Channel M=Matrix			
Hydric Soil	Indicators	:		Indicators for	Problem	natic Hydr	ic Soils: ³				
 Histosol or Histel (A1) ✓ Histic Epipedon (A2) Hydrogen Sulfide (A4) 				Alaska Color Alaska Alpine Alaska Redo	e swales ((TA5)		Underlying Layer	 Alaska Gleyed Without Hue 5Y or Redder Underlying Layer Other (Explain in Remarks) 		
Alaska G	ark Surface Gleyed (A13) Redox (A14) Gleyed Pores			³ One indicator and an appropr ⁴ Give details of	iate lands	scape posit	tion must b	e primary indicator of w e present	vetland hy	drology,	
Restrictive L	Layer (if p	resent):						Hydric Soil Pre	esent?	Yes No O 	
Remarks:											
soil pit ca half	fway down :	slope. prob	ng confirms	s this is representative o	of hillside	<u>.</u>					
HYDROLO											
Wetland Hy										ators (two or more are required)	
Primary India		one is suffi	<u>cient)</u>							ed Leaves (B9)	
	Water (A1)			Inundation			0 5	,	0	tterns (B10)	
0	ater Table (<i>i</i>	42)		Sparsely Ve	0		urface (B8)	,		izospheres along Living Roots (C3)	
Saturatio				Marl Depos						Reduced Iron (C4)	
	larks (B1)			Hydrogen S					alt Deposit		
Sedimen	nt Deposits	(B2)		Dry-Seasor	1 Water T	Fable (C2)		St	unted or S	Stressed Plants (D1)	

Surface Water (A1)			Inundation Visible on Aer	ial Imagery (B7)	Drainage Pa	tterns (B10)		
High Water Table (A2)			Sparsely Vegetated Conca	ave Surface (B8)	Oxidized Rhi	zospheres alo	ong Living Roots (C3)	
Saturation (A3)			Marl Deposits (B15)		Presence of	Reduced Iror	ו (C4)	
Water Marks (B1)			Hydrogen Sulfide Odor (C	31)	Salt Deposit	s (C5)		
Sediment Deposits (B2)			Dry-Season Water Table	(C2)	Stunted or S	tressed Plant	ts (D1)	
Drift Deposits (B3)			Other (Explain in Remark	s)	Geomorphic	Position (D2))	
Algal Mat or Crust (B4)					Shallow Aqu	itard (D3)		
Iron Deposits (B5)					Microtopogra	aphic Relief (D4)	
Surface Soil Cracks (B6)					FAC-neutral	Test (D5)		
Field Observations:								
Surface Water Present?	$Yes \bigcirc$	No 🖲	Depth (inches):					
Water Table Present?	$_{ m Yes}$ \bigcirc	No 🖲	Depth (inches):	Wetland Hydro	ology Present?	Yes 🖲	No \bigcirc	
Saturation Present? (includes capillary fringe)	Yes 🖲	No \bigcirc	Depth (inches): 5					
Describe Recorded Data (strea	m gauge, m	nonitor wel	l, aerial photos, previous inspect	ion) if available:				
Western Regional Climate Cente	er data for t	he Kotzebi	ue Airport (Station 50576) long t	erm (1949-2012)				
Remarks:								

water perched atop silty clay loam, pooling in bottom of pit. Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date:	27-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_64
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Hillside	
Local relief (concave, convex, none): none	Slope: <u>12.2</u> % / <u>7.0</u> ° Elevation: <u>105</u>		
Subregion : Northern Alaska	at.: <u>66.84661666666667</u> Long.: <u>-162.607448</u>	333333 Datu	m: WGS84
Soil Map Unit Name:	NWI class	sification: PSS1B	
	of year? Yes No (If no, explain in cantly disturbed? Are "Normal Circumstances" Illy problematic? (If needed, explain any answ	present? Yes 🖲	No 〇
			<i>c</i> .

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc		
Remarks: SLOW? Salpul <20cm tall. Roadside disturbance.						

	Absol	lute Dominant	Indicator	Dominance Test worksheet:			
Tree Stratum	<u>%</u> Co	ver Species?	Status	Number of Dominant Species			
1				That are OBL, FACW, or FAC: (A)			
2.				Total Number of Dominant			
3				Species Across All Strata: (B)			
4.				Percent of dominant Species That Are OBL_EACW_or EAC: 100.0% (A/B)			
5				That Are OBL, FACW, or FAC:(A/B)			
Total Cove	r : 0			Prevalence Index worksheet:			
Sapling/Shrub Stratum 50% of Total Cover:	0 2	0% of Total Cover:	0	Total % Cover of: Multiply by:			
1 Salix pulchra	30		FACW	OBL species x 1 =			
	- 7	_	FAC	FACW species <u>35.5</u> x 2 = <u>71</u>			
2. Salix glauca 3. Vaccinium uliginosum	5		FAC	FAC speciles 47 x 3 = 141			
A Betula nana	- 7		FAC	FACU speciles $5 - x 4 = 20$			
	2		FAC	UPL species $-\frac{0}{x 5} = -\frac{0}{2}$			
o Arctestanhules elnine	- 1		FACU	Column Totals: _87.5_ (A) _232_ (B)			
	1		FAC				
1			TAC	Prevalence Index = $B/A = 2.651$			
8				Hydrophytic Vegetation Indicators:			
9		- 🗆		✓ Dominance Test is > 50%			
10				✓ Prevalence Index is ≤3.0			
Total Cove				Morphological Adaptations ¹ (Provide supporting			
Herb Stratum 50% of Total Cover:	27 2	20% of Total Cover:	10.8	data in Remarks or on a separate sheet)			
1. Carex bigelowii	20		FAC	Problematic Hydrophytic Vegetation ¹ (Explain)			
2. Petasites frigidus			FACW	¹ Indicators of hydric soil and wetland hydrology must			
3. Dupontia fischeri	3		FACW	be present, unless disturbed or problematic.			
3 4 Luzula multiflora	2		FACU				
4 5 Pyrola asarifolia			FACU				
6. Polemonium acutifiorum	0.	5	FAC	Plot size (radius, or length x width) <u>10m</u>			
 Saxifraga nelsoniana 	0.	5	FAC	% Cover of Wetland Bryophytes (Where applicable)			
8. Rubus chamaemorus	0.	5	FACW	% Bare Ground <u>65</u>			
0.	3		FAC	Total Cover of Bryophytes 30			
9							
10Total Cove	r: 33.			Hydrophytic Verstation			
		<u>.</u> .0% of Total Cover:	6.7	Vegetation Present? Yes No			
	20.75 2						
Remarks: large patches of bare ground - gravels from roadway.							

Despite Matrix Redax features 0.4 Color (moist) %6 Type Loc? Texture Remarks 4.10 107 5/1 90 7.5/R 4/6 10 C PL StryClay toal 10-22 2.5/Y 3/2 80 10/R 3/2 20 C PL StryClay toal 10-22 2.5/Y 3/2 80 10/R 3/2 20 C PL StryClay toal 10-22 2.5/Y 3/2 80 10/R 3/2 20 C PL StryClay toal 10-22 2.5/Y 3/2 80 10/R 3/2 0 C PL StryClay toal 10-22 2.5/Y 3/2 80 10/R StryClay toal StryCla	Profile Desc	ription: De	scribe to de	epth ne	eded to docu	ument the	e presen	ice or abs	ence of in	dicators		
Concess Color (moist) % Color (moist) % Type Loc? Texture Remarks 0-4 10 5/1 00 7.5VR 4/6 10 C PL Stip Carly tawn seen expand: stating at 4.6m 10.22 2.5V 3/2 80 10VR 3/2 20 C PL Stip Carly tawn seen expand: stating at 4.6m 10.22 2.5V 3/2 80 10VR 3/2 20 C PL Stip Carly tawn seen expand: stating at 4.6m 10.22 2.5V 3/2 80 10VR 3/2 C PL Stip Carly tawn seen expand: stating at 4.6m 10.22 2.5V 3/2 80 10VR 3/2 C PL Stip Carly tawn seen expand: stating at 4.6m 11 10 Atska Stip Carly tawn Stip Carly tawn Atska Stip Carly tawn seen expand: stating at 4.6m 11 10 Indicator 5 for Poblemaltic Hydride Solf Indicator 5 for Poblemaltic Hydride Solf	Depth		Matrix			Redo	ox Featu					
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10.22 2.5Y 3/2 80 10YR 3/2 20 C PL Silly Clay Loam ************************************	0-4									Hemic Organics		
*Type: C-Concentration D-Depletion RM-Reduced Matrix *Location: PL=Fore Lining RC-Roat Channel M=Matrix Hydric Soil Indicators: Indicators for Problematic Hydric Soils? Histosof of Histosof All trible (A1) Alaska Color Change (TA4) Histosof and Fistel (A1) Alaska Alpine swales (TA5) Histosof and Fistel (A1) Alaska Alpine swales (TA5) Histosof and Fistel (A1) Alaska Alpine swales (TA5) Watska Gleyed (A13) alaska Redax With 2:5Y Hue Maska Gleyed (A13) alone indicator of Pydrophytic wagetation, one primary indicator of wetland hydrology. Alaska Gleyed Pores (A15) *Give details of color change in Remarks Restrictive Layer (ff present): Type: achieving (forgens): Type: scheway (forgens): Hydric Soil Present? Year Soil Matter (A1) Inundation Visible on Aerial Imagery (87) Depth (inches): 22 Depth generative (A13) Remarks: Stanzałowa (A13) Wetland Hydrology Indicators: Stanzałowa Surface (B1) Jurder Water (A1) Inundation Visible on Aerial Imagery (87) Surface Water (A1) Give details of color (C1) Surface Water (A1) Inundation Visible on Aerial Imagery (87) Surface Water Present? Yes No Sat	4-10	10Y	5/1	90	7.5YR	4/6	10	C	PL	Silty Clay Loam	some organic sta	ining at 4-5in
Hydric Soil Indicators: Indicators for Problematic Hydric Soils. ³ □ Histes Color Change (TA4) Alaska Gleyed Without Hue 5Y or Redder □ Histic Epipetion (A2) Alaska Alpine swales (TA5) Underlying Layer □ Histic Epipetion (A2) Alaska Alpine swales (TA5) Underlying Layer □ Histic Epipetion (A2) Alaska Redox With 2.5Y Hue Other (Explain in Remarks) □ Thick Dark Surface (A12) ³ One indicator of hydrophylic vegetation, one primary indicator of wetland hydrology. and an appropriate landscape position must be present □ Alaska Gleyed (A13) * Give details of color change in Remarks Restrictive Layer (If present): Type: attive layer (If present): Yeg ● No ○ Type: attive layer (If present): Primacy Indicators (Any one is sufficient) □ Primacy Indicator Gany one is sufficient) □ Inundation Visible on Aerial Imagery (87) □ Drainage Patterns (810) ☑ Suface Water (A1) □ Inundation Visible on Aerial Imagery (87) □ Primacy Indicators (Noo or more are required) ☑ Water Marks (81) □ Inundation Visible on Aerial Imagery (87) □ □ Primacy Indicators (Noo or more are required) ☑ Water Marks (81) □ </td <td>10-22</td> <td>2.5Y</td> <td>3/2</td> <td>80</td> <td>10YR</td> <td>3/2</td> <td>20</td> <td>С</td> <td>PL</td> <td>Silty Clay Loam</td> <td></td> <td></td>	10-22	2.5Y	3/2	80	10YR	3/2	20	С	PL	Silty Clay Loam		
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Image: state sta	51		•									
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□ Thick Dark Surface (A12) ³ One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present ▲ Alaska Redox (A14) * Give details of color change in Remarks Restrictive Layer (If present): * Give details of color change in Remarks Remarks: Hydric Soil Present? Yes ● No ● Performance Water Stained Leaves (B9) Primary Indicators (Inv one Is sufficient) Inundation Visible on Aerial Imagery (B7) Primary Indicators (B2) Sparse Vy Vegetated Concave Surface (B8) Water Marks (B1) Inundation Visible on Aerial Imagery (B7) Saturation (A3) Mark Deposits (B15) Primary Indicators (B2) Dyra/season Water Table (C2) Saturation (A3) Hydrogen Suffice Odor (C1) Saturation (A3) Other (Explain in Remarks) Other Marks (B1) Other (Explain in Remarks) Other Marke S(B1) Other (Explain in Remarks) Other Marke S(B0) Water Marks (B1) Duff Deposits (B3) Other (Explain in Remarks) Bardmarker S(B6) Water Table (C2) Sturface Water Present? Yes Water Able Resent? Yes No ● Depth (inches): 16			I)							Other (Explain in Re	marks)	
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✓ High Water Table (A2) □ Sparsely Vegetated Concave Surface (B8) □ Oxidized Rhizospheres along Living Roots (C3) ✓ Saturation (A3) □ Marl Deposits (B15) □ Presence of Reduced Iron (C4) □ Water Marks (B1) □ Hydrogen Sulfide Odor (C1) □ Salt Deposits (C5) □ Sediment Deposits (B2) □ Dry-Season Water Table (C2) □ Stunted or Stressed Plants (D1) □ Drift Deposits (B3) □ Other (Explain in Remarks) □ Geomorphic Position (D2) □ Algal Mat or Crust (B4) □ Verseason Water Table (C2) ☑ Shallow Aquitard (D3) □ Iron Deposits (B5) □ Depth (inches): ☑ Microtopographic Relief (D4) ☑ Surface Soil Cracks (B6) □ Depth (inches): ☑ Depth (inches): ☑ Present? Yes ● No ● Depth (inches): 16 Wetland Hydrology Present? Yes ● No ● Saturation Present? Yes ● No ● Depth (inches): 7	5	•••		nt)								
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) Other (Explain in Remarks) Iron Deposits (B5) Microtopographic Relief (D4) Surface Soil Cracks (B6) Depth (inches): Field Observations: Surface Water Present? Yes No No Depth (inches): 16 Wetland Hydrology Present? Yes No No Depth (inches): 7	Surface \	Water (A1)			<u> </u>	Inundation	Visible o	n Aerial In	nagery (B7)) Draina	ge Patterns (B10))
Water Marks (B1) Hydrogen Sulfide Odor (C1) Salt Deposits (C5) Sediment Deposits (B2) Dry-Season Water Table (C2) Stunted or Stressed Plants (D1) Drift Deposits (B3) Other (Explain in Remarks) Geomorphic Position (D2) Algal Mat or Crust (B4) Microtopographic Relief (D4) Microtopographic Relief (D4) Surface Soil Cracks (B6) Present? Yes ● No ● Depth (inches): 16 Wetland Hydrology Present? Yes ● Yes ● No ● Depth (inches): 7	🖌 High Wa	ter Table (A	2)			Sparsely Ve	egetated	Concave S	urface (B8) Oxidiz	ed Rhizospheres a	along Living Roots (C3)
Sediment Deposits (B2) □ Dry-Season Water Table (C2) □ Stunted or Stressed Plants (D1) □ Drift Deposits (B3) □ Other (Explain in Remarks) □ Geomorphic Position (D2) □ Algal Mat or Crust (B4) □ Shallow Aquitard (D3) □ Iron Deposits (B5) □ Microtopographic Relief (D4) □ Surface Soil Cracks (B6) ☑ FAC-neutral Test (D5) Field Observations: Surface Water Present? Yes ● Yes ● No ● Depth (inches): 16 Wetland Hydrology Present? Yes ● No ● Depth (inches): 7	🗹 Saturatio	on (A3)			i 🗌	Marl Depos	its (B15)			Preser	ce of Reduced Ir	on (C4)
□ Drift Deposits (B3) □ Other (Explain in Remarks) □ Algal Mat or Crust (B4) □ Shallow Aquitard (D3) □ Iron Deposits (B5) □ Microtopographic Relief (D4) □ Surface Soil Cracks (B6) ☑ FAC-neutral Test (D5) Field Observations: Surface Water Present? Yes Yes No Depth (inches): 16 Saturation Present? Yes No Depth (inches): Saturation Present? Yes No	Water Mater Mater	arks (B1)			- I	Hydrogen S	Sulfide O	dor (C1)		Salt D	eposits (C5)	
Algal Mat or Crust (B4) ✓ Shallow Aquitard (D3) Iron Deposits (B5) Microtopographic Relief (D4) Surface Soil Cracks (B6) ✓ FAC-neutral Test (D5) Field Observations: Surface Water Present? Yes ● Yes ● No ● Depth (inches): 16 Saturation Present? Yes ● No ● Depth (inches): Saturation Present? Yes ● Yes ● No ● Depth (inches): 7	Sedimen	t Deposits (B2)		🗌 I	Dry-Seasor	n Water 1	Table (C2)		Stunte	d or Stressed Pla	nts (D1)
□ Iron Deposits (B5) □ Microtopographic Relief (D4) □ Surface Soil Cracks (B6) ✓ FAC-neutral Test (D5) Field Observations: Surface Water Present? Yes No Depth (inches): 16 Water Table Present? Yes Yes No Depth (inches): 16 Saturation Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches):						Other (Exp	lain in Re	emarks)		_	•	2)
□ Surface Soil Cracks (B6) ✓ FAC-neutral Test (D5) Field Observations: Surface Water Present? Yes ○ No ○ Depth (inches): Water Table Present? Yes ○ No ○ Depth (inches): 16 Wetland Hydrology Present? Yes ○ No ○ Saturation Present? Yes ○ No ○ Depth (inches): 16 Wetland Hydrology Present? Yes ○ No ○			34)							_	• • •	
Field Observations: Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): 16 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 7		. ,								_		(D4)
Surface Water Present? Yes No Depth (inches): Water Table Present? Yes No Depth (inches): 16 Wetland Hydrology Present? Yes No Saturation Present? (includes capillary fringe) Yes No Depth (inches): 7 Ves No	Surface S	Soil Cracks (B6)							FAC-ne	eutral Test (D5)	
Water Table Present? Yes No Depth (inches): 16 Wetland Hydrology Present? Yes No Saturation Present? (includes capillary fringe) Yes No Depth (inches): 7 Vetland Hydrology Present? Yes No				\sim								
Saturation Present? (includes capillary fringe) Yes O No Depth (inches): 7	Surface Wate	er Present?				Depth (inc	hes):					
(includes capillary fringe) Yes VIO Depth (inches): 7			Yes (● No	, U	Depth (inc	hes): 16	þ	w	etland Hydrology Prese	nt? Yes 🖲	No \bigcirc
Describe Descrided Date (stream acuse mention well early whete menulous inspection) if a strikely	(includes cap	illary fringe)					on option 1	f avai-bi			

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Project/Site: Cape Blossom Wetlands	Borough/City: Northwest Arctic Borouah	Sampling Date: 2	27-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_65
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Hillside	
Local relief (concave, convex, none): none	Slope:% / ° Elevation:)	
Subregion : Northern Alaska La	t.: <u>66.84723666666667</u> Long.: <u>-162.607943</u>	3333333 Datur	n: WGS84
Soil Map Unit Name:	NWI class	sification: U	
	f year? Yes No (If no, explain i antly disturbed? Are "Normal Circumstances" ly problematic? (If needed, explain any ansv	present? Yes 🖲	No O
			<i>.</i> .

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?		No ○ No ● No ●	Is the Sampled Area within a Wetland?	Yes \bigcirc No \textcircled{ullet}		
Remarks: SLOW on gravel fill (old pad?) at decomissioned white alice site.						

	Absolute	Dominant	Indicator	Dominance Test worksheet:			
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species			
1				That are OBL, FACW, or FAC: <u>3</u> (A)			
2				Total Number of Dominant			
3				Species Across All Strata: (B)			
4.				Percent of dominant Species			
				That Are OBL, FACW, or FAC: <u>42.9%</u> (A/B)			
5. — Total Cover:	0			Prevalence Index worksheet:			
Sapling/Shrub Stratum 50% of Total Cover:	0 20% c	of Total Cover:	0	Total % Cover of: Multiply by:			
1 Salix richardsonii	30	\checkmark	FACW	OBL species <u>0</u> x 1 = <u>0</u>			
· · · · · · · · · · · · · · · · · · ·	7		FAC	FACW species 41.1 x 2 =82.2			
C. Salix alauca	10		FAC	FAC species x 3 =54.30_			
	10		FACW	FACU species $5 \times 4 = 20$			
				UPL species $-\frac{0}{x} \times 5 = -\frac{0}{x}$			
5				Column Totals: 64.2 (A) 156.5 (B)			
6							
7				Prevalence Index = $B/A = 2.438$			
8				Hydrophytic Vegetation Indicators:			
9				Dominance Test is > 50%			
10				✓ Prevalence Index is ≤3.0			
Total Cover:	57						
Herb Stratum 50% of Total Cover:	8.5 20% 0	of Total Cover:	11.4	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)			
1 Artemisia tilesii	1	\checkmark	FACU	Problematic Hydrophytic Vegetation ¹ (Explain)			
2. Chamerion angustifolium	1	\checkmark	FACU	¹ Indicators of hydric soil and wetland hydrology must			
3. Parnassia palustris	1	\checkmark	FACW	be present, unless disturbed or problematic.			
4 Equisetum scirpoides	2	\checkmark	FACU				
5. Festuca rubra	1	\checkmark	FAC	Plot size (radius, or length x width) 10m			
6. Carex scirpoidea	1	\checkmark	FACU	% Cover of Wetland Bryophytes			
7. Dupontia fischeri	0.1		FACW	(Where applicable)			
8. Elymus alaskanus	0.1		FAC	% Bare Ground _85			
9				Total Cover of Bryophytes 10			
9							
Total Cover:	7.2			Hydrophytic Vegetation			
		of Total Cover:	1.44	Present? Yes \bullet No \bigcirc			
Remarks: trace unid herbs, trace unidentified Poa.							

Profile Desc	ription: De		depth nee	eded to document the	-	sence of in	dicators	
Depth	0	Matrix			ox Features	1 2	T	Dementer
(inches)		(moist)	<u>%</u>	Color (moist)	% Type	Loc ²	Texture Coarse Sandy Loam	Remarks
0-18	10YR		60	··				40% rounded-semiang gravels, bolts, wires
		·						
¹ Type: C=Cor	ncentration	D=Depletion	on RM=Re	duced Matrix ² Locatio	n: PL=Pore Lining	g RC=Root	Channel M=Matrix	
Hydric Soil	Indicators	:		Indicators for	Problematic Hyd	Iric Soils: ³	_	
_	or Histel (A1				Change (TA4)		Alaska Gleyed With Underlying Layer	nout Hue 5Y or Redder
	ipedon (A2) n Sulfide (A4			· · ·	swales (TA5) With 2.5Y Hue		Other (Explain in R	emarks)
	rk Surface (× 1	
	leyed (A13)	. ,					e primary indicator of wet	land hydrology,
Alaska R	edox (A14)			and an appropriate landscape position must be present ⁴ Give details of color change in Remarks				
Alaska G	leyed Pores	(A15)		Give details of	color change in R	emarks		
Restrictive I	ayer (if pr	resent):					Usedaia Cali Dassa	ent? Yes 🔿 No 🖲
Type:	h o o) .						Hydric Soil Prese	ent? Yes 🔾 No 🖲
Depth (in	cnes):							
Remarks:	indicators f	ill from do		l urbito oligo oito				
no nyane soli	indicators. I	III from dec	comissioned	d white alice site.				
HYDROLO Wetland Hy		dicators					Secondar	y Indicators (two or more are required)
Primary India			cient)					er Stained Leaves (B9)
	Water (A1)			Inundation	Visible on Aerial	magery (B7)		nage Patterns (B10)
🗌 High Wa	ter Table (A	(2)			egetated Concave	0 5		ized Rhizospheres along Living Roots (C3)
Saturatio	on (A3)			Marl Depos	- its (B15)		Prese	ence of Reduced Iron (C4)
Water M	arks (B1)				Sulfide Odor (C1)		Salt	Deposits (C5)
Sedimer	it Deposits ((B2)		Dry-Seasor	Water Table (C2)	Stun	ted or Stressed Plants (D1)
Drift De	oosits (B3)			Other (Exp	lain in Remarks)		Geor	morphic Position (D2)
Algal Ma	t or Crust (I	B4)					Shall	low Aquitard (D3)
Iron Dep	oosits (B5)						Micro	otopographic Relief (D4)
Surface	Soil Cracks	(B6)					FAC-	neutral Test (D5)

Field Observations:					
Surface Water Present?					

Water Table Present?

Saturation Present?

(includes capillary fringe)

Depth (inches):	Wetland Hydrology Present?	$_{ m Yes}$ \bigcirc
Depth (inches):	wettand right ology riesent.	163 🗢

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

Yes 🔿 No 🖲

Yes 🔘 No 🖲

Yes 🔿 No 👁

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

no wetland hydrology indicators. Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Depth (inches):

Depth (inches):

No 💿

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date:	27-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_66
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Kettle	
Local relief (concave, convex, none): <u></u>	_ Slope:% /° Elevation: _90		
Subregion : Northern Alaska Lat.:	<u>66.8477033333333</u> Long.: <u>-162.607706</u>	<u>666667</u> Datu	m: WGS84
Soil Map Unit Name:	NWI class	ification: PEM1H	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present?	Yes 🖲 N	lo O	Is the Sampled Area		
Hydric Soil Present?	Yes 🖲 N	lo O	•	Yes 🖲 No	
Wetland Hydrology Present?	Yes 🖲 N	lo O	within a Wetland?		
Remarks: small nond w amargant fringe HCWES. Dand as 5ft balow algornt tundra grade. Extends up small swale as SLCW					

small pond w emergent fringe HGWFS. Pond ca 5ft below ajacent tundra grade. Extends up small swale as SLCW.

	Absolute	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum	% Cover	Species?	Status	Number of Dominant Species
1				That are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
4				Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
5Total Cover:	0			Prevalence Index worksheet:
Sapling/Shrub Stratum 50% of Total Cover:	0 20% c	of Total Cover:	0	Total % Cover of: Multiply by:
				OBL species x 1 =30
1				FACW species $0 \times 2 = 0$
2				FAC species $1 \times 3 = 3$
3				FACU species $0 \times 4 = 0$
4				UPL species $0 \times 5 = 0$
5				Column Totals: 31 (A) 33 (B)
6				
7				Prevalence Index = $B/A = 1.065$
8				Hydrophytic Vegetation Indicators:
9				✓ Dominance Test is > 50%
10Total Cover:	0			✓ Prevalence Index is ≤3.0
			0	Morphological Adaptations ¹ (Provide supporting
_Herb Stratum50% of Total Cover:	0 20% 0	of Total Cover:		data in Remarks or on a separate sheet)
1. Carex aquatilis	15	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Eriophorum angustifolium	15		OBL	¹ Indicators of hydric soil and wetland hydrology must
3. Carex bigelowii	1		FAC	be present, unless disturbed or problematic.
4				
5				Plot size (radius, or length x width) 2m
6				% Cover of Wetland Bryophytes
7				(Where applicable)
8				% Bare Ground 50
9				Total Cover of Bryophytes 45
10				Hydrophytic
Total Cover:	31			Vegetation
50% of Total Cover:	5.5 20% c	of Total Cover:	6.2	Present? Yes No
Remarks: emergent ring around standing water				

Depth	Matrix	97		Redox Feat	1	1.002	Toyturo	Domorko
(inches) Color	r (moist)	%	Color (mois	t) %	Туре	Loc ²	Texture	Remarks
								_
						-	· . <u></u>	
¹ Type: C=Concentratior	n D=Depletio	on RM=Red	uced Matrix ² Lo	cation: PL=	Pore Linina	RC=Root	Channel M=Matrix	-
51				for Probler	0			
Hydric Soil Indicator					4	IC SOIIS:		
Histosol or Histel (A1)			Alaska Color Change (TA4)				Alaska Gleyed Without Underlying Layer	out Hue 5Y or Redder
Histic Epipedon (A2)			Alaska Alpine swales (TA5)				✓ Other (Explain in Re	emarks)
Hydrogen Sulfide (redox with 2	.5Y HUE			
Thick Dark Surface	. ,		³ One indic	ator of hydro	ophytic vege	tation, one	e primary indicator of wetla	and hydrology,
Alaska Gleyed (A13	•			propriate land				
Alaska Redox (A14)			⁴ Give deta	ils of color cl	hange in Re	marks		
Alaska Gleyed Pore	es (A15)							
Restrictive Layer (if p	present):							
							Hydric Soil Preser	nt? Yes 🖲 No 🔾
Type:								
Туре:								
Type: Depth (inches): Remarks:	to hydrophyti	ic vegetatior	n and standing wa	iter				
Type: Depth (inches):	to hydrophyti	ic vegetatior	n and standing wa	iter				
Type: Depth (inches): Remarks:	to hydrophyti	ic vegetatior	n and standing wa	iter				
Type: Depth (inches): Remarks:	to hydrophyti	ic vegetatior	n and standing wa	iter				
Type: Depth (inches): Remarks:	to hydrophyti	ic vegetatior	n and standing wa	ter				
Type: Depth (inches): Remarks: assume hydric soil due t	to hydrophyti	ic vegetatior	n and standing wa	ter				
Type: Depth (inches): Remarks:		ic vegetatior	n and standing wa	iter			Secondary	Indicators (two or more are required)
Type: Depth (inches): Remarks: assume hydric soil due t	ndicators:		n and standing wa	iter				<u>Indicators (two or more are required)</u> r Stained Leaves (B9)
Type: Depth (inches): Remarks: assume hydric soil due t HYDROLOGY Wetland Hydrology I	ndicators: y one is suffic			iter ation Visible	on Aerial Im	agery (B7	Water	
Type: Depth (inches): Remarks: assume hydric soil due t HYDROLOGY Wetland Hydrology I Primary Indicators (anv	ndicators: / one is suffic)					0 .) Water	r Stained Leaves (B9)
Type: Depth (inches): Remarks: assume hydric soil due t HYDROLOGY Wetland Hydrology I Primary Indicators (any ✓ Surface Water (A1 ☐ High Water Table ☐ Saturation (A3)	ndicators: / one is suffic)		Inund Sparse	ation Visible	d Concave S	0 .) Water) Drain) Oxidiz	r Stained Leaves (B9) age Patterns (B10)
Type: Depth (inches): Remarks: assume hydric soil due t HYDROLOGY Wetland Hydrology I Primary Indicators (any ☑ Surface Water (A1 □ High Water Table	ndicators: / one is suffic)		Inund Sparse	ation Visible	d Concave S 5)	0 .) Water) Drain) Oxidiz Prese	r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3)
Type: Depth (inches): Remarks: assume hydric soil due t HYDROLOGY Wetland Hydrology I Primary Indicators (any ✓ Surface Water (A1 ☐ High Water Table ☐ Saturation (A3)	ndicators: y one is suffic) (A2)		Inund. Sparse Mari D Hydro	ation Visible ely Vegetated Jeposits (B15	d Concave S 5) Odor (C1)	0 .) Water) Drain) Oxidiz Prese Salt D	^r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3) nce of Reduced Iron (C4)
Type: Depth (inches): Remarks: assume hydric soil due t HYDROLOGY Wetland Hydrology I Primary Indicators (any Surface Water (A1 High Water Table Saturation (A3) Water Marks (B1)	ndicators: y one is suffic) (A2) s (B2)		Inund Sparse Marl D Hydro Dry-Se	ation Visible ely Vegetated Deposits (B15 gen Sulfide (d Concave S 5) Odor (C1) Table (C2)	0 .) Water) Drain) Oxidiz Prese Salt D Sturt	^r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3) nce of Reduced Iron (C4) Deposits (C5)
Type: Depth (inches): Remarks: Issume hydric soil due t IYDROLOGY Vetland Hydrology I Primary Indicators (any Surface Water (A1 High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits	ndicators: y one is suffic) (A2) s (B2)		Inund Sparse Marl D Hydro Dry-Se	ation Visible ely Vegetateo Deposits (B15 gen Sulfide (eason Water	d Concave S 5) Odor (C1) Table (C2)	0 .) Water) Drain) Oxidiz Prese Salt D Stunt Geom	r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3) nce of Reduced Iron (C4) Deposits (C5) ed or Stressed Plants (D1)
Type: Depth (inches): Remarks: assume hydric soil due t AYDROLOGY Wetland Hydrology I Primary Indicators (any Surface Water (A1 High Water Table Saturation (A3) Water Marks (B1) Sediment Deposits Drift Deposits (B3)	ndicators: <u>y one is suffic</u>) (A2) (B2) (B4)		Inund Sparse Marl D Hydro Dry-Se	ation Visible ely Vegetateo Deposits (B15 gen Sulfide (eason Water	d Concave S 5) Odor (C1) Table (C2)	0 .) Water) Drain) Oxidia Prese Salt D Stunt Geom Shallo	r Stained Leaves (B9) age Patterns (B10) zed Rhizospheres along Living Roots (C3) nce of Reduced Iron (C4) Deposits (C5) ed or Stressed Plants (D1) norphic Position (D2)

Surface Water Present?

(includes capillary fringe)

Water Table Present?

Saturation Present?

Remarks:

Yes \bullet No \bigcirc

Yes 🔿 No 🖲

 $_{\rm Yes} \odot \ _{\rm No} \odot$

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Depth (inches): 6

Depth (inches):

Depth (inches):

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No 🔿

Yes 🖲

Wetland Hydrology Present?

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 2	7-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_67
Investigator(s): <u>SLI/EKJ</u>	Landform (hillside, terrace, hummocks etc.):	Flat	
Local relief (concave, convex, none): hummocky	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: <u>125</u>		
Subregion : Northern Alaska Lat.:	<u>66.8498383333334</u> Long.: <u>162.609895</u>	Datum	n: WGS84
Soil Map Unit Name:	NWI classi	ification: PEM1E	
	ear? Yes No (If no, explain in tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?	Yes ● Yes ● Yes ●	Is the Sampled Area within a Wetland?	Yes 🖲 No 🔿
Remarks: patterning appears to hummocks. both com		st) - check in aerials. fla	arks HGWST with 6+ in water, strangs SDEV on

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

		Ab	osolute	Dominant	Indicator	Dominance Test worksheet:
	ee Stratum	%	Cover	Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)
						Total Number of Dominant
						Species Across All Strata:5_ (B)
						Percent of dominant Species
						That Are OBL, FACW, or FAC:100.0% (A/B)
5.	Total Cover:		0			Prevalence Index worksheet:
San		·	-	of Total Cover:	0	Total % Cover of: Multiply by:
	Andromeda polifolia		3		FACW	OBL species <u>28</u> x 1 = <u>28</u>
1.	•		-			FACW species8 x 2 =16
2.	Alnus viridis ssp. crispa		1		FAC	FAC speciles 15.5 x 3 = 46.5
3.	Alnus viridis ssp. crispa Salix richardsonii		3		FACW	FACU species $1 \times 4 = 4$
4. 5.	Retula nana		2		FAC	UPL species $-\frac{0}{x} \times 5 = -\frac{0}{x}$
•••	Arctostanhulos alnina		1		FACU	Column Totals: 52.5 (A) 94.5 (B)
6.			10		FAC	
7. 8.			2		FAC	Prevalence Index = $B/A = 1.800$
•••	Empetrum nigrum					Hydrophytic Vegetation Indicators:
						✓ Dominance Test is > 50%
10.	Total Cover:		22	_		✓ Prevalence Index is ≤3.0
Ц	erb Stratum 50% of Total Cover:	_		of Total Cover:	4.4	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1	Carex aquatilis		10	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2.	Eriophorum angustifolium		10	\checkmark	OBL	¹ Indicators of hydric soil and wetland hydrology must
3.	Eriophorum scheuchzeri		5		OBL	be present, unless disturbed or problematic.
4.	Carex limosa		3		OBL	
5.	Parnassia palustris		1		FACW	Plot size (radius, or length x width) 10m
6.	Rubus chamaemorus		1		FACW	% Cover of Wetland Bryophytes
7.	Tofieldia pusilla		0.5		FAC	(Where applicable)
8.						% Bare Ground 45
9.						Total Cover of Bryophytes 45
10.						Hydrophytic
	Total Cover:	_	30.5			Vegetation
	50% of Total Cover:	5.25	_ 20% c	of Total Cover:	6.1	Present? Yes No
Rem	arks: trace unid herbs					

SOIL

	ription: Describe to Matrix	depth nee	ded to document the Red	e presence ox Feature		ence of in	dicators	
Depth (inches)	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²	Texture	Remarks
(1101100)					1 3 6 0	200		Kennarko
			······································					
· ·			······································					
							P	
¹ Type: C=Con	centration D=Depleti	on RM=Rec	duced Matrix ² Locatio	n: PL=Pore	e Lining	RC=Root (Channel M=Matrix	
Hydric Soil I	Indicators:		Indicators for	Problemat	ic Hydri	c Soils: ³		
Histosol d	or Histel (A1)		Alaska Color	Change (TA	4 (4)		Alaska Gleyed Witho	ut Hue 5Y or Redder
Histic Epi	pedon (A2)		🗌 Alaska Alpine	swales (TA	.5)		Underlying Layer	
Hydroger	n Sulfide (A4)		Alaska Redo	With 2.5Y	Hue		Other (Explain in Rei	marks)
Thick Dar	k Surface (A12)							
🗌 Alaska Gl	eyed (A13)		³ One indicator and an appropri	of hydrophy	rtic veget	ation, one	primary indicator of wetla	nd hydrology,
🗌 Alaska Re	edox (A14)						e present	
Alaska Gl	eyed Pores (A15)		⁴ Give details of	color chang	ge in Rer	narks		
Restrictive L	ayer (if present):							
Type:	J L L J						Hydric Soil Presen	t? Yes 🖲 No 🔾
Depth (inc	hes):							
Remarks:	•							
	soil due to hydrophyt	ic vegetatio	and standing water					
assume myunc		ic vegetatio	n and standing water					
HYDROLO	DGY							
Wetland Hyd	rology Indicators:						Secondary	Indicators (two or more are required)
Primary Indic	ators (any one is suffi	cient)					Water	Stained Leaves (B9)
Surface \	Nater (A1)		Inundation	Visible on A	Aerial Im	agery (B7)	🗌 Draina	ge Patterns (B10)
High Wat	ter Table (A2)		Sparsely Ve	egetated Co	ncave Su	ırface (B8)	Oxidize	ed Rhizospheres along Living Roots (C3)
Saturatio	in (A3)		Marl Depos	its (B15)			Preser	ce of Reduced Iron (C4)
Water Ma	arks (B1)		Hydrogen S	Sulfide Odor	⁻ (C1)		Salt De	eposits (C5)
Sedimen	t Deposits (B2)		Dry-Seasor	n Water Tab	le (C2)		Stunte	d or Stressed Plants (D1)
Drift Dep	oosits (B3)		Other (Exp	lain in Rema	arks)		Geomo	orphic Position (D2)
Algal Mat	t or Crust (B4)						Shallov	w Aquitard (D3)
Iron Dep	osits (B5)							opographic Relief (D4)
	Soil Cracks (B6)						FAC-ne	eutral Test (D5)

Field Observations: Surface Water Present?

Water Table Present? Saturation Present?

Yes $ullet$ No $igcap$	Depth (inches): 6		
Yes 🔾 No 🖲	Depth (inches):	Wetland Hydrology Present?	Yes 🖲
Yes 🔾 No 🖲	Depth (inches):		

(includes capillary fringe) **Yes NO** Depth (incres): Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available:

Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Remarks:

Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

No 🔿

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands	Borough/City: <u>Northwest Arctic Borouah</u>	Sampling Date: 2	7-Aug-12
Applicant/Owner: <u>Baker/ADOT&PF</u>		Sampling Point:	CB_68
Investigator(s): <u>SLI/EKJ</u>	_ Landform (hillside, terrace, hummocks etc.):	Pothole	
Local relief (concave, convex, none):	Slope: <u>0.0</u> % / <u>0.0</u> ° Elevation: 95		
Subregion : Northern Alaska Lat.:	<u>66.8513883333333</u> Long.: <u>-162.611326</u>	666667 Datur	n: WGS84
Soil Map Unit Name:	NWI class	ification: PUBH	
	ear? Yes No (If no, explain ir tly disturbed? Are "Normal Circumstances" problematic? (If needed, explain any answ	present? Yes 🖲	No O

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features

Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present?		No () No () No ()	Is the Sampled Area within a Wetland?	Yes \bullet No \bigcirc
Remarks: PUBH with very narrow	vegetated	fringe. Characterizing pond a	s a whole.	

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

	Absolute	Dominant	Indicator	Dominance Test worksheet:
	% Cover	Species?	Status	Number of Dominant Species That are OBL, FACW, or FAC:4(A)
2				Total Number of Dominant Species Across All Strata: 4 (B)
3				Percent of dominant Species That Are OBL, FACW, or FAC:100.0% (A/B)
5				Prevalence Index worksheet:
Total Cover:	0			Total % Cover of: Multiply by:
Sapling/Shrub Stratum 50% of Total Cover:	0 20% of ⁻	Total Cover:		OBL species 5 x 1 = 5
1. Salix glauca	2		FAC	FACW species $3 \times 2 = 6$
2. Salix richardsonii	3		FACW	FAC species $2 \times 3 = 6$
3				
4				
5				UPL species $-\frac{0}{x} \times 5 = -\frac{0}{x}$
6				Column Totals: <u>10</u> (A) <u>17</u> (B)
7				Prevalence Index = $B/A = 1.700$
8			:	Hydrophytic Vegetation Indicators:
9				Dominance Test is > 50%
10				$\checkmark \text{ Prevalence Index is } \leq 3.0$
Total Cover:	5			
_Herb Stratum50% of Total Cover:	20% of	Total Cover:	1	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
1. Carex aquatilis	2	\checkmark	OBL	Problematic Hydrophytic Vegetation ¹ (Explain)
2. Eriophorum angustifolium	3	\checkmark	OBL	¹ Indicators of hydric soil and wetland hydrology must
3				be present, unless disturbed or problematic.
4				
5				Plot size (radius, or length x width) 10m
6				% Cover of Wetland Bryophytes
7				(Where applicable)
8				% Bare Ground 98
9				Total Cover of Bryophytes _0
10				Hydrophytic
Total Cover:	5			Vegetation
50% of Total Cover:2	.5 20% of	Total Cover:	1	Present? Yes No
Remarks: bare ground includes open water. water level hi	gh, submerge	ed willows. I	oanks 1-3ft	t above water level.

Depth	Matrix		Redo	x Feature	es			
(inches)	Color (moist)	%	Color (moist)	<u>%</u>	Type ¹	Loc ²	Texture	Remarks
							-	
						,		
					,			
		ion RM=Redu	uced Matrix ² Location		-		hannel M=Matrix	
_	Indicators:		Indicators for P			c Soils:		nout Hue 5Y or Redder
_	or Histel (A1) ipedon (A2)		Alaska Color C	÷ .			Underlying Layer	OUT HUE ST OF REQUEN
_ `	n Sulfide (A4)		Alaska Redox				✓ Other (Explain in R	emarks)
	irk Surface (A12)		3.0		- ,			
Alaska G	leyed (A13)		³ One indicator o and an appropria				primary indicator of wetle present	land hydrology,
	edox (A14)				• •		, p	
Alaska G	leyed Pores (A15)		⁴ Give details of o		де пі кеі	narks		
	Layer (if present):						Undria Sail Droco	
Type:							Hydric Soil Prese	ent? Yes $ullet$ No $igcap$
Depth (in	ches):							
emarks:	" due de buideendeu		·					
ssume hydrid	c soil due to hydrophy	tic vegetation	and standing water					
	JGY							
YDROL	disclosed Indicators:						Coopday	
Vetland Hy	drology Indicators: cators (any one is suffi							y Indicators (two or more are required) er Stained Leaves (B9)
Vetland Hy Primary India	cators (any one is suffi			visible on v	Aerial Im	agery (B7)	Wate	er Stained Leaves (B9)
Vetland Hy Primary Indic V Surface			Inundation Ver			0 5	Wate	
Vetland Hy Primary Indic V Surface	cators (any one is suffi Water (A1) ater Table (A2)		Inundation Sparsely Veg Marl Deposi	getated Co		0 5	Wate	er Stained Leaves (B9) nage Patterns (B10)
Vetland Hy Primary Indic Surface High Wa Saturatic	cators (any one is suffi Water (A1) ater Table (A2)		Sparsely Veg	getated Co its (B15)	oncave Si	0 5	Wate	er Stained Leaves (B9) nage Patterns (B10) ized Rhizospheres along Living Roots (C3
Vetland Hyd Primary Indic Surface High Wa Saturatic Water M	cators (any one is suffi Water (A1) ater Table (A2) on (A3)		Sparsely Veg	getated Co its (B15) Sulfide Odor	oncave Su or (C1)	0 5	Wate Urain Orain Oxidi Oxidi Prese Salt [er Stained Leaves (B9) nage Patterns (B10) ized Rhizospheres along Living Roots (C3 ence of Reduced Iron (C4)
Vetland Hy Primary India Surface High Wa Saturatia Water M Sedimer	cators (any one is suffi Water (A1) ater Table (A2) on (A3) farks (B1)		Sparsely Veg	getated Co its (B15) Sulfide Odor Water Tab	oncave Su or (C1) ble (C2)	0 5	Wate Wate Orain Oxidi Oxidi Prese Salt I Stunt	er Stained Leaves (B9) nage Patterns (B10) ized Rhizospheres along Living Roots (C3 ence of Reduced Iron (C4) Deposits (C5)
Vetland Hy Primary Indic Surface High Wa Saturatic Water M Sedimer Drift Dej	cators (any one is suffi Water (A1) ater Table (A2) on (A3) Marks (B1) nt Deposits (B2)		Sparsely Veg Marl Deposi Hydrogen St Dry-Season	getated Co its (B15) Sulfide Odor Water Tab	oncave Su or (C1) ble (C2)	0 5	Wate Wate Drain Oxidi Prese Salt I Stunt Geom	er Stained Leaves (B9) nage Patterns (B10) ized Rhizospheres along Living Roots (C3 ence of Reduced Iron (C4) Deposits (C5) ted or Stressed Plants (D1)

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspection) if available: Western Regional Climate Center data for the Kotzebue Airport (Station 50576) long term (1949-2012)

Yes \bullet No \bigcirc

Yes 🔿 No 🖲

Yes 🔿 No 👁

Depth (inches): 36

3+ ft. Total precipitation for August (4.36 inches) was nearly double both the long-term (2.14 inches) and NCDC Normal (2.18 inches) August means.

Depth (inches):

Depth (inches):

Surface Soil Cracks (B6)

Field Observations:

Surface Water Present?

(includes capillary fringe)

Water Table Present?

Saturation Present?

Remarks:

▼ FAC-neutral Test (D5)

Wetland Hydrology Present?

Yes 🖲

No 🔿

Appendix A1.		tion plot dat	ta, Cape Blosson	Verification plot data, Cape Blossom to Kotzebue Road, Alaska, 2012.	
Plot ID	Cowardin	Date Completed	Investigators	Dominant Species	Field Notes
CB_V 01	PSS1/EM1B	8/24/2012	SLI, EKJ	Empetrum nigrum, Ledum decumbens, Vaccinium uliginosum, Vaccinium vitis- idaea. Eriophorum va einatum	Mostly moist low open mixed shrub-sedge tussock tundra polygons (PSS1B) with wet sedge meadow tundra swales (PEM1E).
CB_V 02	PSS1B	8/24/2012	SLI, EKJ	Salix alaxensis, Salix glauca, Salix pulchra, Salix richardsonii	Sloughed bank of pond with closed low willow.
CB_V 03	PSSIB	8/25/2012	SLI, EKJ	Salix glauca, Salix pulchra, Salix richardsonii, Vaccinium uliginosum, Calamaerostis Canadensis, Carex bioelowii	Open low willow adjacent to bluff.
CB_V 04	PSS1B	8/25/2012	SLJ, EKJ	Alnus viridis ssp. crispa, Salix bebbiana, Artemisia tilesii, Calamagrostis Canadensis, Carex bigelowii, Chamerion angustifolium, Equisetum pretense, Rubus chamaemorus	Tall closed alder.
CB_V 05	PSS1B	8/25/2012	SLI, EKJ	Salix alexensis, Salix glauca, Salix pulchra, Salix richardsonii, Equisetum pretense, Petasites frigidus	Sloughed bank with closed low willow.
CB_V 06	PSS1/EM1B 8/25/2012	8/25/2012	SLI, EKJ	Empetrum nigrum, Ledum decumbens, Vaccinium uliginosum, Vaccinium vitis- idaea, Eriophorum vaginatum	Flat toped low open mixed shrub sedge tussock tundra polygons with wet sedge meadow tundra troughs. Sandhill cranes observed on the ground in this community.
CB_V 07	PSS1B	8/26/2012	SLI, EKJ	Salix glauca, Salix pulchra, Vaccinium uliginosum, Equisetum arvense, Petasites frigidus	Tall open willow
CB_V 08	PEM1F	8/27/2012	SLI, EKJ	, Carex aquatilis, Comarum palustre, Eriophorum aneustifolium	Wet sedge meadow tundra lacustrine fringe wetland with few scattered hummocks.
CB_V 09	LIUBH	8/27/2012	SLI, EKJ		Lake greater than 20 acres with no rooted vegetation. Shoreline with well vegetated banks up to 1ft above water level and emergent swales draining from the lake. Few sloughed banks
CB_V 10	M2US1P	8/27/2012	SLI, EKJ		On the beach the permafrost has been undercut 10 to 15ft, causing mast wasting. Pieces of the well vegetated shore have fallen onto the beach. A storm on 25 Sep 2012 seems to have contributed a significantly to the bluff getting undercut and eroded.

Appendix /	Appendix A1. Continued.	q.			
Plot ID	Cowardin	Date Completed	Date Cowardin Completed Investigators	Dominant Species	Field Notes
CB_V 11	PEM1/SS1E 8/27/2012		SLI, EKJ	Andromeda polifolia, Arctostaphylos alpine, Betula nana, Ledum decumbens, Vaccinium uliginosum, Vaccinium vitis-idaea	Andromeda polifolia, Arctostaphylos alpine, Open low mixed shrub-sedge tussock tundra on Betula nana, Ledum decumbens, Vaccinium the rims of low center polygons with wet sedge uliginosum, Vaccinium vitis-idaea willow tundra. Ptarmigan and goose scat found
CB_V12	PEM1/SS1E 8/27/2012	8/27/2012	SLI, EKJ	Betula nana, Empetrum nigrum, Ledum decumbens, Vaccinium uliginosum, Vaccinium vitis-idaea, Eriophorum anousifolium, Ruhus chamaemorus	Low open mixed shrub tussock tundra community on the low center polygon rims with wet sedge willow tundra.
CB_V13	PSS1B	8/27/2012	SLI, EKJ	salix glauca, Salix pulchra, Salix Salix glauca, Salix pulchra, Salix richardsonii, Carex bigelowii, Eriophorum vaginatum	Low open willow with tussocks.

Appendix B. Site photos from wetlands verification plots, Cape Blossom to Kotzebue Road, Alaska, 2012.

SITE PHOTOS



CB_01: Lower Perennial River **NWI Class:** R2UBH



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_02: Saturated Low and Tall Deciduous Shrub NWI Class: PSS1B



Hydrology: Saturated (A3) with high water table (A2) **Soils:** Organics over silty clay loam (Problematic, AK Gleyed)



CB_03: Seasonally Flooded Saturated Sedge-Shrub Meadow **NWI Class:** PEM1E

Hydrology: Surface water (A1) with shallow aquitard (D3) **Soils:** No pit dug, inundated



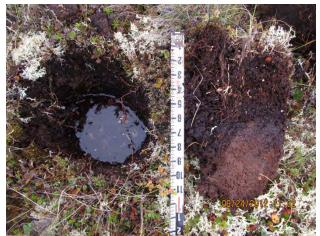
CB_04: Saturated Low and Tall Deciduous Shrub **NWI Class:** PSS1B



Hydrology: Saturated (A3) with high water table (A2) **Soils:** Organics over silty clay loam (Alaska Redox A14)



CB_05: Saturated Emergent Sedge-Shrub Meadow NWI Class: PSS3/EM1B



Hydrology: Saturated (A3) with high water table (A2) **Soils:** No pit dug, inundated



CB_06: Saturated Birch-Ericaceous Scrub Tundra **NWI Class:** PSS1B



Hydrology: Saturated (A3) with high water table (A2) **Soils:** Organics over silty clay loam (Alaska Redox A14)



CB_07: Saturated Low and Tall Deciduous Shrub **NWI Class:** PSS1B



CB_08: Saturated Emergent Sedge-Shrub Meadow NWI Class: PEM1B



Hydrology: Saturated (A3) with high water table (A2) **Soils:** Organics over silty clay loam (Problematic, Other)



Hydrology: Saturated (A3) with high water table (A2) **Soils:** Organics over silty clay loam (Problematic, Other)



CB_09: Seasonally Flooded Saturated Sedge-Shrub Meadow NWI Class: PEM1E



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_10: Saturated Birch-Ericaceous Scrub Tundra NWI Class: PSS3B



CB_11: Saturated Emergent Sedge-Shrub Meadow NWI Class: PSS3/EM1B



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



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



CB_12: Seasonally Flooded Saturated Sedge-Shrub Meadow NWI Class: PEM1E



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_13: Saturated Low and Tall Deciduous Shrub NWI Class: PSS1B



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



CB_14: Saturated Low and Tall Deciduous Shrub NWI Class: PSS1B



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



CB_15: Permanently Flooded Lake or Pond NWI Class: PUBH



Hydrology: Surface water (A1) **Soils:** No pit dug, inundated



CB_16: Upland NWI Class: Upland



Hydrology: Well drained **Soils:** Organics over silty clay loam



CB_17: Seasonally Flooded Sat. Low and Tall Deciduous Shrub NWI Class: PSS1C



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_18: Saturated Low and Tall Deciduous Shrub **NWI Class:** PSS1B



Hydrology: Shallow aquitard (D3) and FAC-neutral (D5) **Soils:** Organics over silty clay loam (Alaska Redox A14)



CB_19: Saturated Low and Tall Deciduous Shrub **NWI Class:** PSS1B



CB_20: Saturated Emergent Sedge-Shrub Meadow NWI Class: PEM1/SS1B



CB_21: Saturated Dwarf Shrub Tundra **NWI Class:** PSS4B



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



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



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



CB_22: Saturated Low and Tall Deciduous Shrub NWI Class: PSS1B



CB_23: Saturated Emergent Sedge-Shrub Meadow NWI Class: PEM1/SS3B



Hydrology: Saturated (A3) with shallow aquitard (D3) **Soils:** Organics over silty clay loam (Alaska Gleyed A13)



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



CB_24: Seasonally Flooded Saturated Sedge-Shrub Meadow NWI Class: PEM1E



Hydrology: Saturation (A3) with a high water table (A2) **Soils:** Organics (Histic Epipedon A2)



CB_25: Saturated Dwarf Shrub Tundra NWI Class: PSS4B



CB_26: Seasonally Flooded Saturated Sedge-Shrub Meadow NWI Class: PEM1E



CB_27: Saturated Dwarf Shrub Tundra **NWI Class:** PSS4B



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



Hydrology: Surface water (A1) Soils: No pit dug, inundated



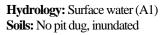
Hydrology: Saturation (A3) with a high water table (A2) **Soils:** Organics over silty clay loam (Histic Epipedon A2)



CB_28: Littoral Aquatic Bed and Lacustrine Fringe **NWI Class:** PEM1F



CB_29: Saturated Emergent Sedge-Shrub Meadow NWI Class: PSS1/EM1B





Hydrology: Saturation (A3) with a high water table (A2) **Soils:** Organics (Histic Epipedon A2)



CB_30: Semi-Permanently Flooded Sedge-Shrub Meadow NWI Class: PEM1F



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_31: Seasonally Flooded Saturated Sedge-Shrub Meadow NWI Class: PEM1/SS1E



CB_32: Upland NWI Class: Upland



CB_33: Seasonally Flooded Saturated Sedge-Shrub Meadow NWI Class: PEM1E



Hydrology: Surface water (A1) Soils: No pit dug, inundated



Hydrology: Well drained Soils: Organics over silty clay loam



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



CB_34: Permanently Flooded Sedge Marsh NWI Class: PEM1H



CB_35: Seasonally Flooded Saturated Sedge-Shrub Meadow NWI Class: PEM1E



Hydrology: Surface water (A1) Soils: No pit dug, inundated



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_36: Semi-Permanently Flooded Sedge-Shrub Meadow NWI Class: PEM1/SS1F



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_37: Semi-Permanently Flooded Sedge-Shrub Meadow NWI Class: PEM1/SS1F



CB_38: Upland NWI Class: Upland



CB_39: Seasonally Flooded Saturated Sedge-Shrub Meadow NWI Class: PEM1E



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



Hydrology: Saturation (A3) with a high water table (A2) **Soils:** Organics over silty clay loam



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_40: Permanently Flooded Sedge Marsh NWI Class: PEM1F



Hydrology: Saturated (A3) with high water table (A2) **Soils:** Organics over slity clay loam (Alaska Redox A14)



CB_41: Semi-Permanently Flooded Sedge-Shrub Meadow NWI Class: PEM1/SS1F



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_42: Seasonally Flooded Saturated Sedge-Shrub Meadow **NWI Class:** PEM1/SS1E



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_43: Saturated Emergent Sedge-Shrub Meadow NWI Class: PSS3/EM1B



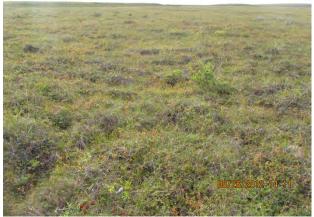
Hydrology: Saturated (A3) with high water table (A2) **Soils:** Organics over silty clay loam (Histic Epipedon A2)



CB_44: Semi-Permanently Flooded Sedge-Shrub Meadow NWI Class: PEM1F/SS1F



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_45: Saturated Emergent Sedge-Shrub Meadow NWI Class: PSS3/EM1B



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



CB_46: Saturated Low and Tall Deciduous Shrub **NWI Class:** PSS1B



CB_47: Saturated Emergent Sedge-Shrub Meadow NWI Class: PSS1/EM1B



Hydrology: Shallow aquitard (D3) and FAC-neutral (D5) Soils: Organics over slity clay loam (Alaska Redox A14)



Hydrology: Saturation (A3) with a shallow aquitard (D3) Soils: Organics over silty clay loam (Alaska Redox A14)



CB_48: Saturated Emergent Sedge-Shrub Meadow NWI Class: PEM1/SS1B



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



CB_49: Semi-Permanently Flooded Sedge-Shrub Meadow NWI Class: PEM1/PSS1F



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_50: Saturated Emergent Sedge-Shrub Meadow NWI Class: PSS1B



CB_51: Saturated Emergent Sedge-Shrub Meadow NWI Class: PSS1B



Hydrology: Saturation (A3) with a high water table (A2) **Soils:** Organics (Histic Epipedon A2)



Hydrology: Saturation (A3) with a high water table (A2) **Soils:** Organics (Histic Epipedon A2)



CB_52: Saturated Emergent Sedge-Shrub Meadow NWI Class: PSS1/EM1B



Hydrology: Shallow aquitard (D3) and FAC-neutral (D5) **Soils:** Histel (A1)



CB_53: Saturated Emergent Sedge-Shrub Meadow NWI Class: PSS1/EM1B



CB_54: Seasonally Flooded Saturated Sedge-Shrub Meadow NWI Class: PEM1/SS1E

Hydrology: Surface water (A1) Soils: No pit dug, inundated



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



CB_55: Seasonally Flooded Saturated Sedge-Shrub Meadow NWI Class: PEM1E



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_56: Saturated Emergent Sedge-Shrub Meadow NWI Class: PEM1/SS1B



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



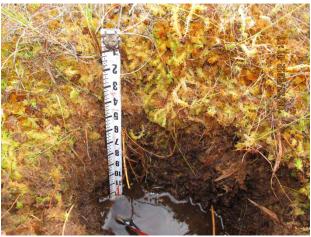
CB_57: Seasonally Flooded Saturated Sedge-Shrub Meadow NWI Class: PEM1/SS1E



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_58: Seasonally Flooded Saturated Sedge-Shrub Meadow **NWI Class:** PEM1/SS1E



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



CB_59: Saturated Dwarf Shrub Tundra NWI Class: PSS1/3B



CB_60: Saturated Emergent Sedge-Shrub Meadow NWI Class: PSS3/EM1B



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



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_61: Saturated Emergent Sedge-Shrub Meadow NWI Class: PSS3/EM1B



CB_62: Seasonally Flooded Saturated Sedge-Shrub Meadow NWI Class: PEM1E



CB_63: Saturated Birch-Ericaceous Scrub Tundra NWI Class: PSS1B



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



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



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



CB_64: Saturated Low and Tall Deciduous Shrub NWI Class: PSS1B



CB_65: Upland NWI Class: Upland



CB_66: Permanently Flooded Sedge Marsh NWI Class: PEM1H



Hydrology: Saturation (A3) with high water table (A2) **Soils:** Organics over silty clay loam (Alaska Gleyed A13)



Hydrology: Well drained Soils: course sandy loam



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_67: Seasonally Flooded Saturated Sedge-Shrub Meadow NWI Class: PEM1E



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_68: Permanently Flooded Lake or Pond **NWI Class:** PUBH

VERIFICATION SITE PHOTOS



Hydrology: Surface water (A1) Soils: No pit dug, inundated



CB_V01: Saturated Emergent Sedge-Shrub Meadow NWI Class: PSS1/EM1B



CB_V02: Saturated Low and Tall Deciduous Shrub NWI Class: PSS1B



CB_V03: Saturated Low and Tall Deciduous Shrub NWI Class: PSS1B



CB_V05: Saturated Low and Tall Deciduous Shrub NWI Class: PSS1B



CB_V04: Saturated Low and Tall Deciduous Shrub NWI Class: PSS1B



CB_V06: Saturated Emergent Sedge-Shrub Meadow NWI Class: PSS1/PEM1B



CB_V07: Saturated Low and Tall Deciduous Shrub NWI Class: PSS1B



CB_V08: Littoral Aquatic Bed and Lacustrine Fringe **NWI Class:** PEM1FE



CB_V09: Permanently Flooded Lake or Pond NWI Class: L1UBH



CB_64: Marine Waters and Unconsolidated Shore **NWI Class:** M2US1P



CB_V11: Seasonally Flooded Saturated Sedge-Shrub Meadow **NWI Class:** PEM1/SS1E



CB_V12: Seasonally Flooded Saturated Sedge-Shrub Meadow NWI Class: PEM1/SS1E



CB_V13: Saturated Low and Tall Deciduous Shrub NWI Class: PSS1B

Appendix C. Functional Assessment Data Forms.

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

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

Project: Proposed Kotzebue to C	ape Blossom Road, AK	Date: 10/18/2012
Wetland: Seasonal Tidal Estuary	,	PM/RS: Wendy Davis

A. Flood Flow Regulation (Storage and Desynchronization)	Wetland likely to perform function? (Y or N) Rating: N/A
 Wetland is within a permafrost system, with a near-surface active layer. If yes, proceed no further, wetland is low functioning. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. Wetland has dense (≥40% cover) woody vegetation. Wetland receives floodwater from an adjacent water course at least once every 10 years. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow. 	1. N/A 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
B. Sediment, Nutrient (N and P), Toxicant Removal	Wetland likely to perform function? (Y or N) Rating: N/A
 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. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. Dense (≥50% cover) herbaceous vegetation is present. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. Sediment deposits are present (evidence of deposition during floods). Thick surface organic horizon and/or abundant fine organic litter is present. 	 N/A N/A N/A N/A N/A N/A N/A A/A A A
C. Erosion Control and Shoreline Stabilization	Wetland likely to perform function? (Y or N) Rating: N/A
Function only applicable if wetland directly abuts permanent or relatively permanent water.	1. N/A 2. N/A
 Wetland has dense, energy absorbing vegetation (trees, shrubs) bordering the water course and no evidence of erosion. An at least moderately dense herbaceous layer is present. 	1–2 attributes (Y)—High Function None—Low Function
D. Production of Organic Matter and its Export	Wetland likely to perform function? (Y or N) Rating: Low Function
 Function only applicable if wetland is flooded at least once every 10 years. 1. A more than minimal amount of organic matter is flushed from the wetland by water flow at least once every 10 years. <i>If no, proceed no further, wetland is low functioning.</i> 2. Wetland has at least 30% cover of herbaceous vegetation. 	1. N 2. N/A 3. N/A 4. N/A 5. N/A 4-5 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function

E. General Habitat Suitability	Wetland likely to perform function? (Y or N)
 Wetland is not fragmented by development. Upland surrounding wetland is undisturbed. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). Plant community has two or more strata, with at least two of those strata having ≥10% total cover. Wetland has at least a moderate degree of Cowardin Class interspersion. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present. 	Rating: Moderate Function 1. Y 2. Y 3. N 4. N 5. Y 6. N 5–6 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: High Function
 Function only applicable if wetland has perennial or intermittent surface water connection to a fish-bearing water body. 1. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 2. Fish are present or are known to be present. 3. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 4. Spawning areas are present (e.g. pools with organic debris or overhanging vegetation). 	1. Y 2. Y 3. N 4. Y 5. Y 4–5 attributes (Y)—High Function 2–3 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
G. Native Plant Richness	Wetland likely to perform function? (Y or N) Rating: N/A
Function only applicable in vegetated wetlands.1. At least 20 native plant species occur in the wetland2. Wetland contains two or more Cowardin Classes.3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	1. N/A 2. N/A 3. N/A
H. Educational, Scientific, Recreational, or Subsistence Use	2–3 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function Wetland likely to perform function? (Y or N)
 Site has documented scientific or educational use. Wetland is in public ownership. Accessible trails are available. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking). 	Interview Rating: High Function 1. N 2. Y 3. Y 4. Y ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N) Rating: Low Function
 Wetland contains documented occurrence of a state or federally listed threatened or endangered species. <i>If yes, wetland is high</i> <i>functioning.</i> Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service Wetland has biological, geological, or other features that are determined to be rare. Wetland has been determined significant because it provides functions scarce for the area. 	 1. N 2. N 3. N 4. N ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function

Project: Proposed Kotzebue to Cape Blossom Road, AK	Date: 10/18/2012
Wetland: Permanently Flooded Lake or Pond	PM/RS: Wendy Davis

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

E. General Habitat Suitability	Wetland likely to perform function? (Y or N)
 Wetland is not fragmented by development. Upland surrounding wetland is undisturbed. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). Plant community has two or more strata, with at least two of those strata having ≥10% total cover. Wetland has at least a moderate degree of Cowardin Class interspersion. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present. 	Rating: Moderate Function 1. Y 2. Y 3. N 4. N 5. N 6. N 5–6 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: High Function
 Function only applicable if wetland has perennial or intermittent surface water connection to a fish-bearing water body. 1. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 2. Fish are present or are known to be present. 3. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 4. Spawning areas are present (e.g. pools with organic debris or overhanging vegetation). 	1. Y 2. Y 3. N 4. Y 5. Y 4-5 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function
G. Native Plant Richness	Wetland likely to perform function? (Y or N) Rating: N/A
Function only applicable in vegetated wetlands.1. At least 20 native plant species occur in the wetland2. Wetland contains two or more Cowardin Classes.3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	1. N/A 2. N/A 3. N/A
H. Educational, Scientific, Recreational, or Subsistence Use	2–3 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function Wetland likely to perform function? (Y or N)
· · · ·	Rating: High Function
 Site has documented scientific or educational use. Wetland is in public ownership. Accessible trails are available. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking). 	1. N 2. Y 3. N 4. Y ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N) Rating: Low Function
 Wetland contains documented occurrence of a state or federally listed threatened or endangered species. <i>If yes, wetland is high</i> <i>functioning.</i> Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service Wetland has biological, geological, or other features that are determined to be rare. Wetland has been determined significant because it provides functions scarce for the area. 	 1. N 2. N 3. N 4. N ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function

Project: Proposed Kotzebue to Cape Blossom Road, AK	Date: 10/18/2012
Wetland: Lower Perennial River	PM/RS: Wendy Davis

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

E. General Habitat Suitability	Wetland likely to perform function? (Y or N)
 Wetland is not fragmented by development. Upland surrounding wetland is undisturbed. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). Plant community has two or more strata, with at least two of those strata having ≥10% total cover. Wetland has at least a moderate degree of Cowardin Class interspersion. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present. 	Rating: Moderate Function 1. Y 2. Y 3. N 4. N 5. N 6. Y 5–6 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: High Function
 Function only applicable if wetland has perennial or intermittent surface water connection to a fish-bearing water body. 1. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 2. Fish are present or are known to be present. 3. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 4. Spawning areas are present (e.g. pools with organic debris or overhanging vegetation). 	1. Y 2. Y 3. N 4. Y 5. Y 4-5 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function
G. Native Plant Richness	Wetland likely to perform function? (Y or N) Rating: N/A
Function only applicable in vegetated wetlands.1. At least 20 native plant species occur in the wetland2. Wetland contains two or more Cowardin Classes.3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	1. N/A 2. N/A 3. N/A
H. Educational, Scientific, Recreational, or Subsistence Use	2–3 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function Wetland likely to perform function? (Y or N)
	Rating: Moderate Function
 Site has documented scientific or educational use. Wetland is in public ownership. Accessible trails are available. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking). 	1. N 2. Y 3. N 4. N ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N) Rating: Low Function
 Wetland contains documented occurrence of a state or federally listed threatened or endangered species. <i>If yes, wetland is high</i> <i>functioning.</i> Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service Wetland has biological, geological, or other features that are determined to be rare. Wetland has been determined significant because it provides functions scarce for the area. 	 1. N 2. N 3. N 4. N ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function

Project: Proposed Kotzebue to Cape Blossom Road, AK	Date: 10/18/2012
Wetland: Littoral Aquatic Bed and Lacustrine Fringe	PM/RS: Wendy Davis

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

E. General Habitat Suitability	Wetland likely to perform function? (Y or N)
 Wetland is not fragmented by development. Upland surrounding wetland is undisturbed. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). Plant community has two or more strata, with at least two of those strata having ≥10% total cover. Wetland has at least a moderate degree of Cowardin Class interspersion. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present. 	Rating: Moderate Function 1. Y 2. Y 3. N 4. N 5. N 6. Y 5–6 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: High Function
 Function only applicable if wetland has perennial or intermittent surface water connection to a fish-bearing water body. 1. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 2. Fish are present or are known to be present. 3. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 4. Spawning areas are present (e.g. pools with organic debris or overhanging vegetation). 	1. N 2. Y 3. Y 4. Y 5. Y 4-5 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function
G. Native Plant Richness	Wetland likely to perform function? (Y or N) Rating: Moderate Function
Function only applicable in vegetated wetlands.1. At least 20 native plant species occur in the wetland2. Wetland contains two or more Cowardin Classes.3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	1. N 2. Y 3. N
H. Educational, Scientific, Recreational, or Subsistence Use	2–3 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function Wetland likely to perform function? (Y or N)
 Site has documented scientific or educational use. Wetland is in public ownership. Accessible trails are available. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking). 	Rating: Moderate Function 1. N 2. Y 3. N 4. N ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N) Rating: Low Function
 Wetland contains documented occurrence of a state or federally listed threatened or endangered species. <i>If yes, wetland is high</i> <i>functioning.</i> Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service Wetland has biological, geological, or other features that are determined to be rare. Wetland has been determined significant because it provides functions scarce for the area. 	 N N N N A N ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function

Project: Proposed Kotzebue to Cape Blossom Road, AK	Date: 10/18/2012
Wetland: Permanently Flooded Sedge Marsh	PM/RS: Wendy Davis

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

E. General Habitat Suitability	Wetland likely to perform function? (Y or N)
1. Wetland is not fragmented by development.	Rating: Moderate Function
2. Upland surrounding wetland is undisturbed.	2. Y
3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each).	3. N 4. N
4. Plant community has two or more strata, with at least two of those	5. N
strata having >10% total cover.	6. N
5. Wetland has at least a moderate degree of Cowardin Class	
interspersion.	5–6 attributes (Y)—High Function
6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	2–4 attributes (Y)—Moderate Function
	0–1 attributes (Y)—Low Function
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: Moderate Function
Function only applicable if wetland has perennial or intermittent surface	1. N
water connection to a fish-bearing water body.	2. N
	3. Y
1. Wetland has sufficient size and depth of open water so as not to	4. Y 5. Y
freeze completely during winter.	0. T
2. Fish are present or are known to be present.	4–5 attributes (Y)—High Function
Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter.	2-3 attributes (Y)-Moderate Function
4. Spawning areas are present (aquatic vegetation and/or gravel beds	0–1 attributes (Y)—Low Function
5. Juvenile rest areas present (e.g. pools with organic debris or	
overhanging vegetation).	
G. Native Plant Richness	Wetland likely to perform function? (Y or N) Rating: Moderate Function
Function only applicable in vegetated wetlands.	1. N 2. Y
1. At least 20 native plant species occur in the wetland	3. N
 Wetland contains two or more Cowardin Classes. Wetland has three or more strata of vegetation with at least 10% cover in each stratum. 	
	2–3 attributes (Y)—High Function
	1 attribute (Y)—Moderate Function
	None—Low Function
H. Educational, Scientific, Recreational, or Subsistence Use	Wetland likely to perform function? (Y or N) Rating: Moderate Function
1. Site has documented scientific or educational use.	1. N
2. Wetland is in public ownership.	2. Y
 Accessible trails are available. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking). 	3. N 4. N
	≥ 2 attributes (Y)—High Function
	1 attribute (Y)—Moderate Function None—Low Function
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N) Rating: Low Function
1. Wetland contains documented occurrence of a state or federally	1. N
listed threatened or endangered species. If yes, wetland is high	2. N
functioning.	3. N 4. N
2 Wetland contains documented critical babitat, bigh quality	-T. IN
2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S.	
 Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service 	≥ 2 attributes (Y)—High Function
ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are	1 attribute (Y)—Moderate Function
ecosystems, or priority species, respectively designated by the U.S.	

Project: Proposed Kotzebue	e to Cape Blossom Road, AK	Date: 10/18/2012
Wetland: Semi-Permanently	/ Flooded Sedge-Shrub Meadow	PM/RS: Wendy Davis

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

E. General Habitat Suitability	Wetland likely to perform function? (Y or N)
 Wetland is not fragmented by development. Upland surrounding wetland is undisturbed. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). Plant community has two or more strata, with at least two of those strata having ≥10% total cover. Wetland has at least a moderate degree of Cowardin Class interspersion. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present. 	Rating: High Function 1. Y 2. Y 3. Y 4. Y 5. N 6. Y 5–6 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: N/A
 Function only applicable if wetland has perennial or intermittent surface water connection to a fish-bearing water body. 1. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 2. Fish are present or are known to be present. 3. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 4. Spawning areas are present (e.g. pools with organic debris or overhanging vegetation). 	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A 4–5 attributes (Y)—High Function 2–3 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
G. Native Plant Richness	Wetland likely to perform function? (Y or N) Rating: Moderate Function
Function only applicable in vegetated wetlands.1. At least 20 native plant species occur in the wetland2. Wetland contains two or more Cowardin Classes.3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	1. N 2. Y 3. N
H. Educational, Scientific, Recreational, or Subsistence Use	2–3 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function Wetland likely to perform function? (Y or N)
 Site has documented scientific or educational use. Wetland is in public ownership. Accessible trails are available. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking). 	Rating: Moderate Function 1. N 2. Y 3. N 4. N ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N) Rating: Low Function
 Wetland contains documented occurrence of a state or federally listed threatened or endangered species. <i>If yes, wetland is high</i> <i>functioning.</i> Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service Wetland has biological, geological, or other features that are determined to be rare. Wetland has been determined significant because it provides functions scarce for the area. 	 N N N N A N ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function

Project: Proposed Kotzebue to Cape Blossom Road, AK	Date: 10/18/2012
Wetland: Seasonally Flooded Saturated Sedge-Shrub Meadow	PM/RS: Wendy Davis

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

E. General Habitat Suitability	Wetland likely to perform function? (Y or N)
 Wetland is not fragmented by development. Upland surrounding wetland is undisturbed. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). Plant community has two or more strata, with at least two of those strata having ≥10% total cover. Wetland has at least a moderate degree of Cowardin Class interspersion. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present. 	Rating: High Function 1. Y 2. Y 3. N 4. Y 5. Y 6. Y 5–6 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: N/A
 Function only applicable if wetland has perennial or intermittent surface water connection to a fish-bearing water body. 1. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 2. Fish are present or are known to be present. 3. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 4. Spawning areas are present (aquatic vegetation and/or gravel beds 5. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation). 	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A 4-5 attributes (Y)—High Function 2-3 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function
G. Native Plant Richness	Wetland likely to perform function? (Y or N) Rating: Moderate Function
Function only applicable in vegetated wetlands.1. At least 20 native plant species occur in the wetland2. Wetland contains two or more Cowardin Classes.3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	1. N 2. Y 3. N
H. Educational, Scientific, Recreational, or Subsistence Use	2–3 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function Wetland likely to perform function? (Y or N)
 Site has documented scientific or educational use. Wetland is in public ownership. Accessible trails are available. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking). 	Rating: Moderate Function 1. N 2. Y 3. N 4. N ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N) Rating: Low Function
 Wetland contains documented occurrence of a state or federally listed threatened or endangered species. <i>If yes, wetland is high</i> <i>functioning.</i> Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service Wetland has biological, geological, or other features that are determined to be rare. Wetland has been determined significant because it provides functions scarce for the area. 	 N N N N A N ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function

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

Project: Proposed Kotzebue to Cape Blossom Road, AKDate: 10/18/2012Wetland: Seasonally Flooded Saturated Low and Tall Decid. ShrubPM/RS: Wendy Davis

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

E. General Habitat Suitability	Wetland likely to perform function? (Y or N)
	Rating: Moderate Function
 Wetland is not fragmented by development. Upland surrounding wetland is undisturbed. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). Plant community has two or more strata, with at least two of those strata having ≥10% total cover. Wetland has at least a moderate degree of Cowardin Class interspersion. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present. 	1. Y 2. Y 3. N 4. Y 5. N 6. N 5–6 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: N/A
Function only applicable if wetland has perennial or intermittent surface water connection to a fish-bearing water body.1. Wetland has sufficient size and depth of open water so as not to freeze completely during winter.	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A
 Fish are present or are known to be present. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. Spawning areas are present (aquatic vegetation and/or gravel beds Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation). 	4–5 attributes (Y)—High Function 2–3 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
G. Native Plant Richness	Wetland likely to perform function? (Y or N) Rating: Low Function
Function only applicable in vegetated wetlands.1. At least 20 native plant species occur in the wetland2. Wetland contains two or more Cowardin Classes.3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	1. N 2. N 3. N
H. Educational, Scientific, Recreational, or Subsistence Use	2–3 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function
The Educational, Scientific, Recreational, or Subsistence use	Wetland likely to perform function? (Y or N) Rating: Moderate Function
 Site has documented scientific or educational use. Wetland is in public ownership. Accessible trails are available. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking). 	 N Y N N N ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N) Rating: Low Function
 Wetland contains documented occurrence of a state or federally listed threatened or endangered species. <i>If yes, wetland is high</i> <i>functioning.</i> Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service Wetland has biological, geological, or other features that are determined to be rare. Wetland has been determined significant because it provides functions scarce for the area. 	 N N N N Y attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function

Project: Proposed Kotzebue to Cape Blossom Road, AK	Date: 10/18/2012
Wetland: Saturated Emergent Sedge-Shrub Meadow	PM/RS: Wendy Davis

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

E. General Habitat Suitability	Wetland likely to perform function? (Y or N)
 Wetland is not fragmented by development. Upland surrounding wetland is undisturbed. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). Plant community has two or more strata, with at least two of those strata having ≥10% total cover. Wetland has at least a moderate degree of Cowardin Class interspersion. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present. 	Rating: High Function 1. Y 2. Y 3. N 4. Y 5. Y 6. Y 5–6 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: N/A
 Function only applicable if wetland has perennial or intermittent surface water connection to a fish-bearing water body. 1. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 2. Fish are present or are known to be present. 3. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 4. Spawning areas are present (aquatic vegetation and/or gravel beds 5. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation). 	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A 4–5 attributes (Y)—High Function 2–3 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
G. Native Plant Richness	Wetland likely to perform function? (Y or N) Rating: Moderate Function
Function only applicable in vegetated wetlands.1. At least 20 native plant species occur in the wetland2. Wetland contains two or more Cowardin Classes.3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	1. N 2. Y 3. N
H. Educational, Scientific, Recreational, or Subsistence Use	2–3 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function Wetland likely to perform function? (Y or N)
 Site has documented scientific or educational use. Wetland is in public ownership. Accessible trails are available. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking). 	Rating: High Function 1. N 2. Y 3. N 4. Y ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N) Rating: Low Function
 Wetland contains documented occurrence of a state or federally listed threatened or endangered species. <i>If yes, wetland is high</i> <i>functioning.</i> Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service Wetland has biological, geological, or other features that are determined to be rare. Wetland has been determined significant because it provides functions scarce for the area. 	 N N N N N ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function

Project: Proposed Kotzebue to Cape Blossom Road, AK	Date: 10/18/2012
Wetland: Saturated Dwarf Shrub Tundra	PM/RS: Wendy Davis

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

E. General Habitat Suitability	Wetland likely to perform function? (Y or N)
 Wetland is not fragmented by development. Upland surrounding wetland is undisturbed. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). Plant community has two or more strata, with at least two of those strata having ≥10% total cover. Wetland has at least a moderate degree of Cowardin Class interspersion. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present. 	Rating: High Function 1. Y 2. Y 3. N 4. Y 5. Y 6. Y 5–6 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: N/A
 Function only applicable if wetland has perennial or intermittent surface water connection to a fish-bearing water body. 1. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 2. Fish are present or are known to be present. 3. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 4. Spawning areas are present (aquatic vegetation and/or gravel beds 5. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation). 	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A 4–5 attributes (Y)—High Function 2–3 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
G. Native Plant Richness	Wetland likely to perform function? (Y or N) Rating: Moderate Function
Function only applicable in vegetated wetlands.1. At least 20 native plant species occur in the wetland2. Wetland contains two or more Cowardin Classes.3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	1. N 2. Y 3. N
H. Educational, Scientific, Recreational, or Subsistence Use	2–3 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function Wetland likely to perform function? (Y or N)
 Site has documented scientific or educational use. Wetland is in public ownership. Accessible trails are available. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking). 	Rating: High Function 1. N 2. Y 3. N 4. Y ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N) Rating: Low Function
 Wetland contains documented occurrence of a state or federally listed threatened or endangered species. <i>If yes, wetland is high</i> <i>functioning.</i> Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service Wetland has biological, geological, or other features that are determined to be rare. Wetland has been determined significant because it provides functions scarce for the area. 	 N N N N N ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function

Project: Proposed Kotzebue to Cape Blossom Road, AK	Date: 10/18/20	012
Wetland: Saturated Birch-Ericaceous Scrub Tundra	PM/RS: Wend	ly Davis

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

E. General Habitat Suitability	Wetland likely to perform function? (Y or N)
 Wetland is not fragmented by development. Upland surrounding wetland is undisturbed. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). Plant community has two or more strata, with at least two of those strata having ≥10% total cover. Wetland has at least a moderate degree of Cowardin Class interspersion. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present. 	Rating: High Function 1. Y 2. Y 3. N 4. Y 5. Y 6. N 5–6 attributes (Y)—High Function 2–4 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: N/A
 Function only applicable if wetland has perennial or intermittent surface water connection to a fish-bearing water body. 1. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 2. Fish are present or are known to be present. 3. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 4. Spawning areas are present (e.g. pools with organic debris or overhanging vegetation). 	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A 4–5 attributes (Y)—High Function 2–3 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
G. Native Plant Richness	Wetland likely to perform function? (Y or N) Rating: Moderate Function
Function only applicable in vegetated wetlands.1. At least 20 native plant species occur in the wetland2. Wetland contains two or more Cowardin Classes.3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	1. N 2. Y 3. N
H. Educational, Scientific, Recreational, or Subsistence Use	2–3 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function Wetland likely to perform function? (Y or N)
 Site has documented scientific or educational use. Wetland is in public ownership. Accessible trails are available. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking). 	Rating: High Function 1. N 2. Y 3. N 4. Y ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N) Rating: Low Function
 Wetland contains documented occurrence of a state or federally listed threatened or endangered species. <i>If yes, wetland is high</i> <i>functioning.</i> Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service Wetland has biological, geological, or other features that are determined to be rare. Wetland has been determined significant because it provides functions scarce for the area. 	 N N N N N ≥ 2 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function

Project: Proposed Kotzebue to Cape Blossom Road, AK	Date: 10/18/2012
Wetland: Saturated Low and Tall Deciduous Shrub	PM/RS: Wendy Davis

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

E. General Habitat Suitability	Wetland likely to perform function? (Y or N)
 Wetland is not fragmented by development. Upland surrounding wetland is undisturbed. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). Plant community has two or more strata, with at least two of those strata having ≥10% total cover. Wetland has at least a moderate degree of Cowardin Class interspersion. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present. 	Rating: Moderate Function 1. N 2. N 3. Y 4. Y 5. N 6. Y 56 attributes (Y)—High Function 2-4 attributes (Y)—Moderate Function 0-1 attributes (Y)—Low Function
F. General Fish Habitat	Wetland likely to perform function? (Y or N) Rating: N/A
 Function only applicable if wetland has perennial or intermittent surface water connection to a fish-bearing water body. 1. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 2. Fish are present or are known to be present. 3. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 4. Spawning areas are present (e.g. pools with organic debris or 	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A 4–5 attributes (Y)—High Function 2–3 attributes (Y)—Moderate Function 0–1 attributes (Y)—Low Function
overhanging vegetation).	
G. Native Plant Richness	Wetland likely to perform function? (Y or N) Rating: Low Function
Function only applicable in vegetated wetlands.1. At least 20 native plant species occur in the wetland2. Wetland contains two or more Cowardin Classes.3. Wetland has three or more strata of vegetation with at least 10% cover in each stratum.	1. N 2. N 3. N
	2–3 attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function
H. Educational, Scientific, Recreational, or Subsistence Use	Wetland likely to perform function? (Y or N) Rating: High Function
 Site has documented scientific or educational use. Wetland is in public ownership. Accessible trails are available. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking). 	 N Y Y
I. Uniqueness and Special Status	Wetland likely to perform function? (Y or N) Rating: Low Function
 Wetland contains documented occurrence of a state or federally listed threatened or endangered species. <i>If yes, wetland is high</i> <i>functioning.</i> Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service Wetland has biological, geological, or other features that are determined to be rare. Wetland has been determined significant because it provides functions scarce for the area. 	 N N N N Y attributes (Y)—High Function 1 attribute (Y)—Moderate Function None—Low Function

Appendix D. Plates 1–13: photos documenting fisheries investigations for the Cape Blossom to Kotzebue Road, Alaska, 2012.

SITE PHOTOS



Plate 1. Site MS1, looking upstream



Plate 2. Aerial photo looking upstream of the north and south of Sadie Creek



Plate 3. Site NF2, looking upstream on north fork of Sadie Creek



Plate 5. Aerial view of fyke nets set cod-end to codend



Plate 4. Example of a fyke net set along stream margins, Site NF1



Plate 6. Fyke net blocking stream, Site NF3



Plate 7. Looking upstream on typical riparian vegetation of grasses, Site SF2



Plate 8. Nine-spine stickleback caught at Site TR1



Plate 9. Three-spine stickleback caught at Site NF3



Plate 10. Juvenile broad whitefish caught at Site SF2



Plate 11. Adult humpback whitefish caught at Site NF3



Plate 12. Adult least cisco caught at Site NF3



Plate 13. Northern pike caught at Site TR2

Site	Date	Wetted Width (m)	Width Increment (m)	Increment Depth (m)	Increment Velocity (m/s)	Increment Discharge (m ³ /s)	Total Discharge by Site (m ³ /s)
NF3	11 Aug 12	2.2	0.22	0.73	0.02	0.003	
NF3	11 Aug 12		0.44	0.88	0.02	0.004	
NF3	11 Aug 12		0.66	0.9	0.06	0.012	
NF3	11 Aug 12		0.88	0.79	0.04	0.007	
NF3	11 Aug 12		1.1	0.9	0.05	0.010	
NF3	11 Aug 12		1.32	0.9	0.04	0.008	
NF3	11 Aug 12		1.54	0.9	0.03	0.006	
NF3	11 Aug 12		1.76	0.88	0.05	0.010	
NF3	11 Aug 12		1.98	0.86	0.03	0.006	
NF3	11 Aug 12		2.2	0.44	0.04	0.004	0.069
TR2	11 Aug 12	8	0.80	0.64	0.02	0.010	
TR2	11 Aug 12		1.60	0.58	0.01	0.005	
TR2	11 Aug 12		2.40	0.68	0.04	0.022	
TR2	11 Aug 12		3.20	0.66	0.03	0.016	
TR2	11 Aug 12		4.00	0.72	0.03	0.017	
TR2	11 Aug 12		4.80	0.74	0.02	0.012	
TR2	11 Aug 12		5.60	0.7	0.03	0.017	
TR2	11 Aug 12		6.40	0.66	0.02	0.011	
TR2	11 Aug 12		7.20	0.52	0.02	0.008	
TR2	11 Aug 12		8.00	0.56	0.03	0.013	0.131
SF2	13 Aug 12	5.5	0.55	0.52	0.08	0.023	
SF2	13 Aug 12		1.10	0.58	0.13	0.041	
SF2	13 Aug 12		1.65	0.56	0.09	0.028	
SF2	13 Aug 12		2.20	0.62	0.08	0.027	
SF2	13 Aug 12		2.75	0.66	0.01	0.004	
SF2	13 Aug 12		3.30	0.64	0.11	0.039	
SF2	13 Aug 12		3.85	0.7	0.14	0.054	
SF2	13 Aug 12		4.40	0.62	0.05	0.017	
SF2	13 Aug 12		4.95	0.58	0.1	0.032	
SF2	13 Aug 12		5.50	0.58	0.08	0.026	0.290

Appendix E. Stream wetted widths, depths, velocity, and discharge data measured at 3 sites in Sadie Creek and its tributaries near Kotzebue, Alaska, 11–13 August 2012. Discharge for each width increment was calculated by multiplying that increment's depth and velocity. Total discharge for the entire wetted width was calculated by adding incremental discharge by site.

Appendix F. ADFG Fish Resource Permit #SF2012-259.





Department of Fish and Game

DIVISION OF SPORT FISH Headquarters Office

> 1255 West 8th Street P.O. Box 115526 Juneau, Alaska 99811-5526 Main: 907.465.4180 Fax: 907.465.2772

1

July 22, 2012

John Seigle ABR Inc., Environmental Research Box 240268 Anchorage, AK99524

Dear Mr. Seigle:

Please find enclosed your ADF&G Fish Resource Permit (#SF2012-259). You need to read this permit carefully not only to understand what you are <u>authorized and required to do</u>, but also to check for mistakes that must be corrected immediately by contacting us. If your plans are modified later on (e.g. personnel changes, larger than expected collections, different sampling locations, etc), contact us as soon as you know so that an amendment to your permit can be prepared and issued in time to avert disruptions to planned field work. <u>Failure to abide by permit requirements or to amend your permit when conditions change are permit violations that can result in a citation and/or loss of your permit.</u>

Please be sure that you and all authorized personnel carry a copy of the permit while conducting collecting activities.

A report detailing all collections for this permit is due on or before October 30, 2012. Please use the ADF&G data submissions form for this task. If you do not have the opportunity to utilize your permit, please submit a letter or email stating that the permit was not used. A telephone message is not sufficient.

Wishing you success with your project,

Bob Purhowski

Bob Piorkowski (907)465-6109 <u>Robert.Piorkowski@alaska.gov</u>

Enclosure

/~	LASA	
DEPL		
HAL W	ENT OF FISH AND	

STATE OF ALASKA DEPARTMENT OF FISH AND GAME P.O. BOX 115525

Permit #: SF2012-259

Expires: 9/30/2012

JUNEAU, ALASKA 99811-5525

Collections Report Due: 10/30/2012

FISH RESOURCE PERMIT (For Scientific/Educational Purposes)

This j	permit authorizes John S		whose signature is required on page 2 for permit validation)
of	ABR IncEnvironmental Research agency or organization	at	Box 240268, Anchorage, AK 99524 address
to cor	nduct the following activities from July 16, 2	<u>.012</u> to <u>S</u>	September 30, 2012 in accordance with AS 16.05.930:

Purpose: To determine resident and/or anadromous fish presence and evaluate potential habitat for

spawning, rearing and overwintering in the study location.

Location: Sadie Creek near Kotzebue.

Species Collected: Local species

Method of Capture: Fyke net, beach seine, minnow trap

<u>Final Disposition</u>: ≤50 of each species may be captured and released alive at each capture site. Species specific sampling must end at a sampling site once that species has been detected. If lake trout are captured, kill and collect age/sex/length measurements and their otoliths for the AMB (Stipulation #1)

≤2 individuals of each unknown species may be killed and saved for later identification All unintended mortalities must be recorded and returned to capture site waters.

-Continued on Back-

COLLECTIONS REPORT DUE <u>October 30, 2012</u>. The report, using a data submission form furnished by ADF&G), shall include <u>ALL</u> species, numbers, dates, and locations of collection (datum/GPS coordinates in the decimal degrees format (dd.dddd)) and disposition, and if applicable, sex, age, and breeding condition, and lengths and weights of fish handled. <u>It must also include the date/time the local biologist was contacted for final authorization to carry out collecting activities</u>. A completion report (abstract, background, methods, data, analysis), if not submitted with the collection report described above, must be submitted to the FRP program coordinator by: <u>March/2013</u>. Data from such reports are considered public information. The report shall also include other information as may be required under the permit stipulations section.

GENERAL CONDITIONS, EXCEPTIONS AND RESTRICTIONS

- This permit must be carried by person(s) specified during approved activities who shall show it on request to persons authorized to enforce Alaska's fish and game laws. This permit is nontransferable and will be revoked or renewal denied by the Commissioner of Fish and Game if the permittee violates any of its conditions, exceptions or restrictions. No redelegation of authority may be allowed under this permit unless specifically noted.
- No specimens taken under authority hereof may be sold or bartered. All specimens must be deposited in a public museum or a public scientific or educational institution unless otherwise stated herein. Subpermittees shall not retain possession of live animals or other specimens.
- The permittee shall keep records of all activities conducted under authority of this permit, available for inspection at all reasonable hours upon request of any authorized state enforcement officer.
- 4. Permits will not be renewed until the department has received detailed reports, as specified above.
- 5. UNLESS SPECIFICALLY STATED HEREIN, THIS PERMIT DOES NOT AUTHORIZE the expontation of specimens or the taking of specimens in areas otherwise closed to hunting and fishing; without appropriate licenses required by state regulations; during closed seasons; or in apy-manner, by any means, at any time not permitted by those regulations.

Fish Resource Permit Coordinator Division of Sport Fish

Firector

7/20

Division of Sport Fish

SF2012-259 continued (page 2 of 2)

Authorized Personnel: The following persons may perform collecting activities under terms of this permit:

Matt Appling, Joel Gottschalk, Laura Gutierrez, Jena Lemke, Elizabeth Miner, John Rose, John Seigle, Adam Webber

Employees and volunteers under the direct supervision of, and in the presence of, one of the authorized personnel listed above may participate in collecting activities under terms of this permit.

Permit Stipulations:

- 1) The local Area Management Biologist (AMB), Brendan Scanion (443-5796; <u>brendan.scanlon@alaska.gov</u>) Northwest/North slope, must be notified prior to you engaging in any collecting activities. <u>The time/date of this</u> <u>contact must be included in your collections report (using the "data submission form" furnished by ADF&G</u>. This biologist has the right to specify methods for collecting, as well as limiting the collections of any species by number/time/location.
- 2) Felt or absorbent soles on waders and wading boots are prohibited.
- 3) An instance of >10% unintended collecting mortality requires sampling at a site to cease and the AMB contacted.
- 4) Each piece of unattended sampling gear must be; 1) labeled with the permittee's name, telephone number, and permit number, 2) securely tied to substrate, 3) soak no more than twenty-four hours at a time 4) located with GPS coordinates, and 5) accounted for/ removed at the conclusion of sampling.
- 5) Salmon eggs used as bait in traps must either be; sterilized commercial eggs or, if raw, be disinfected prior to use. A 10-minute soak in 1/100 Betadyne solution or some other iodophor disinfectant is adequate.
- 6) Gloves, boots, and collecting gear should be disinfected initially to reduce the potential of pathogen transmission. A wash/rinse in 1/100 Betadyne solution is adequate.
- 7) If anadromous fish species new to permitted streams and rivers are found, the permit holder will work closely with ADF&G to see that information is included in the database for the Catalog of Waters Important for Spawning, Rearing or Migration of Anadromous Fishes. Anadromous fish include Oncorhynchus spp., Arctic char, Dolly Varden, sheefish, smelts, lamprey, whitefish, and sturgeon. Please direct questions to J. Johnson, 267-2337 or j.johnson@alaska.gov
- 8) Atlantic salmon and other non-native invasive aquatic species encountered should be killed. Contact the nearest AMB (Stipulation #1) immediately with species identification or description, capture or sighting location, number captured, size, and sex. Preserve/turn in the whole specimen to the nearest ADF&G office.
- 9) A copy of this permit, including any amendments, must be made available at all field collection sites and project sites for inspection upon request by a representative of the department or a law enforcement officer.
- 10) Issuance of this permit does not absolve the permittee from compliance in full with any and all other applicable federal, state, or local laws, regulations, or ordinances.
- 11) A report of collecting activities, referenced to this fish resource permit number, must be submitted to the Alaska Department of Fish and Game, Division of Sport Fish HQ, P.O. Box 115525, Juneau, AK 99811-5525, Attention: Bob Piorkowski (465-6109; <u>Robert.Piorkowski@alaska.gov</u>), and to the AMB (Stipulation #1) within 30 days after the expiration of this permit. This report must summarize the number of fish captured by date, by location (provide GPS coordinates and datum), and by species, and the fate of those fish. Fish length, weight, sex, and age data should be included if collected. A completion report (abstract/background/methods /data/analysis), if not submitted with the collection report described above, must be submitted to the department within six months of the expiration of the permit. Data from such reports are considered public information. A report is required whether or not collecting activities were undertaken.

PERMIT VALIDATION requires permittee's signature agreeing to abide by permit conditions before beginning collecting activities:

Signature of Permittee

cc: Brendan Scanlon, Division of Sport Fish, Fairbanks Jim Menard, Division of Commercial Fisheries, Nome Will Morris, Division of Habitat, Fairbanks Fish and Wildlife Protection, Fairbanks



STATE OF ALASKA DEPARTMENT OF FISH AND GAME-SPORT FISH P.O. BOX 115525 JUNEAU, ALASKA 99811-5525

FISH RESOURCE PERMIT AMENDMENT #1 Permit No. SF2012-259

Permit Issued To: John Seigle (signature required below for permit validation)

This amendment of Fish Resource Permit SF2012-259:

1) under <u>Final Disposition</u>; modifies it to read:

<u>Any number fish may be_captured/released alive at each sampling site.</u> <u>If lake trout are captured, kill and collect age/sex/length measurements and</u> <u>their otoliths for the AMB (Stipulation #1)</u> <u>≤2 individuals of each unknown species may be killed and saved for later</u> <u>identification</u> Unintended mortalities must be recorded and returned to the capture site.

2) under <u>Authorized Personnel</u>; adds the following name:

Nick Haxton

All other conditions specified in Fish Resource Permit SF2012-259 remain in effect.

This amendment must be attached to the original permit.

Division of Sport Fish

PERMIT AMENDMENT VALIDATION requires permittee's signature agreeing to abide by conditions of this permit amendment:

Signature of Permittee

cc: Brendan Scanlon, Division of Sport Fish, Fairbanks Jim Menard, Division of Commercial Fisheries, Nome Will Morris, Division of Habitat, Fairbanks Fish and Wildlife Protection, Fairbanks

Species	Scientific name	Life Stage
Pink salmon	Oncorhynchus gorbuscha	Adult, juvenile
Chum salmon	Oncorhynchus keta	Adult, juvenile
Coho salmon	Oncorhynchus ksutch	Adult, juvenile
Sockeye salmon	Oncorhynchus nerka	Adult, juvenile
Chinook salmon	Oncorhynchus tshawytscha	Adult, juvenile
Dolly Varden	Salvelinus malma	Adult, juvenile
Arctic grayling	Thymallus arcticus	Adult, juvenile
Round whitefish	Prosopium cylindraceum	Adult, juvenile
Broad whitefish	Coregonus nasus	Adult, juvenile
Humpback whitefish	Coregonus clupeafomis	Adult, juvenile
Bering cisco	Coregonus laurettae	Adult, juvenile
Least cisco	Coregonus sardinella	Adult, juvenile
Sheefish	Stenodus leucichthys	Adult, juvenile
Northern pike	Esox lucius	Adult, juvenile
Burbot	Lota lota	Adult, juvenile
Alaska blackfish	Dallia pectoralis	Adult, juvenile
Longnose sucker	Catostomus catostomus	Adult, juvenile
Slimy sculpin	Cottus cognatus	Adult, juvenile
Ninespine stickleback	Pungitius pungitius	Adult, juvenile
Threespine stickleback	Gasterosteus aculeatus	Adult, juvenile

Appendix G. Typical fish species found in fresh and brackish waters in northern Alaska.

Date	Site	Gear	Species	Length (mm)
26 Jul 12	SF1	Fyke	Humpback Whitefish	296
26 Jul 12	NF1	Fyke	Humpback Whitefish	325
27 Jul 12	NF1	Minnow	Ninespine Stickleback	36
27 Jul 12	NF1	Minnow	Ninespine Stickleback	27
27 Jul 12	NF1	Minnow	Ninespine Stickleback	31
27 Jul 12	NF1	Minnow	Ninespine Stickleback	36
27 Jul 12	NF1	Minnow	Ninespine Stickleback	33
27 Jul 12	NF1	Minnow	Ninespine Stickleback	36
27 Jul 12	NF1	Minnow	Ninespine Stickleback	25
27 Jul 12	NF1	Minnow	Ninespine Stickleback	31
27 Jul 12	NF1	Minnow	Ninespine Stickleback	35
27 Jul 12	NF1	Minnow	Ninespine Stickleback	37
27 Jul 12	SF1	Fyke	Threespine Stickleback	70
27 Jul 12	SF1	Fyke	Northern Pike	345
27 Jul 12	TR1	Seine	Ninespine Stickleback	21
27 Jul 12	TR1	Seine	Ninespine Stickleback	35
27 Jul 12	TR1	Seine	Ninespine Stickleback	34
27 Jul 12	TR1	Seine	Ninespine Stickleback	32
27 Jul 12	TR1	Seine	Ninespine Stickleback	28
27 Jul 12	TR1	Seine	Ninespine Stickleback	26
27 Jul 12	TR1	Seine	Ninespine Stickleback	34
27 Jul 12	TR1	Seine	Ninespine Stickleback	33
27 Jul 12	TR1	Seine	Ninespine Stickleback	35
27 Jul 12	TR1	Seine	Ninespine Stickleback	34
27 Jul 12	TR1	Seine	Ninespine Stickleback	35
27 Jul 12	TR1	Seine	Ninespine Stickleback	32
27 Jul 12	TR1	Seine	Ninespine Stickleback	30
27 Jul 12	TR1	Seine	Ninespine Stickleback	29
27 Jul 12	TR1	Seine	Ninespine Stickleback	30
27 Jul 12	TR1	Seine	Ninespine Stickleback	28
27 Jul 12	TR1	Seine	Ninespine Stickleback	25
27 Jul 12	TR1	Seine	Ninespine Stickleback	30
27 Jul 12	TR1	Seine	Ninespine Stickleback	24
27 Jul 12	TR1	Seine	Ninespine Stickleback	36
27 Jul 12	TR1	Seine	Ninespine Stickleback	33
27 Jul 12	TR1	Seine	Ninespine Stickleback	31
27 Jul 12	TR1	Seine	Ninespine Stickleback	39
27 Jul 12	TR1	Seine	Ninespine Stickleback	33
27 Jul 12	TR1	Seine	Ninespine Stickleback	31

Appendix H. Fish lengths by site and gear type in Sadie Creek and its tributaries near Kotzebue, Alaska, 26–28 July and 11–13 August 2012.

Appendix H.	Continued.
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1. Contin	uea.			
Date	Site	Gear	Species	Length (mm)
27 Jul 12	TR1	Seine	Ninespine Stickleback	32
27 Jul 12	TR1	Seine	Ninespine Stickleback	34
27 Jul 12	TR1	Seine	Ninespine Stickleback	32
27 Jul 12	SF1	Minnow	Ninespine Stickleback	34
27 Jul 12	SF1	Minnow	Ninespine Stickleback	34
27 Jul 12	SF1	Minnow	Ninespine Stickleback	31
27 Jul 12	SF1	Minnow	Ninespine Stickleback	31
27 Jul 12	SF1	Minnow	Ninespine Stickleback	26
27 Jul 12	SF1	Minnow	Ninespine Stickleback	26
27 Jul 12	SF1	Minnow	Ninespine Stickleback	26
27 Jul 12	SF1	Minnow	Ninespine Stickleback	40
27 Jul 12	SF1	Minnow	Ninespine Stickleback	36
27 Jul 12	SF1	Minnow	Ninespine Stickleback	33
27 Jul 12	SF1	Minnow	Ninespine Stickleback	26
27 Jul 12	SF1	Minnow	Ninespine Stickleback	23
28 Jul 12	SF1	Fyke	Threespine Stickleback	98
28 Jul 12	NF1	Fyke	Threespine Stickleback	85
28 Jul 12	NF1	Fyke	Humpback Whitefish	370
28 Jul 12	SF1	Fyke	Threespine Stickleback	85
28 Jul 12	NF2	Minnow	Ninespine Stickleback	26
28 Jul 12	MS1	Seine	Ninespine Stickleback	34
28 Jul 12	MS1	Seine	Ninespine Stickleback	32
28 Jul 12	MS1	Seine	Ninespine Stickleback	34
28 Jul 12	MS1	Seine	Ninespine Stickleback	39
28 Jul 12	MS1	Seine	Ninespine Stickleback	40
28 Jul 12	MS1	Seine	Ninespine Stickleback	34
28 Jul 12	MS1	Seine	Ninespine Stickleback	37
28 Jul 12	MS1	Seine	Ninespine Stickleback	35
28 Jul 12	MS1	Seine	Ninespine Stickleback	35
28 Jul 12	MS1	Seine	Ninespine Stickleback	26
28 Jul 12	MS1	Seine	Ninespine Stickleback	32
28 Jul 12	MS1	Seine	Ninespine Stickleback	30
28 Jul 12	MS1	Seine	Ninespine Stickleback	40
28 Jul 12	MS1	Seine	Ninespine Stickleback	31
28 Jul 12	MS1	Seine	Ninespine Stickleback	36
28 Jul 12	MS1	Seine	Ninespine Stickleback	34
28 Jul 12	MS1	Seine	Ninespine Stickleback	35
28 Jul 12	MS1	Seine	Ninespine Stickleback	35
28 Jul 12	MS1	Seine	Ninespine Stickleback	34
28 Jul 12	MS1	Seine	Ninespine Stickleback	34
28 Jul 12	MS1	Seine	Ninespine Stickleback	28

Appendix H.	Continued.
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их п. С	_ontinued.				
Da	ate S	Site	Gear	Species	Length (mm)
28 Ju	ul 12 N	MS1	Seine	Ninespine Stickleback	36
28 Ju	ul 12 N	AS1	Seine	Ninespine Stickleback	37
28 Ju	ul 12 N	AS1	Seine	Ninespine Stickleback	35
28 Ju	ul 12 N	AS1	Seine	Ninespine Stickleback	32
28 Ju	ul 12 N	AS1	Seine	Ninespine Stickleback	26
28 Ju	ul 12 N	AS1	Seine	Ninespine Stickleback	39
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	27
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	30
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	34
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	29
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	33
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	32
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	35
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	31
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	31
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	23
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	25
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	32
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	35
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	32
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	26
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	27
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	56
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	31
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	31
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	36
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	30
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	35
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	32
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	26
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	29
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	30
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	31
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	29
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	28
28 Ju	ul 12 N			Ninespine Stickleback	26
28 Ju				Ninespine Stickleback	57
28 Ju				Ninespine Stickleback	25
28 Ju				Ninespine Stickleback	35
28 Ju				Ninespine Stickleback	46
28 Ju	ul 12 N	NF1	Minnow	Ninespine Stickleback	33
28 Ju 28 Ju 28 Ju 28 Ju 28 Ju 28 Ju	ul 12 M ul 12 M ul 12 M ul 12 M ul 12 M ul 12 M	NF1 NF1 NF1 NF1 NF1	Minnow Minnow Minnow Minnow Minnow	Ninespine Stickleback Ninespine Stickleback Ninespine Stickleback Ninespine Stickleback Ninespine Stickleback	26 57 25 35 46

Date	Site	Gear	Species	Length (mm)
28 Jul 12	NF1	Minnow	Ninespine Stickleback	31
28 Jul 12	NF1	Minnow	Ninespine Stickleback	28
28 Jul 12	NF1	Minnow	Ninespine Stickleback	25
28 Jul 12	NF1	Minnow	Ninespine Stickleback	32
28 Jul 12	NF1	Minnow	Ninespine Stickleback	32
28 Jul 12	NF1	Minnow	Ninespine Stickleback	34
28 Jul 12	NF1	Minnow	Ninespine Stickleback	51
28 Jul 12	NF1	Minnow	Ninespine Stickleback	30
28 Jul 12	NF1	Minnow	Ninespine Stickleback	27
28 Jul 12	NF1	Minnow	Ninespine Stickleback	34
28 Jul 12	NF1	Minnow	Ninespine Stickleback	35
28 Jul 12	NF1	Minnow	Ninespine Stickleback	32
28 Jul 12	NF1	Minnow	Ninespine Stickleback	25
28 Jul 12	NF1	Minnow	Ninespine Stickleback	31
28 Jul 12	NF1	Minnow	Ninespine Stickleback	26
28 Jul 12	NF1	Minnow	Ninespine Stickleback	21
28 Jul 12	NF1	Minnow	Ninespine Stickleback	32
28 Jul 12	NF1	Minnow	Ninespine Stickleback	31
28 Jul 12	NF1	Minnow	Ninespine Stickleback	36
28 Jul 12	NF1	Minnow	Ninespine Stickleback	26
28 Jul 12	NF1	Minnow	Ninespine Stickleback	27
28 Jul 12	NF1	Minnow	Ninespine Stickleback	29
28 Jul 12	NF1	Minnow	Ninespine Stickleback	26
28 Jul 12	NF1	Minnow	Ninespine Stickleback	24
28 Jul 12	NF1	Minnow	Ninespine Stickleback	32
28 Jul 12	NF1	Minnow	Ninespine Stickleback	25
28 Jul 12	NF1	Minnow	Ninespine Stickleback	26
28 Jul 12	SF1	Minnow	Ninespine Stickleback	36
28 Jul 12	SF1	Minnow	Ninespine Stickleback	39
28 Jul 12	SF1	Minnow	Ninespine Stickleback	25
28 Jul 12	SF1	Minnow	Ninespine Stickleback	34
28 Jul 12	SF1	Minnow	Ninespine Stickleback	33
28 Jul 12	SF1	Minnow	Ninespine Stickleback	38
28 Jul 12	SF1	Minnow	Ninespine Stickleback	25
28 Jul 12	SF1	Minnow	Ninespine Stickleback	40
28 Jul 12	SF1	Minnow	Ninespine Stickleback	34
28 Jul 12	SF1	Minnow	Ninespine Stickleback	33
28 Jul 12	SF1	Minnow	Ninespine Stickleback	31
28 Jul 12	SF1	Minnow	Ninespine Stickleback	33
28 Jul 12	SF1	Minnow	Ninespine Stickleback	38
28 Jul 12	SF1	Minnow	Ninespine Stickleback	30

Appendix H. Continued.

x H. Conti	nued.			
Date	Site	Gear	Species	Length (mm)
28 Jul 12	SF1	Minnow	Ninespine Stickleback	47
28 Jul 12	SF1	Minnow	Ninespine Stickleback	36
28 Jul 12	SF1	Minnow	Ninespine Stickleback	37
28 Jul 12	SF1	Minnow	Ninespine Stickleback	35
28 Jul 12	SF1	Minnow	Ninespine Stickleback	39
28 Jul 12	SF1	Minnow	Ninespine Stickleback	43
28 Jul 12	SF1	Minnow	Ninespine Stickleback	41
28 Jul 12	SF1	Minnow	Ninespine Stickleback	41
28 Jul 12	SF1	Minnow	Ninespine Stickleback	36
28 Jul 12	SF1	Minnow	Ninespine Stickleback	38
28 Jul 12	SF1	Minnow	Ninespine Stickleback	36
28 Jul 12	SF1	Minnow	Ninespine Stickleback	39
28 Jul 12	SF1	Minnow	Ninespine Stickleback	32
28 Jul 12	SF1	Minnow	Ninespine Stickleback	33
28 Jul 12	SF1	Minnow	Ninespine Stickleback	36
28 Jul 12	SF1	Minnow	Ninespine Stickleback	52
11 Aug 12	NF3	Fyke	Least Cisco	209
11 Aug 12	NF3	Fyke	Humpback Whitefish	157
11 Aug 12	NF3	Fyke	Broad Whitefish	134
11 Aug 12	NF3	Fyke	Broad Whitefish	97
			Unidentified Juvenile	
11 Aug 12	NF3	Fyke	Whitefish	98
11 Aug 12	NE2	Fulso	Unidentified Juvenile Whitefish	100
11 Aug 12	NF3	Fyke	Whitefish	109
11 Aug 12	NF3	Fyke	Broad Whitefish	88 75
11 Aug 12	NF3	Fyke	Broad Whitefish Unidentified Juvenile	75
11 Aug 12	NF3	Fyke	Whitefish	80
11 Aug 12	NF3	Fyke	Broad Whitefish	90
11 Aug 12	NF3	Fyke	Broad Whitefish Unidentified Juvenile	75
11 Aug 12	NF3	Fyke	Whitefish	75
11 Aug 12	NF3	Fyke	Broad Whitefish	89
11 Aug 12 11 Aug 12	NF3	Fyke	Broad Whitefish	88
11 Aug 12	1113	Гукс	Unidentified Juvenile	88
11 Aug 12	NF3	Fyke	Whitefish	83
11 Aug 12	NF3	Fyke	Broad Whitefish	68
11 Aug 12	NF3	Fyke	Threespine Stickleback	80
11 Aug 12	NF3	Fyke	Humpback Whitefish	353
11 Aug 12	NF3	Fyke	Humpback Whitefish	295
U U		•	Unidentified Juvenile	
11 Aug 12	NF3	Fyke	Whitefish	85

Appendix H. Continued.

Appendix H.	Continued.
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A. Conum				
Date	Site	Gear	Species	Length (mm)
			Whitefish	
			Unidentified Juvenile	
11 Aug 12	NF3	Fyke	Whitefish	94
			Unidentified Juvenile	
11 Aug 12	NF3	Fyke	Whitefish	58
			Unidentified Juvenile	
11 Aug 12	NF3	Fyke	Whitefish	75
			Unidentified Juvenile	0.1
11 Aug 12	NF3	Fyke	Whitefish	81
11 Aug 12	NF3	Fuko	Unidentified Juvenile Whitefish	83
11 Aug 12	INF3	Fyke	Unidentified Juvenile	05
11 Aug 12	NF3	Fyke	Whitefish	71
11110912	1110	1 9 110	Unidentified Juvenile	, 1
11 Aug 12	NF3	Fyke	Whitefish	71
-			Unidentified Juvenile	
11 Aug 12	NF3	Fyke	Whitefish	81
			Unidentified Juvenile	
11 Aug 12	NF3	Fyke	Whitefish	73
11 4 10	2150		Unidentified Juvenile	
11 Aug 12	NF3	Fyke	Whitefish	75
11 Aug 12	NE2	Fuko	Unidentified Juvenile Whitefish	78
11 Aug 12	NF3	Fyke		
11 Aug 12	NF3	Fyke	Broad Whitefish	84
11 Aug 12	NF3	Fyke	Broad Whitefish	69
11 Aug 12	NF3	Fyke	Humpback Whitefish	318
11 Aug 12	NF3	Fyke	Humpback Whitefish	330
11 Aug 12	NF3	Fyke	Humpback Whitefish	367
11 Aug 12	TR2	Fyke	Northern Pike	452
11 Aug 12	TR2	Fyke	Northern Pike	411
11 Aug 12	TR2	Fyke	Northern Pike	420
11 Aug 12	TR2	Fyke	Northern Pike	417
11 Aug 12	NF1	Minnow	Ninespine Stickleback	36
11 Aug 12	SF1	Minnow	Ninespine Stickleback	38
11 Aug 12	SF1	Minnow	Ninespine Stickleback	43
11 Aug 12	SF1	Minnow	Ninespine Stickleback	37
11 Aug 12	SF1	Minnow	Ninespine Stickleback	27
11 Aug 12	SF1	Minnow	Ninespine Stickleback	27
11 Aug 12	SF1	Minnow	Ninespine Stickleback	41
11 Aug 12	SF1	Minnow	Ninespine Stickleback	45
11 Aug 12	SF1	Minnow	Ninespine Stickleback	39
11 Aug 12	SF1	Minnow	Ninespine Stickleback	31
11 Aug 12	SF1	Minnow	Ninespine Stickleback	33
11 Aug 12	SF1	Minnow	Ninespine Stickleback	41
11 Aug 12	SF1	Minnow	Ninespine Stickleback	38

Appendix H.	Continued.
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Date	Site	Gear	Species	Length (mm
11 Aug 12	SF1	Minnow	Ninespine Stickleback	32
11 Aug 12	SF1	Minnow	Ninespine Stickleback	24
11 Aug 12	SF1	Minnow	Ninespine Stickleback	37
11 Aug 12	SF1	Minnow	Ninespine Stickleback	35
11 Aug 12	SF1	Minnow	Ninespine Stickleback	40
11 Aug 12	SF1	Minnow	Ninespine Stickleback	41
11 Aug 12	SF1	Minnow	Ninespine Stickleback	26
11 Aug 12	SF1	Minnow	Ninespine Stickleback	34
11 Aug 12	SF1	Minnow	Ninespine Stickleback	40
11 Aug 12	SF1	Minnow	Ninespine Stickleback	30
11 Aug 12	SF1	Minnow	Ninespine Stickleback	38
11 Aug 12	SF1	Minnow	Ninespine Stickleback	34
11 Aug 12	SF1	Minnow	Ninespine Stickleback	39
11 Aug 12	SF1	Minnow	Ninespine Stickleback	44
11 Aug 12	SF1	Minnow	Ninespine Stickleback	35
11 Aug 12	SF1	Minnow	Ninespine Stickleback	36
11 Aug 12	SF1	Minnow	Ninespine Stickleback	38
11 Aug 12	SF1	Minnow	Ninespine Stickleback	44
11 Aug 12	SF1	Minnow	Ninespine Stickleback	31
11 Aug 12	SF1	Minnow	Ninespine Stickleback	44
11 Aug 12	SF1	Minnow	Ninespine Stickleback	38
11 Aug 12	SF1	Minnow	Ninespine Stickleback	35
11 Aug 12	SF1	Minnow	Ninespine Stickleback	46
11 Aug 12	SF1	Minnow	Ninespine Stickleback	48
11 Aug 12	SF1	Minnow	Ninespine Stickleback	42
11 Aug 12	SF1	Minnow	Ninespine Stickleback	27
11 Aug 12	SF1	Minnow	Ninespine Stickleback	32
11 Aug 12	SF1	Minnow	Ninespine Stickleback	37
11 Aug 12	SF1	Minnow	Ninespine Stickleback	37
11 Aug 12	SF1	Minnow	Ninespine Stickleback	31
11 Aug 12	SF1	Minnow	Ninespine Stickleback	37
11 Aug 12	SF1	Minnow	Ninespine Stickleback	44
11 Aug 12	SF1	Minnow	Ninespine Stickleback	36
11 Aug 12	SF1	Minnow	Ninespine Stickleback	32
11 Aug 12	SF1	Minnow	Ninespine Stickleback	34
11 Aug 12	SF1	Minnow	Ninespine Stickleback	41
11 Aug 12	SF1	Minnow	Ninespine Stickleback	35
11 Aug 12	SF1	Minnow	Ninespine Stickleback	35
11 Aug 12	SF1	Minnow	Ninespine Stickleback	33
11 Aug 12	SF1	Minnow	Ninespine Stickleback	37
11 Aug 12	SF1	Minnow	Ninespine Stickleback	36

Appendix H.	Continued.
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A. Continue				
Date	Site	Gear	Species	Length (mm)
11 Aug 12	SF1	Minnow	Ninespine Stickleback	32
11 Aug 12	SF1	Minnow	Ninespine Stickleback	33
11 Aug 12	SF1	Minnow	Ninespine Stickleback	34
11 Aug 12	SF1	Minnow	Ninespine Stickleback	35
11 Aug 12	SF1	Minnow	Ninespine Stickleback	41
11 Aug 12	SF1	Minnow	Ninespine Stickleback	33
11 Aug 12	SF1	Minnow	Ninespine Stickleback	41
11 Aug 12	SF1	Minnow	Ninespine Stickleback	43
11 Aug 12	SF1	Minnow	Ninespine Stickleback	29
11 Aug 12	SF1	Minnow	Ninespine Stickleback	39
11 Aug 12	SF1	Minnow	Ninespine Stickleback	38
11 Aug 12	SF1	Minnow	Ninespine Stickleback	33
11 Aug 12	SF1	Minnow	Ninespine Stickleback	39
11 Aug 12	SF1	Minnow	Ninespine Stickleback	31
11 Aug 12	SF1	Minnow	Ninespine Stickleback	38
11 Aug 12	SF1	Minnow	Ninespine Stickleback	34
11 Aug 12	SF1	Minnow	Ninespine Stickleback	40
11 Aug 12	SF1	Minnow	Ninespine Stickleback	30
11 Aug 12	SF1	Minnow	Ninespine Stickleback	34
11 Aug 12	SF1	Minnow	Ninespine Stickleback	36
11 Aug 12	SF1	Minnow	Ninespine Stickleback	36
11 Aug 12	SF1	Minnow	Ninespine Stickleback	37
11 Aug 12	SF1	Minnow	Ninespine Stickleback	39
11 Aug 12	SF1	Minnow	Ninespine Stickleback	36
11 Aug 12	SF1	Minnow	Ninespine Stickleback	36
11 Aug 12	SF1	Minnow	Ninespine Stickleback	34
11 Aug 12	SF1	Minnow	Ninespine Stickleback	31
11 Aug 12	SF1	Minnow	Ninespine Stickleback	31
11 Aug 12	SF1	Minnow	Ninespine Stickleback	40
11 Aug 12	SF1	Minnow	Ninespine Stickleback	38
11 Aug 12	SF1	Minnow	Ninespine Stickleback	42
11 Aug 12	SF1	Minnow	Ninespine Stickleback	36
11 Aug 12	SF1	Minnow	Ninespine Stickleback	34
11 Aug 12	SF1	Minnow	Ninespine Stickleback	38
11 Aug 12	SF1	Minnow	Ninespine Stickleback	34
11 Aug 12	SF1	Minnow	Ninespine Stickleback	29
11 Aug 12	SF1	Minnow	Ninespine Stickleback	34
11 Aug 12	SF1	Minnow	Ninespine Stickleback	37
11 Aug 12	SF1	Minnow	Ninespine Stickleback	36
11 Aug 12	SF1	Minnow	Ninespine Stickleback	35
11 Aug 12	SF1	Minnow	Ninespine Stickleback	40

Date	Site	Gear	Species	Longth (mm)
Date	Sile	Geal	species	Length (mm)
11 Aug 12	SF1	Minnow	Ninespine Stickleback	59
11 Aug 12	SF1	Minnow	Ninespine Stickleback	34
11 Aug 12	SF1	Minnow	Ninespine Stickleback	32
11 Aug 12	SF1	Minnow	Ninespine Stickleback	36
11 Aug 12	SF1	Minnow	Ninespine Stickleback	35
11 Aug 12	SF1	Minnow	Ninespine Stickleback	36
11 Aug 12	SF1	Minnow	Ninespine Stickleback	38
11 Aug 12	SF1	Minnow	Ninespine Stickleback	29
11 Aug 12	SF1	Minnow	Ninespine Stickleback	36
11 Aug 12	SF1	Minnow	Ninespine Stickleback	36
11 Aug 12	SF1	Minnow	Ninespine Stickleback	39
11 Aug 12	SF1	Minnow	Ninespine Stickleback	39
11 Aug 12	SF1	Minnow	Ninespine Stickleback	32
11 Aug 12	SF1	Minnow	Ninespine Stickleback	31
11 Aug 12	SF1	Minnow	Ninespine Stickleback	36
11 Aug 12	SF1	Minnow	Ninespine Stickleback	33
11 Aug 12	SF1	Minnow	Ninespine Stickleback	38
12 Aug 12	NF3	Fyke	Northern Pike	461
12 Aug 12	NF3	Fyke	Broad Whitefish	106
12 Aug 12	NF3	Fyke	Least Cisco	299
12 Aug 12	NF3	Fyke	Least Cisco	320
12 Aug 12	NF3	Fyke	Least Cisco	295
12 Aug 12	NF3	Fyke	Humpback Whitefish	240
12 Aug 12	NF3	Fyke	Humpback Whitefish	235
12 Aug 12	NF3	Fyke	Humpback Whitefish	352
12 Aug 12	NF3	Fyke	Humpback Whitefish Unidentified Juvenile	289
12 Aug 12	NF3	Fyke	Whitefish	80
12 Aug 12	NF3	Fyke	Threespine Stickleback	78
12 Aug 12	TR2	Fyke	Northern Pike	359
12 Aug 12	TR2	Fyke	Northern Pike	398
12 Aug 12	TR2	Fyke	Northern Pike	385
13 Aug 12	NF3	Fyke	Threespine Stickleback	75
13 Aug 12	NF3	Fyke	Ninespine Stickleback	33
13 Aug 12	NF3	Fyke	Ninespine Stickleback Unidentified Juvenile	30
13 Aug 12	NF3	Fyke	Whitefish Unidentified Juvenile	64
13 Aug 12	NF3	Fyke	Whitefish	81
13 Aug 12	NF3	Fyke	Ninespine Stickleback	40
13 Aug 12	NF3	Fyke	Ninespine Stickleback	26
13 Aug 12	NF3	Fyke	Ninespine Stickleback	26

Appendix H. Continued.

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Date	Site	Gear	Species	Length (mm)
13 Aug 12	NF3	Fyke	Ninespine Stickleback	27
13 Aug 12	NF3	Fyke	Ninespine Stickleback	26
13 Aug 12	NF3	Fyke	Ninespine Stickleback	34
13 Aug 12	NF3	Fyke	Ninespine Stickleback	34
13 Aug 12	NF3	Fyke	Ninespine Stickleback	35
13 Aug 12	NF3	Fyke	Ninespine Stickleback	26
13 Aug 12	NF3	Fyke	Ninespine Stickleback	31
13 Aug 12	NF3	Fyke	Ninespine Stickleback	29
13 Aug 12	NF3	Fyke	Ninespine Stickleback	26
13 Aug 12	NF3	Fyke	Ninespine Stickleback	41
13 Aug 12	NF3	Fyke	Ninespine Stickleback	32
13 Aug 12	NF3	Fyke	Ninespine Stickleback	33
13 Aug 12	NF3	Fyke	Ninespine Stickleback	29
13 Aug 12	NF3	Fyke	Ninespine Stickleback	26
13 Aug 12	NF3	Fyke	Ninespine Stickleback	61
13 Aug 12	NF3	Fyke	Ninespine Stickleback	26
13 Aug 12	NF3	Fyke	Ninespine Stickleback	34
13 Aug 12	NF3	Fyke	Ninespine Stickleback	34
13 Aug 12	NF3	Fyke	Ninespine Stickleback	26
13 Aug 12	NF3	Fyke	Ninespine Stickleback	28
13 Aug 12	NF3	Fyke	Ninespine Stickleback	38
13 Aug 12	NF3	Fyke	Ninespine Stickleback	24
13 Aug 12	NF3	Fyke	Ninespine Stickleback	38
13 Aug 12	NF3	Fyke	Ninespine Stickleback	24
13 Aug 12	NF3	Fyke	Ninespine Stickleback	28
13 Aug 12	NF3	Fyke	Ninespine Stickleback	30
13 Aug 12	NF3	Fyke	Ninespine Stickleback	33
13 Aug 12	NF3	Fyke	Ninespine Stickleback	30
			Unidentified Juvenile	- 0
13 Aug 12	NF3	Fyke	Whitefish Unidentified Juvenile	68
13 Aug 12	NF3	Fyke	Whitefish	70
13 Aug 12	NF3	Fyke	Alaska Blackfish	26
13 Aug 12	NF3	Fyke	Northern Pike	114
13 Aug 12	NF3	Fyke	Northern Pike	99
15 Aug 12	1115	Гукс	Unidentified Juvenile	,,,
13 Aug 12	SF2	Fyke	Whitefish	73
13 Aug 12	SF2	Fyke	Northern Pike	132
13 Aug 12	SF2	Fyke	Northern Pike	147
13 Aug 12	SF2	Fyke	Northern Pike	135
13 Aug 12	SF2	Fyke	Northern Pike	148
13 Aug 12	SF2	Fyke	Northern Pike	145

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Date	Site	Gear	Species	Length (mm)
3 Aug 12	SF2	Fyke	Northern Pike	125
3 Aug 12	SF2	Fyke	Northern Pike	134
13 Aug 12	SF2	Fyke	Northern Pike	127
13 Aug 12	SF2	Fyke	Northern Pike	149
13 Aug 12	SF2	Fyke	Northern Pike	139
13 Aug 12	SF2	Fyke	Northern Pike	137
13 Aug 12	SF2	Fyke	Northern Pike	146
13 Aug 12	SF2	Fyke	Northern Pike	142
13 Aug 12	SF2	Fyke	Northern Pike	131
13 Aug 12	SF2	Fyke	Northern Pike	134
13 Aug 12	SF2	Fyke	Northern Pike	131
13 Aug 12	SF2	Fyke	Ninespine Stickleback	58
13 Aug 12	SF2	Fyke	Ninespine Stickleback	59
13 Aug 12	SF2	Fyke	Ninespine Stickleback	56
13 Aug 12	SF2	Fyke	Ninespine Stickleback	49
13 Aug 12	SF2	Fyke	Ninespine Stickleback	70
13 Aug 12	SF2	Fyke	Ninespine Stickleback	72
13 Aug 12	SF2	Fyke	Ninespine Stickleback	50
13 Aug 12	SF2	Fyke	Ninespine Stickleback	53
13 Aug 12	SF2	Fyke	Ninespine Stickleback	61
13 Aug 12	SF2	Fyke	Ninespine Stickleback	63
13 Aug 12	SF2	Fyke	Ninespine Stickleback	67
13 Aug 12	SF2	Fyke	Ninespine Stickleback	62
13 Aug 12	SF2	Fyke	Ninespine Stickleback	55
13 Aug 12	SF2	Fyke	Ninespine Stickleback	50
13 Aug 12	SF2	Fyke	Ninespine Stickleback	66
13 Aug 12	SF2	Fyke	Ninespine Stickleback	50
13 Aug 12	SF2	Fyke	Ninespine Stickleback	45
13 Aug 12	SF2	Fyke	Ninespine Stickleback	46
13 Aug 12	SF2	Fyke	Ninespine Stickleback	38
13 Aug 12	MS1	Seine	Ninespine Stickleback	16
13 Aug 12	MS1	Seine	Ninespine Stickleback	34
13 Aug 12	MS1	Seine	Ninespine Stickleback	37
13 Aug 12	MS1	Seine	Ninespine Stickleback	36
13 Aug 12	MS1	Seine	Ninespine Stickleback	31
13 Aug 12	MS1	Seine	Ninespine Stickleback	42
13 Aug 12	MS1	Seine	Ninespine Stickleback	38
13 Aug 12	MS1	Seine	Ninespine Stickleback	39
13 Aug 12	MS1	Seine	Ninespine Stickleback	45
13 Aug 12	MS1	Seine	Ninespine Stickleback	38
13 Aug 12	MS1	Seine	Ninespine Stickleback	39

Date	Site	Gear	Species	Length (mm)
13 Aug 12	MS1	Seine	Ninespine Stickleback	42
13 Aug 12	MS1	Seine	Ninespine Stickleback	40
13 Aug 12	MS1	Seine	Ninespine Stickleback	38
13 Aug 12	MS1	Seine	Ninespine Stickleback	34
13 Aug 12	MS1	Seine	Ninespine Stickleback	45
13 Aug 12	MS1	Seine	Ninespine Stickleback	38
13 Aug 12	MS1	Seine	Ninespine Stickleback	33
13 Aug 12	MS1	Seine	Ninespine Stickleback	39
13 Aug 12	MS1	Seine	Ninespine Stickleback	43
13 Aug 12	MS1	Seine	Ninespine Stickleback	37
13 Aug 12	MS1	Seine	Ninespine Stickleback	42
13 Aug 12	MS1	Seine	Ninespine Stickleback	31
13 Aug 12	MS1	Seine	Ninespine Stickleback	33
13 Aug 12	MS1	Seine	Ninespine Stickleback	33
13 Aug 12	MS1	Seine	Ninespine Stickleback	43
13 Aug 12	MS1	Seine	Ninespine Stickleback	42
13 Aug 12	MS1	Seine	Ninespine Stickleback	44
13 Aug 12	MS1	Seine	Ninespine Stickleback	38
13 Aug 12	MS1	Seine	Ninespine Stickleback	43
13 Aug 12	NF3	Fyke	Northern Pike	393
13 Aug 12	NF3	Fyke	Ninespine Stickleback	31
13 Aug 12	NF3	Fyke	Northern Pike	124
13 Aug 12	NF3	Fyke	Northern Pike Unidentified Juvenile	90
13 Aug 12	NF3	Fyke	Whitefish	91
13 Aug 12	NF3	Fyke	Northern Pike	112
13 Aug 12	NF3	Fyke	Northern Pike	113
13 Aug 12	NF3	Fyke	Threespine Stickleback	74
13 Aug 12	NF3	Fyke	Ninespine Stickleback	33
13 Aug 12	NF3	Fyke	Ninespine Stickleback	35
13 Aug 12	NF3	Fyke	Ninespine Stickleback	43
13 Aug 12	NF3	Fyke	Ninespine Stickleback	42
13 Aug 12	NF3	Fyke	Ninespine Stickleback	27
13 Aug 12	NF3	Fyke	Ninespine Stickleback	32
13 Aug 12	NF3	Fyke	Ninespine Stickleback	31
13 Aug 12	NF3	Fyke	Ninespine Stickleback	42
13 Aug 12	NF3	Fyke	Ninespine Stickleback	36
13 Aug 12	NF3	Fyke	Ninespine Stickleback	23
13 Aug 12	NF3	Fyke	Ninespine Stickleback	31
13 Aug 12	NF3	Fyke	Ninespine Stickleback	31
13 Aug 12	NF3	Fyke	Ninespine Stickleback	30
13 Aug 12	NF3	Fyke	Ninespine Stickleback	32

Appendix H. Continued.

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Date	Site	Gear	Species	Length (mm)
13 Aug 12	NF3	Fyke	Ninespine Stickleback	30
13 Aug 12	NF3	Fyke	Ninespine Stickleback	19
13 Aug 12	NF3	Fyke	Ninespine Stickleback	32
13 Aug 12	NF3	Fyke	Ninespine Stickleback	18
13 Aug 12	NF3	Fyke	Ninespine Stickleback	27
13 Aug 12	NF3	Fyke	Ninespine Stickleback	24
13 Aug 12	NF3	Fyke	Ninespine Stickleback	18
13 Aug 12	NF3	Fyke	Ninespine Stickleback	26
13 Aug 12	NF3	Fyke	Ninespine Stickleback	27
13 Aug 12	NF3	Fyke	Ninespine Stickleback	31
13 Aug 12	NF3	Fyke	Ninespine Stickleback	26
13 Aug 12	NF3	Fyke	Ninespine Stickleback	23
13 Aug 12	NF3	Fyke	Ninespine Stickleback	24
13 Aug 12	NF3	Fyke	Ninespine Stickleback	23
13 Aug 12	NF3	Fyke	Ninespine Stickleback	28
13 Aug 12	SF2	Fyke	Northern Pike	145
13 Aug 12	SF2	Fyke	Northern Pike	365
C		-	Unidentified Juvenile	
13 Aug 12	SF2	Fyke	Whitefish	88
12 4 12	052		Unidentified Juvenile	7.5
13 Aug 12	SF2	Fyke	Whitefish Unidentified Juvenile	75
13 Aug 12	SF2	Fyke	Whitefish	90
10110812	512	2 9 110	Unidentified Juvenile	20
13 Aug 12	SF2	Fyke	Whitefish	81
			Unidentified Juvenile	
13 Aug 12	SF2	Fyke	Whitefish	86
13 Aug 12	SF2	Fyke	Ninespine Stickleback	40
13 Aug 12	SF2	Fyke	Northern Pike	446
12 Aug 12	SE3	Erilea	Unidentified Juvenile Whitefish	81
13 Aug 12	SF2 TR3	Fyke Minnow	Ninespine Stickleback	47
13 Aug 12				
13 Aug 12	TR3	Minnow	Ninespine Stickleback	45
13 Aug 12	TR3	Minnow	Ninespine Stickleback	45
13 Aug 12	TR3	Minnow	Ninespine Stickleback	44
13 Aug 12	TR3	Minnow	Ninespine Stickleback	45
13 Aug 12	TR3	Minnow	Ninespine Stickleback	47
13 Aug 12	TR3	Minnow	Ninespine Stickleback	42
13 Aug 12	TR3	Minnow	Ninespine Stickleback	65
13 Aug 12	TR3	Minnow	Ninespine Stickleback	36
13 Aug 12	TR3	Minnow	Ninespine Stickleback	40
13 Aug 12	TR3	Minnow	Ninespine Stickleback	42
13 Aug 12	TR3	Minnow	Ninespine Stickleback	45

Date	Site	Gear	Species	Length (mm)
13 Aug 12	TR3	Minnow	Ninespine Stickleback	46
13 Aug 12	TR3	Minnow	Ninespine Stickleback	39
13 Aug 12	TR3	Minnow	Ninespine Stickleback	37
13 Aug 12	TR3	Minnow	Ninespine Stickleback	35
13 Aug 12	TR3	Minnow	Ninespine Stickleback	39
13 Aug 12	TR3	Minnow	Ninespine Stickleback	47
13 Aug 12	TR3	Minnow	Ninespine Stickleback	33
13 Aug 12	TR3	Minnow	Ninespine Stickleback	42
13 Aug 12	TR3	Minnow	Ninespine Stickleback	34
13 Aug 12	TR3	Minnow	Ninespine Stickleback	52
13 Aug 12	TR3	Minnow	Ninespine Stickleback	41
13 Aug 12	TR3	Minnow	Ninespine Stickleback	40
13 Aug 12	TR3	Minnow	Ninespine Stickleback	44
13 Aug 12	TR3	Minnow	Ninespine Stickleback	38
13 Aug 12	TR3	Minnow	Ninespine Stickleback	37
13 Aug 12	TR3	Minnow	Ninespine Stickleback	39
13 Aug 12	TR3	Minnow	Ninespine Stickleback	40
13 Aug 12	TR3	Minnow	Ninespine Stickleback	43
13 Aug 12	TR3	Minnow	Ninespine Stickleback	44
13 Aug 12	TR3	Minnow	Ninespine Stickleback	42
13 Aug 12	TR3	Minnow	Alaska Blackfish	42
13 Aug 12	TR3	Minnow	Ninespine Stickleback	49
13 Aug 12	TR3	Minnow	Ninespine Stickleback	40
13 Aug 12	TR3	Minnow	Ninespine Stickleback	44
13 Aug 12	TR3	Minnow	Ninespine Stickleback	50
13 Aug 12	TR3	Minnow	Ninespine Stickleback	42
13 Aug 12	TR3	Minnow	Ninespine Stickleback	44
13 Aug 12	TR3	Minnow	Ninespine Stickleback	47
13 Aug 12	TR3	Minnow	Ninespine Stickleback	45
13 Aug 12	TR3	Minnow	Ninespine Stickleback	45
13 Aug 12	TR3	Minnow	Ninespine Stickleback	48
13 Aug 12	TR3	Minnow	Ninespine Stickleback	44
13 Aug 12	TR3	Minnow	Ninespine Stickleback	46
13 Aug 12	TR3	Minnow	Ninespine Stickleback	43
13 Aug 12	TR3	Minnow	Ninespine Stickleback	46
13 Aug 12	TR3	Minnow	Ninespine Stickleback	54
13 Aug 12	TR3	Minnow	Ninespine Stickleback	50
13 Aug 12	TR3	Minnow	Ninespine Stickleback	48
13 Aug 12	TR3	Minnow	Ninespine Stickleback	45
13 Aug 12	TR3	Minnow	Ninespine Stickleback	45
13 Aug 12	TR3	Minnow	Ninespine Stickleback	50

Appendix H. Continued.

Date	Site	Gear	Species	Length (mm
13 Aug 12	TR3	Minnow	Ninespine Stickleback	53
13 Aug 12	TR3	Minnow	Ninespine Stickleback	50
13 Aug 12	TR3	Minnow	Ninespine Stickleback	55
13 Aug 12	TR3	Minnow	Ninespine Stickleback	45
13 Aug 12	TR3	Minnow	Ninespine Stickleback	44
13 Aug 12	TR3	Minnow	Ninespine Stickleback	45
13 Aug 12	TR3	Minnow	Ninespine Stickleback	48
13 Aug 12	TR3	Minnow	Northern Pike	133
13 Aug 12	TR3	Minnow	Alaska Blackfish	120
13 Aug 12	TR3	Minnow	Ninespine Stickleback	72
13 Aug 12	TR3	Minnow	Ninespine Stickleback	48
13 Aug 12	TR3	Minnow	Ninespine Stickleback	47
13 Aug 12	TR3	Minnow	Ninespine Stickleback	46
13 Aug 12	TR3	Minnow	Ninespine Stickleback	37
13 Aug 12	TR3	Minnow	Ninespine Stickleback	46
13 Aug 12	TR3	Minnow	Ninespine Stickleback	46
13 Aug 12	TR3	Minnow	Ninespine Stickleback	43
13 Aug 12	TR3	Minnow	Ninespine Stickleback	42
13 Aug 12	TR3	Minnow	Ninespine Stickleback	47
13 Aug 12	TR3	Minnow	Ninespine Stickleback	47
13 Aug 12	TR3	Minnow	Ninespine Stickleback	47
13 Aug 12	TR3	Minnow	Ninespine Stickleback	45
13 Aug 12	TR3	Minnow	Ninespine Stickleback	45
13 Aug 12	TR3	Minnow	Ninespine Stickleback	51
13 Aug 12	TR3	Minnow	Ninespine Stickleback	43
13 Aug 12	TR3	Minnow	Ninespine Stickleback	44
13 Aug 12	TR3	Minnow	Ninespine Stickleback	49
13 Aug 12	TR3	Minnow	Ninespine Stickleback	45
13 Aug 12	TR3	Minnow	Ninespine Stickleback	43
13 Aug 12	TR3	Minnow	Ninespine Stickleback	42
13 Aug 12	TR3	Minnow	Northern Pike	127
13 Aug 12	TR3	Minnow	Alaska Blackfish	116

Appendix H. Continued.