Kotzebue to Cape Blossom Road Draft Environmental Assessment

Project No. 76884/NCPD-0001(204)

Appendix C

October 2013

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

FINAL REPORT

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

MICHAEL BAKER JR., INC.
ANCHORAGE, ALASKA

PREPARED BY

ABR, INC.–ENVIRONMENTAL RESEARCH & SERVICES
FAIRBANKS ♦ ANCHORAGE

KOTZEBUE TO CAPE BLOSSOM ROAD PROJECT

2012 ENVIRONMENTAL STUDY

FINAL REPORT

Prepared for:

Alaska Department of Transportation and Public Facilities, Northern Region

Under contract to:

Michael Baker Jr., Inc.

1400 West Benson Boulevard, Suite 200

Anchorage, AK 99503

Prepared by:

ABR, Inc.—Environmental Research & Services

P.O. Box 240268

Anchorage, AK 99524

and

P.O. Box 80410

Fairbanks, AK 99708

September 2013

Printed on recycled paper.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACKNOWLEDGMENTS

The work described here was conducted for the Alaska Department of Transportation and Public Facilities (DOT&PF; Ryan Anderson, Project Manager), under subcontract to Michael Baker Jr. (Derek Christianson Project Manager).

Janet Kidd served as ABR's technical manager for the subcontract and edited this report; Tom DeLong was ABR's contract manager. The loon and raptor surveys were conducted by Ann Wildman of ABR. Victor Jones and Sam Barr served as subsistence advisors from Kotzebue during the surveys (hired by DOT&PF). Corey Konik of Bering Air piloted the survey helicopter for loons and raptors. The wetland field survey was completed by Susan Ives and Erin Johnson of ABR. The fisheries field work was completed by Joel Gottschalk, Nick Haxton, Liz Miner, and Laura Gutierrez of ABR. Russel Row of Bering Air piloted the helicopter used for site access for the fisheries and wetlands surveys. Office support for report preparation was provided by ABR employees Dorte Dissing, Pam Odom, Nathan Jones, and Kim Allen.

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® Nomad™ 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 (≥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 (*Chamaedaphne 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. aquatilis*), round sedge, and arctic sweetgrass (*Anthoxanthum arcticum*). Vermiculations 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 included tussock cottongrass, white cottongrass, Bigelow's sedge, and water sedge. Saturated Shrub/Persistent Emergent 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 [$\mu S/cm^{-1}$], 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 m^2 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 m^3/s at NF3, 0.1 m^3/s at TR2, and 0.3 m^3/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 µS/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 µS/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 vs. 461.1 µS/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 samples 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).

LITERATURE CITED

Adamus, P. R., L. T. Stockwell, E. J. Clairain, Jr., M. E. Morrow, L. P. Rozas, and R. D. Smith. 1991. Wetland Evaluation Technique (WET); Vol. I: Literature Review and Evaluation Rationale. Technical Report WRP-DE-2. U. S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.

ADFG (Alaska Department of Fish and Game). 2012. Catalog of waters important for the spawning, rearing or migration of anadromous fishes. Accessed online at: http://www.sf.adfg.state.ak.us/SARR/awc/index.cfm/FA/main.overview (July 2012).

ADNR (Alaska Department of Natural Resources). 2012. Navigable Waters Web Map. http://www.navmaps.alaska.gov/navwatersmap/ Accessed 2 October 2012.

ADOT&PF (Alaska Department of Transportation & Public Facilities), Northern Region. 2011. Kotzebue to Cape Blossom Road Reconnaissance Study. State Project No. 76884. February.

Armstrong, R. H. 1990. Guide to the birds of Alaska: Revised edition. Alaska Northwest Books, Bothell, Washington.

Bjornn, T. C., and D. W. Reiser. 1991. Habitat requirements of salmonids in streams. Influences of forest and rangeland management on salmonid Fishes and their habitats. W. R. Meehan, American Fisheries Society. Special Publication 19: 88–138.

Bollinger, K. S., R. M. Platte, R. A. Stehn, and D. K. Marks. 2008. Western Alaska Yellow-billed Loon survey, 2007. U.S. Fish and Wildlife Service, Division of Migratory Bird Management, Fairbanks and Anchorage, Alaska. 14 pp.

Brown, R. J., C. Brown, N. M. Braem, W. K. Carter III, N. Legere, and L. Slayton. 2012. Whitefish biology, distribution, and fisheries in the Yukon and Kuskokwim River drainages in Alaska: A synthesis of available information. U.S. Fish and Wildlife Service, Fairbanks, Alaska. Alaska Fisheries Data Series Number 2012-4.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, DC. 103 pp.

Dahl, T. E., J. Dick, J. Swords, and B. O. Wilen. 2009. Data collection requirements and procedures for mapping wetland, deepwater, and related habitats of the United States. Division of Habitat and Resource Conservation, National Standards and Support Team, Madison, WI. 85 pp. (http://www.fws.gov/wetlands/_documents/gNSDI/DataCollectionRequirementsProcedures.pdf).

Earnst, S. L. 2004. Status assessment and conservation plan for the Yellow-billed Loon (*Gavia adamsii*). U.S. Geological Survey, Scientific Investigations Report 2004-5258, 42 pp.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS. (http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf).

Gallant, A. L., E. F. Binnian, J. M. Omernik, and M. B. Shasby. 1995. Ecoregions of Alaska. U.S. Geological Survey Professional Paper 1567. 73 pp.

Jacobson, P. C. 1992. Analysis of factors affecting growth of northern pike in Minnesota. Minnesota Department of Natural Resources, Investigational Report 424.

Johnson, C. B., A. M. Wildman, J. P. Parrett, J. R. Rose, T. Obritschkewitsch, and P. Seiser. 2012. Avian studies for the Alpine Satellite Development Project, 2011. Ninth annual report for ConocoPhillips Alaska, Inc., and Anadarko Petroleum Corporation, Anchorage, by ABR, Inc., Fairbanks, AK. 91 pp.

Lichvar, R. W., and J. T. Kartesz. 2012. North American Digital Flora: National Wetland Plant List, version 2.4.0. U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (https://wetland_plants.usace.army.mil). Accessed June 2012.

Magee, D. W. 1998. A rapid procedure for assessing wetland functional capacity based on Hydrogeomorphic Classification. Report for Association of State Wetland Managers. 177 pp.

Menard, J., and S. Kent 2011. 2011 Kotzebue Sound salmon season summary [news release]. Division of Commercial Fisheries, Alaska Department of Fish and Game, Nome, AK. Accessed online at: http://www.adfg.alaska.gov/static/fishing/PDFs/commercial/2011_norton_salmon_summary.pdf> (October 2012).

Morrow, J. E. 1980. The freshwater fishes of Alaska, Alaska Northwest Publishing Company. 248 pp.

Munsell Soil Color Charts. 2009. Revised edition. Gretag Macbeth, New Windsor, NY.

NOAA (National Ocean and Atmospheric Association). 2012. Tides and currents, datums for Kotzebue Alaska station. (http://tidesandcurrents.noaa.gov/data_menu.shtml?stn=9490424%20Kotzebue,%20AK&type=Datums). Accessed October 2012.

North, M.R. 1994. Yellow-billed Loon (*Gavia adamsii*). In: The birds of North America, No. 121. (A. Poole and F. Gill, editors). Philadelphia: The Academy of Natural Sciences; Washington, D.C.: The American Ornithologists' Union.

North, M.R., and M.R. Ryan. 1989. Characteristics of lakes and nest sites used by Yellow-billed Loons in arctic Alaska. Journal of Field Ornithology 60(3): 296–304.

Oswood, M. W., K. R. Everett, and D. M. Schell 1989. Some physical and chemical characteristics of an arctic beaded stream. Holarctic Ecology 12: 209–295.

Pope, J. A., A. R. Margetts, J. M. Hamley, and E. F. Akyuz. 1975. Manual of methods for fish stock assessment. Part 3—Selectivity of fishing gear. FAO Fisheries Technical Papers.

Raymond, J. A., M. F. Merritt, and C. Skaugstad 1984. Nearshore fishes of Kotzebue Sound in summer. Alaska Department of Fish and Game, Fred Report 37. Juneau, Alaska,

Ritchie, R. J., A. M. Wildman, and C. M. White. 2004. Peregrine Falcons nesting on lake bluffs on the Arctic Coastal Plain of northern Alaska. Journal of Raptor Research 38: 158–160.

Ritchie, R. J., and D. Nigro. 2012. Maybe melting mud matters: Peregrine Falcons nesting at thermokarst lakes in the NPRA, Alaska. Paper presented at the Fifteenth Alaska Bird Conference and Workshops, 22–26 October 2012, Anchorage, AK.

Schroeder, M. 1996. Birds of the Northwest Alaska areas. National Park Service. Jamestown, ND: Northern Prairie Wildlife Research Center Online. (http://www.npwrc.usgs.govnoalaska.htm) Version 01SEPT98.

Sjolander, S., and G. Agren. 1976. Reproductive behavior in the Yellow-billed Loon, *Gavia adamsii*. Condor 78: 454–463.

USACE (U.S. Army Corps of Engineers). 2007. Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region Version 2.0. Wetlands Regulatory Assistance Program, U.S. Army Engineer Research and Development Center, Vicksburg, MS. 72 pp. + appendices.

_______. 2009. Alaska District Regulatory Guidance Letter on Implementation of the Federal Rule on Compensatory Mitigation. RGL ID No. 09-01.

USDA (United States Department of Agriculture), NRCS (Natural Resources Conservation Service). 2010. Field Indicators of Hydric Soils in the United States, Version 7.0. L. M. Vasilas, G. W. Hurt, and C. V. Noble (editors). USDA, NRCS, in cooperation with the National Technical Committee for Hydric Soils.

USFWS (U.S. Fish and Wildlife Service). 1998. Breeding status and distribution of birds on Alaska Maritime Refuge. U.S. Fish and Wildlife Refuge. 4 pages. Jamestown, ND: Northern Prairie Wildlife Research Center Online. http://www.npwrc.usgs.govmaritime.htm (accessed November 2012).

_______. 2009. Yellow-billed Loon. Available from: http://alaska.fws.gov/fisheries/endangered/pdf/ybl_factsheet.pdf (accessed October 2012).

_______. 2012. National Wetland Inventory: Geospatial Wetlands Digital Data. (http://www.fws.gov/wetlands/data/index.html). Accessed August 2012.

Viereck, L. A., C. T. Dyrness, A. R. Batten, and K. J. Wenzlick. 1992. The Alaska vegetation classification. U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station, Portland, OR. Gen. Tech. Rep. PNW-GTR-286. 278 pp.

WRCC (Western Regional Climate Center). 2012. Kotzebue WSO Airport, Alaska (505076). (http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ak5076). Accessed 20 October 2012.

Wetzel, R. G. 2001 Limnology: Lake and river ecosystems, Third edition. Academic Press. 1,006 pp.

Wildman, A. M., and C. B. Johnson. 2008. Lake and territory characteristics of Yellow-billed Loons on the Colville River delta and northeastern NPRA, Alaska. Paper presented at the Thirteenth Alaska Bird Conference and Workshops, 3–7 March 2008, Fairbanks, AK.

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

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

[a] Cowardin et al. 1979

Table 2. Wetland Functional Class descriptions for the proposed Kotzebue to Cape Blossom Road, Alaska.

Wetland Functional Class	Description	Area (acres)
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
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 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 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 *Carex aquatilis*, *C. rotundata, and Eriophorum scheuchzeri*; floating *Sphagnum* spp. mats; and/or *Potamageton* spp. Surface water is present throughout.	17.99
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 *Comarum palustre*, *Carex aquatilis*, *Caltha palustris*, *Eriophorum angustifolium*, and *Eriophorum scheuchzeri*.	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 *Carex chordorrhiza*, *C. rotundata*, and *Eriophorum scheuchzeri* with scattered aquatic plant *Utricularia macrorhiza*. Dwarf shrubs on microtopographic high points include *Betula nana*, *Vaccinium uliginosum*, and *Chamaedaphne calyculata*.	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 *Carex aquatilis*, *C. chordorrhiza*, *C. rotundata*, *Eriophorum angustifolium*, and *E. scheuchzeri*. Dwarf shrubs on micro-topographic high points include *Vaccinium uliginosum*, *Betula nana*, and *Salix fuscescens*.	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 *Salix pulchra* and *Salix richardsonii* 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, PEM1/SS1B, PEM1/SS3B. Typical dominant species include *Eriophorum vaginatum*, *Carex bigelowii*, *Rubus chamaemorus*, *Vaccinium vitis-idaea*, and *Empetrum nigrum*.	1319.54

Table 2. Continued.

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 *Arctostaphylos alpina*, *Betula nana*, *Empetrum nigrum*, *Salix fuscescens*, and the emergents *Eriophorum vaginatum* and *Carex aquatilis*.	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 *Betula nana*, *Ledum decumbens*, *Vaccinium uliginosum*, and *V. vitis-idaea* with the emergents *Carex bigelowii*, *Eriophorum vaginatum*, and *Rubus chamaemorus*.	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 *Salix pulchra* and *S. richardsonii*, or *Alnus viridis* ssp. *crispa*.	358.14

Table 3. Relative functional rankings and categorization for Wetland Functional Classes identified along the proposed Kotzebue to Cape Blossom Road, Alaska, 2012.

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	II	N/A	N/A	N/A	Low	Moderate	High	N/A	High
Permanently Flooded Lake or Pond	II	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	II	High	Moderate	High	Moderate	Moderate	High	Moderate	Moderate
Permanently Flooded Sedge Marsh	II	High	Moderate	High	Moderate	Moderate	Moderate	Moderate	Moderate
Semi-Permanently Flooded Sedge–Shrub Meadow	II	High	Moderate	N/A	High	High	N/A	Moderate	Moderate
Seasonally Flooded Saturated Sedge–Shrub Meadow	II	High	Moderate	High	High	High	N/A	Moderate	Moderate
Seasonally Flooded Saturated Low and Tall Deciduous Shrub	III	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	III	Low	Moderate	High	N/A	Moderate	N/A	Low	High

Table 4. Habitat assessment for common birds and mammals likely to occur in the proposed Kotzebue to Cape Blossom Road study area, Alaska, 2012 (× indicates a wildlife habitat considered important for a species).[a]

		Wildlife Habitat (acres)											
		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)	Moist Sedge–Shrub Meadow (1355.10)	Low and Tall Willow Scrub (395.92)	Low Birch–Ericaceous Scrub (349.33)	Tall Alder Scrub (3.28)	Gravel Fill (15.66)
BIRDS													
Greater White-fronted Goose	*Anser albifrons*		×	×	×	×	×	×	×				
Tundra Swan	*Cygnus columbianus*	×	×	×	×	×	×	×	×				
American Wigeon	*Anas americana*	×	×	×	×	×	×	×	×				
Northern Shoveler	*Anas clypeata*		×	×	×	×	×	×	×				
Northern Pintail	*Anas acuta*	×	×	×	×	×	×	×	×				
Green-winged Teal	*Anas crecca*	×	×	×	×	×	×	×	×				
Greater Scaup	*Aythya marila*	×		×	×	×	×	×	×				
Common Eider	*Somateria mollissima*	×		×	×	×	×	×	×				
Long-tailed Duck	*Clangula hyemalis*	×		×	×	×	×	×	×				
Red-breasted Merganser	*Mergus serrator*	×	×	×	×	×	×	×	×				
Willow Ptarmigan	*Lagopus lagopus*					×	×	×	×	×	×	×	
Red-throated Loon	*Gavia stellata*	×		×	×	×	×	×					
Pacific Loon	*Gavia pacifica*	×		×	×	×	×	×					
Yellow-billed Loon[b]	*Gavia adamsii*	×		×	×	×	×	×					

Table 4. Continued.

		Wildlife Habitat (acres)											
		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)	Moist Sedge–Shrub Meadow (1355.10)	Low and Tall Willow Scrub (395.92)	Low Birch–Ericaceous Scrub (349.33)	Tall Alder Scrub (3.28)	Gravel Fill (15.66)
Northern Harrier	*Circus cyaneus*				×	×	×	×	×		×		
Sandhill Crane	*Grus canadensis*				×	×	×	×	×				
American Golden-Plover	*Pluvialis dominica*						×	×	×				
Semipalmated Plover	*Charadrius semipalmatus*	×	×				×	×	×				×
Whimbrel	*Numenius phaeopus*				×	×	×	×	×				
Bar-tailed Godwit	*Limosa lapponica*	×			×	×	×	×	×		×		
Black Turnstone	*Arenaria melanocephala*	×			×	×	×	×	×				
Semipalmated Sandpiper	*Calidris pusilla*	×			×	×	×	×	×				
Western Sandpiper	*Calidris mauri*	×			×	×	×	×	×				
Pectoral Sandpiper	*Calidris melanotos*	×			×	×	×	×	×				
Dunlin	*Calidris alpina*	×			×	×	×						
Long-billed Dowitcher	*Limnodromus scolopaceus*	×			×	×	×						
Wilson's Snipe	*Gallinago gallinago*	×			×	×	×						
Red-necked Phalarope	*Phalaropus lobatus*	×			×	×	×						
Mew Gull	*Larus canus*	×	×	×	×	×	×						×
Glaucous Gull	*Larus hyperboreus*	×	×	×	×	×	×						×
Arctic Tern	*Sterna paradisaea*	×	×	×	×	×	×						

Table 4. Continued.

		Wildlife Habitat (acres)											
		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)	Moist Sedge–Shrub Meadow (1355.10)	Low and Tall Willow Scrub (395.92)	Low Birch–Ericaceous Scrub (349.33)	Tall Alder Scrub (3.28)	Gravel Fill (15.66)
Parasitic Jaeger	*Stercorarius parasiticus*	×					×	×	×				
Long-tailed Jaeger	*Stercorarius longicaudus*	×					×	×	×				
Common Raven	*Corvus corax*	×	×				×	×	×		×		×
Eastern Yellow Wagtail	*Motacilla tschutschensis*						×	×	×		×		
Lapland Longspur	*Calcarius lapponicus*						×	×	×		×		
American Tree Sparrow	*Spizella arborea*									×	×	×	
Savannah Sparrow	*Passerculus sandwichensis*						×	×	×		×		
White-crowned Sparrow	*Zonotrichia leucophrys*							×		×	×	×	
Common Redpoll	*Carduelis flammea*									×	×	×	
Hoary Redpoll	*Carduelis hornemanni*									×	×	×	
MAMMALS													
Arctic Ground Squirrel	*Spermophilus parryii*						×	×	×	×	×	×	
Brown (grizzly) Bear	*Ursus arctos*	×			×	×	×	×	×	×	×	×	
Caribou	*Rangifer tarandus*					×	×	×	×				
Moose	*Alces alces*			×	×	×	×	×	×	×	×	×	

Table 4. Continued.

		Wildlife Habitat (acres)											
		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)	Moist Sedge–Shrub Meadow (1355.10)	Low and Tall Willow Scrub (395.92)	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*						×	×	×	×	×	×	

[a] Species listed are likely to be common in the study area during some portion of their life history (e.g., breeding/mating, migration, staging, etc.). Uncommon or rare species that could occur sporadically are not listed. Habitat use for birds and mammals was determined from field observations in the study area in June 2012 and from available literature (Armstrong 1995, Schroeder 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.

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).

			Gear Type 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	M		
NF2	N66.82193	W162.46741			M			
NF3	N66.82135	W162.48117				F	F	F
SF1	N66.81818	W162.48817	F	F, M	F, M	M		
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						M

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

	Temperature (˚C)		pH		Dissolved Oxygen (%)		Specific Conductance (μS/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 7. Total catch by fish species 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 8. Total catch by fish species and site in Sadie Creek and its tributaries near Kotzebue, Alaska, 26–28 July and 11–13 August 2012.

Species	MS1		NF1		NF2		NF3		SF1		SF2		TR1		TR2		TR3	
	July	Aug	July	Aug	July	Aug	July	Aug	July	Aug	July	Aug	July	Aug	July	Aug	July	Aug
Ninespine stickleback	27	90	230	1	1			112	12	543		20	29					122
Threespine stickleback			1					4	3									
Broad whitefish								12										
Humpback whitefish			2					10	1									
Unknown juvenile whitefish								26				7						
Least cisco								4										
Northern pike								9	1			19				7		2
Alaska blackfish								1										3

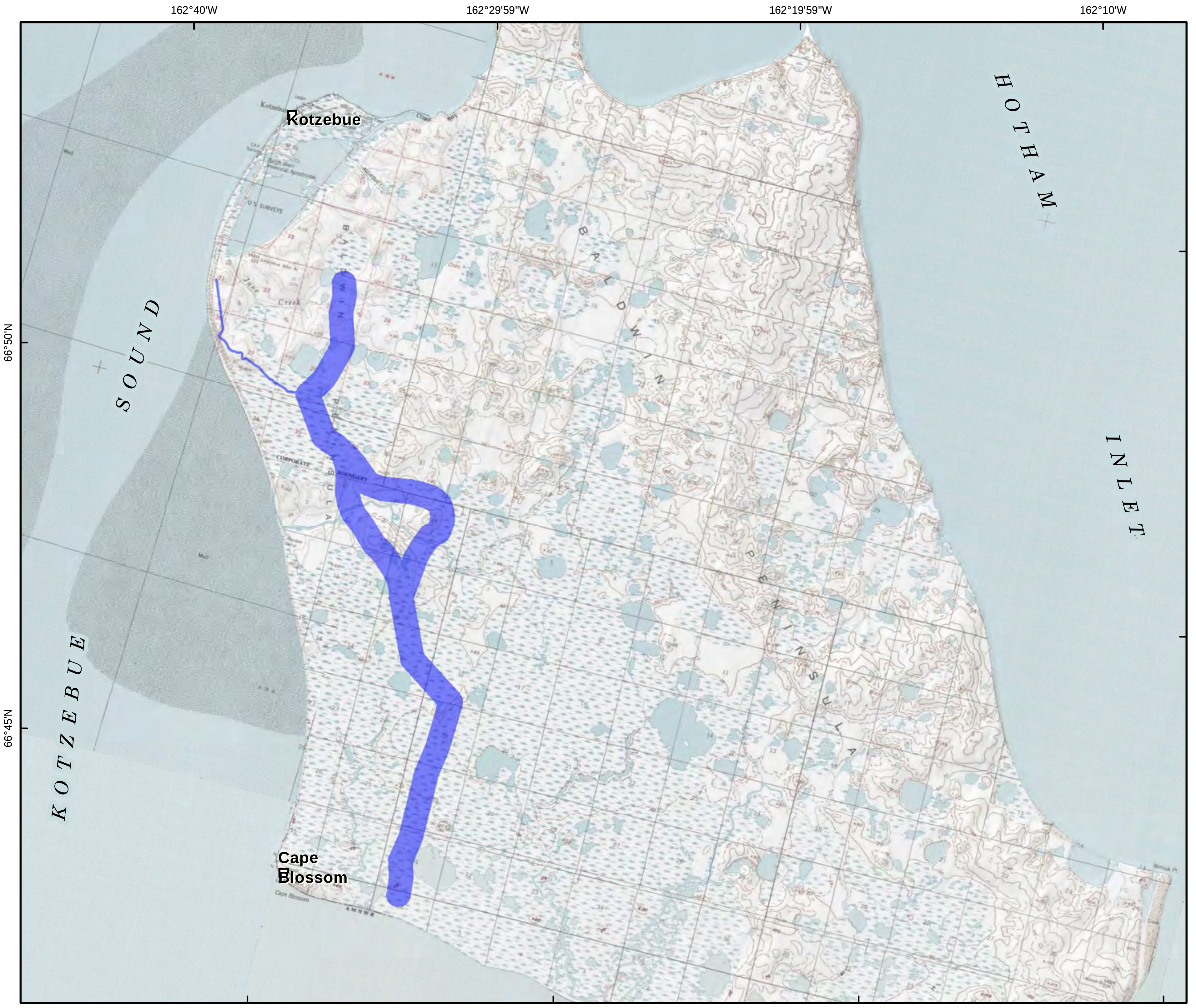


Figure 2 Map Legend

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
PEM1F	Semi-PermanentlyFlooded Persistent Emergent
PEM1E	Seasonally Flooded-Saturated Persistent Emergent
PEM1B	Saturated Persistent Emergent
PEM1/SS1F	Semi-Permanently Flooded Persistent Emergent / Broadleaf Deciduous Shrub
PEM1/SS1E	Seasonally Flooded – Saturated Persistent Emergent / Broadleaf Deciduous Shrub
PEM1/SS1B	Saturated Persistent Emergent / Broadleaf Deciduous Shrub
PEM1/SS3B	Saturated Persistent Emergent / Broadleaf Evergreen Shrub
PSS1/EM1B	Saturated Broadleaf Deciduous Shrub / Persistent Emergent
PSS3/EM1B	Saturated Broadleaf Evergreen Shrub / Persistent Emergent
PSS1E	Seasonally Flooded-Saturated Broadleaf Decidous Shrub
PSS1C	Seasonally Flooded Broadleaf Deciduous Shrub
PSS1B	Saturated Broadleaf Deciduous Shrub
PSS1/3B	Saturated Broadleaf Deciduous / Broadleaf Evergreen Shrub
PSS3/1B	Saturated Broadleaf Evergreen / Broadleaf Deciduous Shrub
PSS3B	Saturated Broadleaf Evergreen Shrub
PSS4B	Saturated Needleleaf Evergreen Shrub
Uplands	
U	Upland
Us	Upland (Fill)

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

Cape Blossom Study Area

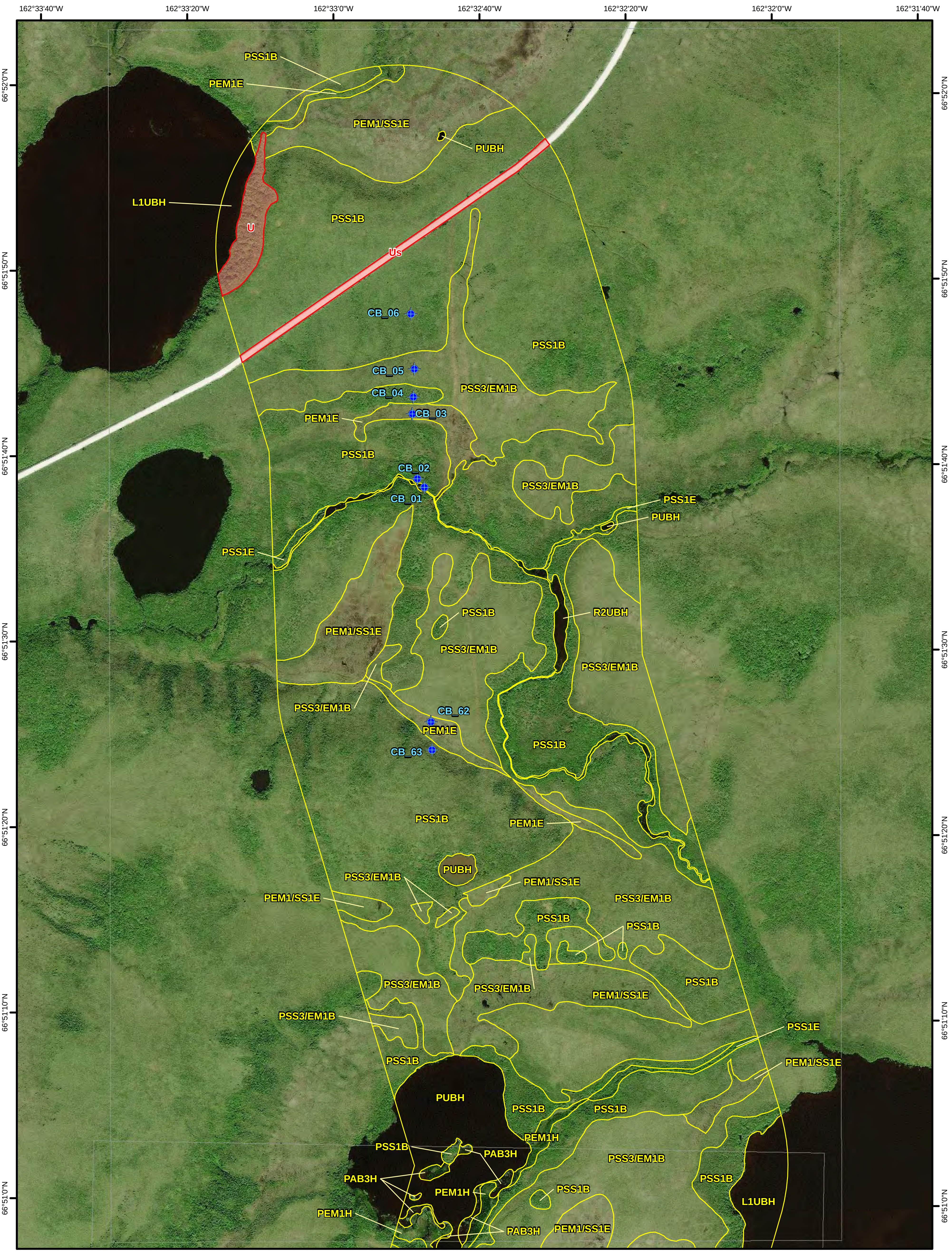
0 1 2 3 4 Kilometers

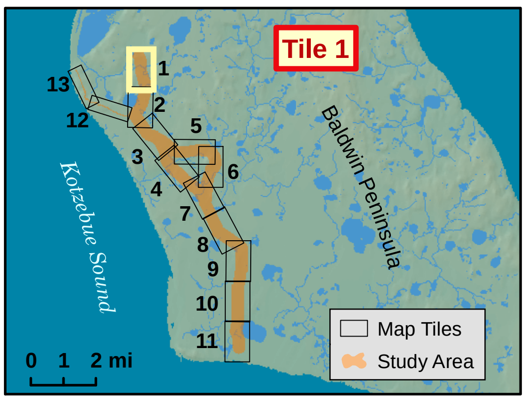
0 1 2 3 Miles

Figure 1.
Kotzebue to Cape Blossom Road Project Area and Figure 2 Map Legend

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

26 November 2012 | CapeBlossom_Wetlands_SA_12-211.mxd





Wetland

Upland

Wetland Determination Plot

Verification Plot

Map Tiles

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'.

See Figure 1 for wetlands legend.

250 0 250 500 Feet

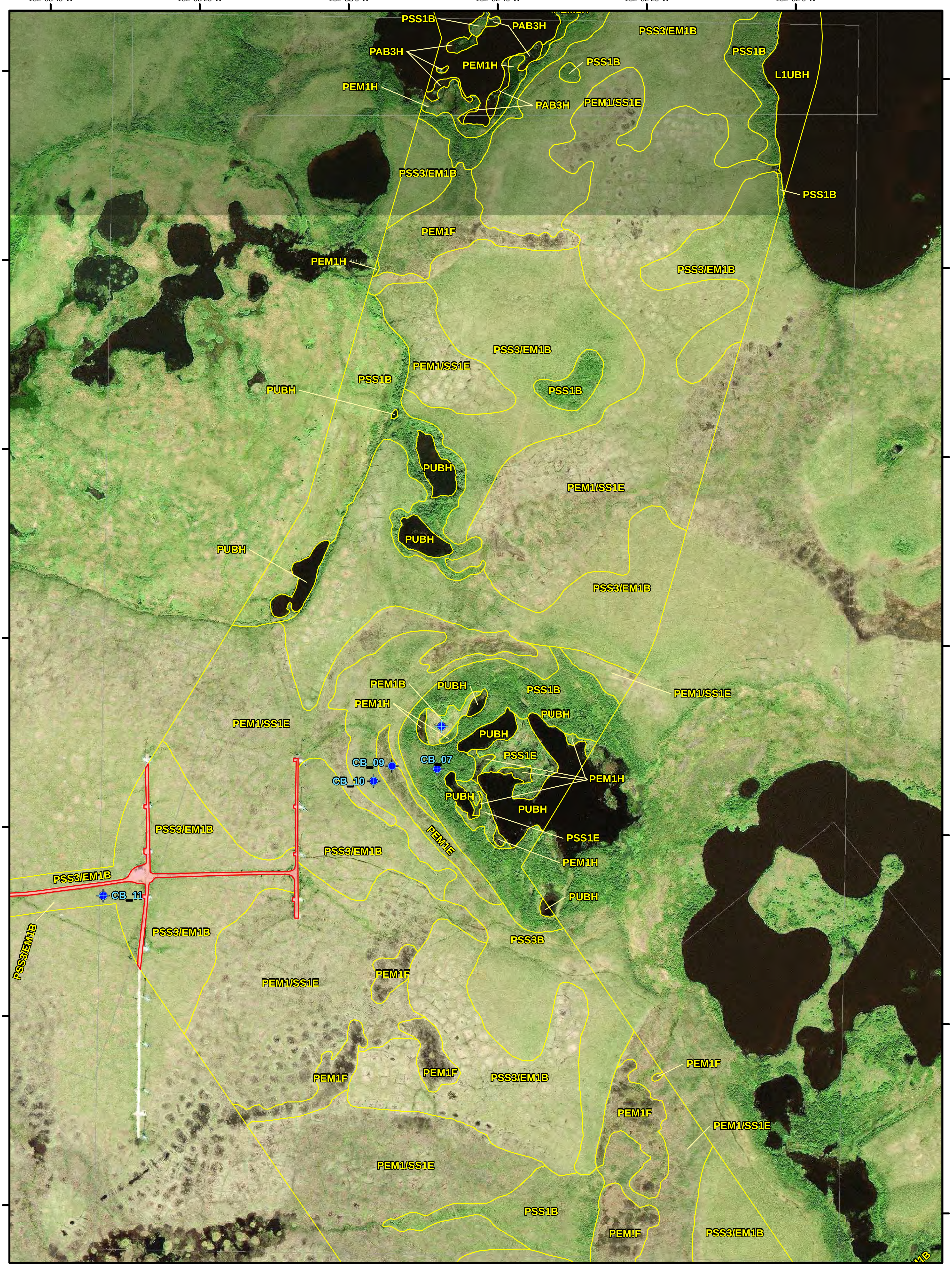
100 0 100 200 Meters

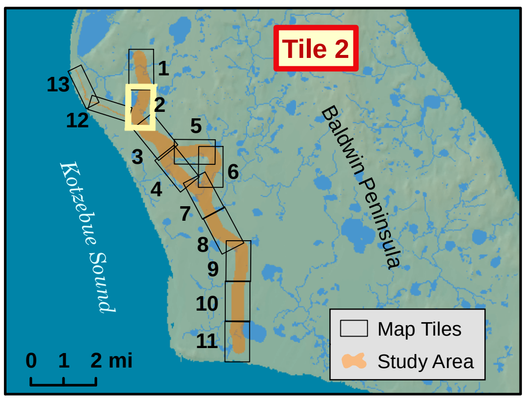
Figure 2.1. Wetland Types for the proposed Kotzebue to Cape Blossom Road Project (Tile 1)

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

26 November 2012

CapeBlossom_Wetlands_ReportMaps_12-211.mxd





Wetland

Upland

Wetland Determination Plot

Verification Plot

Map Tiles

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'.

See Figure 1 for wetlands legend.

250 0 250 500 Feet

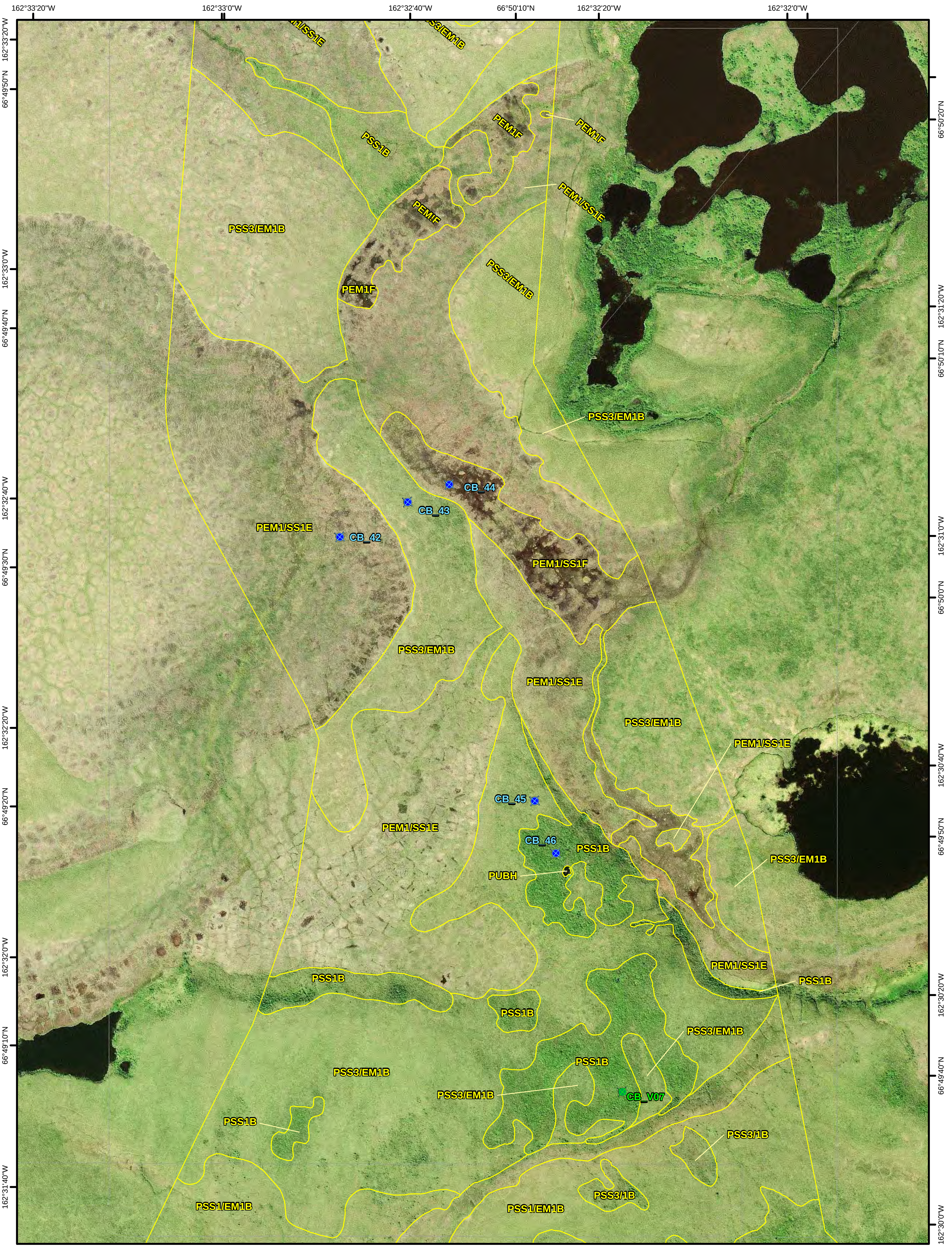
100 0 100 200 Meters

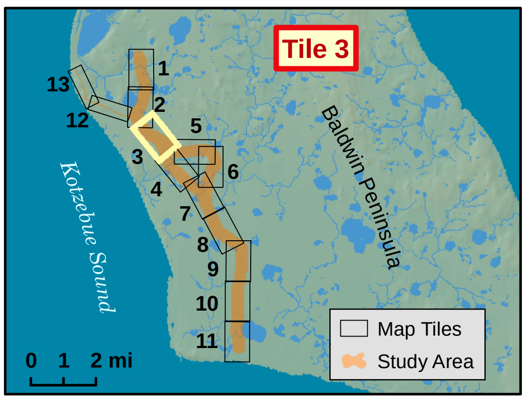
Figure 2.2.
Wetland Types for the proposed Kotzebue to Cape Blossom Road Project (Tile 2)

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

26 November 2012

CapeBlossom_Wetlands_ReportMaps_12-211.mxd





Wetland
Upland
Wetland Determination Plot
Verification Plot
Map Tiles

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'.

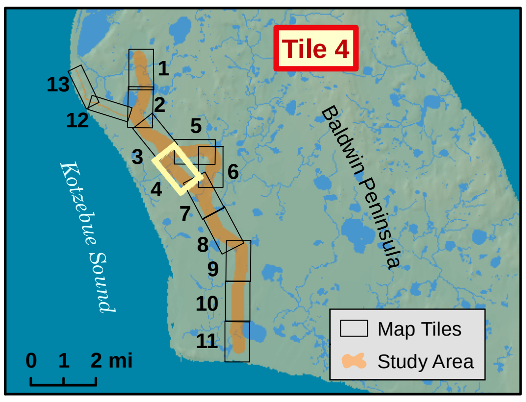
See Figure 1 for wetlands legend.

250 0 250 500 Feet
100 0 100 200 Meters

Figure 2.3.
Wetland Types for the proposed Kotzebue to Cape Blossom Road Project (Tile 3)

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

26 November 2012 | CapeBlossom_Wetlands_ReportMaps_12-211.mxd



Wetland

Upland

Wetland Determination Plot

Verification Plot

Map Tiles

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'.

See Figure 1 for wetlands legend.

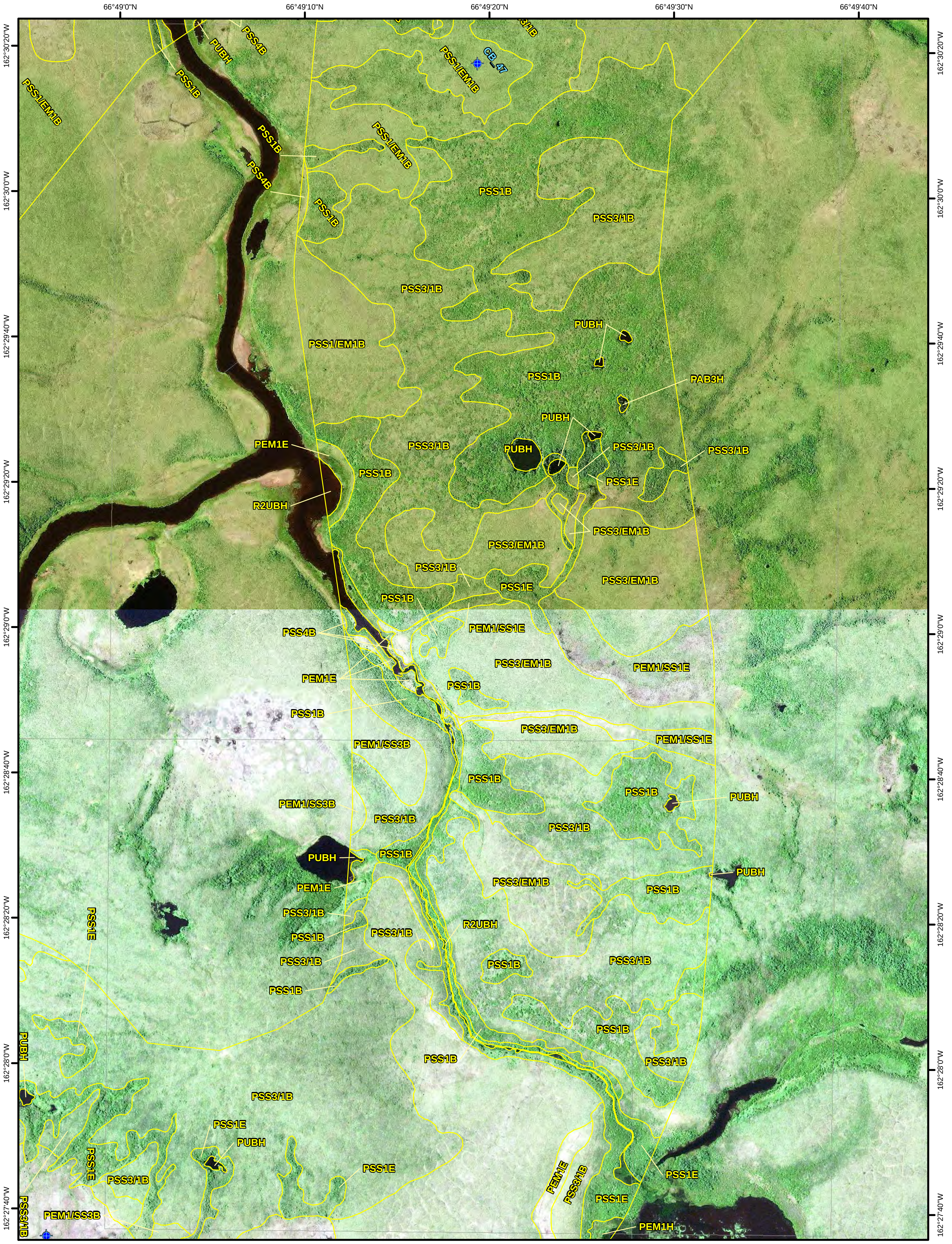
250 0 250 500 Feet

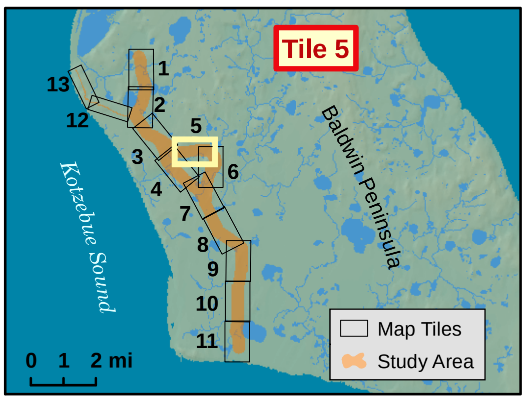
100 0 100 200 Meters

Figure 2.4.
Wetland Types for the proposed Kotzebue to Cape Blossom Road Project (Tile 4)

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

26 November 2012 | CapeBlossom_Wetlands_ReportMaps_12-211.mxd





Wetland

Upland

Wetland Determination Plot

Verification Plot

Map Tiles

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'.

See Figure 1 for wetlands legend.

250 0 250 500 Feet

100 0 100 200 Meters

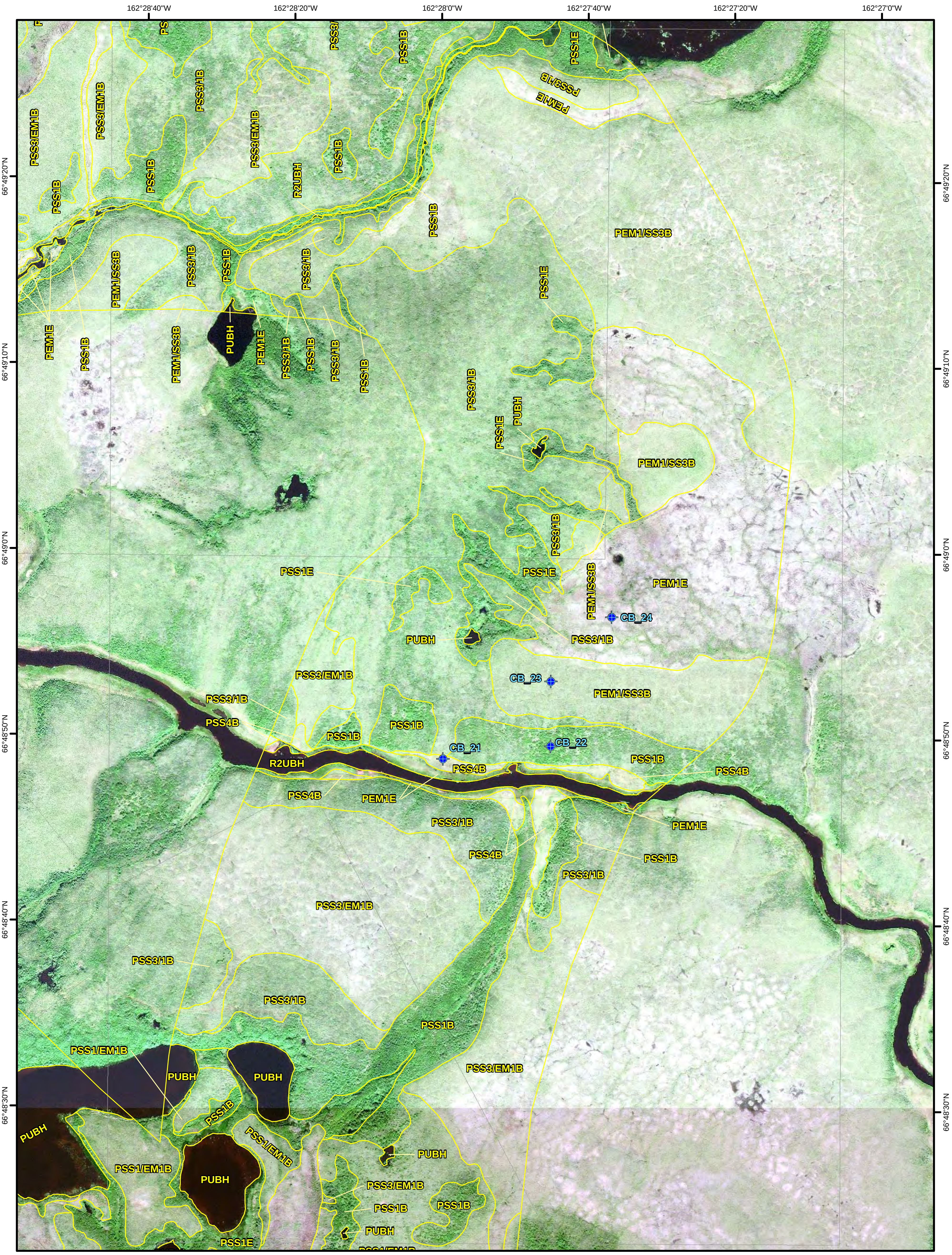
Figure 2.5. Wetland Types for the proposed Kotzebue to Cape Blossom Road Project (Tile 5)

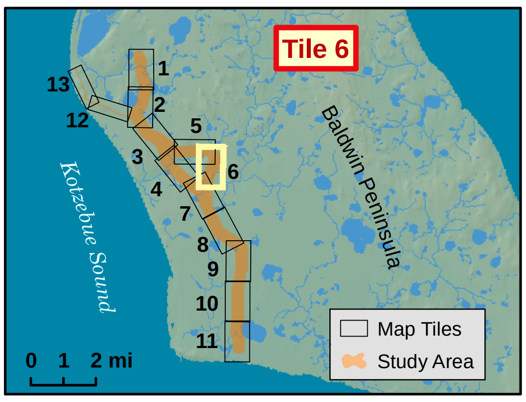
Map prepared by:

ABR Inc.—Environmental Research & Services

26 November 2012

CapeBlossom_Wetlands_ReportMaps_12-211.mxd





Wetland
Upland
Wetland Determination Plot
Verification Plot
Map Tiles

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'.

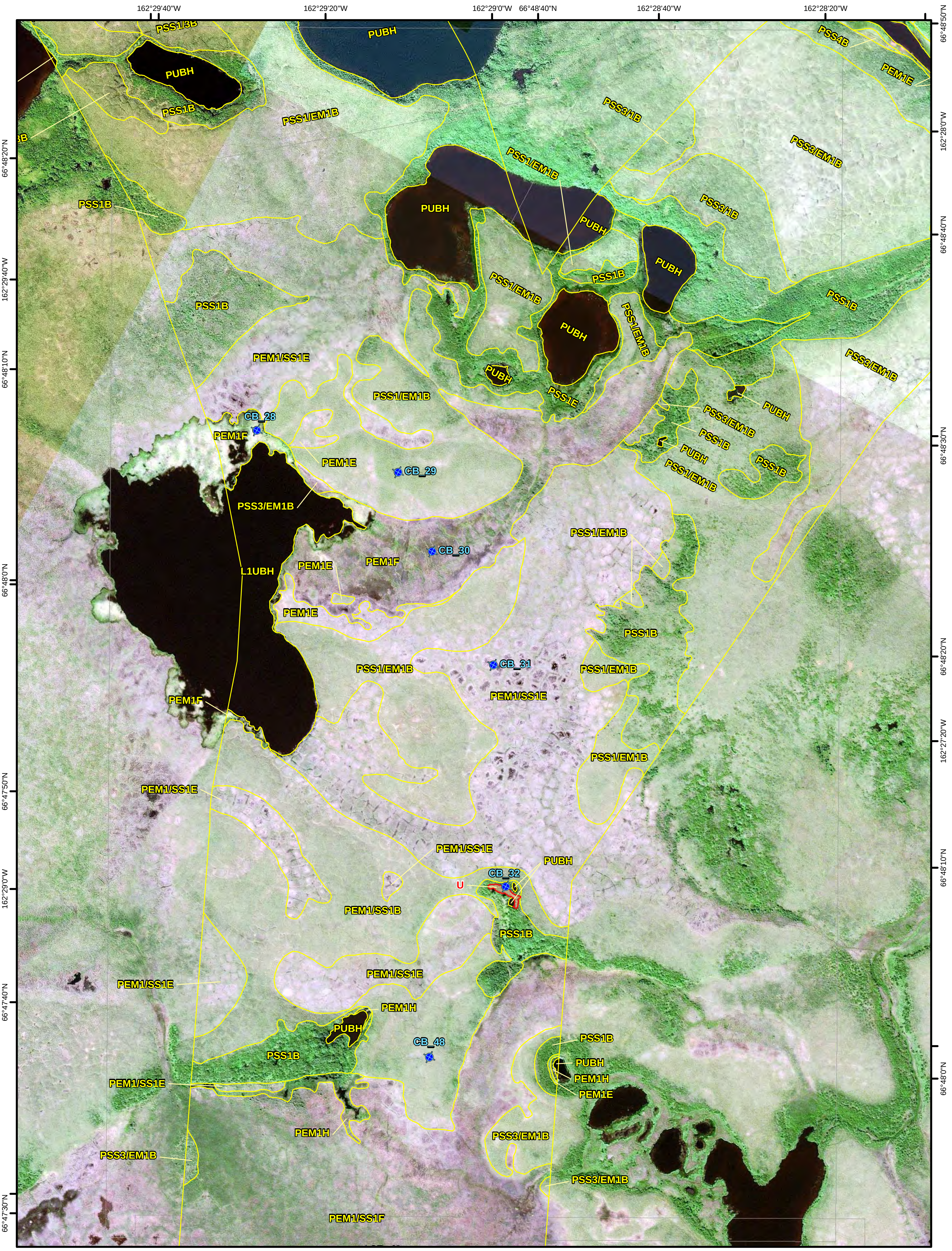
See Figure 1 for wetlands legend.

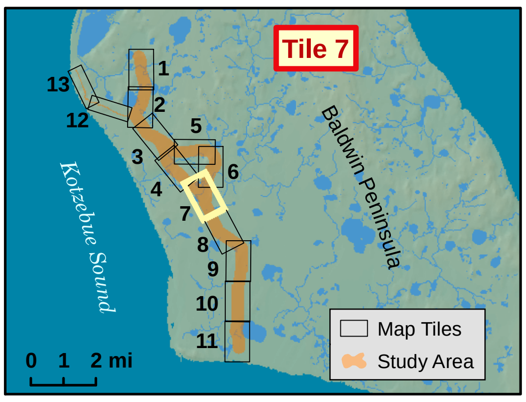
250 0 250 500 Feet
100 0 100 200 Meters

**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





Wetland
Upland
Wetland Determination Plot
Verification Plot
Map Tiles

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'.

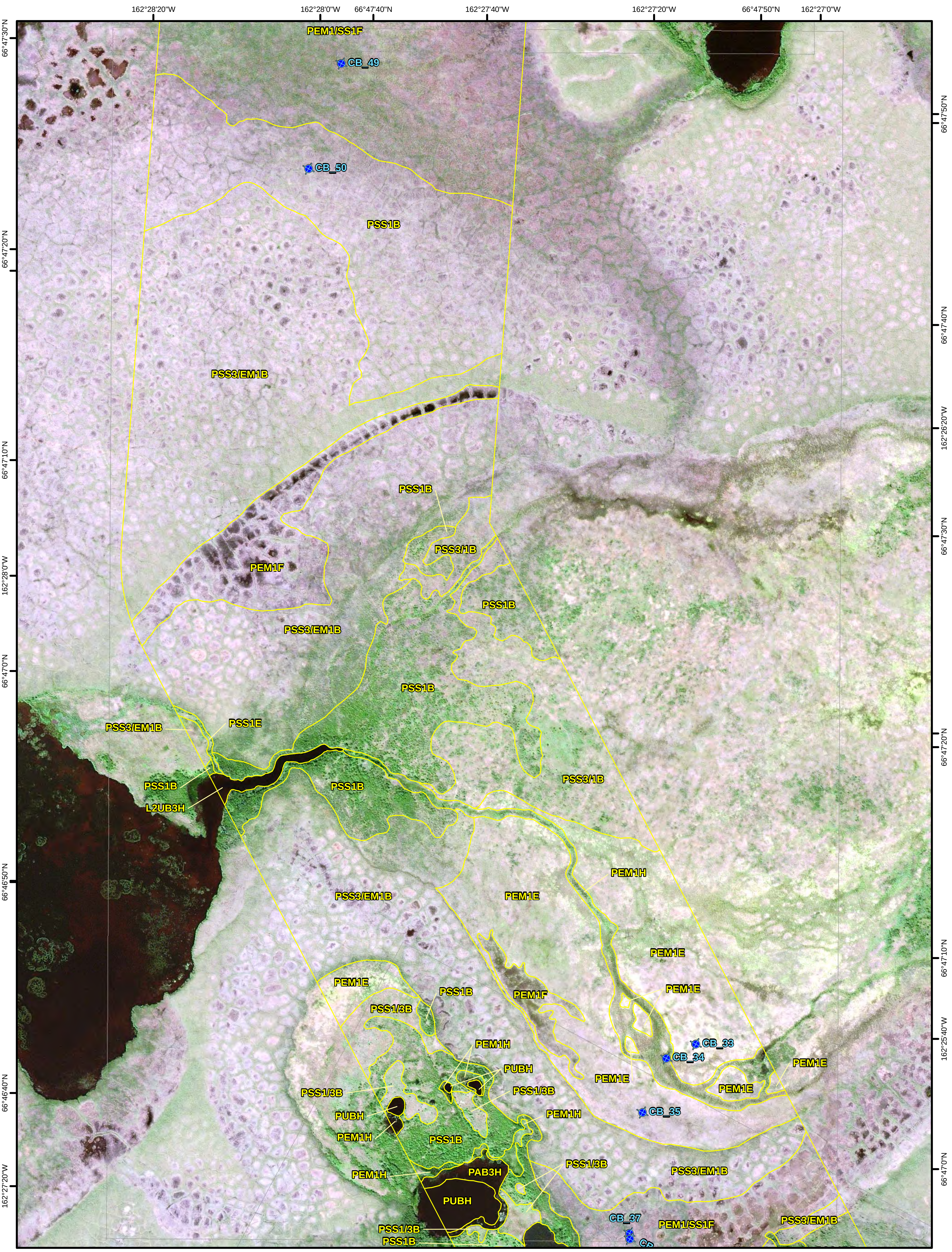
See Figure 1 for wetlands legend.

250 0 250 500 Feet
100 0 100 200 Meters

Figure 2.7.
Wetland Types for the proposed Kotzebue to Cape Blossom Road Project (Tile 7)

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

26 November 2012 | CapeBlossom_Wetlands_ReportMaps_12-211.mxd



Wetland

Upland

Wetland Determination Plot

Verification Plot

Map Tiles

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'.

See Figure 1 for wetlands legend.

250 0 250 500 Feet

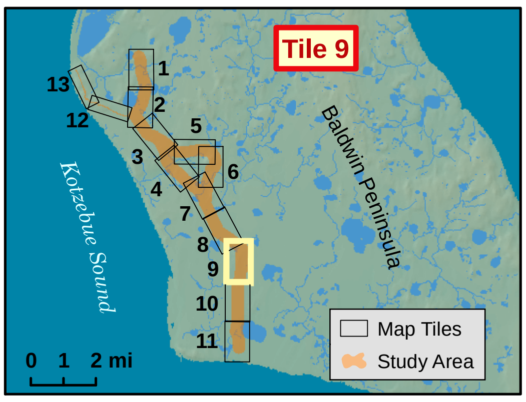
100 0 100 200 Meters

Figure 2.8.
Wetland Types for the proposed Kotzebue to Cape Blossom Road Project (Tile 8)

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

26 November 2012

CapeBlossom_Wetlands_ReportMaps_12-211.mxd



Wetland

Upland

Wetland Determination Plot

Verification Plot

Map Tiles

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'.

See Figure 1 for wetlands legend.

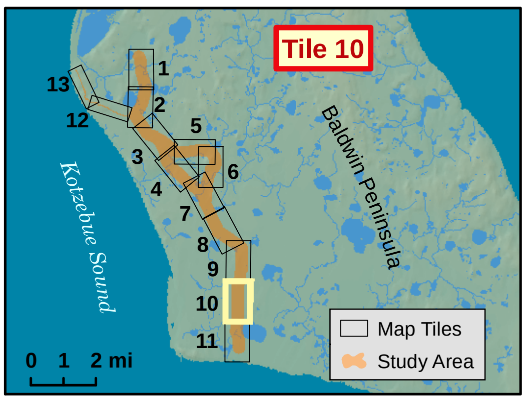
250 0 250 500 Feet

100 0 100 200 Meters

Figure 2.9.
Wetland Types for the proposed Kotzebue to Cape Blossom Road Project (Tile 9)

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

26 November 2012 | CapeBlossom_Wetlands_ReportMaps_12-211.mxd



Wetland
Upland
Wetland Determination Plot
Verification Plot
Map Tiles

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'.

See Figure 1 for wetlands legend.

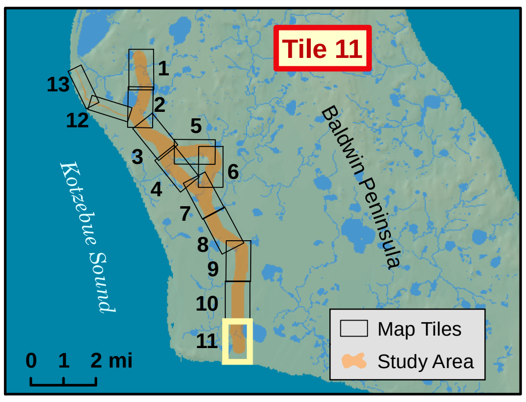
250 0 250 500 Feet

100 0 100 200 Meters

Figure 2.10.
Wetland Types for the proposed Kotzebue to Cape Blossom Road Project (Tile 10)

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

26 November 2012 | CapeBlossom_Wetlands_ReportMaps_12-211.mxd



Wetland

Upland

Wetland Determination Plot

Verification Plot

Map Tiles

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'.

See Figure 1 for wetlands legend.

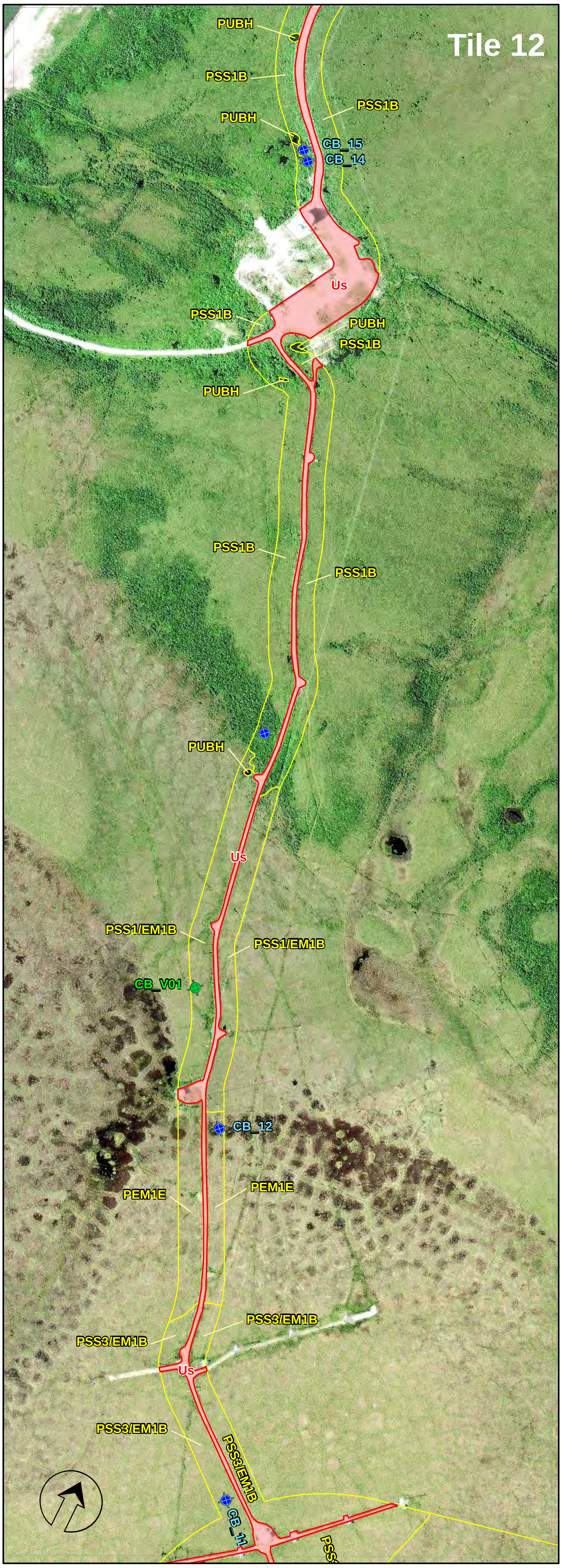
250 0 250 500 Feet

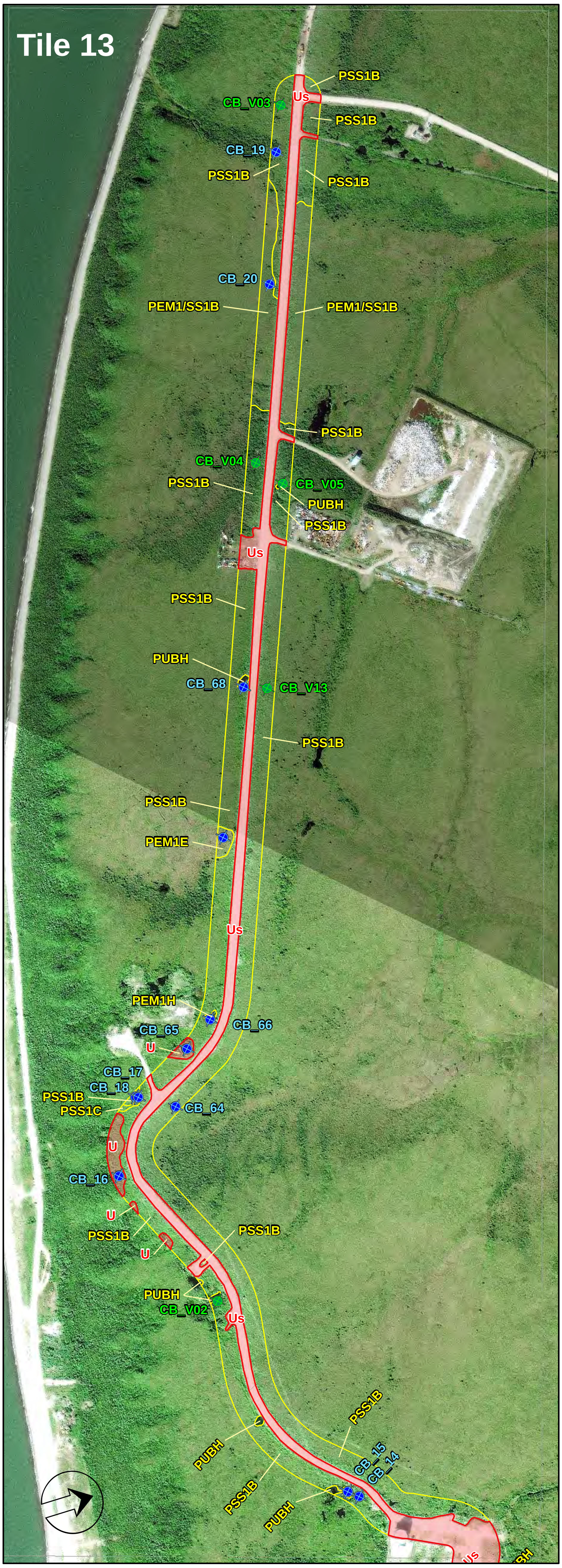
100 0 100 200 Meters

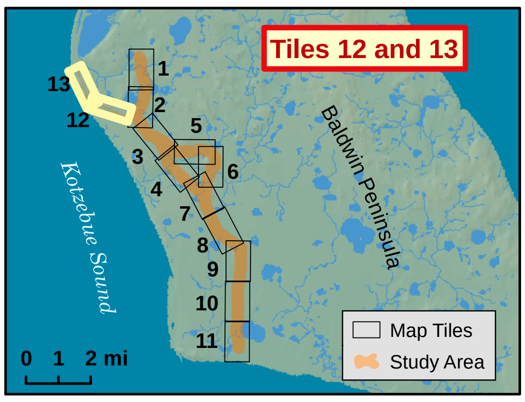
Figure 2.11.
Wetland Types for the proposed Kotzebue to Cape Blossom Road Project (Tile 11)

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

26 November 2012 | CapeBlossom_Wetlands_ReportMaps_12-211.mxd







Wetland

Upland

Wetland Determination Plot

Verification Plot

Map Tiles

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'.

See Figure 1 for wetlands legend.

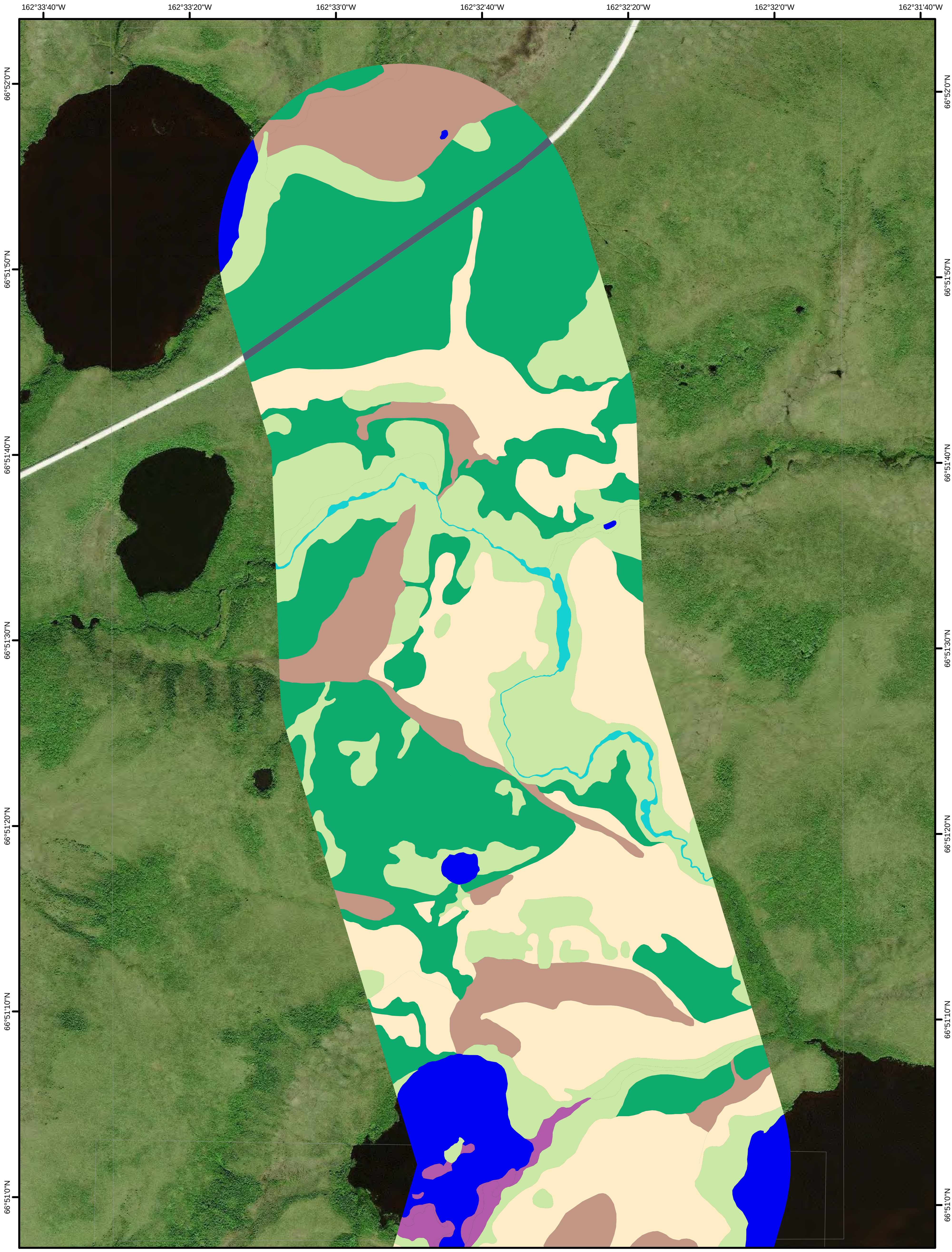
250 0 250 500 Feet

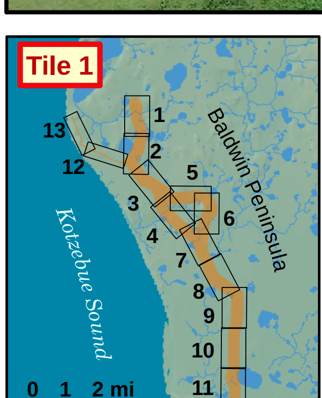
100 0 100 200 Meters

Figure 2.12.
Wetland Types for the Proposed Kotzebue to Cape Blossom Road Project (Tiles 12 and 13)

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

26 November 2012 | CapeBlossom_Wetlands_ReportMaps_Tile12-13_12-211.mxd





Wildlife Habitat Type

- Coastal Beach and Waters
- Rivers and Streams
- Freshwater Lake or Pond
- Littoral Aquatic Bed and Lacustrine Fringe
- Sedge Marsh
- Wet Sedge-Shrub Meadow
- Moist Dwarf Shrub Tundra
- Moist Sedge-Shrub Meadow
- Low and Tall Willow Scrub
- Low Birch-Ericaceous Scrub
- Tall Alder Scrub
- Gravel Fill

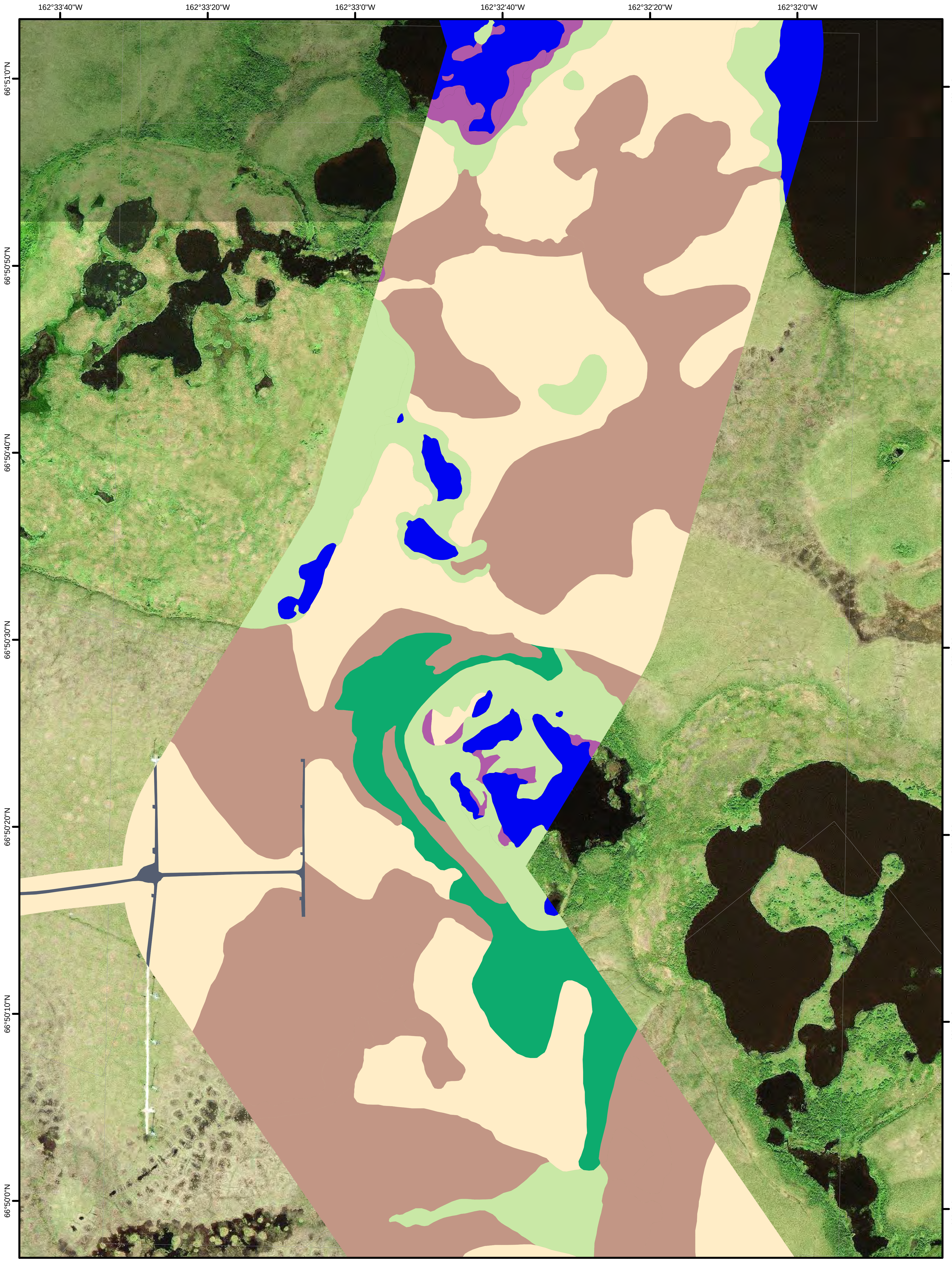
50 0 50 100 Meters

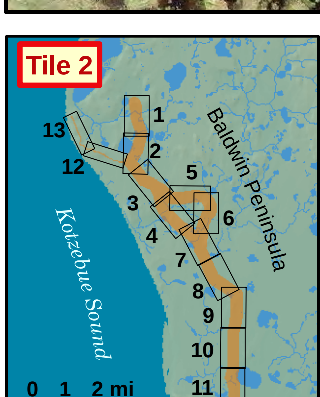
200 0 200 400 Feet

Figure 3.1.
Wildlife Habitat Types for the Proposed Kotzebue to Cape Blossom Road Project (Tile 1)

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

26 November 2012 | CapeBlossom_Habitats_ReportMaps_12-211.mxd





Wildlife Habitat Type

- Coastal Beach and Waters
- Rivers and Streams
- Freshwater Lake or Pond
- Littoral Aquatic Bed and Lacustrine Fringe
- Sedge Marsh
- Wet Sedge-Shrub Meadow
- Moist Dwarf Shrub Tundra
- Moist Sedge-Shrub Meadow
- Low and Tall Willow Scrub
- Low Birch-Ericaceous Scrub
- Tall Alder Scrub
- Gravel Fill

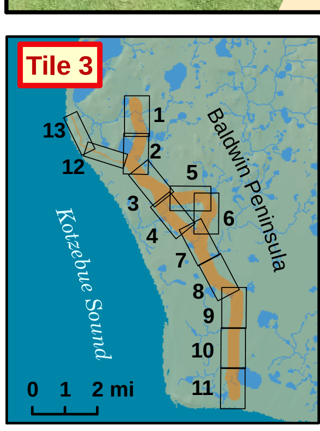
50 0 50 100 Meters

200 0 200 400 Feet

**Figure 3.2.
Wildlife Habitat Types for the Proposed Kotzebue to Cape Blossom Road Project (Tile 2)**

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

26 November 2012 | CapeBlossom_Habitats_ReportMaps_12-211.mxd



Wildlife Habitat Type

- Coastal Beach and Waters
- Rivers and Streams
- Freshwater Lake or Pond
- Littoral Aquatic Bed and Lacustrine Fringe
- Sedge Marsh
- Wet Sedge-Shrub Meadow
- Moist Dwarf Shrub Tundra
- Moist Sedge-Shrub Meadow
- Low and Tall Willow Scrub
- Low Birch-Ericaceous Scrub
- Tall Alder Scrub
- Gravel Fill

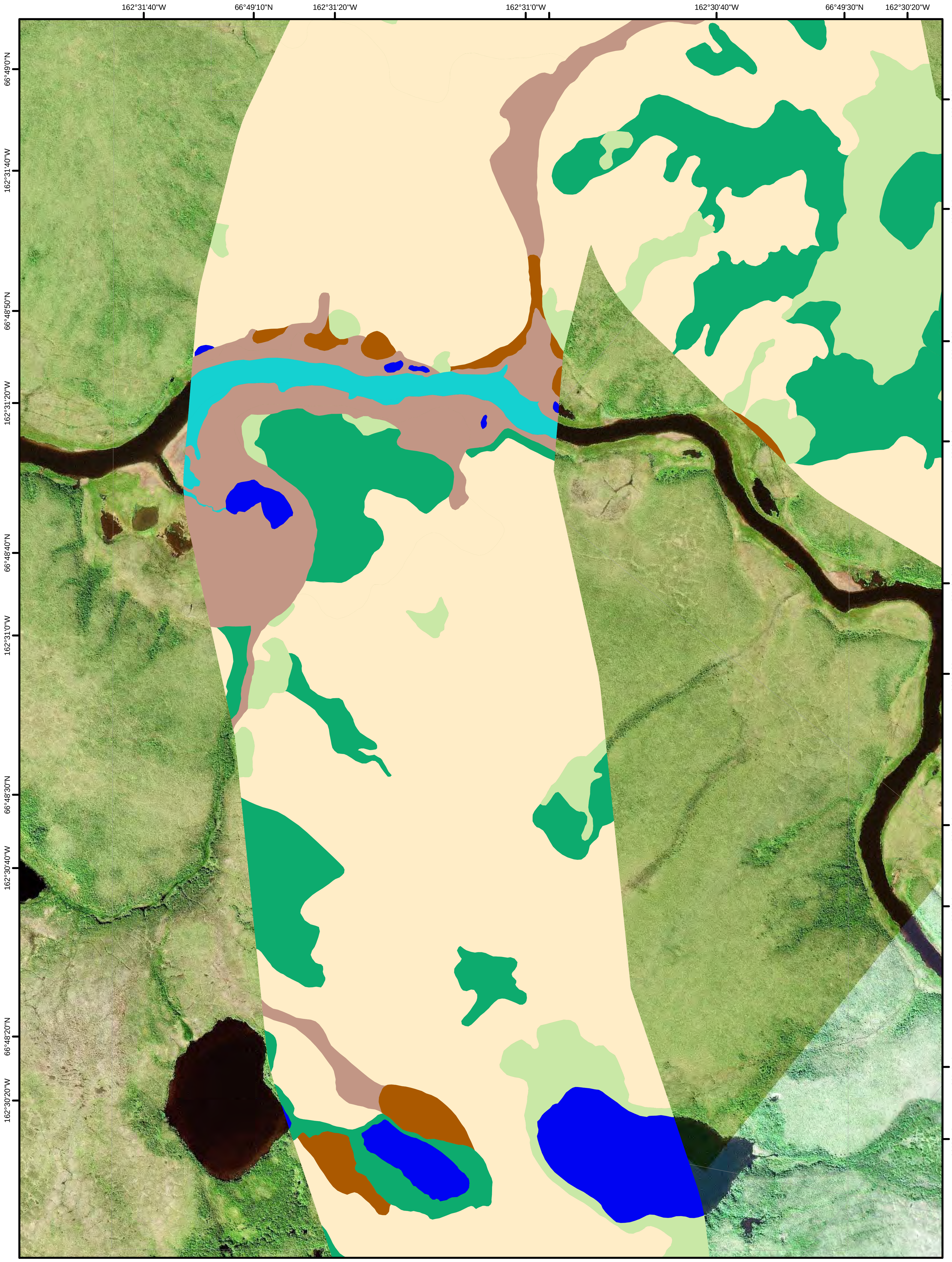
50 0 50 100 Meters

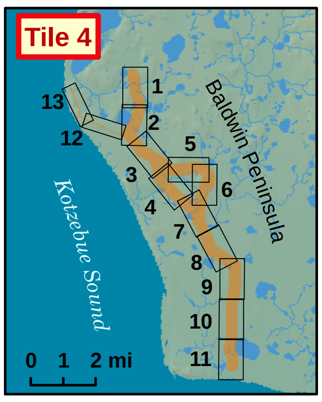
200 0 200 400 Feet

Figure 3.3.
Wildlife Habitat Types for the Proposed Kotzebue to Cape Blossom Road Project (Tile 3)

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

26 November 2012 | CapeBlossom_Habitats_ReportMaps_12-211.mxd





Wildlife Habitat Type

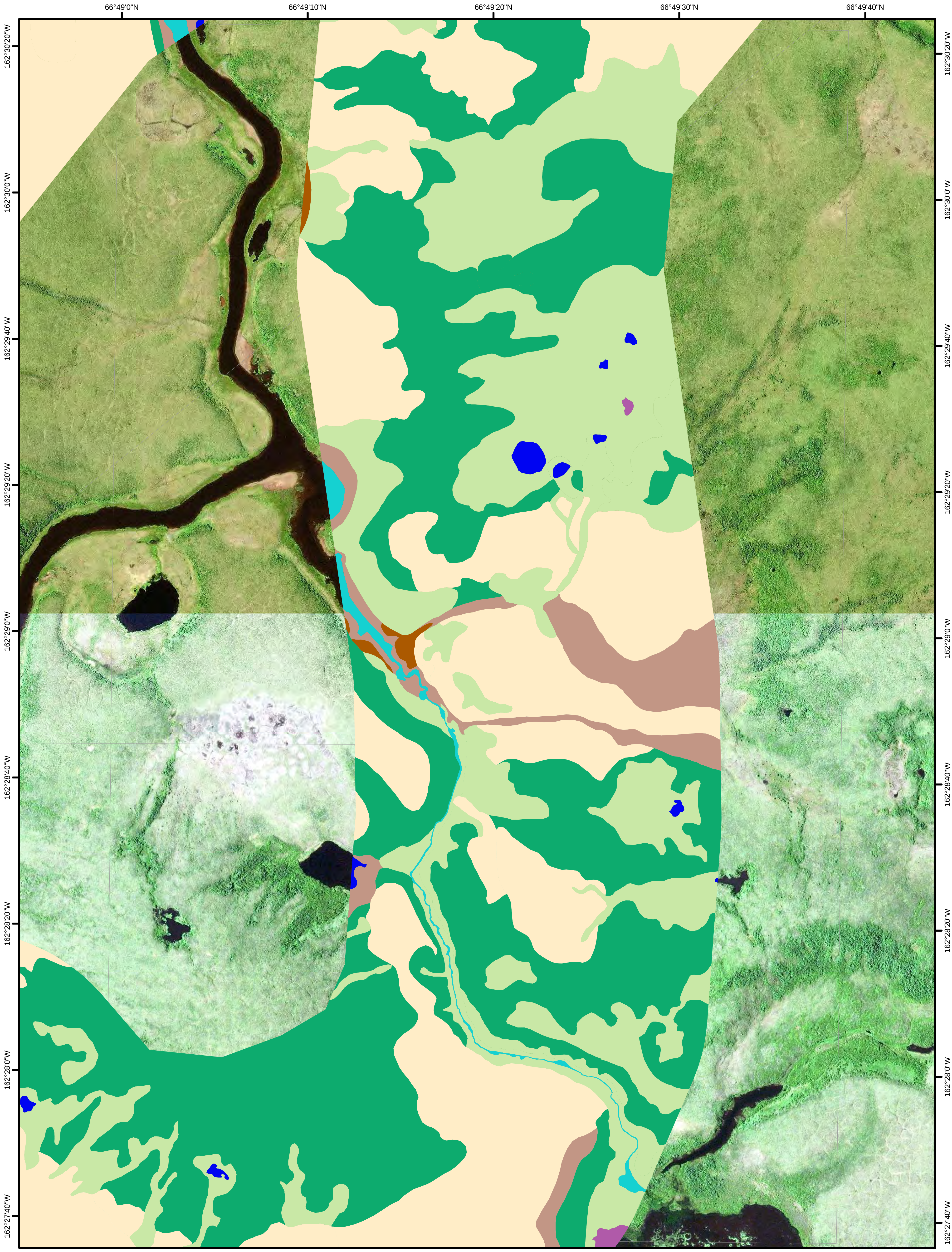
Coastal Beach and Waters	Moist Sedge-Shrub Meadow
Rivers and Streams	Low and Tall Willow Scrub
Freshwater Lake or Pond	Low Birch-Ericaceous Scrub
Littoral Aquatic Bed and Lacustrine Fringe	Tall Alder Scrub
Sedge Marsh	Gravel Fill
Wet Sedge-Shrub Meadow	
Moist Dwarf Shrub Tundra	

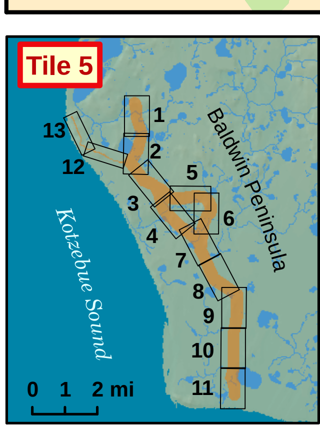
50 0 50 100 Meters
200 0 200 400 Feet

Figure 3.4.
Wildlife Habitat Types for the Proposed Kotzebue to Cape Blossom Road Project (Tile 4)

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

26 November 2012 | CapeBlossom_Habitats_ReportMaps_12-211.mxd





Wildlife Habitat Type

Coastal Beach and Waters	Moist Sedge-Shrub Meadow
Rivers and Streams	Low and Tall Willow Scrub
Freshwater Lake or Pond	Low Birch-Ericaceous Scrub
Littoral Aquatic Bed and Lacustrine Fringe	Tall Alder Scrub
Sedge Marsh	Gravel Fill
Wet Sedge-Shrub Meadow	
Moist Dwarf Shrub Tundra	

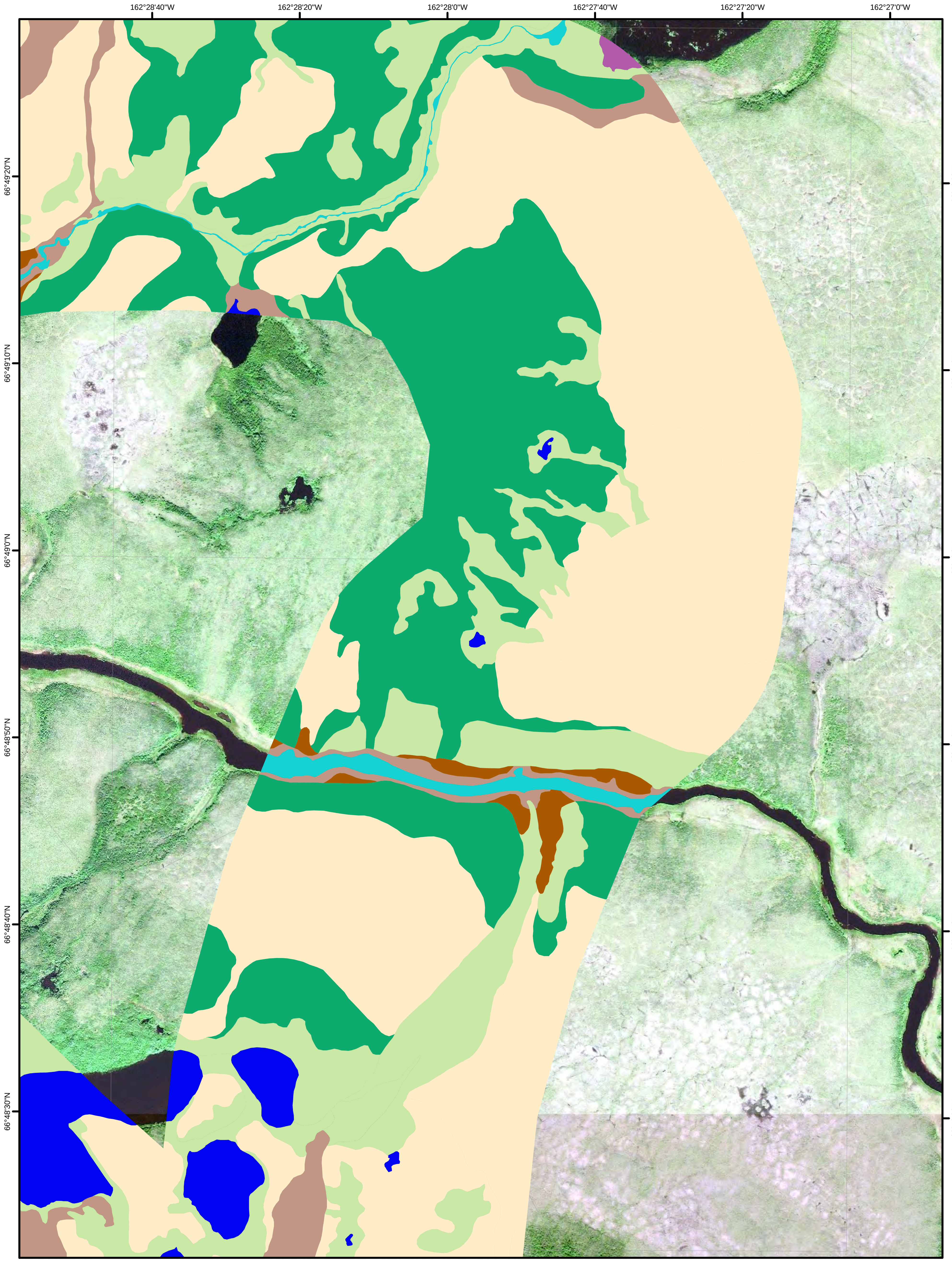
50 0 50 100 Meters

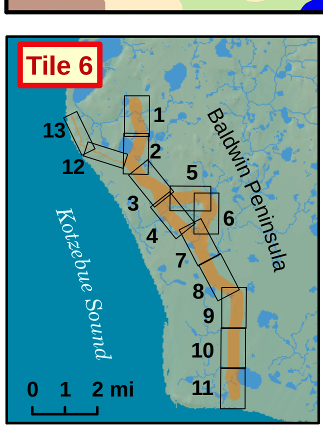
200 0 200 400 Feet

Figure 3.5.
Wildlife Habitat Types for the Proposed Kotzebue to Cape Blossom Road Project (Tile 5)

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

26 November 2012 | CapeBlossom_Habitats_ReportMaps_12-211.mxd





Wildlife Habitat Type

- Coastal Beach and Waters
- Rivers and Streams
- Freshwater Lake or Pond
- Littoral Aquatic Bed and Lacustrine Fringe
- Sedge Marsh
- Wet Sedge-Shrub Meadow
- Moist Dwarf Shrub Tundra
- Moist Sedge-Shrub Meadow
- Low and Tall Willow Scrub
- Low Birch-Ericaceous Scrub
- Tall Alder Scrub
- Gravel Fill

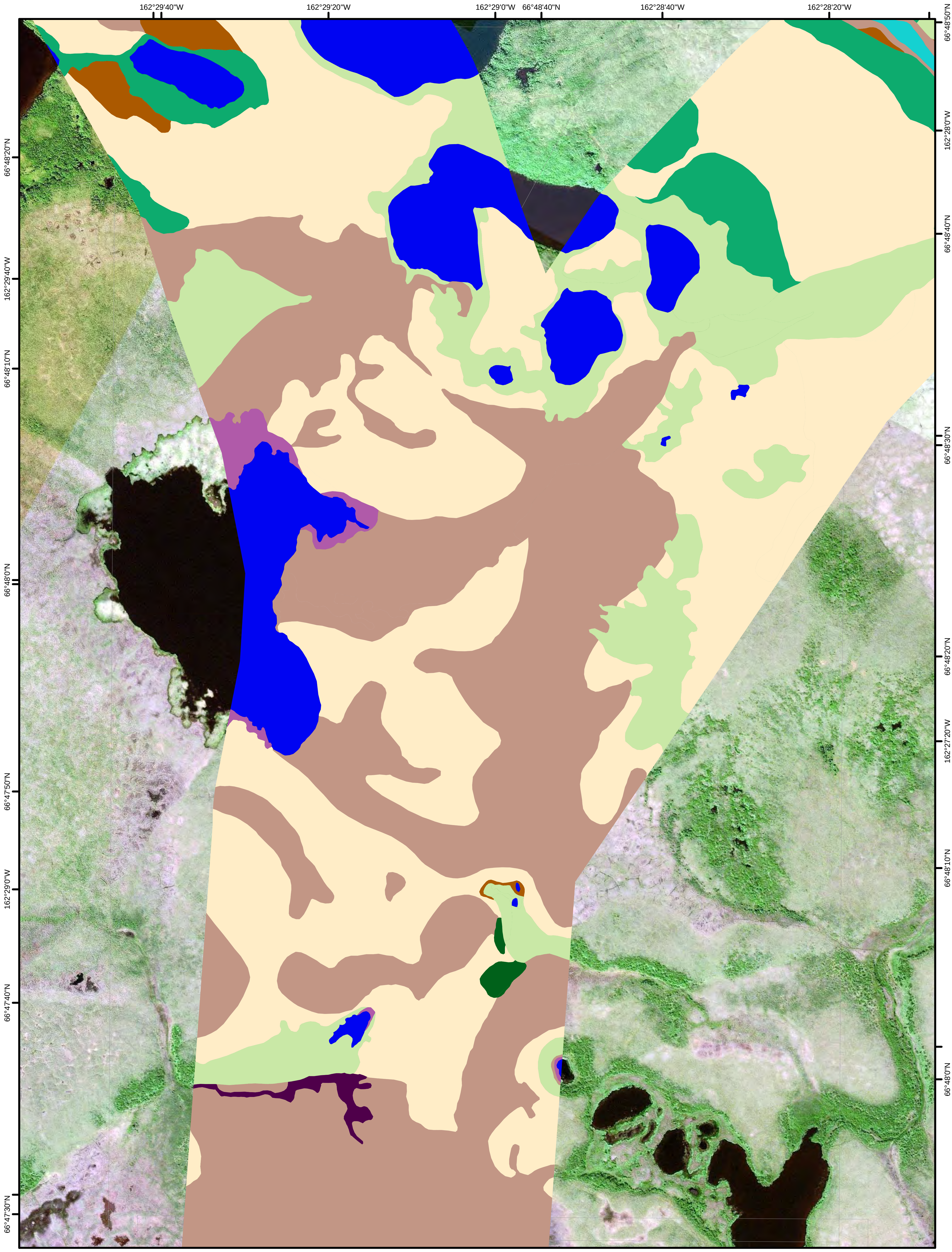
50 0 50 100 Meters

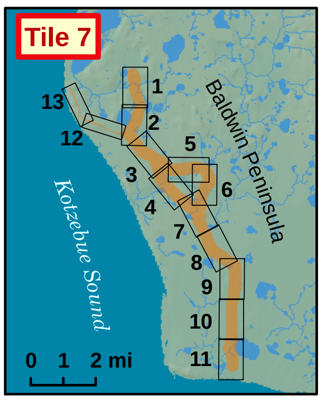
200 0 200 400 Feet

Figure 3.6.
Wildlife Habitat Types for the Proposed Kotzebue to Cape Blossom Road Project (Tile 6)

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

26 November 2012 | CapeBlossom_Habitats_ReportMaps_12-211.mxd





Wildlife Habitat Type

- Coastal Beach and Waters
- Rivers and Streams
- Freshwater Lake or Pond
- Littoral Aquatic Bed and Lacustrine Fringe
- Sedge Marsh
- Wet Sedge-Shrub Meadow
- Moist Dwarf Shrub Tundra
- Moist Sedge-Shrub Meadow
- Low and Tall Willow Scrub
- Low Birch-Ericaceous Scrub
- Tall Alder Scrub
- Gravel Fill

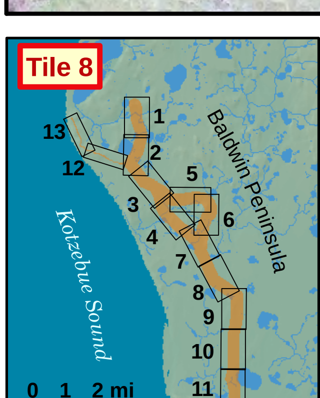
50 0 50 100 Meters

200 0 200 400 Feet

Figure 3.7.
Wildlife Habitat Types for the Proposed Kotzebue to Cape Blossom Road Project (Tile 7)

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

26 November 2012 | CapeBlossom_Habitats_ReportMaps_12-211.mxd



Wildlife Habitat Type

Coastal Beach and Waters	Moist Sedge-Shrub Meadow
Rivers and Streams	Low and Tall Willow Scrub
Freshwater Lake or Pond	Low Birch-Ericaceous Scrub
Littoral Aquatic Bed and Lacustrine Fringe	Tall Alder Scrub
Sedge Marsh	Gravel Fill
Wet Sedge-Shrub Meadow	
Moist Dwarf Shrub Tundra	

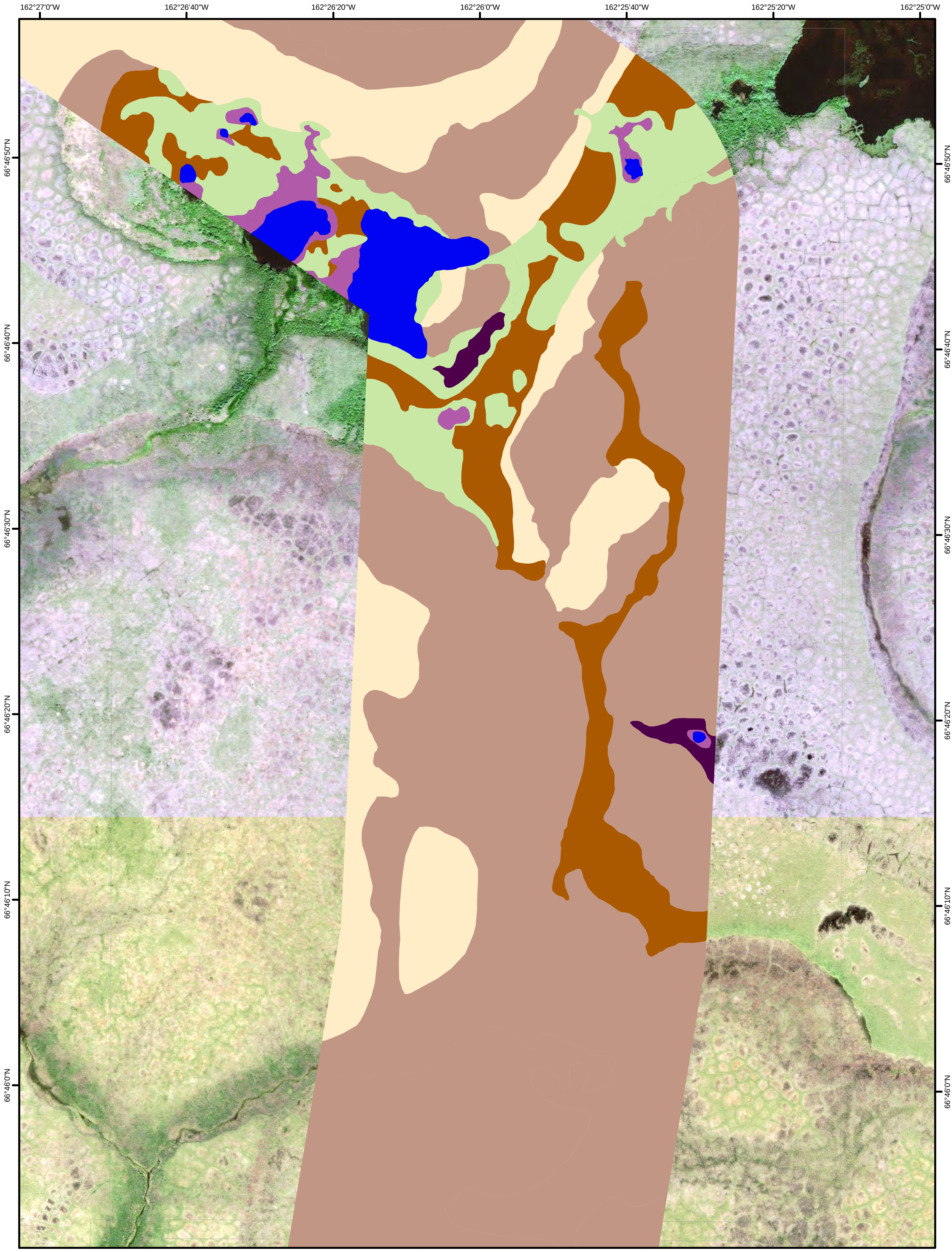
50 0 50 100 Meters

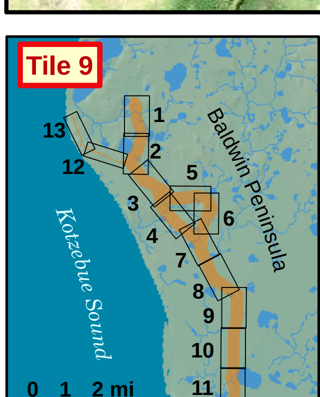
200 0 200 400 Feet

Figure 3.8.
Wildlife Habitat Types for the Proposed Kotzebue to Cape Blossom Road Project (Tile 8)

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

26 November 2012 | CapeBlossom_Habitats_ReportMaps_12-211.mxd





Wildlife Habitat Type

Coastal Beach and Waters	Moist Sedge-Shrub Meadow
Rivers and Streams	Low and Tall Willow Scrub
Freshwater Lake or Pond	Low Birch-Ericaceous Scrub
Littoral Aquatic Bed and Lacustrine Fringe	Tall Alder Scrub
Sedge Marsh	Gravel Fill
Wet Sedge-Shrub Meadow	
Moist Dwarf Shrub Tundra	

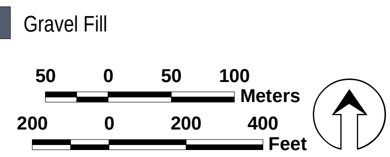
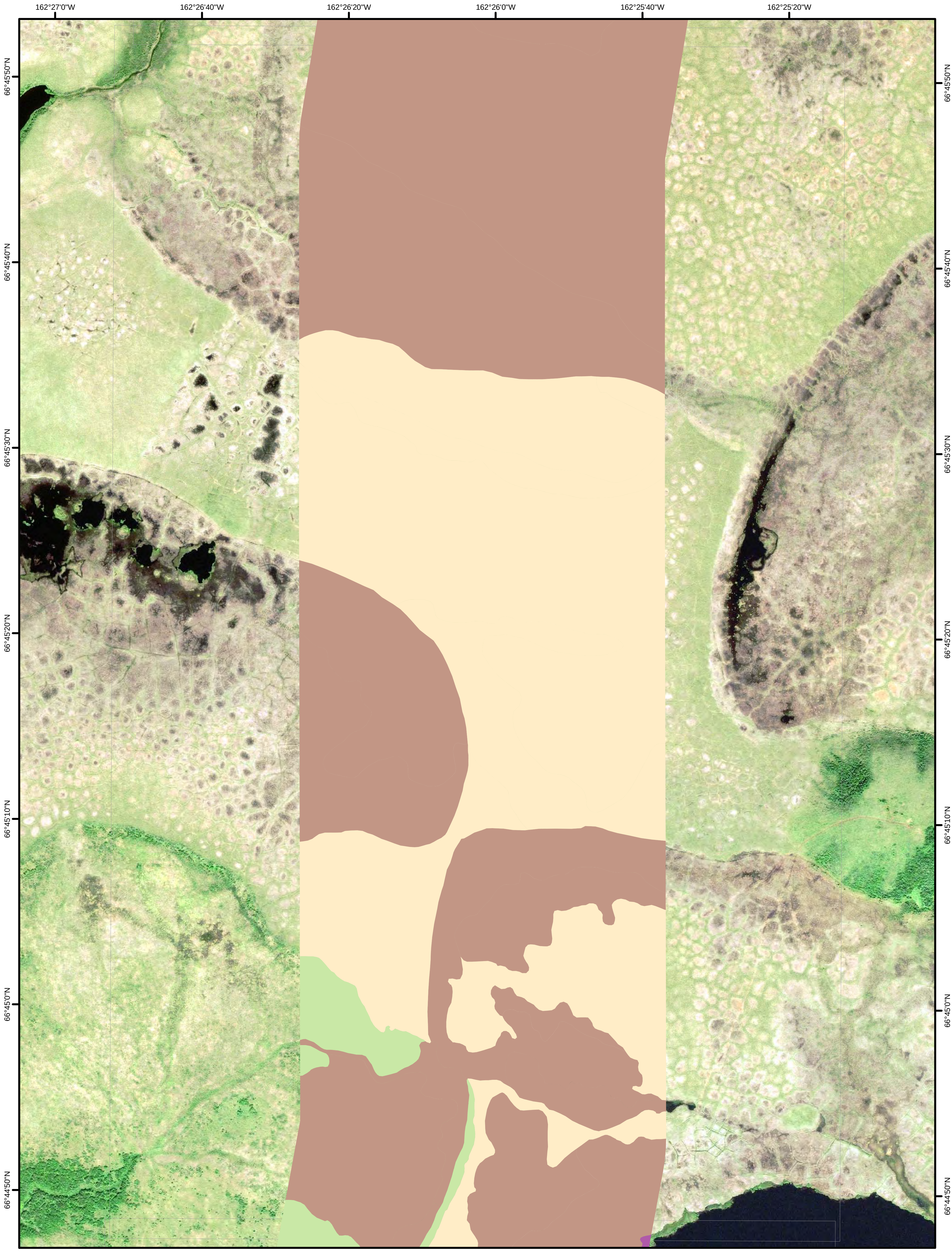
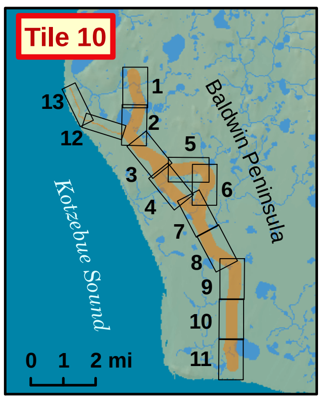


Figure 3.9.
Wildlife Habitat Types for the Proposed Kotzebue to Cape Blossom Road Project (Tile 9)

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

26 November 2012 | CapeBlossom_Habitats_ReportMaps_12-211.mxd





Wildlife Habitat Type

- Coastal Beach and Waters
- Rivers and Streams
- Freshwater Lake or Pond
- Littoral Aquatic Bed and Lacustrine Fringe
- Sedge Marsh
- Wet Sedge-Shrub Meadow
- Moist Dwarf Shrub Tundra
- Moist Sedge-Shrub Meadow
- Low and Tall Willow Scrub
- Low Birch-Ericaceous Scrub
- Tall Alder Scrub
- Gravel Fill

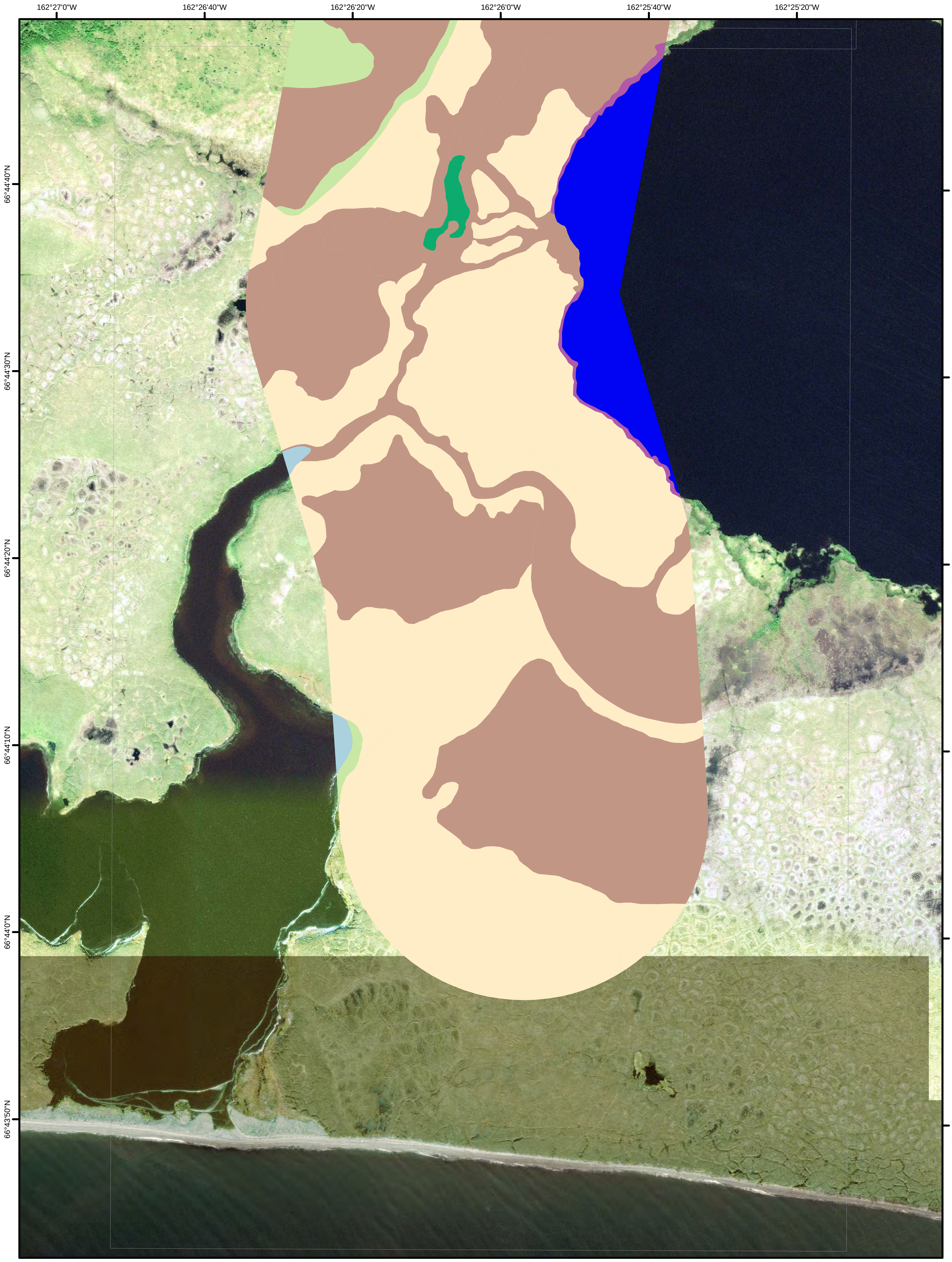
50 0 50 100 Meters

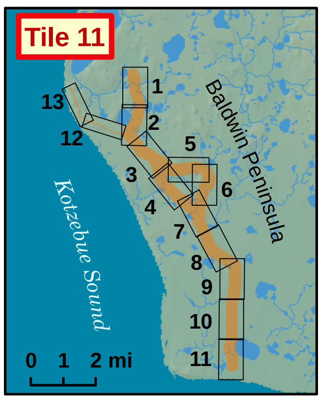
200 0 200 400 Feet

Figure 3.10.
Wildlife Habitat Types for the Proposed Kotzebue to Cape Blossom Road Project (Tile 10)

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

26 November 2012 | CapeBlossom_Habitats_ReportMaps_12-211.mxd





Wildlife Habitat Type

Coastal Beach and Waters	Moist Sedge-Shrub Meadow
Rivers and Streams	Low and Tall Willow Scrub
Freshwater Lake or Pond	Low Birch-Ericaceous Scrub
Littoral Aquatic Bed and Lacustrine Fringe	Tall Alder Scrub
Sedge Marsh	Gravel Fill
Wet Sedge-Shrub Meadow	
Moist Dwarf Shrub Tundra	

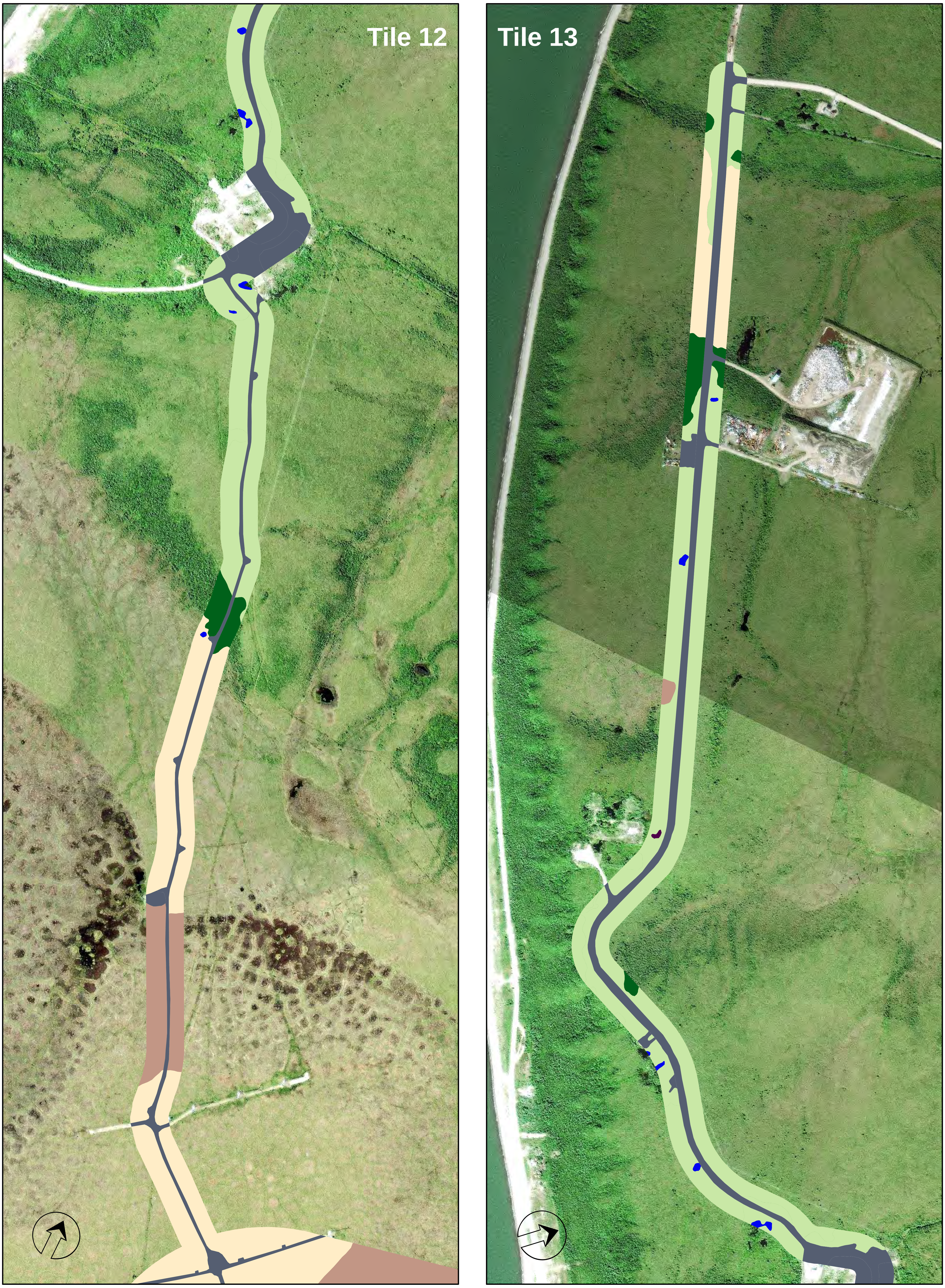
50 0 50 100 Meters

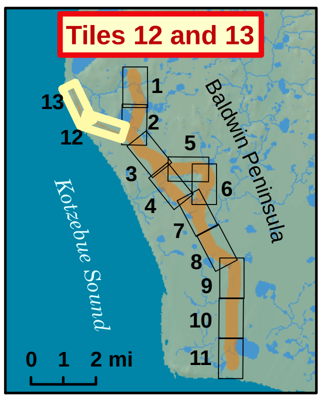
200 0 200 400 Feet

Figure 3.11.
Wildlife Habitat Types for the Proposed Kotzebue to Cape Blossom Road Project (Tile 11)

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

26 November 2012 | CapeBlossom_Habitats_ReportMaps_12-211.mxd





Wildlife Habitat Type

Coastal Beach and Waters	Moist Sedge-Shrub Meadow
Rivers and Streams	Low and Tall Willow Scrub
Freshwater Lake or Pond	Low Birch-Ericaceous Scrub
Littoral Aquatic Bed and Lacustrine Fringe	Tall Alder Scrub
Sedge Marsh	Gravel Fill
Wet Sedge-Shrub Meadow	
Moist Dwarf Shrub Tundra	

50 0 50 100 Meters

200 0 200 400 Feet

Figure 3.12.
Wildlife Habitat Types for the Proposed Kotzebue to Cape Blossom Road Project (Tiles 12 and 13)

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

26 November 2012

CapeBlossom_Habitats_ReportMaps_Tile12-13_12-211.mxd

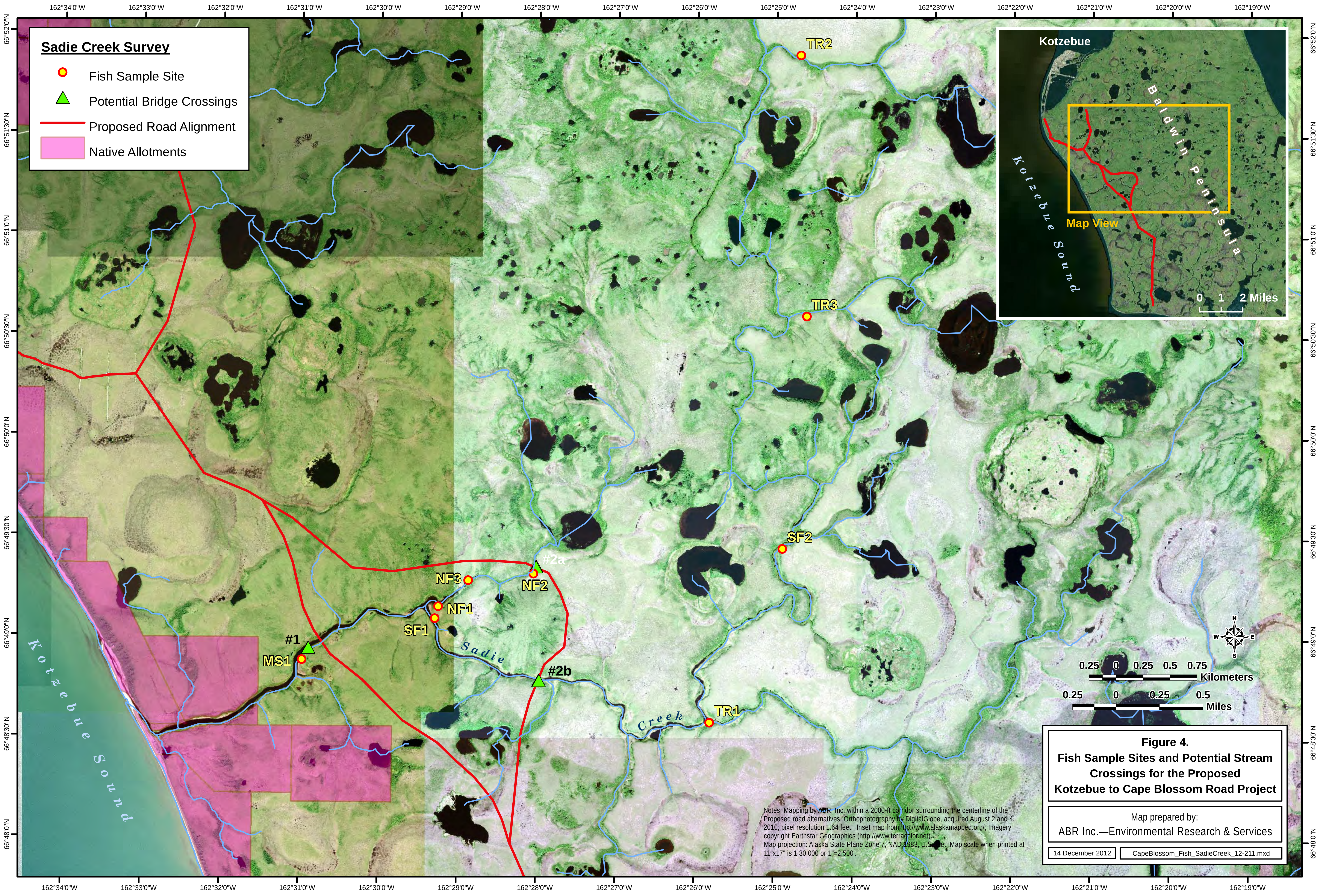


Figure 4.
Fish Sample Sites and Potential Stream Crossings for the Proposed Kotzebue to Cape Blossom Road Project

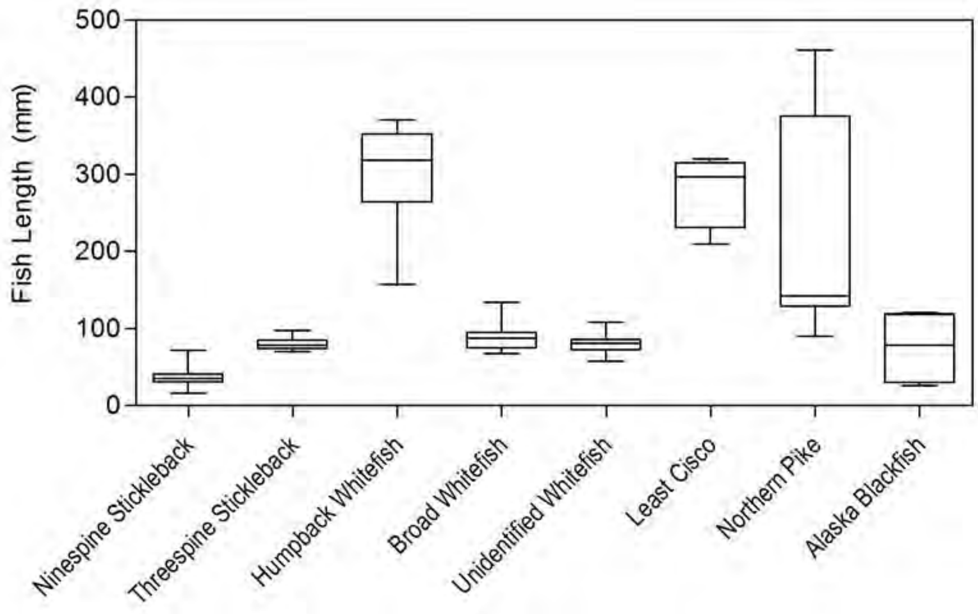


Figure 5. Fish length by species for fish caught in Sadie Creek and its tributaries near Kotzebue, Alaska, 26–28 July and 11–13 August 2012. Boxes represent the lower quartile, median, and upper quartile and whiskers represent minimum and maximum values.

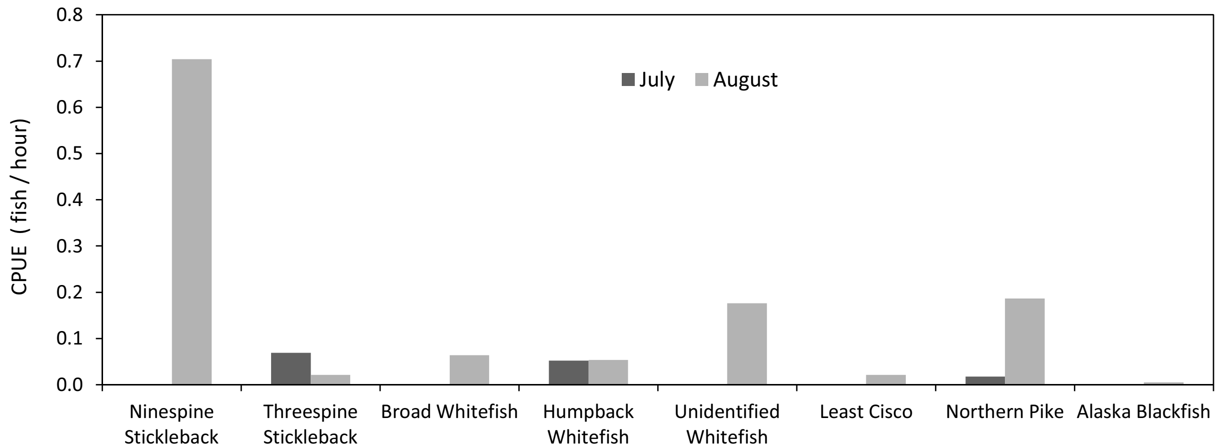


Figure 6. Catch per unit effort (CPUE) by species in fyke nets in Sadie Creek and its tributaries near Kotzebue, Alaska, 26–28 July and 11–13 August 2012.

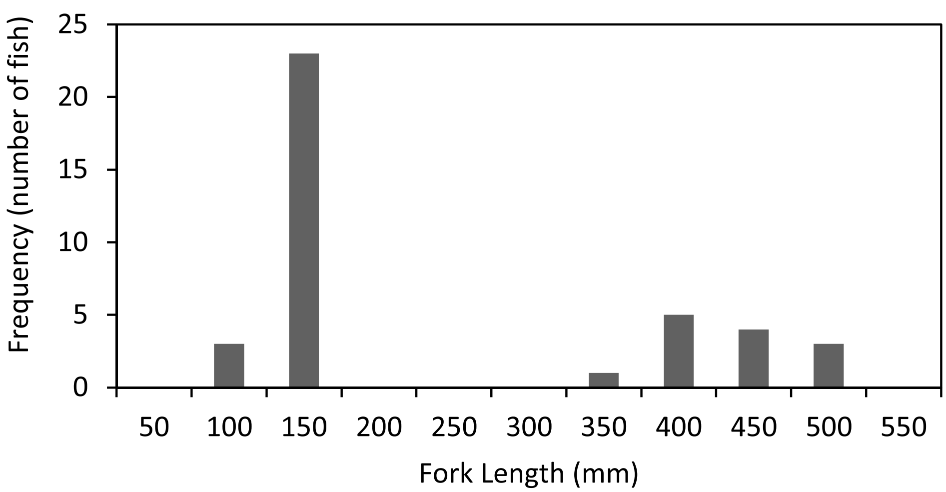
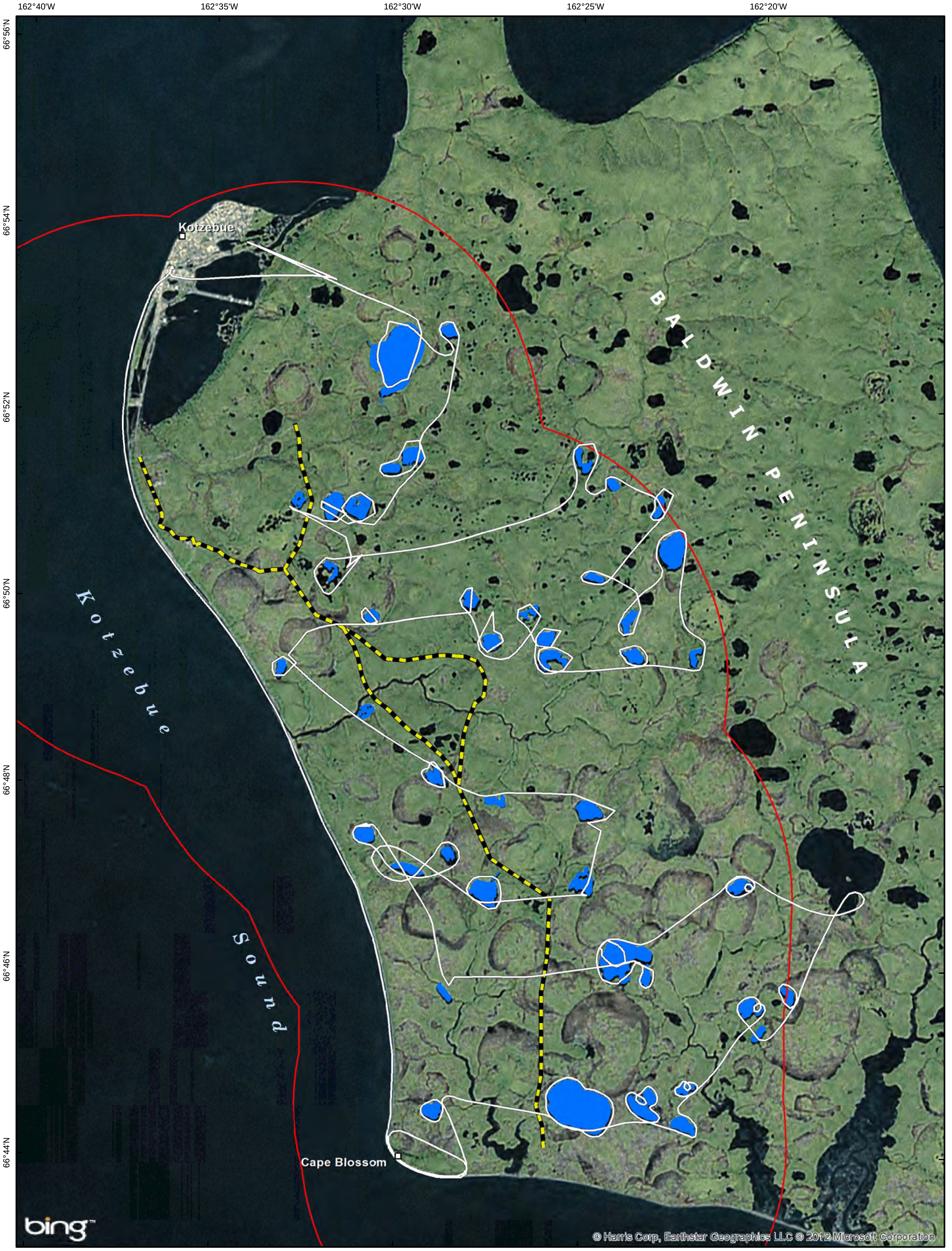


Figure 7. Distribution of values of fork length (mm) of northern pike caught in fyke nets and minnow traps in Sadie Creek and its tributaries near Kotzebue, Alaska, 26–28 July and 11–13 August 2012.



Cape Blossom Avian Surveys 2012

- Flight Routes
- Lakes Surveyed
- Study Area (3-mile Buffer of Proposed Road Alternatives)
- Road Alignment Alternatives

0.5 0 0.5 1 Miles

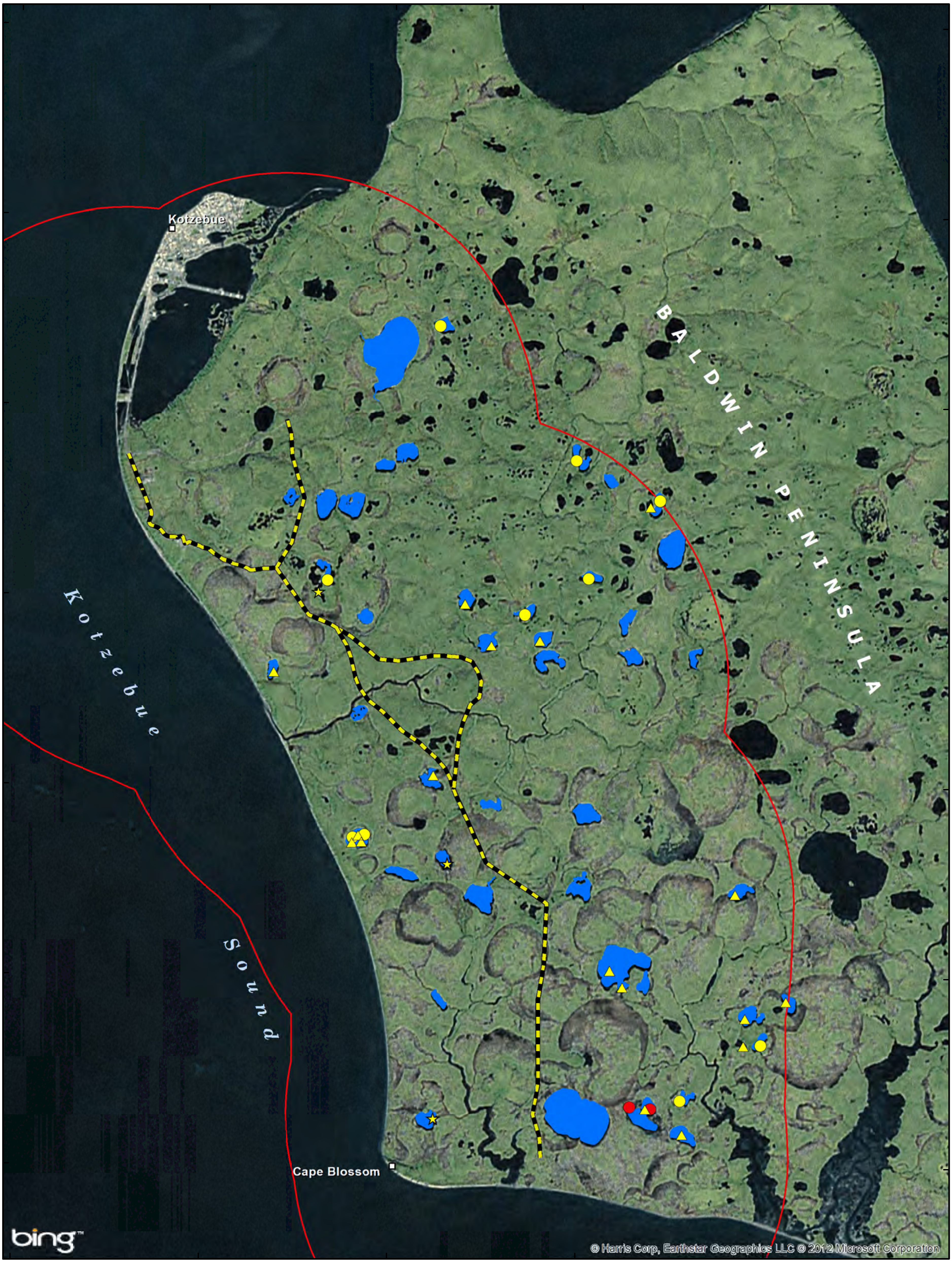
1 0 1 2 Kilometers

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'.

Figure 8.
Kotzebue to Cape Blossom Road Project Avian Study Area and Flight Route

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

26 November 2012 | CapeBlossom_Loons_SA_12-211.mxd



0.5 0 0.5 1 Miles

1 0 1 2 Kilometers

	Pacific Loon	Red-throated Loon
Single	● (yellow)	● (red)
Pair	▲	
Nest	★	

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'.

Figure 9.
Kotzebue to Cape Blossom Road Project Loon Observations

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

26 November 2012 | CapeBlossom_Loon_Obs_12-211.mxd

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

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 24-Aug-12

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: **NWI classification:** R2UBH

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: Sadie Creek - low gradient tundra stream flooded at time of site visit (submerged petfri calcan salix spp). Visible banks well vegetated.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	0	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	0.0%	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0.000

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 2m x 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground

Total Cover of Bryophytes

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: characterizing active channel of Sadie Creek - no visible vegetation in this water of the U.S.

SOIL

Sampling Point: CB_01

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and flowing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 36

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 24-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_02

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Terrace

Local relief (concave, convex, none): none **Slope:** 5.2 % / 3.0 ° **Elevation:** 75

Subregion : Northern Alaska **Lat.:** 66.86086 **Long.:** -162.546573333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

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.

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

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Salix pulchra	60	☑	FACW
2. Vaccinium uliginosum	15	☐	FAC
3. Spiraea stevenii	20	☑	FACU
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	95		
50% of Total Cover: 47.5	20% of Total Cover: 19		
Herb Stratum			
1. Rubus arcticus	5	☐	FAC
2. Petasites frigidus	10	☐	FACW
3. Chamerion angustifolium	2	☐	FACU
4. Equisetum pratense	40	☑	FACW
5. Calamagrostis canadensis	30	☑	FAC
6. Artemisia tilesii	5	☐	FACU
7. Aconitum delphinifolium	1	☐	FAC
8.		☐	
9.		☐	
10.		☐	
Total Cover:	93		
50% of Total Cover: 46.5	20% of Total Cover: 18.6		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	75.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	110	x 2 =	220
FAC species	51	x 3 =	153
FACU species	27	x 4 =	108
UPL species	0	x 5 =	0
Column Totals:	188 (A)		481 (B)

Prevalence Index = B/A = 2.559

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 45

Total Cover of Bryophytes 50

Hydrophytic Vegetation Present? Yes ● No ○

Remarks:

SOIL

Sampling Point: CB_02

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2									Hemic Organics	
2-5									Sapric Organics	
5-8	5Y	4/1	85	7.5YR	3/3	15	C	PL	Silty Clay Loam	
8-25	10Y	4/1	70	10YR	3/4	30	C	PL	Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☑ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: si cl lo

Depth (inches): 5

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ◉ No ○ Depth (inches): 11

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 5

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 24-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_03

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): concave **Slope:** 0.0 % / 0.0 ° **Elevation:** 50

Subregion : Northern Alaska **Lat.:** 66.8617816666667 **Long.:** -162.54697 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: hgwst wet sedge meadow tundra. game trail. nonpatterned.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Vaccinium uliginosum	3	☑	FAC
2. Ledum decumbens	1	☐	FACW
3. Empetrum nigrum	1	☐	FAC
4. Betula nana	3	☑	FAC
5. Vaccinium oxycoccos	1	☐	OBL
6. Chamaedaphne calyculata	2	☐	FACW
7. Salix fuscescens	3	☑	FACW
8. Andromeda polifolia	0.5	☐	FACW
9.		☐	
10.		☐	
Total Cover:	14.5		
50% of Total Cover: 7.25	20% of Total Cover: 2.9		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Carex aquatilis	20	☑	OBL
2. Eriophorum scheuchzeri	10	☑	OBL
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	30		
50% of Total Cover: 15	20% of Total Cover: 6		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	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)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	31	x 1 =	31
FACW species	6.5	x 2 =	13
FAC species	7	x 3 =	21
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	44.5 (A)		65 (B)

Prevalence Index = B/A = 1.461

Hydrophytic Vegetation Indicators:

☑ **Dominance Test is > 50%**

☑ **Prevalence Index is ≤3.0**

☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**

☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 0

Total Cover of Bryophytes 98

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: 1% Pedicularis sp.

SOIL

Sampling Point: CB_03

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 16

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water. probing indicates frozen at 16in bgs

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches): 2
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 24-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_04

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Undulating

Local relief (concave, convex, none): convex **Slope:** 8.7 **%** / 5.0 **°** **Elevation:** 55

Subregion : Northern Alaska **Lat.:** 66.8620516666667 **Long.:** -162.546875 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOW on slight slope to emergent (CB_03). nonpatterned.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0		20% of Total Cover: 0	

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Vaccinium uliginosum	10	☐	FAC
2. Betula nana	10	☐	FAC
3. Vaccinium vitis-idaea	15	☑	FAC
4. Salix pulchra	40	☑	FACW
5. Ledum decumbens	5	☐	FACW
6. Empetrum nigrum	3	☐	FAC
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	83		
50% of Total Cover: 41.5		20% of Total Cover: 16.6	

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Petasites frigidus	5	☑	FACW
2. Calamagrostis canadensis	10	☑	FAC
3. Chamerion angustifolium	0.5	☐	FACU
4. Aconitum delphinifolium	1	☐	FAC
5. Rubus arcticus	3	☐	FAC
6. Carex bigelowii	5	☑	FAC
7. Luzula parviflora	1	☐	FAC
8.		☐	
9.		☐	
10.		☐	
Total Cover:	25.5		
50% of Total Cover: 12.75		20% of Total Cover: 5.1	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	50	x 2 = 100
FAC species	58	x 3 = 174
FACU species	0.5	x 4 = 2
UPL species	0	x 5 = 0
Column Totals:	108.5 (A)	276 (B)

Prevalence Index = B/A = 2.544

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 5

Total Cover of Bryophytes 70

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: 20% lichen cover. trace pyrola sp, legume, lycopodium. 1% poa sp.

SOIL

Sampling Point: CB_04

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7									Fibric Organics	
7-8	10YR	3/2	100						Silty Clay Loam	organic inclusions
8-14	5Y	4/1	75	10YR	4/4	25	C	PL	Silty Clay Loam	organic and 7.5YR3/2 inclusions

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☑ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 14

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 11
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 7

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 24-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_05

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Undulating

Local relief (concave, convex, none): tussocks **Slope:** 0.0 **%** / 0.0 **°** **Elevation:** 55

Subregion : Northern Alaska **Lat.:** 66.86249 **Long.:** -162.54682 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS3/EM1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: 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.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Vaccinium uliginosum	10	☑	FAC
2. Ledum decumbens	5	☐	FACW
3. Vaccinium vitis-idaea	20	☑	FAC
4. Empetrum nigrum	5	☐	FAC
5. Betula nana	5	☐	FAC
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	45		
50% of Total Cover: 22.5	20% of Total Cover: 9		
Herb Stratum			
1. Eriophorum vaginatum	15	☑	FACW
2. Rubus chamaemorus	5	☐	FACW
3. Carex rotundata	3	☐	OBL
4. Carex bigelowii	3	☐	FAC
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	26		
50% of Total Cover: 13	20% of Total Cover: 5.2		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	3	x 1 = 3
FACW species	25	x 2 = 50
FAC species	43	x 3 = 129
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	71 (A)	182 (B)

Prevalence Index = B/A = 2.563

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 3

Total Cover of Bryophytes 45

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: 45% lichen cover

SOIL

Sampling Point: CB_05

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5							Fibric Organic	
5-13							Hemic Organic	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 13

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 5
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 3

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 24-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_06

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Hillside

Local relief (concave, convex, none): tussocks **Slope:** 8.7 % / 5.0 ° **Elevation:** 50

Subregion : Northern Alaska **Lat.:** 66.86331 **Long.:** -162.547005 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOBE, tussocks present but not enough to classify as SLOTT

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Vaccinium uliginosum	0.5	☐	FAC
2. Betula nana	20	☑	FAC
3. Vaccinium uliginosum	5	☐	FAC
4. Vaccinium vitis-idaea	20	☑	FAC
5. Ledum decumbens	10	☐	FACW
6. Salix pulchra	10	☐	FACW
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	65.5		
50% of Total Cover: 32.75	20% of Total Cover: 13.1		
Herb Stratum			
1. Rubus chamaemorus	3	☐	FACW
2. Carex bigelowii	15	☑	FAC
3. Arctagrostis latifolia	5	☑	FACW
4. Petasites frigidus	3	☐	FACW
5. Eriophorum vaginatum	5	☑	FACW
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	31		
50% of Total Cover: 15.5	20% of Total Cover: 6.2		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	36	x 2 =	72
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	96 (A)		252 (B)

Prevalence Index = B/A = 2.625

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 0

Total Cover of Bryophytes 90

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: scattered lichens. carbig and erivag tussocks

SOIL

Sampling Point: CB_06

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Color (moist)		Redox %	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] Type: C=Concentration D=Depletion RM=Reduced Matrix [2] Location: PL=Pore Lining RC=Root Channel M=Matrix

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☑ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 16

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 11
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 4

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 24-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_07

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): none **Slope:** 5.2 **%** / 3.0 **°** **Elevation:** 90

Subregion : Northern Alaska **Lat.:** 66.839815 **Long.:** -162.54651 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

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.

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Salix pulchra	80	☑	FACW
2. Vaccinium vitis-idaea	3	☐	FAC
3. Vaccinium uliginosum	7	☐	FAC
4. Empetrum nigrum	1	☐	FAC
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	91		
50% of Total Cover: 45.5	20% of Total Cover: 18.2		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Lycopodium clavatum	3	☐	FACU
2. Rubus chamaemorus	0.5	☐	FACW
3. Chamerion angustifolium	0.5	☐	FACU
4. Calamagrostis canadensis	10	☑	FAC
5. Equisetum pratense	20	☑	FACW
6. Petasites frigidus	10	☑	FACW
7. Aconitum delphinifolium	0.5	☐	FAC
8. Rubus arcticus	10	☑	FACU
9. Artemisia tilesii	3	☐	FACU
10.		☐	
Total Cover:	57.5		
50% of Total Cover: 28.75	20% of Total Cover: 11.5		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	80.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	110.5	x 2 = 221
FAC species	21.5	x 3 = 64.5
FACU species	16.5	x 4 = 66
UPL species	0	x 5 = 0
Column Totals:	148.5 (A)	351.5 (B)

Prevalence Index = B/A = 2.367

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 25

Total Cover of Bryophytes 70

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: trace stellaria, galium, moelat, legume, valerian.

SOIL

Sampling Point: CB_07

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	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	C	PL	Silty Clay Loam	very high organic content

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 33

Hydric Soil Present? Yes ◉ No ○

Remarks:

4-33: do not believe org content is high enough to qualify as an organic soil, but there is a very high organic content throughout layer. given the landscape, hydro, and veg, believe that the organic staining masks lighter soil colors, obscuring the necessary colors for A14

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 9
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 3

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 24-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_08

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Kettle

Local relief (concave, convex, none): none **Slope:** 0.0 % / 0.0 ° **Elevation:** 50

Subregion : Northern Alaska **Lat.:** 66.840435 **Long.:** -162.54633 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: HGMBS. Possible that this site is drying out? General impression is of a drying lake margin invaded by calcan. Adjacent pem pond fringe w arcful and eriang.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Salix pulchra	10	☑	FACW
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	10		
50% of Total Cover: 5	20% of Total Cover: 2		
Herb Stratum			
1. Chamerion angustifolium	5	☐	FACU
2. Rubus arcticus	20	☑	FAC
3. Calamagrostis canadensis	20	☑	FAC
4. Rumex arcticus	3	☐	FAC
5. Petasites frigidus	30	☑	FACW
6. Artemisia tilesii	3	☐	FACU
7. Eriophorum angustifolium	1	☐	OBL
8. Comarum palustre	0.5	☐	OBL
9.		☐	
10.		☐	
Total Cover:	82.5		
50% of Total Cover: 41.25	20% of Total Cover: 16.5		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1.5	x 1 =	1.5
FACW species	40	x 2 =	80
FAC species	43	x 3 =	129
FACU species	8	x 4 =	32
UPL species	0	x 5 =	0
Column Totals:	92.5	(A)	242.5 (B)

Prevalence Index = B/A = 2.622

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 10

Total Cover of Bryophytes 85

Hydrophytic Vegetation Present? Yes ◉ No ○

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

SOIL

Sampling Point: CB_08

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2									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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

see comments for CB_07 soils. not as high of organic content here, but still w fairly heavy organic.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☑ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 2

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 24-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_09

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): none **Slope:** 0.0 **%** / 0.0 **°** **Elevation:** 65

Subregion : Northern Alaska **Lat.:** 66.83983 **Long.:** -162.54817 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: wet sedge meadow tundra hgwst

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Salix fuscescens	5	☑	FACW
2. Betula nana	5	☑	FAC
3. Andromeda polifolia	1	☐	FACW
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	11		
50% of Total Cover: 5.5	20% of Total Cover: 2.2		
Herb Stratum			
1. Eriophorum scheuchzeri	7	☑	OBL
2. Eriophorum angustifolium	3	☐	OBL
3. Carex chordorrhiza	10	☑	OBL
4. Carex crawfordii	10	☑	FAC
5. Carex aquatilis	5	☐	OBL
6. Carex rotundata	7	☑	OBL
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	42		
50% of Total Cover: 21	20% of Total Cover: 8.4		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	32	x 1 =	32	
FACW species	6	x 2 =	12	
FAC species	15	x 3 =	45	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	53	(A)	89	(B)

Prevalence Index = B/A = 1.679

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 35

Total Cover of Bryophytes 60

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: 5% unidentified small grass, no infloresence, in standing water (possibly a Puccinellia sp). 2% unidentified Pedicularis sp.

SOIL

Sampling Point: CB_09

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches): 4
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 24-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_10

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): tussocks **Slope:** ___ % / ___ ° **Elevation:** 55

Subregion : Northern Alaska **Lat.:** 66.83964 **Long.:** -162.548971666667 **Datum:** WGS84

Soil Map Unit Name: ___ **NWI classification:** PSS3B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOBE

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Salix pulchra	5	☐	FACW
2. Empetrum nigrum	5	☐	FAC
3. Ledum decumbens	20	☑	FACW
4. Vaccinium uliginosum	10	☐	FAC
5. Vaccinium vitis-idaea	20	☑	FAC
6. Betula nana	10	☐	FAC
7. Arctostaphylos alpina	1	☐	FACU
8.		☐	
9.		☐	
10.		☐	
Total Cover:	71		
50% of Total Cover: 35.5	20% of Total Cover: 14.2		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Carex aquatilis	10	☑	OBL
2. Eriophorum angustifolium	2	☐	OBL
3. Eriophorum vaginatum	7	☑	FACW
4. Rubus chamaemorus	5	☑	FACW
5. Petasites frigidus	1	☐	FACW
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	25		
50% of Total Cover: 12.5	20% of Total Cover: 5		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	12	x 1 =	12
FACW species	38	x 2 =	76
FAC species	45	x 3 =	135
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	96 (A)		227 (B)

Prevalence Index = B/A = 2.365

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable) ___

% Bare Ground 0

Total Cover of Bryophytes 90

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: 5% lichen cover

SOIL

Sampling Point: CB_10

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6			100					Fibric Organics	
6-14			100					Hemic Organics	
14-16	2.5Y	3/2	100					Silty Clay Loam	

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

Hydric Soil Indicators:

- [ ] Histosol or Histel (A1)
- [x] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer

Depth (inches): 16

Hydric Soil Present? Yes (●) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- [ ] Water Stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [x] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [x] FAC-neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?	( )	(●)	
Water Table Present?	(●)	( )	7
Saturation Present? (includes capillary fringe)	(●)	( )	5

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 24-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_11

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): tussocks **Slope:** 0.0 **%** / 0.0 **°** **Elevation:** 75

Subregion : Northern Alaska **Lat.:** 66.8379116666667 **Long.:** -162.558888333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS3/EM1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOTT

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Betula nana	15	☑	FAC
2. Vaccinium vitis-idaea	20	☑	FAC
3. Ledum decumbens	20	☑	FACW
4. Vaccinium uliginosum	7	☐	FAC
5. Empetrum nigrum	7	☐	FAC
6. Arctostaphylos alpina	1	☐	FACU
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	70		
50% of Total Cover: 35	20% of Total Cover: 14		
Herb Stratum			
1. Eriophorum vaginatum	15	☑	FACW
2. Carex aquatilis	7	☑	OBL
3. Rubus chamaemorus	5	☐	FACW
4. Pedicularis langsdorfii	1	☐	FACW
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	28		
50% of Total Cover: 14	20% of Total Cover: 5.6		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	7	x 1 =	7
FACW species	41	x 2 =	82
FAC species	49	x 3 =	147
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	98 (A)		240 (B)

Prevalence Index = B/A = 2.449

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground

Total Cover of Bryophytes

Hydrophytic Vegetation Present? Yes ● No ○

Remarks:

SOIL

Sampling Point: CB_11

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Color (moist)		Redox %	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=Concentration D=Depletion RM=Reduced Matrix [2] Location: PL=Pore Lining RC=Root Channel M=Matrix

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 16

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 9
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 5

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands	**Borough/City:** Northwest Arctic Borough
Sampling Date: 24-Aug-12	
Applicant/Owner: Baker/ADOT&PF	**Sampling Point:** CB_12
Investigator(s): SLI/EKJ	**Landform (hillside, terrace, hummocks etc.):** Flat
Local relief (concave, convex, none): hummocky	**Slope:** 0.0 % / 0.0 ° **Elevation:** 85
Subregion : Northern Alaska	**Lat.:** 66.839135 **Long.:** -162.569861666667 **Datum:** WGS84
Soil Map Unit Name:	**NWI classification:** PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: HGWST

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Andromeda polifolia	5	☑	FACW
2. Betula nana	3	☑	FAC
3. Vaccinium uliginosum	1	☐	FAC
4. Empetrum nigrum	1	☐	FAC
5. Vaccinium oxycoccos	1	☐	OBL
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	11		
50% of Total Cover: 5.5	20% of Total Cover: 2.2		
Herb Stratum			
1. Carex rotundata	7	☑	OBL
2. Carex aquatilis	5	☑	OBL
3. Eriophorum angustifolium	7	☑	OBL
4. Eriophorum russeolum	5	☑	FACW
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	24		
50% of Total Cover: 12	20% of Total Cover: 4.8		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	10	x 2 =	20
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	35	(A)	55 (B)

Prevalence Index = B/A = 1.571

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 60

Total Cover of Bryophytes 35

Hydrophytic Vegetation Present? Yes ● No ○

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.

SOIL

Sampling Point: CB_12

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 24-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_13

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Hillside

Local relief (concave, convex, none): none **Slope:** 8.7 **%** / 5.0 **°** **Elevation:** 75

Subregion : Northern Alaska **Lat.:** 66.840925 **Long.:** -162.580771666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: STCAW

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0		20% of Total Cover: 0	

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix pulchra	60	☑	FACW
2. Alnus viridis ssp. crispa	20	☑	FAC
3. Vaccinium uliginosum	2	☐	FAC
4. Linnaea borealis	10	☐	FACU
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	92		
50% of Total Cover: 46		20% of Total Cover: 18.4	

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Chamerion angustifolium	0.5	☐	FACU
2. Equisetum pratense	25	☑	FACW
3. Petasites frigidus	1	☐	FACW
4. Aconitum delphinifolium	1	☐	FAC
5. Artemisia tilesii	2	☐	FACU
6. Rubus arcticus	35	☑	FAC
7. Saxifraga nelsoniana	1	☐	FAC
8. Calamagrostis canadensis	1	☐	FAC
9. Moehringia lateriflora	0.5	☐	FACU
10.		☐	
Total Cover:	67		
50% of Total Cover: 33.5		20% of Total Cover: 13.4	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	86	x 2 =	172
FAC species	60	x 3 =	180
FACU species	13	x 4 =	52
UPL species	0	x 5 =	0
Column Totals:	159 (A)		404 (B)

Prevalence Index = B/A = 2.541

Hydrophytic Vegetation Indicators:

☑ **Dominance Test is > 50%**

☑ **Prevalence Index is ≤3.0**

☐ **Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)**

☐ **Problematic Hydrophytic Vegetation [1] (Explain)**

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 80

Total Cover of Bryophytes 15

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: trace unid herbs

SOIL

Sampling Point: CB_13

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1									Fibric Organics	
1-6									Hemic Organics	
6-10									Sapric Organics	10YR4/1 inclusion
10-12	10YR	3/1	100						Silty Clay Loam	pockets of 2.5Y4/1
12-15	5Y	4/2	95	10YR	3/3	5	C	PL	Silty Clay Loam	organic inclusions
15-20	10Y	5/1	85	10YR	5/8	15	C	PL	Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☑ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☑ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 20

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ◉ No ○ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 2

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

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): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Bench

Local relief (concave, convex, none): convex **Slope:** 3.5 % / 2.0 ° **Elevation:** 140

Subregion : Northern Alaska **Lat.:** 66.8433966666667 **Long.:** -162.59712 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLCW

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Salix pulchra	50	☑	FACW
2. Betula nana	2	☐	FAC
3. Salix richardsonii	30	☑	FACW
4. Arctostaphylos alpina	1	☐	FACU
5. Empetrum nigrum	1	☐	FAC
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	84		
50% of Total Cover: 42	20% of Total Cover: 16.8		
Herb Stratum			
1. Equisetum pratense	60	☑	FACW
2. Petasites frigidus	3	☐	FACW
3. Calamagrostis canadensis	1	☐	FAC
4. Pyrola asarifolia	1	☐	FACU
5. Carex bigelowii	3	☐	FAC
6. Chamerion angustifolium	0.5	☐	FACU
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	68.5		
50% of Total Cover: 34.25	20% of Total Cover: 13.7		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	143	x 2 =	286
FAC species	7	x 3 =	21
FACU species	2.5	x 4 =	10
UPL species	0	x 5 =	0
Column Totals:	152.5 (A)		317 (B)

Prevalence Index = B/A = 2.079

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 75

Total Cover of Bryophytes 20

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Trace galium sp, legume

SOIL

Sampling Point: CB_14

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6									Fibric Organics	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			100						Sapric Organics	
12-23	5Y	4/1	75	10YR	4/6	25	C	PL	Silty Clay Loam	organic inclusions

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

Hydric Soil Indicators:

- [ ] Histosol or Histel (A1)
- [x] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [x] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 23

Hydric Soil Present? Yes (●) No ( )

Remarks:

rounded-angular gravels in fibric organic layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- [ ] Water Stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [x] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [x] FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ( )	No (●)	Depth (inches):
Water Table Present?	Yes (●)	No ( )	Depth (inches): 18
Saturation Present? (includes capillary fringe)	Yes (●)	No ( )	Depth (inches): 12

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 24-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_15

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Kettle

Local relief (concave, convex, none): concave **Slope:** 0.0 % / 0.0 ° **Elevation:** 120

Subregion : Northern Alaska **Lat.:** 66.8434733333333 **Long.:** -162.597345 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PUBH

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: Vegetated fringe. tall banks sloughing.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Glyceria pulchella	10	☑	OBL
2. Petasites frigidus	0.5	☐	FACW
3. Hippuris vulgaris	3	☐	OBL
4. Equisetum palustre	1	☐	FACW
5. Eriophorum viridicarinatum	7	☑	OBL
6. Eriophorum angustifolium	10	☑	OBL
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	31.5		
50% of Total Cover: 15.75	20% of Total Cover: 6.3		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	1.5	x 2 =	3
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	31.5	(A)	33 (B)

Prevalence Index = B/A = 1.048

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width)

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 98

Total Cover of Bryophytes 0

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: possibly sparganium and utricularia in center of pond

SOIL

Sampling Point: CB_15

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 20

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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

Remarks:

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_16

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Bluff

Local relief (concave, convex, none): rolling **Slope:** 99.9 % / 45.0 ° **Elevation:** 13

Subregion : Northern Alaska **Lat.:** 66.84572 **Long.:** -162.607905 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** U

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

Hydrophytic Vegetation Present?	Yes ● No ○	**Is the Sampled Area within a Wetland?**	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.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0		20% of Total Cover: 0	
Sapling/Shrub Stratum			
1. Salix pulchra	40	☑	FACW
2. Salix glauca	10	☐	FAC
3. Salix richardsonii	30	☑	FACW
4. Salix alaxensis	10	☐	FAC
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	90		
50% of Total Cover: 45		20% of Total Cover: 18	
Herb Stratum			
1. Chamerion angustifolium	5	☐	FACU
2. Equisetum pratense	60	☑	FACW
3. Calamagrostis canadensis	1	☐	FAC
4. Artemisia tilesii	2	☐	FACU
5. Aconitum delphinifolium	0.5	☐	FAC
6. Rubus arcticus	0.5	☐	FAC
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	69		
50% of Total Cover: 34.5		20% of Total Cover: 13.8	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	130	x 2 =	260
FAC species	22	x 3 =	66
FACU species	7	x 4 =	28
UPL species	0	x 5 =	0
Column Totals:	159 (A)		354 (B)

Prevalence Index = B/A = 2.226

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 98

Total Cover of Bryophytes 0

Hydrophytic Vegetation Present? Yes ● No ○

Remarks:

SOIL

Sampling Point: CB_16

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3									Hemic Organics	
3-4			100						Sapric Organics	
4-11	5Y	4/1	85	7.5YR	3/4	15	C	PL	Silty Clay Loam	
11-24	10YR	4/2	95	10YR	4/3	5	C	PL	Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 21

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_17

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Bench

Local relief (concave, convex, none): concave **Slope:** 0.0 % / 0.0 ° **Elevation:** 120

Subregion : Northern Alaska **Lat.:** 66.8465433333333 **Long.:** -162.608803333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1C

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOW. Small drainage feature

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Betula nana	10	☐	FAC
2. Salix pulchra	30	☑	FACW
3. Salix richardsonii	20	☑	FACW
4. Arctostaphylos alpina	5	☐	FACU
5. Ledum decumbens	1	☐	FACW
6. Vaccinium vitis-idaea	5	☐	FAC
7. Empetrum nigrum	5	☐	FAC
8. Vaccinium uliginosum	2	☐	FAC
9.		☐	
10.		☐	
Total Cover:	78		
50% of Total Cover: 39	20% of Total Cover: 15.6		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Carex aquatilis	10	☑	OBL
2. Equisetum palustre	1	☐	FACW
3. Petasites frigidus	1	☐	FACW
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	12		
50% of Total Cover: 6	20% of Total Cover: 2.4		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	10	x 1 =	10	
FACW species	53	x 2 =	106	
FAC species	22	x 3 =	66	
FACU species	5	x 4 =	20	
UPL species	0	x 5 =	0	
Column Totals:	90	(A)	202	(B)

Prevalence Index = B/A = 2.244

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 1m x 1m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 10

Total Cover of Bryophytes 88

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: bryophytes submerged.

SOIL

Sampling Point: CB_17

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 5

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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

Remarks:

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_18

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Bench

Local relief (concave, convex, none): rolling **Slope:** 5.2 **%** / 3.0 **°** **Elevation:** 100

Subregion : Northern Alaska **Lat.:** 66.8464866666667 **Long.:** -162.608595 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOW

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Betula nana	10	☐	FAC
2. Salix pulchra	30	☑	FACW
3. Salix richardsonii	20	☑	FACW
4. Arctostaphylos alpina	5	☐	FACU
5. Ledum decumbens	1	☐	FACW
6. Vaccinium vitis-idaea	5	☐	FAC
7. Empetrum nigrum	5	☐	FAC
8. Vaccinium uliginosum	2	☐	FAC
9.		☐	
10.		☐	
Total Cover:	78		
50% of Total Cover: 39	20% of Total Cover: 15.6		
Herb Stratum			
1. Petasites frigidus	0.5	☐	FACW
2. Equisetum arvense	0.5	☐	FAC
3. Pyrola asarifolia	5	☑	FACU
4. Calamagrostis canadensis	2	☑	FAC
5. Rubus chamaemorus	2	☑	FACW
6. Carex bigelowii	0.5	☐	FAC
7. Parnassia palustris	1	☐	FACW
8. Luzula comosa	2	☑	FAC
9.		☐	
10.		☐	
Total Cover:	13.5		
50% of Total Cover: 6.75	20% of Total Cover: 2.7		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	83.3%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	54.5	x 2 =	109
FAC species	27	x 3 =	81
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	91.5	(A)	230 (B)

Prevalence Index = B/A = 2.514

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 10

Total Cover of Bryophytes 85

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: trace anemone sp, 1% Pedicularis sp

SOIL

Sampling Point: CB_18

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	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	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☑ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 15

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 9

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_19

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Bench

Local relief (concave, convex, none): none **Slope:** 5.2 **%** / 3.0 **°** **Elevation:** 60

Subregion : Northern Alaska **Lat.:** 66.85736 **Long.:** -162.617791666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: STCA

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Alnus viridis ssp. crispa	90	☑	FAC
2. Salix alaxensis	3	☐	FAC
3. Vaccinium uliginosum	1	☐	FAC
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	94		
50% of Total Cover: 47	20% of Total Cover: 18.8		
Herb Stratum			
1. Artemisia tilesii	2	☐	FACU
2. Chamerion angustifolium	7	☑	FACU
3. Rubus chamaemorus	3	☐	FACW
4. Calamagrostis canadensis	7	☑	FAC
5. Moehringia lateriflora	1	☐	FACU
6. Carex bigelowii	10	☑	FAC
7. Mertensia paniculata	1	☐	FACU
8.		☐	
9.		☐	
10.		☐	
Total Cover:	31		
50% of Total Cover: 15.5	20% of Total Cover: 6.2		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	75.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	3	x 2 =	6
FAC species	111	x 3 =	333
FACU species	11	x 4 =	44
UPL species	0	x 5 =	0
Column Totals:	125	(A)	383 (B)

Prevalence Index = B/A = 3.064

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 98

Total Cover of Bryophytes 0

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: trace valerian, legume

SOIL

Sampling Point: CB_19

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1		100					Fibric Organics	
1-3		100					Hemic Organics	
3-14		100					Sapric Organics	fine gravels, mineral soils from road
14-17	10YR 3/1						Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 17

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ◉ No ○ Depth (inches): 11

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 4

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_20

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Bench

Local relief (concave, convex, none): tussocks **Slope:** 5.2 % / 3.0 ° **Elevation:** 80

Subregion : Northern Alaska **Lat.:** 66.855905 **Long.:** -162.616108333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1 / SS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOTT (lots of salix, not quite hgmt)

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Salix richardsonii	5	☐	FACW
2. Salix glauca	10	☑	FAC
3. Salix pulchra	5	☐	FACW
4. Betula nana	10	☑	FAC
5. Vaccinium uliginosum	7	☑	FAC
6. Ledum decumbens	3	☐	FACW
7. Empetrum nigrum	1	☐	FAC
8. Arctostaphylos alpina	2	☐	FACU
9.		☐	
10.		☐	
Total Cover:	43		
50% of Total Cover: 21.5	20% of Total Cover: 8.6		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Eriophorum vaginatum	60	☑	FACW
2. Carex aquatilis	10	☐	OBL
3. Calamagrostis canadensis	1	☐	FAC
4. Rubus chamaemorus	3	☐	FACW
5. Artemisia tilesii	1	☐	FACU
6. Parnassia palustris	0.5	☐	FACW
7. Chamerion angustifolium	0.5	☐	FACU
8.		☐	
9.		☐	
10.		☐	
Total Cover:	76		
50% of Total Cover: 38	20% of Total Cover: 15.2		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	76.5	x 2 =	153
FAC species	29	x 3 =	87
FACU species	3.5	x 4 =	14
UPL species	0	x 5 =	0
Column Totals:	119 (A)		264 (B)

Prevalence Index = B/A = 2.218

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 10

Total Cover of Bryophytes 30

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: trace legume, galium

SOIL

Sampling Point: CB_20

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	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

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

Hydric Soil Indicators:

- [ ] Histosol or Histel (A1)
- [x] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [x] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [x] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 16

Hydric Soil Present? Yes (•) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- [ ] Water Stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [x] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [x] FAC-neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?	( )	(•)	
Water Table Present?	(•)	( )	10
Saturation Present? (includes capillary fringe)	(•)	( )	4

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_21

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Floodplain

Local relief (concave, convex, none): tussocks **Slope:** 5.2 % / 3.0 ° **Elevation:** 10

Subregion : Northern Alaska **Lat.:** 66.81355 **Long.:** -162.46647 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS4B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◯ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ◯

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

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.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Empetrum nigrum	30	☑	FAC
2. Betula nana	7	☐	FAC
3. Salix fuscescens	10	☑	FACW
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	47		
50% of Total Cover: 23.5	20% of Total Cover: 9.4		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Eriophorum vaginatum	5	☑	FACW
2. Rubus chamaemorus	1	☐	FACW
3. Eriophorum angustifolium	1	☐	OBL
4. Eriophorum scheuchzeri	5	☑	OBL
5. Calamagrostis canadensis	1	☐	FAC
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	13		
50% of Total Cover: 6.5	20% of Total Cover: 2.6		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	6	x 1 = 6
FACW species	16	x 2 = 32
FAC species	38	x 3 = 114
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	60 (A)	152 (B)

Prevalence Index = B/A = 2.533

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 2

Total Cover of Bryophytes 95

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks:

SOIL

Sampling Point: CB_21

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6									Fibric Organic	
6-12									Hemic Organics	
12-14	2.5Y	3/2	100						Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 14

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ◉ No ○ Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 2

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_22

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Terrace

Local relief (concave, convex, none): tussocks **Slope:** 5.2 % / 3.0 ° **Elevation:** 31

Subregion : Northern Alaska **Lat.:** 66.81374 **Long.:** -162.46232 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: STCW shrubs borderline low/tall. community varies from just over to just under 5ft tall.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Salix pulchra	80	☑	FACW
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	80		
50% of Total Cover: 40	20% of Total Cover: 16		
Herb Stratum			
1. Petasites frigidus	20	☑	FACW
2. Angelica lucida	1	☐	FACU
3. Chamerion angustifolium	1	☐	FACU
4. Carex bigelowii	5	☐	FAC
5. Aconitum delphinifolium	0.5	☐	FAC
6. Carex aquatilis	3	☐	OBL
7. Lycopodium clavatum	1	☐	FACU
8. Artemisia tilesii	1	☐	FACU
9.		☐	
10.		☐	
Total Cover:	32.5		
50% of Total Cover: 16.25	20% of Total Cover: 6.5		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	3	x 1 =	3
FACW species	100	x 2 =	200
FAC species	5.5	x 3 =	16.5
FACU species	4	x 4 =	16
UPL species	0	x 5 =	0
Column Totals:	112.5	(A)	235.5 (B)

Prevalence Index = B/A = 2.093

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 80

Total Cover of Bryophytes 15

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: 2% viola, trace legume, deschampsia sp. scattered carbig tusssocks.

SOIL

Sampling Point: CB_22

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	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	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☑ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen), si cl lo

Depth (inches): 22, 6

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 3

Wetland Hydrology Present? Yes ◉ No ○

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

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

Remarks:

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_23

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Terrace

Local relief (concave, convex, none): tussocks **Slope:** 0.0 % / 0.0 ° **Elevation:** 50

Subregion : Northern Alaska **Lat.:** 66.8147233333333 **Long.:** -162.462395 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1 / SS3B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: 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.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Arctostaphylos alpina	3	☐	FACU
2. Betula nana	20	☑	FAC
3. Ledum decumbens	10	☐	FACW
4. Vaccinium vitis-idaea	20	☑	FAC
5. Empetrum nigrum	3	☐	FAC
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	56		
50% of Total Cover: 28	20% of Total Cover: 11.2		
Herb Stratum			
1. Eriophorum vaginatum	30	☑	FACW
2. Rubus chamaemorus	5	☐	FACW
3. Carex bigelowii	20	☑	FAC
4. Petasites frigidus	1	☐	FACW
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	56		
50% of Total Cover: 28	20% of Total Cover: 11.2		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	46	x 2 = 92
FAC species	63	x 3 = 189
FACU species	3	x 4 = 12
UPL species	0	x 5 = 0
Column Totals:	112 (A)	293 (B)

Prevalence Index = B/A = 2.616

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground

Total Cover of Bryophytes 30

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: CB_23

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	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	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☑ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☑ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen), si cl lo

Depth (inches): 20, 10

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 7

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_24

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): tussocks **Slope:** 0.0 % / 0.0 ° **Elevation:** 45

Subregion : Northern Alaska **Lat.:** 66.8156983333333 **Long.:** -162.460106666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOTB flat-topped polys. Characterizing polys. PEM1E hgmst troughs w 4-6in standing water, 20% caraqu, 5% erivag.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Betula nana	7	☑	FAC
2. Ledum decumbens	1	☐	FACW
3. Vaccinium uliginosum	2	☐	FAC
4. Empetrum nigrum	1	☐	FAC
5. Andromeda polifolia	0.5	☐	FACW
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	11.5		
50% of Total Cover: 5.75	20% of Total Cover: 2.3		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Carex bigelowii	5	☑	FAC
2. Carex aquatilis	5	☑	OBL
3. Eriophorum vaginatum	10	☑	FACW
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	20		
50% of Total Cover: 10	20% of Total Cover: 4		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	5	x 1 = 5
FACW species	11.5	x 2 = 23
FAC species	15	x 3 = 45
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	31.5 (A)	73 (B)

Prevalence Index = B/A = 2.317

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 55

Total Cover of Bryophytes 45

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: abundant dead bryophytes included in bare ground. 1% unidentified pedicularis sp.

SOIL

Sampling Point: CB_24

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7							Fibric Organics	
7-14							Hemic Organics	

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

Hydric Soil Indicators:

- [ ] Histosol or Histel (A1)
- [x] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes (●) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- [ ] Water Stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [x] FAC-neutral Test (D5)

Field Observations:

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

Water Table Present? Yes (●) No ( ) Depth (inches): 9

Saturation Present? (includes capillary fringe) Yes (●) No ( ) Depth (inches): 6

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_25

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Floodplain

Local relief (concave, convex, none): flat **Slope:** 3.5 % / 2.0 ° **Elevation:** 5

Subregion : Northern Alaska **Lat.:** 66.8164083333333 **Long.:** -162.514971666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS4B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	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.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Salix fuscescens	7	☐	FACW
2. Empetrum nigrum	30	☑	FAC
3. Betula nana	10	☑	FAC
4. Vaccinium uliginosum	3	☐	FAC
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	50		
50% of Total Cover: 25	20% of Total Cover: 10		
Herb Stratum			
1. Eriophorum angustifolium	7	☐	OBL
2. Carex aquatilis	30	☑	OBL
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	37		
50% of Total Cover: 18.5	20% of Total Cover: 7.4		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	37	x 1 =	37
FACW species	7	x 2 =	14
FAC species	43	x 3 =	129
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	87 (A)		180 (B)

Prevalence Index = B/A = 2.069

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 10

Total Cover of Bryophytes 85

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: possibly other sedges, no seed heads. eriang id based on red bases and fused leaf tips, caraqu id based on gray-green color.

SOIL

Sampling Point: CB_25

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc²	Texture	Remarks
0-8									Fibric Organics	
8-13									Hemic Organics	
13-14									Sapric Organics	
14-17	10YR	3/1	100						Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen), si cl lo

Depth (inches): 17, 14

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 1

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_26

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Swale

Local relief (concave, convex, none): flat **Slope:** 5.2 % / 3.0 ° **Elevation:** 20

Subregion : Northern Alaska **Lat.:** 66.816585 **Long.:** -162.515391666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

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

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix fuscescens	7	☑	FACW
2. Vaccinium uliginosum	7	☑	FAC
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	14		
50% of Total Cover: 7	20% of Total Cover: 2.8		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Eriophorum scheuchzeri	20	☑	OBL
2. Eriophorum angustifolium	5	☐	OBL
3. Carex aquatilis	5	☐	OBL
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	30		
50% of Total Cover: 15	20% of Total Cover: 6		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	7	x 2 =	14
FAC species	7	x 3 =	21
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	44 (A)		65 (B)

Prevalence Index = B/A = 1.477

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground

Total Cover of Bryophytes

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: CB_26

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and flowing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches): 4
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_27

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Floodplain

Local relief (concave, convex, none): tussocks **Slope:** 5.2 **%** / 3.0 **°** **Elevation:** 20

Subregion : Northern Alaska **Lat.:** 66.8169266666667 **Long.:** -162.513401666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS4B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: walking directly towards creek, wetted edge 70ft from gps point. goose scat. SDEE empetrum dwarf tundra.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Salix fuscescens	5	☐	FACW
2. Vaccinium vitis-idaea	25	☑	FAC
3. Empetrum nigrum	30	☑	FAC
4. Betula nana	10	☐	FAC
5. Vaccinium uliginosum	5	☐	FAC
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	75		
50% of Total Cover: 37.5	20% of Total Cover: 15		
Herb Stratum			
1. Eriophorum angustifolium	5	☑	OBL
2. Eriophorum vaginatum	5	☑	FACW
3. Carex aquatilis	10	☑	OBL
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	20		
50% of Total Cover: 10	20% of Total Cover: 4		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	15	x 1 =	15
FACW species	10	x 2 =	20
FAC species	70	x 3 =	210
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95	(A)	245 (B)

Prevalence Index = B/A = 2.579

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 5

Total Cover of Bryophytes 90

Hydrophytic Vegetation Present? Yes ● No ○

Remarks:

SOIL

Sampling Point: CB_27

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-7			100					Fibric Organics	
7-9			100					Hemic Organics	
9-13	10YR	3/2	100					Silt Loam	high organic content
13-14								Sapric Organics	
14-17	10YR	3/2	100					Silt Loam	high organic content

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

Hydric Soil Indicators:

- [ ] Histosol or Histel (A1)
- [x] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 17

Hydric Soil Present? Yes (●) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- [ ] Water Stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [x] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [x] FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ( )	No (●)	Depth (inches):
Water Table Present?	Yes (●)	No ( )	Depth (inches): 1
Saturation Present? (includes capillary fringe)	Yes (●)	No ( )	Depth (inches): 0

Wetland Hydrology Present? Yes (●) No ( )

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_28

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Shoreline

Local relief (concave, convex, none): none **Slope:** 0.0 % / 0.0 ° **Elevation:** 55

Subregion : Northern Alaska **Lat.:** 66.8037283333333 **Long.:** -162.483951666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1F

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: HGWLSM (Hbbw?). Lacustrine fringe floating sphagnum mat. One pair of loons flying low overhead. Sandhill cranes in distance. Vole trail/tunnel through sphagnum.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Andromeda polifolia	1	☑	FACW
2. Salix fuscescens	3	☑	FACW
3. Vaccinium oxycoccos	1	☑	OBL
4. Betula nana	1	☑	FAC
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	6		
50% of Total Cover: 3	20% of Total Cover: 1.2		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Comarum palustre	5	☐	OBL
2. Carex aquatilis	10	☑	OBL
3. Eriophorum angustifolium	7	☐	OBL
4. Eriophorum scheuchzeri	10	☑	OBL
5. Anthoxanthum arcticum	2	☐	FACW
6. Carex laeviculmis	5	☐	FACW
7. Carex chordorrhiza	5	☐	OBL
8. Carex rotundata	10	☑	OBL
9.		☐	
10.		☐	
Total Cover:	54		
50% of Total Cover: 27	20% of Total Cover: 10.8		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	7	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	48	x 1 =	48
FACW species	11	x 2 =	22
FAC species	1	x 3 =	3
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	60 (A)		73 (B)

Prevalence Index = B/A = 1.217

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 0

Total Cover of Bryophytes 98

Hydrophytic Vegetation Present? Yes ● No ○

Remarks:

SOIL

Sampling Point: CB_28

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

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

Hydric Soil Present? Yes ◉ No ○

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

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 2
Water Table Present? Yes ○ No ◉ Depth (inches):
Saturation Present? (includes capillary fringe) Yes ○ No ◉ Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

WETLAND DETERMINATION DATA FORM - Alaska Region

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): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): tussocks **Slope:** 3.5 % / 2.0 ° **Elevation:** 70

Subregion : Northern Alaska **Lat.:** 66.8041216666667 **Long.:** -162.47829 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1/EM1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOTT

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Arctostaphylos alpina	20	☑	FACU
2. Betula nana	7	☐	FAC
3. Ledum decumbens	5	☐	FACW
4. Empetrum nigrum	7	☐	FAC
5. Vaccinium vitis-idaea	20	☑	FAC
6. Vaccinium uliginosum	5	☐	FAC
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	64		
50% of Total Cover: 32	20% of Total Cover: 12.8		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Eriophorum vaginatum	20	☑	FACW
2. Carex bigelowii	7	☑	FAC
3. Rubus chamaemorus	5	☐	FACW
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	32		
50% of Total Cover: 16	20% of Total Cover: 6.4		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	75.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	46	x 3 =	138
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	96 (A)		278 (B)

Prevalence Index = B/A = 2.896

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 10

Total Cover of Bryophytes 60

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: erivag and carbig tussocks

SOIL

Sampling Point: CB_29

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8							Fibric Organics	
8-12							Hemic Organics	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 12

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 6
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 3

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_30

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): hummocky **Slope:** 0.0 **%** / 0.0 **°** **Elevation:** 80

Subregion : Northern Alaska **Lat.:** 66.803375 **Long.:** -162.475636666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1F

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: HGWST wet sedge tundra w scattered hummocks and vermiculations. larger hummocks 2ft above water level w substantial lichen cover. goose, ptarmigan scat on large hummocks.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Betula nana	2	☑	FAC
2. Andromeda polifolia	0.5	☐	FACW
3. Salix fuscescens	1	☑	FACW
4. Chamaedaphne calyculata	1	☑	FACW
5. Vaccinium oxycoccos	0.5	☐	OBL
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	5		
50% of Total Cover: 2.5	20% of Total Cover: 1		
Herb Stratum			
1. Carex aquatilis	5	☐	OBL
2. Carex chordorrhiza	15	☑	OBL
3. Carex rariflora	1	☐	OBL
4. Carex rotundata	10	☑	OBL
5. Eriophorum angustifolium	5	☐	OBL
6. Eriophorum scheuchzeri	10	☑	OBL
7. Utricularia macrorhiza	5	☐	OBL
8. Comarum palustre	3	☐	OBL
9.		☐	
10.		☐	
Total Cover:	54		
50% of Total Cover: 27	20% of Total Cover: 10.8		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	54.5	x 1 =	54.5
FACW species	2.5	x 2 =	5
FAC species	2	x 3 =	6
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	59 (A)		65.5 (B)

Prevalence Index = B/A = 1.110

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 90

Total Cover of Bryophytes 5

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: trace pedicularis sp. bare ground includes open water.

SOIL

Sampling Point: CB_30

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_31

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): concave **Slope:** 0.0 % / 0.0 ° **Elevation:** 90

Subregion : Northern Alaska **Lat.:** 66.8023033333334 **Long.:** -162.471563333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1/SS1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: 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.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Andromeda polifolia	3	☑	FACW
2. Betula nana	1	☑	FAC
3. Empetrum nigrum	1	☑	FAC
4. Ledum decumbens	1	☑	FACW
5. Vaccinium uliginosum	1	☑	FAC
6. Vaccinium vitis-idaea	0.5	☐	FAC
7. Vaccinium oxycoccos	0.5	☐	OBL
8.		☐	
9.		☐	
10.		☐	
Total Cover:	8		
50% of Total Cover: 4	20% of Total Cover: 1.6		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Carex aquatilis	10	☑	OBL
2. Carex rotundata	5	☐	OBL
3. Eriophorum scheuchzeri	10	☑	OBL
4. Eriophorum vaginatum	5	☐	FACW
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	30		
50% of Total Cover: 15	20% of Total Cover: 6		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	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)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25.5	x 1 =	25.5
FACW species	9	x 2 =	18
FAC species	3.5	x 3 =	10.5
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	38 (A)		54 (B)

Prevalence Index = B/A = 1.421

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 85

Total Cover of Bryophytes 10

Hydrophytic Vegetation Present? Yes ◉ No ○

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

SOIL

Sampling Point: CB_31

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 25-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_32

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Knob

Local relief (concave, convex, none): convex **Slope:** 5.2 % / 3.0 ° **Elevation:** 100

Subregion : Northern Alaska **Lat.:** 66.7994633333333 **Long.:** -162.467095 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** U

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: 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). Communitiies change marks sub-surface change.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Vaccinium uliginosum	20	☑	FAC
2. Empetrum nigrum	20	☑	FAC
3. Vaccinium vitis-idaea	20	☑	FAC
4. Salix pulchra	7	☐	FACW
5. Betula nana	20	☑	FAC
6. Salix glauca	7	☐	FAC
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	94		
50% of Total Cover: 47	20% of Total Cover: 18.8		
Herb Stratum			
1. Petasites frigidus	1	☐	FACW
2. Equisetum arvense	10	☑	FAC
3. Arctagrostis latifolia	3	☐	FACW
4. Rubus chamaemorus	1	☐	FACW
5. Carex bigelowii	5	☑	FAC
6. Angelica lucida	0.5	☐	FACU
7. Chamerion angustifolium	2	☐	FACU
8. Artemisia tilesii	1	☐	FACU
9.		☐	
10.		☐	
Total Cover:	23.5		
50% of Total Cover: 11.75	20% of Total Cover: 4.7		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 6 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	12	x 2 = 24
FAC species	102	x 3 = 306
FACU species	3.5	x 4 = 14
UPL species	0	x 5 = 0
Column Totals:	117.5 (A)	344 (B)

Prevalence Index = B/A = 2.928

Hydrophytic Vegetation Indicators:

☑ **Dominance Test is > 50%**

☑ **Prevalence Index is ≤3.0**

☐ **Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)**

☐ **Problematic Hydrophytic Vegetation [1] (Explain)**

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 65

Total Cover of Bryophytes 30

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: trace legume, poa.

SOIL

Sampling Point: CB_32

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1									Fibric Organics	
1-2			100						Hemic Organics	
2-7	10YR	3/2	100						Silty Clay Loam	
7-22	10YR	3/2	85	7.5YR	3/3	15	C	PL	Silty Clay Loam	organic inclusions

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

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

Hydric Soil Present? Yes ○ No ◉

Remarks:
no hydric soil indicators

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes ○ No ◉

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

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_33

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): hummocky **Slope:** 0.0 % / 0.0 ° **Elevation:**

Subregion : Northern Alaska **Lat.:** 0 **Long.:** 0 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

Hydrophytic Vegetation Present?	Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present?	Yes ◉ No ○	
Wetland Hydrology Present?	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.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Betula nana	5	☑	FAC
2. Vaccinium uliginosum	1	☐	FAC
3. Salix fuscescens	2	☑	FACW
4. Ledum decumbens	1	☐	FACW
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	9		
50% of Total Cover: 4.5	20% of Total Cover: 1.8		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Eriophorum angustifolium	5	☑	OBL
2. Carex aquatilis	3	☐	OBL
3. Calamagrostis canadensis	2	☐	FAC
4. Comarum palustre	1	☐	OBL
5. Carex chordorrhiza	5	☑	OBL
6. Carex rotundata	3	☐	OBL
7. Eriophorum scheuchzeri	5	☑	OBL
8. Luzula wahlenbergii	0.1	☐	OBL
9. Glyceria borealis	0.1	☐	OBL
10.		☐	
Total Cover:	24.2		
50% of Total Cover: 12.1	20% of Total Cover: 4.84		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	22.2	x 1 =	22.2
FACW species	3	x 2 =	6
FAC species	8	x 3 =	24
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	33.2 (A)		52.20 (B)

Prevalence Index = B/A = 1.572

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 0

Total Cover of Bryophytes 99

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: CB_33

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3									Fibric Organics	
3-11									Hemic Organics	
11-12	2.5Y	3/2	100						Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 12

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_34

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): flat **Slope:** 0.0 % / 0.0 ° **Elevation:** 30

Subregion : Northern Alaska **Lat.:** 66.78289 **Long.:** -162.436313333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1H

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: HGWSHT level wet sedge tundra, few scattered low hummocks.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Comarum palustre	5	☑	OBL
2. Equisetum fluviatile	3	☐	OBL
3. Eriophorum scheuchzeri	5	☑	OBL
4. Pedicularis sudetica	1	☐	FACW
5. Arctagrostis latifolia	1	☐	FACW
6. Eriophorum angustifolium	3	☐	OBL
7. Menyanthes trifoliata	1	☐	OBL
8. Anthoxanthum arcticum	5	☑	FACW
9. Luzula arcuata	1	☐	FACU
10.		☐	
Total Cover:	25		
50% of Total Cover: 12.5	20% of Total Cover: 5		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	17	x 1 =	17
FACW species	7	x 2 =	14
FAC species	0	x 3 =	0
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	25 (A)		35 (B)

Prevalence Index = B/A = 1.400

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 10

Total Cover of Bryophytes 88

Hydrophytic Vegetation Present? Yes ● No ○

Remarks:

SOIL

Sampling Point: CB_34

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 8

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_35

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): flat **Slope:** 0.0 % / 0.0 ° **Elevation:** 30

Subregion : Northern Alaska **Lat.:** 66.7820516666667 **Long.:** -162.436006666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

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

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Betula nana	2	☑	FAC
2. Andromeda polifolia	1	☐	FACW
3. Salix fuscescens	2	☑	FACW
4. Vaccinium vitis-idaea	0.5	☐	FAC
5. Vaccinium oxycoccos	0.5	☐	OBL
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	6		
50% of Total Cover: 3	20% of Total Cover: 1.2		
Herb Stratum			
1. Luzula arcuata	1	☐	FACU
2. Comarum palustre	7	☑	OBL
3. Anthoxanthum arcticum	5	☑	FACW
4. Carex aquatilis	1	☐	OBL
5. Eriophorum angustifolium	5	☑	OBL
6. Eriophorum scheuchzeri	3	☐	OBL
7. Carex chordorrhiza	5	☑	OBL
8.		☐	
9.		☐	
10.		☐	
Total Cover:	27		
50% of Total Cover: 13.5	20% of Total Cover: 5.4		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 6 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	21.5	x 1 =	21.5
FACW species	8	x 2 =	16
FAC species	2.5	x 3 =	7.5
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	33 (A)		49 (B)

Prevalence Index = B/A = 1.485

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 10

Total Cover of Bryophytes 85

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: many submerged bryophytes

SOIL

Sampling Point: CB_35

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 6

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_36

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): concave **Slope:** 0.0 % / 0.0 ° **Elevation:** 75

Subregion : Northern Alaska **Lat.:** 66.7803066666667 **Long.:** -162.434321666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1/SS1F

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

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.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Carex aquatilis	3	☐	OBL
2. Eriophorum angustifolium	3	☐	OBL
3. Carex chordorrhiza	5	☑	OBL
4. Carex rotundata	5	☑	OBL
5. Carex magellanica	1	☐	OBL
6. Carex livida	2	☐	OBL
7. Pedicularis sudetica	1	☐	FACW
8. Eriophorum scheuchzeri	5	☑	OBL
9. Utricularia intermedia	1	☐	OBL
10.		☐	
Total Cover:	26		
50% of Total Cover: 13	20% of Total Cover: 5.2		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	1	x 2 =	2
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	26 (A)		27 (B)

Prevalence Index = B/A = 1.038

Hydrophytic Vegetation Indicators:

☑ **Dominance Test is > 50%**

☑ **Prevalence Index is ≤3.0**

☐ **Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)**

☐ **Problematic Hydrophytic Vegetation [1] (Explain)**

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 95

Total Cover of Bryophytes 0

Hydrophytic Vegetation Present? Yes ● No ○

Remarks:

SOIL

Sampling Point: CB_36

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 4

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_37

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): convex **Slope:** 0.0 **%** / 0.0 **°** **Elevation:** 50

Subregion : Northern Alaska **Lat.:** 66.78033 **Long.:** -162.43438 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1/SS1F

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: HGWSS. see notes for CB_36. caribou scat, goose scat.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Betula nana	20	☑	FAC
2. Ledum decumbens	10	☐	FACW
3. Andromeda polifolia	3	☐	FACW
4. Vaccinium vitis-idaea	20	☑	FAC
5. Vaccinium uliginosum	25	☑	FAC
6. Empetrum nigrum	5	☐	FAC
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	83		
50% of Total Cover: 41.5	20% of Total Cover: 16.6		
Herb Stratum			
1. Carex aquatilis	5	☑	OBL
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	5		
50% of Total Cover: 2.5	20% of Total Cover: 1		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	5	x 1 = 5
FACW species	13	x 2 = 26
FAC species	70	x 3 = 210
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	88 (A)	241 (B)

Prevalence Index = B/A = 2.739

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 2

Total Cover of Bryophytes 30

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: 65% lichen cover

SOIL

Sampling Point: CB_37

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-13		100					Hemic Organics	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 13

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 11
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 2

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_38

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Shoreline

Local relief (concave, convex, none): flat **Slope:** 0.0 % / 0.0 ° **Elevation:** 50

Subregion : Northern Alaska **Lat.:** 66.7783816666667 **Long.:** -162.434176666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** U

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: HFMM meadow adjacent to collapse pond (possibly better described as herb-grass meadow?). no real microtopography. caribou scat. uplands extend to pond.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Salix pulchra	5	☑	FACW
2. Salix glauca	2	☐	FAC
3. Betula nana	2	☐	FAC
4. Empetrum nigrum	3	☑	FAC
5. Vaccinium oxycoccos	1	☐	OBL
6. Arctostaphylos alpina	1	☐	FACU
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	14		
50% of Total Cover: 7	20% of Total Cover: 2.8		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Bistorta vivipara	1	☐	FAC
2. Equisetum fluviatile	2	☐	OBL
3. Eriophorum angustifolium	1	☐	OBL
4. Comarum palustre	5	☑	OBL
5. Parnassia palustris	1	☐	FACW
6. Polemonium acutiflorum	1	☐	FAC
7. Stellaria longipes	1	☐	FAC
8. Deschampsia caespitosa	7	☑	FAC
9. Saxifraga hirculus	1	☐	OBL
10. Petasites frigidus	2	☐	FACW
Total Cover:	22		
50% of Total Cover: 11	20% of Total Cover: 4.4		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	10	x 1 = 10
FACW species	8	x 2 = 16
FAC species	17	x 3 = 51
FACU species	1	x 4 = 4
UPL species	0	x 5 = 0
Column Totals:	36 (A)	81 (B)

Prevalence Index = B/A = 2.250

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground

Total Cover of Bryophytes

Hydrophytic Vegetation 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.

SOIL

Sampling Point: CB_38

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2									Fibric Organics	
2-6									Hemic Organics	
6-22	5Y	3/1	90	10YR	3/3	5	C	PL	Silty Clay Loam	
+mottle				10Y	3/1	5	D	PL		

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

no hydric soil indicators, mottle value/chroma too low to meet A14

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○ No ◉	Depth (inches):
Water Table Present?	Yes ◉ No ○	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches): 4

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_39

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): none **Slope:** % / ° **Elevation:** 40

Subregion : Northern Alaska **Lat.:** 66.77823 **Long.:** -162.433905 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: HGWSHT level wet sedge. Slightly lower elevation than adjacent tundra, bright green strip in aerial.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Herb Stratum			
1. Comarum palustre	5	☑	OBL
2. Deschampsia caespitosa	3	☐	FAC
3. Eriophorum angustifolium	7	☑	OBL
4. Equisetum fluviatile	5	☑	OBL
5. Carex aquatilis	7	☑	OBL
6. Caltha palustris	5	☑	OBL
7. Arctagrostis latifolia	3	☐	FACW
8. Polemonium acutiflorum	1	☐	FAC
9.		☐	
10.		☐	
Total Cover:	36		
50% of Total Cover: 18	20% of Total Cover: 7.2		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	29	x 1 =	29
FACW species	3	x 2 =	6
FAC species	4	x 3 =	12
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	36 (A)		47 (B)

Prevalence Index = B/A = 1.306

Hydrophytic Vegetation Indicators:

☑ **Dominance Test is > 50%**

☑ **Prevalence Index is ≤3.0**

☐ **Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)**

☐ **Problematic Hydrophytic Vegetation [1] (Explain)**

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground

Total Cover of Bryophytes 98

Hydrophytic Vegetation Present? Yes ● No ○

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

SOIL

Sampling Point: CB_39

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 3

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_40

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Toeslope

Local relief (concave, convex, none): flat **Slope:** 0.0 % / 0.0 ° **Elevation:** 20

Subregion : Northern Alaska **Lat.:** 66.7775183333333 **Long.:** -162.43369 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1F

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: toeslope emergent wetland w pockets of standing water. caribou scat, trails, two caribou 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.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix pulchra	1	☐	FACW
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	1		
50% of Total Cover: 0.5	20% of Total Cover: 0.2		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Comarum palustre	10	☑	OBL
2. Caltha palustris	5	☑	OBL
3. Arctagrostis latifolia	10	☑	FACW
4. Carex aquatilis	5	☑	OBL
5. Eriophorum angustifolium	2	☐	OBL
6. Equisetum palustre	3	☐	FACW
7. Anemone richardsonii	5	☑	FAC
8. Valeriana sitchensis	3	☐	FAC
9. Trisetum spicatum	3	☐	FAC
10. Parnassia palustris	5	☑	FACW
Total Cover:	51		
50% of Total Cover: 25.5	20% of Total Cover: 10.2		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	22	x 1 = 22
FACW species	19	x 2 = 38
FAC species	11	x 3 = 33
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	52 (A)	93 (B)

Prevalence Index = B/A = 1.788

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 5

Total Cover of Bryophytes 90

Hydrophytic Vegetation 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%.

SOIL

Sampling Point: CB_40

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☑ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 29

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_41

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): concave **Slope:** 0.0 % / 0.0 ° **Elevation:** 10

Subregion : Northern Alaska **Lat.:** 66.7728883333333 **Long.:** -162.431763333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1/SS1F

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: Point in HGWSS, hummocks dominated by betnan and caraqu

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Utricularia macrorhiza	1	☐	OBL
2. Carex aquatilis	10	☑	OBL
3. Eriophorum scheuchzeri	7	☑	OBL
4. Pedicularis sudetica	1	☐	FACW
5. Carex limosa	3	☐	OBL
6. Carex chordorrhiza	3	☐	OBL
7. Eriophorum angustifolium	3	☐	OBL
8. Andromeda polifolia	1	☐	FACW
9. Betula nana	2	☐	FAC
10.		☐	
Total Cover:	31		
50% of Total Cover: 15.5	20% of Total Cover: 6.2		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:		
OBL species	27	x 1 =	27	
FACW species	2	x 2 =	4	
FAC species	2	x 3 =	6	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	31	(A)	37	(B)

Prevalence Index = B/A = 1.194

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 60

Total Cover of Bryophytes 35

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Andpol and betnan included in herb layer for dominanct test, as total shrub cover <5%

SOIL

Sampling Point: CB_41

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 6

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_42

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): hummocky **Slope:** 0.0 **%** / 0.0 **°** **Elevation:** 75

Subregion : Northern Alaska **Lat.:** 66d 49m 42.23s **Long.:** 162d 32m 2.418s **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1/SS1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: 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.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Betula nana	5	☑	FAC
2. Salix fuscescens	2	☐	FACW
3. Andromeda polifolia	1	☐	FACW
4. Vaccinium uliginosum	5	☑	FAC
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	13		
50% of Total Cover: 6.5	20% of Total Cover: 2.6		
Herb Stratum			
1. Carex aquatilis	15	☑	OBL
2. Eriophorum scheuchzeri	20	☑	OBL
3. Carex chordorrhiza	10	☐	OBL
4. Carex rotundata	7	☐	OBL
5. Pedicularis sudetica	1	☐	FACW
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	53		
50% of Total Cover: 26.5	20% of Total Cover: 10.6		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	52	x 1 =	52
FACW species	4	x 2 =	8
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	66 (A)		90 (B)

Prevalence Index = B/A = 1.364

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 85

Total Cover of Bryophytes 5

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: ca 5% lichen (on hummocks)

SOIL

Sampling Point: CB_42

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 6

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_43

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): tussocks **Slope:** 5.2 **%** / 3.0 **°** **Elevation:** 55

Subregion : Northern Alaska **Lat.:** 66.8294016666667 **Long.:** -162.53292 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS3/EM1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOTT

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nana	10	☑	FAC
2. Ledum decumbens	7	☐	FACW
3. Vaccinium vitis-idaea	20	☑	FAC
4. Vaccinium uliginosum	10	☑	FAC
5. Empetrum nigrum	5	☐	FAC
6. Arctostaphylos alpina	1	☐	FACU
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	53		
50% of Total Cover: 26.5	20% of Total Cover: 10.6		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Eriophorum vaginatum	20	☑	FACW
2. Rubus chamaemorus	7	☑	FACW
3. Arctagrostis latifolia	2	☐	FACW
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	29		
50% of Total Cover: 14.5	20% of Total Cover: 5.8		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	36	x 2 =	72
FAC species	45	x 3 =	135
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	82 (A)		211 (B)

Prevalence Index = B/A = 2.573

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 0

Total Cover of Bryophytes 40

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: 40% lichen cover

SOIL

Sampling Point: CB_43

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8									Hemic Organics	varying degrees of decomposition
8-15	10YR	3/2	100						Silty Clay Loam	high organic content

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

Hydric Soil Indicators:

- [ ] Histosol or Histel (A1)
- [x] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 15

Hydric Soil Present? Yes (●) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- [ ] Water Stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [x] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [x] FAC-neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?	( )	(●)	
Water Table Present?	( )	(●)	12
Saturation Present? (includes capillary fringe)	( )	(●)	3

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_44

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): hummocky **Slope:** 0.0 % / 0.0 ° **Elevation:** 75

Subregion : Northern Alaska **Lat.:** 66.8300966666667 **Long.:** -162.531805 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1/SS1F

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ☒ No ☐

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: scattered hummocks w empnig betnan and lichens. hummocks included in plot. HGWSS

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Andromeda polifolia	1	☐	FACW
2. Salix fuscescens	1	☐	FACW
3. Betula nana	3	☑	FAC
4. Empetrum nigrum	1	☐	FAC
5. Vaccinium uliginosum	3	☑	FAC
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	9		
50% of Total Cover: 4.5	20% of Total Cover: 1.8		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Utricularia intermedia	3	☐	OBL
2. Pedicularis sudetica	1	☐	FACW
3. Carex chordorrhiza	10	☑	OBL
4. Carex rotundata	5	☐	OBL
5. Eriophorum scheuchzeri	15	☑	OBL
6. Eriophorum angustifolium	1	☐	OBL
7. Carex aquatilis	3	☐	OBL
8. Trichophorum caespitosum	0.5	☐	OBL
9. Tofieldia pusilla	0.5	☐	FAC
10.		☐	
Total Cover:	39		
50% of Total Cover: 19.5	20% of Total Cover: 7.8		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	37.5	x 1 =	37.5
FACW species	3	x 2 =	6
FAC species	7.5	x 3 =	22.5
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	48 (A)		66 (B)

Prevalence Index = B/A = 1.375

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 90

Total Cover of Bryophytes 5

Hydrophytic Vegetation Present? Yes ☒ No ☐

Remarks: 3% lichen cover

SOIL

Sampling Point: CB_44

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

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

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

Hydric Soil Indicators:

- [ ] Histosol or Histel (A1)
- [ ] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [x] Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes (●) No ( )

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- [ ] Water Stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [x] FAC-neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes (●) No ( )

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_45

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Hillside

Local relief (concave, convex, none): tussocks **Slope:** 8.7 % / 5.0 ° **Elevation:** 95

Subregion : Northern Alaska **Lat.:** 66.8272583333333 **Long.:** -162.521895 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS3/EM1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOTT atop rounded rise. one caribou grazing in community to the south.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Betula nana	10	☑	FAC
2. Ledum decumbens	5	☐	FACW
3. Vaccinium uliginosum	7	☐	FAC
4. Vaccinium vitis-idaea	20	☑	FAC
5. Empetrum nigrum	10	☑	FAC
6. Salix pulchra	7	☐	FACW
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	59		
50% of Total Cover: 29.5	20% of Total Cover: 11.8		
Herb Stratum			
1. Eriophorum vaginatum	15	☑	FACW
2. Carex bigelowii	5	☐	FAC
3. Arctagrostis latifolia	1	☐	FACW
4. Rubus chamaemorus	7	☑	FACW
5. Petasites frigidus	1	☐	FACW
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	29		
50% of Total Cover: 14.5	20% of Total Cover: 5.8		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	36	x 2 =	72
FAC species	52	x 3 =	156
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	88 (A)		228 (B)

Prevalence Index = B/A = 2.591

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 5

Total Cover of Bryophytes 40

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: 40% lichen

SOIL

Sampling Point: CB_45

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-3							Fibric Organics	
3-10							Hemic Organics	varying degrees of decomposition
10-11							Sapric Organics	
11-14	10YR 3/2						Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen), si cl lo

Depth (inches): 14, 11

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_46

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Hillside

Local relief (concave, convex, none): tussocks **Slope:** 5.2 % / 3.0 ° **Elevation:** 90

Subregion : Northern Alaska **Lat.:** 66.8267666666667 **Long.:** -162.52006 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOW atop rounded rise.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Salix pulchra	40	☑	FACW
2. Spiraea stevenii	3	☐	FACU
3. Salix glauca	15	☑	FAC
4. Betula nana	10	☐	FAC
5. Empetrum nigrum	15	☑	FAC
6. Vaccinium uliginosum	15	☑	FAC
7. Vaccinium vitis-idaea	5	☐	FAC
8. Ledum decumbens	3	☐	FACW
9.		☐	
10.		☐	
Total Cover:	106		
50% of Total Cover: 53	20% of Total Cover: 21.2		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Petasites frigidus	5	☑	FACW
2. Rubus chamaemorus	3	☐	FACW
3. Chamerion angustifolium	1	☐	FACU
4. Carex bigelowii	5	☑	FAC
5. Lycopodium clavatum	1	☐	FACU
6. Arctagrostis latifolia	5	☑	FACW
7. Deschampsia caespitosa	3	☐	FAC
8. Polemonium acutiflorum	0.5	☐	FAC
9.		☐	
10.		☐	
Total Cover:	23.5		
50% of Total Cover: 11.75	20% of Total Cover: 4.7		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 7 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	56	x 2 = 112
FAC species	68.5	x 3 = 205.5
FACU species	5	x 4 = 20
UPL species	0	x 5 = 0
Column Totals:	129.5 (A)	337.5 (B)

Prevalence Index = B/A = 2.606

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground

Total Cover of Bryophytes

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: CB_46

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc²	Texture	Remarks
0-2									Fibric Organics	
2-4									Hemic Organics	
4-16	10Y	5/1	85	10YR	4/6	15	C	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=Concentration D=Depletion RM=Reduced Matrix [2] Location: PL=Pore Lining RC=Root Channel M=Matrix

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☑ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 23

Hydric Soil Present? Yes ◉ No ○

Remarks:

16-23: inclusions of 7.5YR2.5/2, thin organic layer at 20in bgs

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 7

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_47

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Hillside

Local relief (concave, convex, none): tussocks **Slope:** 12.2 **%** / 7.0 **°** **Elevation:** 80

Subregion : Northern Alaska **Lat.:** 66.8221183333333 **Long.:** -162.505238333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1/EM1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOTT, but w scattered salix and fewer tussocks

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Salix pulchra	7	☐	FACW
2. Betula nana	20	☑	FAC
3. Vaccinium vitis-idaea	30	☑	FAC
4. Vaccinium uliginosum	7	☐	FAC
5. Ledum decumbens	7	☐	FACW
6. Empetrum nigrum	5	☐	FAC
7. Arctostaphylos alpina	1	☐	FACU
8. Salix glauca	0.5	☐	FAC
9.		☐	
10.		☐	
Total Cover:	77.5		
50% of Total Cover: 38.75	20% of Total Cover: 15.5		
Herb Stratum			
1. Petasites frigidus	5	☐	FACW
2. Rubus chamaemorus	5	☐	FACW
3. Carex bigelowii	15	☑	FAC
4. Eriophorum vaginatum	15	☑	FACW
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	40		
50% of Total Cover: 20	20% of Total Cover: 8		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	39	x 2 =	78
FAC species	77.5	x 3 =	232.5
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	117.5	(A)	314.5 (B)

Prevalence Index = B/A = 2.677

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 5

Total Cover of Bryophytes 40

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: 40% lichen cover, erivag and carbig tussocks.

SOIL

Sampling Point: CB_47

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	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	C	PL	Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☑ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen), si cl lo

Depth (inches): 16, 6

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 7

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_48

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Hillside

Local relief (concave, convex, none): tussocks **Slope:** 8.7 **%** / 5.0 **°** **Elevation:** 75

Subregion : Northern Alaska **Lat.:** 66.7966616666667 **Long.:** -162.466501666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1/SS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOTT on gentle hillside

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Betula nana	15	☑	FAC
2. Arctostaphylos alpina	7	☐	FACU
3. Vaccinium vitis-idaea	15	☑	FAC
4. Vaccinium uliginosum	5	☐	FAC
5. Ledum decumbens	5	☐	FACW
6. Empetrum nigrum	7	☐	FAC
7. Vaccinium oxycoccos	1	☐	OBL
8.		☐	
9.		☐	
10.		☐	
Total Cover:	55		
50% of Total Cover: 27.5	20% of Total Cover: 11		
Herb Stratum			
1. Rubus chamaemorus	5	☐	FACW
2. Carex bigelowii	10	☑	FAC
3. Eriophorum vaginatum	25	☑	FACW
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	40		
50% of Total Cover: 20	20% of Total Cover: 8		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species	35	x 2 =	70
FAC species	52	x 3 =	156
FACU species	7	x 4 =	28
UPL species	0	x 5 =	0
Column Totals:	95 (A)		255 (B)

Prevalence Index = B/A = 2.684

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground

Total Cover of Bryophytes

Hydrophytic Vegetation Present? Yes ● No ○

Remarks:

SOIL

Sampling Point: CB_48

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5							Fibric Organics	
5-11							Hemic Organics	
11-14							Sapric Organics	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 14

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ◉ No ○ Depth (inches): 11

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 7

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_49

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): hummocky **Slope:** 0.0 % / 0.0 ° **Elevation:** 50

Subregion : Northern Alaska **Lat.:** 66.7935583333333 **Long.:** -162.465163333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1/SS1F

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

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.

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Betula nana	7	☑	FAC
2. Vaccinium uliginosum	7	☑	FAC
3. Andromeda polifolia	2	☐	FACW
4. Chamaedaphne calyculata	3	☐	FACW
5. Salix fuscescens	1	☐	FACW
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	20		
50% of Total Cover: 10	20% of Total Cover: 4		
Herb Stratum			
1. Pinguicula villosa	0.5	☐	OBL
2. Eriophorum scheuchzeri	7	☐	OBL
3. Carex aquatilis	10	☑	OBL
4. Carex limosa	3	☐	OBL
5. Carex rotundata	7	☐	OBL
6. Eriophorum angustifolium	10	☑	OBL
7. Spiranthes romanzoffiana	0.5	☐	OBL
8. Tofieldia pusilla	0.5	☐	FAC
9.		☐	
10.		☐	
Total Cover:	38.5		
50% of Total Cover: 19.25	20% of Total Cover: 7.7		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	38	x 1 =	38
FACW species	6	x 2 =	12
FAC species	14.5	x 3 =	43.5
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	58.5 (A)		93.5 (B)

Prevalence Index = B/A = 1.598

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground

Total Cover of Bryophytes

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: caraqu as collected earlier - yellow-green

SOIL

Sampling Point: CB_49

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 6

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 26-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_50

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): hummocky **Slope:** 0.0 **%** / 0.0 **°** **Elevation:** 35

Subregion : Northern Alaska **Lat.:** 66.7921116666667 **Long.:** -162.464566666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: 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.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nana	10	☑	FAC
2. Empetrum nigrum	7	☑	FAC
3. Ledum decumbens	7	☑	FACW
4. Vaccinium uliginosum	10	☑	FAC
5. Chamaedaphne calyculata	5	☐	FACW
6. Salix fuscescens	3	☐	FACW
7. Vaccinium oxycoccos	1	☐	OBL
8. Andromeda polifolia	2	☐	FACW
9.		☐	
10.		☐	
Total Cover:	45		
50% of Total Cover: 22.5	20% of Total Cover: 9		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Carex aquatilis	7	☑	OBL
2. Carex limosa	1	☐	OBL
3. Eriophorum scheuchzeri	10	☑	OBL
4. Eriophorum vaginatum	3	☐	FACW
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	21		
50% of Total Cover: 10.5	20% of Total Cover: 4.2		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	6	(A)
Total Number of Dominant Species Across All Strata:	6	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	19	x 1 =	19
FACW species	20	x 2 =	40
FAC species	27	x 3 =	81
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	66	(A)	140 (B)

Prevalence Index = B/A = 2.121

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 10

Total Cover of Bryophytes 85

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: bar ground includes open water. 1% Pedicularis sp.

SOIL

Sampling Point: CB_50

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2							Fibric Organics	
2-12							Hemic Organics	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 12

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 1

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_51

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): tussocks **Slope:** 0.0 % / 0.0 ° **Elevation:** 20

Subregion : Northern Alaska **Lat.:** 66.7437433333333 **Long.:** -162.433846666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: HGMSS no obvious patterning. Tussock microtopo and gentle gradations from wetter to drier.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Betula nana	20	☑	FAC
2. Ledum decumbens	7	☐	FACW
3. Vaccinium vitis-idaea	7	☐	FAC
4. Empetrum nigrum	7	☐	FAC
5. Vaccinium uliginosum	15	☑	FAC
6. Andromeda polifolia	5	☐	FACW
7. Salix fuscescens	2	☐	FACW
8. Vaccinium oxycoccos	1	☐	OBL
9.		☐	
10.		☐	
Total Cover:	64		
50% of Total Cover: 32	20% of Total Cover: 12.8		
Herb Stratum			
1. Rubus chamaemorus	1	☐	FACW
2. Carex aquatilis	10	☑	OBL
3. Eriophorum vaginatum	7	☑	FACW
4. Carex bigelowii	10	☑	FAC
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	28		
50% of Total Cover: 14	20% of Total Cover: 5.6		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	11	x 1 =	11
FACW species	22	x 2 =	44
FAC species	59	x 3 =	177
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	92 (A)		232 (B)

Prevalence Index = B/A = 2.522

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 5

Total Cover of Bryophytes 70

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: 20% lichen cover

SOIL

Sampling Point: CB_51

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Color (moist)	Redox %	Type[1]	Loc²	Texture	Remarks
0-6			100					Fibric Organics	
6-11			100					Hemic Organics	
11-16	2.5Y	3/1	100					Silty Clay Loam	

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

Hydric Soil Indicators:

- [ ] Histosol or Histel (A1)
- [x] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen), si cl lo

Depth (inches): 16, 11

Hydric Soil Present? Yes (●) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- [ ] Water Stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [x] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [x] FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ( )	No (●)	Depth (inches):
Water Table Present?	Yes (●)	No ( )	Depth (inches): 10
Saturation Present? (includes capillary fringe)	Yes (●)	No ( )	Depth (inches): 4

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_52

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): concave **Slope:** 0.0 % / 0.0 ° **Elevation:** 30

Subregion : Northern Alaska **Lat.:** 66.7297133333333 **Long.:** -162.421763333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1/EM1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: 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).

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nana	10	☑	FAC
2. Vaccinium uliginosum	10	☑	FAC
3. Empetrum nigrum	20	☑	FAC
4. Ledum decumbens	10	☑	FACW
5. Vaccinium vitis-idaea	5	☐	FAC
6. Arctostaphylos alpina	1	☐	FACU
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	56		
50% of Total Cover: 28	20% of Total Cover: 11.2		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Rubus chamaemorus	2	☑	FACW
2. Arctagrostis latifolia	1	☑	FACW
3. Eriophorum vaginatum	2	☑	FACW
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	5		
50% of Total Cover: 2.5	20% of Total Cover: 1		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 7 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	45	x 3 =	135
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	61 (A)		169 (B)

Prevalence Index = B/A = 2.770

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 60

Total Cover of Bryophytes 0

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: crushed tusdocks from ATV traffic, stressed vegetation. beer cans and bottle caps. ca 35% lichen cover

SOIL

Sampling Point: CB_52

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18							Hemic Organics	varying degrees of decomposition

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

Hydric Soil Indicators:

- [x] Histosol or Histel (A1)
- [ ] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 18

Hydric Soil Present? Yes (●) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- [ ] Water Stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [x] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [x] FAC-neutral Test (D5)

Field Observations:

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

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

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

Wetland Hydrology Present? Yes (●) No ( )

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

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

Remarks:

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

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): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): concave **Slope:** 0.0 **%** / 0.0 **°** **Elevation:** 15

Subregion : Northern Alaska **Lat.:** 66.7297983333333 **Long.:** -162.421735 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1/EM1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: poly trough, HGMSS

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Carex aquatilis	5	☑	OBL
2. Eriophorum scheuchzeri	2	☑	OBL
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	7		
50% of Total Cover: 3.5	20% of Total Cover: 1.4		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 1.000

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 2m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 98

Total Cover of Bryophytes 0

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: CB_53

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 8

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

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): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): hummocky **Slope:** 0.0 % / 0.0 ° **Elevation:** 15

Subregion : Northern Alaska **Lat.:** 66.7474233333333 **Long.:** -162.438848333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1/SS1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: generally level. common low, subtle sphagnum hummocks with shrubby vegetation. soil pit on hummock, low areas w standing water. HGWSWT

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Betula nana	10	☑	FAC
2. Salix fuscescens	1	☐	FACW
3. Salix pulchra	5	☑	FACW
4. Andromeda polifolia	1	☐	FACW
5. Chamaedaphne calyculata	3	☐	FACW
6. Vaccinium oxycoccos	1	☐	OBL
7. Ledum decumbens	2	☐	FACW
8. Empetrum nigrum	2	☐	FAC
9.		☐	
10.		☐	
Total Cover:	25		
50% of Total Cover: 12.5	20% of Total Cover: 5		
Herb Stratum			
1. Carex limosa	5	☐	OBL
2. Calamagrostis canadensis	10	☑	FAC
3. Eriophorum scheuchzeri	10	☑	OBL
4. Comarum palustre	1	☐	OBL
5. Pedicularis sudetica	1	☐	FACW
6. Petasites frigidus	0.5	☐	FACW
7. Eriophorum angustifolium	5	☐	OBL
8.		☐	
9.		☐	
10.		☐	
Total Cover:	32.5		
50% of Total Cover: 16.25	20% of Total Cover: 6.5		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	22	x 1 =	22
FACW species	13.5	x 2 =	27
FAC species	22	x 3 =	66
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	57.5 (A)		115 (B)

Prevalence Index = B/A = 2.000

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 7

Total Cover of Bryophytes 90

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: Sphagnum

SOIL

Sampling Point: CB_54

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10							Fibric Organics	
10-12							Hemic Organics	

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

Hydric Soil Indicators:

- [ ] Histosol or Histel (A1)
- [x] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 12

Hydric Soil Present? Yes (●) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- [ ] Water Stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [x] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [x] FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ( )	No (●)	Depth (inches):
Water Table Present?	Yes (●)	No ( )	Depth (inches): 4
Saturation Present? (includes capillary fringe)	Yes (●)	No ( )	Depth (inches): 2

Wetland Hydrology Present? Yes (●) No ( )

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_55

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Swale

Local relief (concave, convex, none): concave **Slope:** 0.0 % / 0.0 ° **Elevation:** 25

Subregion : Northern Alaska **Lat.:** 66.748195 **Long.:** -162.434628333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: hgwst

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Andromeda polifolia	1	☐	FACW
2. Salix pulchra	3	☑	FACW
3. Salix fuscescens	2	☑	FACW
4. Betula nana	3	☑	FAC
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	9		
50% of Total Cover: 4.5	20% of Total Cover: 1.8		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Eriophorum angustifolium	15	☑	OBL
2. Comarum palustre	10	☐	OBL
3. Carex aquatilis	15	☑	OBL
4. Calamagrostis canadensis	7	☐	FAC
5. Eriophorum scheuchzeri	5	☐	OBL
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	52		
50% of Total Cover: 26	20% of Total Cover: 10.4		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	45	x 1 =	45
FACW species	6	x 2 =	12
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	61 (A)		87 (B)

Prevalence Index = B/A = 1.426

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 55

Total Cover of Bryophytes 40

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: shrub cover decreases toward bank. submerged sphagnum, likely underestimate bryophyte cover.

SOIL

Sampling Point: CB_55

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 8

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_56

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): tussocks **Slope:** 0.0 % / 0.0 ° **Elevation:** 40

Subregion : Northern Alaska **Lat.:** 66.7540816666667 **Long.:** -162.433398333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1/SS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOTT

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nana	5	☑	FAC
2. Vaccinium vitis-idaea	10	☑	FAC
3. Vaccinium uliginosum	5	☑	FAC
4. Ledum decumbens	3	☐	FACW
5. Arctostaphylos alpina	3	☐	FACU
6. Empetrum nigrum	5	☑	FAC
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	31		
50% of Total Cover: 15.5	20% of Total Cover: 6.2		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Eriophorum vaginatum	70	☑	FACW
2. Calamagrostis canadensis	5	☐	FAC
3. Carex bigelowii	5	☐	FAC
4. Carex aquatilis	0.5	☐	OBL
5. Rubus chamaemorus	2	☐	FACW
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	82.5		
50% of Total Cover: 41.25	20% of Total Cover: 16.5		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.5	x 1 =	0.5
FACW species	75	x 2 =	150
FAC species	35	x 3 =	105
FACU species	3	x 4 =	12
UPL species	0	x 5 =	0
Column Totals:	113.5	(A)	267.5 (B)

Prevalence Index = B/A = 2.357

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 1

Total Cover of Bryophytes 15

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: ca 15% lichen cover

SOIL

Sampling Point: CB_56

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc²	Texture	Remarks
0-5			100					Fibric Organics	
5-11			100					Hemic Organics	varying degrees of decomposition
11-18	10YR	2/2	100					Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 18

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 12
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 7

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_57

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): concave **Slope:** 0.0 % / 0.0 ° **Elevation:** 40

Subregion : Northern Alaska **Lat.:** 66.76014 **Long.:** -162.434803333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1/SS1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

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.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0		20% of Total Cover: 0	
Sapling/Shrub Stratum			
1. Andromeda polifolia	5	☑	FACW
2. Betula nana	1	☐	FAC
3. Vaccinium oxycoccos	0.5	☐	OBL
4. Chamaedaphne calyculata	1	☐	FACW
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	7.5		
50% of Total Cover: 3.75		20% of Total Cover: 1.5	
Herb Stratum			
1. Carex rotundata	10	☑	OBL
2. Carex limosa	1	☐	OBL
3. Carex aquatilis	3	☐	OBL
4. Eriophorum angustifolium	3	☐	OBL
5. Eriophorum scheuchzeri	10	☑	OBL
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	27		
50% of Total Cover: 13.5		20% of Total Cover: 5.4	

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	27.5	x 1 =	27.5
FACW species	6	x 2 =	12
FAC species	1	x 3 =	3
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	34.5	(A)	42.5 (B)

Prevalence Index = B/A = 1.232

Hydrophytic Vegetation Indicators:

☑ **Dominance Test is > 50%**

☑ **Prevalence Index is ≤3.0**

☐ **Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)**

☐ **Problematic Hydrophytic Vegetation [1] (Explain)**

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 88

Total Cover of Bryophytes 10

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: bare ground includes open water.

SOIL

Sampling Point: CB_57

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches): 4
Water Table Present?	Yes ○	No ◉	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ○	No ◉	Depth (inches):

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_58

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): concave **Slope:** 0.0 % / 0.0 ° **Elevation:** 20

Subregion : Northern Alaska **Lat.:** 66.7636216666667 **Long.:** -162.43291 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1/SS1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: high reflectance low-center polys are sphagnum/sedge wet tundra. HGWSWT

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Ledum decumbens	0.5	☐	FACW
2. Vaccinium vitis-idaea	0.5	☐	FAC
3. Andromeda polifolia	2	☑	FACW
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	3		
50% of Total Cover: 1.5	20% of Total Cover: 0.6		
Herb Stratum			
1. Carex aquatilis	15	☑	OBL
2. Rubus chamaemorus	2	☐	FACW
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	17		
50% of Total Cover: 8.5	20% of Total Cover: 3.4		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	4.5	x 2 =	9
FAC species	0.5	x 3 =	1.5
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	20 (A)		25.5 (B)

Prevalence Index = B/A = 1.275

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 0

Total Cover of Bryophytes 98

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: CB_58

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-13							Fibric Organics	

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

Hydric Soil Indicators:

- [ ] Histosol or Histel (A1)
- [x] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 13

Hydric Soil Present? Yes (●) No ( )

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- [ ] Water Stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [x] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [x] FAC-neutral Test (D5)

Field Observations:

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

Water Table Present? Yes (●) No ( ) Depth (inches): 11

Saturation Present? (includes capillary fringe) Yes (●) No ( ) Depth (inches): 7

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_59

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Hillside

Local relief (concave, convex, none): tussocks **Slope:** 8.7 % / 5.0 ° **Elevation:** 10

Subregion : Northern Alaska **Lat.:** 66.7691083333333 **Long.:** -162.426288333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1/3B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SDET with small carbig tussocks on gentle hillslope

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		

50% of Total Cover: 0 20% of Total Cover: 0

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Betula nana	20	☑	FAC
2. Ledum decumbens	5	☐	FACW
3. Vaccinium vitis-idaea	15	☑	FAC
4. Vaccinium uliginosum	3	☐	FAC
5. Empetrum nigrum	10	☐	FAC
6. Arctostaphylos alpina	20	☑	FACU
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	73		

50% of Total Cover: 36.5 20% of Total Cover: 14.6

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Carex bigelowii	20	☑	FAC
2. Arctagrostis latifolia	10	☑	FACW
3. Petasites frigidus	2	☐	FACW
4. Rubus chamaemorus	2	☐	FACW
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	34		

50% of Total Cover: 17 20% of Total Cover: 6.8

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	80.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	19	x 2 =	38
FAC species	68	x 3 =	204
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	107 (A)		322 (B)

Prevalence Index = B/A = 3.009

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground

Total Cover of Bryophytes

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: CB_59

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2			100						Fibric Organics	
2-9									Hemic Organics	
9-12	10YR	3/2	100						Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 12

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 11
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 9

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_60

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): concave **Slope:** 0.0 % / 0.0 ° **Elevation:** 40

Subregion : Northern Alaska **Lat.:** 66.769495 **Long.:** -162.434413333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS3/EM1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: HGMSS. Community a mosaic of HGWST lows, as characterized by this point, and SDET sphagnum hummocks, as characterized by CB_61.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Andromeda polifolia	5	☑	FACW
2. Betula nana	2	☑	FAC
3. Ledum decumbens	1	☐	FACW
4. Empetrum nigrum	1	☐	FAC
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	9		
50% of Total Cover: 4.5	20% of Total Cover: 1.8		
Herb Stratum			
1. Eriophorum scheuchzeri	15	☑	OBL
2. Carex aquatilis	15	☑	OBL
3. Rubus chamaemorus	2	☐	FACW
4. Carex limosa	2	☐	OBL
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	34		
50% of Total Cover: 17	20% of Total Cover: 6.8		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	32	x 1 =	32
FACW species	8	x 2 =	16
FAC species	3	x 3 =	9
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	43 (A)		57 (B)

Prevalence Index = B/A = 1.326

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 18

Total Cover of Bryophytes 80

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: submerged betnan and rubcha, high water, likely underestimate bryophyte cover

SOIL

Sampling Point: CB_60

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 4

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_61

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): hummocky **Slope:** 0.0 % / 0.0 ° **Elevation:** 40

Subregion : Northern Alaska **Lat.:** 66.7696 **Long.:** -162.434353333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS3/EM1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: HGMSS. characterizing SDEV Sphagnum hummocks in mosaic w HGWST lows (see CB_60). Hummocks ca 1ft above lows, high degree of interspersion between two veg types, ca 60% SDEV 40% HGWST.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nana	3	☐	FAC
2. Vaccinium vitis-idaea	35	☑	FAC
3. Vaccinium uliginosum	5	☐	FAC
4. Ledum decumbens	5	☐	FACW
5. Empetrum nigrum	2	☐	FAC
6. Arctostaphylos alpina	1	☐	FACU
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	51		
50% of Total Cover: 25.5	20% of Total Cover: 10.2		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Carex bigelowii	3	☑	FAC
2. Rubus chamaemorus	5	☑	FACW
3. Carex aquatilis	1	☐	OBL
4. Eriophorum angustifolium	0.5	☐	OBL
5. Eriophorum vaginatum	1	☐	FACW
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	10.5		
50% of Total Cover: 5.25	20% of Total Cover: 2.1		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	1.5	x 1 = 1.5
FACW species	11	x 2 = 22
FAC species	48	x 3 = 144
FACU species	1	x 4 = 4
UPL species	0	x 5 = 0
Column Totals:	61.5 (A)	171.5 (B)

Prevalence Index = B/A = 2.789

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 5m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground

Total Cover of Bryophytes

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

SOIL

Sampling Point: CB_61

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2									Fibric Organics	
2-10									Hemic Organics	
10-15	10YR	3/1	100						Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen), si cl lo

Depth (inches): 15, 10

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ○ No ◉ Depth (inches):

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 6

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_62

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Toeslope

Local relief (concave, convex, none): hummocky **Slope:** 0.0 % / 0.0 ° **Elevation:** 65

Subregion : Northern Alaska **Lat.:** 66.8572033333333 **Long.:** -162.546073333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: HGWST toeslope wetland with few, scattered hummocks. game trails

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Betula nana	2	☑	FAC
2. Andromeda polifolia	2	☑	FACW
3. Vaccinium uliginosum	1	☐	FAC
4. Empetrum nigrum	1	☐	FAC
5. Ledum decumbens	2	☑	FACW
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	8		
50% of Total Cover: 4	20% of Total Cover: 1.6		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Carex aquatilis	15	☑	OBL
2. Eriophorum scheuchzeri	5	☐	OBL
3. Carex rotundata	15	☑	OBL
4. Trichophorum caespitosum	1	☐	OBL
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	36		
50% of Total Cover: 18	20% of Total Cover: 7.2		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	36	x 1 =	36
FACW species	4	x 2 =	8
FAC species	4	x 3 =	12
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	44 (A)		56 (B)

Prevalence Index = B/A = 1.273

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 10

Total Cover of Bryophytes 65

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: 20% lichen cover. Sphagnum mosses.

SOIL

Sampling Point: CB_62

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-1									Fibric Organics	
1-10									Hemic Organics	
10-15	10YR	3/1	100						Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☑ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 15

Hydric Soil Present? Yes ◉ No ○

Remarks:

soil pit in largest hummock within plot.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ○ No ◉ Depth (inches):

Water Table Present? Yes ◉ No ○ Depth (inches): 13

Saturation Present? (includes capillary fringe) Yes ◉ No ○ Depth (inches): 8

Wetland Hydrology Present? 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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_63

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Hillside

Local relief (concave, convex, none): tussocks **Slope:** 17.6 **%** / 10.0 **°** **Elevation:** 90

Subregion : Northern Alaska **Lat.:** 66.8567666666667 **Long.:** -162.546018333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOBE on N aspect hillside w carbig tussocks and hummocks.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1. Alnus viridis ssp. crispa	10	☑	FAC
2. Betula nana	15	☑	FAC
3. Empetrum nigrum	5	☐	FAC
4. Ledum decumbens	5	☐	FACW
5. Vaccinium vitis-idaea	5	☐	FAC
6. Vaccinium uliginosum	2	☐	FAC
7. Salix pulchra	1	☐	FACW
8.		☐	
9.		☐	
10.		☐	
Total Cover:	43		
50% of Total Cover: 21.5	20% of Total Cover: 8.6		
Herb Stratum			
1. Carex bigelowii	20	☑	FAC
2. Eriophorum vaginatum	1	☐	FACW
3. Rubus chamaemorus	5	☐	FACW
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	26		
50% of Total Cover: 13	20% of Total Cover: 5.2		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	3	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	12	x 2 =	24
FAC species	57	x 3 =	171
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	69 (A)		195 (B)

Prevalence Index = B/A = 2.826

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 0

Total Cover of Bryophytes 60

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: ca 20% lichen cover

SOIL

Sampling Point: CB_63

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

Depth (inches)	Matrix Color (moist)		Matrix %	Redox Features Color (moist)		Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4									Fibric Organics	
4-8									Hemic Organics	
8-11	2.5Y	4/1	100						Silty Clay Loam	platey

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

Hydric Soil Indicators:

- [ ] Histosol or Histel (A1)
- [x] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [ ] Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 11

Hydric Soil Present? Yes (•) No ( )

Remarks:

soil pit ca halfway down slope. probing confirms this is representative of hillside.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- [ ] Water Stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [x] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [ ] FAC-neutral Test (D5)

Field Observations:

	Yes	No	Depth (inches)
Surface Water Present?	( )	(•)	
Water Table Present?	( )	(•)	
Saturation Present? (includes capillary fringe)	(•)	( )	5

Wetland Hydrology Present? 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:

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_64

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Hillside

Local relief (concave, convex, none): none **Slope:** 12.2 % / 7.0 ° **Elevation:** 105

Subregion : Northern Alaska **Lat.:** 66.8466166666667 **Long.:** -162.607448333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PSS1B

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◯ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ◯

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOW? Salpul <20cm tall. Roadside disturbance.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix pulchra	30	☑	FACW
2. Salix glauca	7	☐	FAC
3. Vaccinium uliginosum	5	☐	FAC
4. Betula nana	7	☐	FAC
5. Empetrum nigrum	3	☐	FAC
6. Arctostaphylos alpina	1	☐	FACU
7. Vaccinium vitis-idaea	1	☐	FAC
8.		☐	
9.		☐	
10.		☐	
Total Cover:	54		
50% of Total Cover: 27	20% of Total Cover: 10.8		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Carex bigelowii	20	☑	FAC
2. Petasites frigidus	2	☐	FACW
3. Dupontia fischeri	3	☐	FACW
4. Luzula multiflora	2	☐	FACU
5. Pyrola asarifolia	2	☐	FACU
6. Polemonium acutiflorum	0.5	☐	FAC
7. Saxifraga nelsoniana	0.5	☐	FAC
8. Rubus chamaemorus	0.5	☐	FACW
9. Poa macrocalyx	3	☐	FAC
10.		☐	
Total Cover:	33.5		
50% of Total Cover: 16.75	20% of Total Cover: 6.7		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	35.5	x 2 =	71
FAC species	47	x 3 =	141
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	87.5 (A)		232 (B)

Prevalence Index = B/A = 2.651

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 65

Total Cover of Bryophytes 30

Hydrophytic Vegetation Present? Yes ◉ No ◯

Remarks: large patches of bare ground - gravels from roadway.

SOIL

Sampling Point: CB_64

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

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-4									Hemic Organics	
4-10	10Y	5/1	90	7.5YR	4/6	10	C	PL	Silty Clay Loam	some organic staining at 4-5in
10-22	2.5Y	3/2	80	10YR	3/2	20	C	PL	Silty Clay Loam	

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☑ Alaska Gleyed (A13)
- ☑ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type: active layer (frozen)

Depth (inches): 22

Hydric Soil Present? Yes ◉ No ○

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☑ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):
Water Table Present?	Yes ◉	No ○	Depth (inches): 16
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 7

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_65

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Hillside

Local relief (concave, convex, none): none **Slope:** 17.6 % / 10.0 ° **Elevation:** 110

Subregion : Northern Alaska **Lat.:** 66.8472366666667 **Long.:** -162.607943333333 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** U

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: SLOW on gravel fill (old pad?) at decomissioned white alice site.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix richardsonii	30	☑	FACW
2. Salix alaxensis	7	☐	FAC
3. Salix glauca	10	☐	FAC
4. Salix pulchra	10	☐	FACW
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	57		
50% of Total Cover: 28.5	20% of Total Cover: 11.4		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Artemisia tilesii	1	☑	FACU
2. Chamerion angustifolium	1	☑	FACU
3. Parnassia palustris	1	☑	FACW
4. Equisetum scirpoides	2	☑	FACU
5. Festuca rubra	1	☑	FAC
6. Carex scirpoidea	1	☑	FACU
7. Dupontia fischeri	0.1	☐	FACW
8. Elymus alaskanus	0.1	☐	FAC
9.		☐	
10.		☐	
Total Cover:	7.2		
50% of Total Cover: 3.6	20% of Total Cover: 1.44		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	3	(A)
Total Number of Dominant Species Across All Strata:	7	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	42.9%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	41.1	x 2 = 82.2
FAC species	18.1	x 3 = 54.30
FACU species	5	x 4 = 20
UPL species	0	x 5 = 0
Column Totals:	64.2 (A)	156.5 (B)

Prevalence Index = B/A = 2.438

Hydrophytic Vegetation Indicators:

☐ **Dominance Test is > 50%**

☑ **Prevalence Index is ≤3.0**

☐ **Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)**

☐ **Problematic Hydrophytic Vegetation[1] (Explain)**

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 85

Total Cover of Bryophytes 10

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: trace unid herbs, trace unidentified Poa.

SOIL

Sampling Point: CB_65

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 2/1	60					Coarse Sandy Loam	40% rounded-semiang gravels, bolts, wires

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☐ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ○ No ◉

Remarks:

no hydric soil indicators. fill from decomissioned white alice site.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☐ FAC-neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes ○ No ◉

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_66

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Kettle

Local relief (concave, convex, none): concave **Slope:** 0.0 % / 0.0 ° **Elevation:** 90

Subregion : Northern Alaska **Lat.:** 66.8477033333333 **Long.:** -162.607706666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1H

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

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

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Sapling/Shrub Stratum			
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		
Herb Stratum			
1. Carex aquatilis	15	☑	OBL
2. Eriophorum angustifolium	15	☑	OBL
3. Carex bigelowii	1	☐	FAC
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	31		
50% of Total Cover: 15.5	20% of Total Cover: 6.2		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	0	x 2 =	0
FAC species	1	x 3 =	3
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	31 (A)		33 (B)

Prevalence Index = B/A = 1.065

Hydrophytic Vegetation Indicators:

☑ **Dominance Test is > 50%**

☑ **Prevalence Index is ≤3.0**

☐ **Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**

☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

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

Plot size (radius, or length x width) 2m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 50

Total Cover of Bryophytes 45

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: emergent ring around standing water

SOIL

Sampling Point: CB_66

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 6

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_67

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Flat

Local relief (concave, convex, none): hummocky **Slope:** 0.0 % / 0.0 ° **Elevation:** 125

Subregion : Northern Alaska **Lat.:** 66.8498383333334 **Long.:** -162.609895 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PEM1E

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ◉ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☑ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: patterning appears to be strangmoor (vermiculations at the least) - check in aerials. flarks HGWST with 6+ in water, strangs SDEV on hummocks. both communities captured in plot.

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

Tree Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Andromeda polifolia	3	☑	FACW
2.		☐	
3. Alnus viridis ssp. crispa	1	☐	FAC
4. Salix richardsonii	3	☑	FACW
5. Betula nana	2	☐	FAC
6. Arctostaphylos alpina	1	☐	FACU
7. Vaccinium uliginosum	10	☑	FAC
8. Empetrum nigrum	2	☐	FAC
9.		☐	
10.		☐	
Total Cover:	22		
50% of Total Cover: 11	20% of Total Cover: 4.4		

Herb Stratum	**Absolute % Cover**	**Dominant Species?**	**Indicator Status**
1. Carex aquatilis	10	☑	OBL
2. Eriophorum angustifolium	10	☑	OBL
3. Eriophorum scheuchzeri	5	☐	OBL
4. Carex limosa	3	☐	OBL
5. Parnassia palustris	1	☐	FACW
6. Rubus chamaemorus	1	☐	FACW
7. Tofieldia pusilla	0.5	☐	FAC
8.		☐	
9.		☐	
10.		☐	
Total Cover:	30.5		
50% of Total Cover: 15.25	20% of Total Cover: 6.1		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	5	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	28	x 1 =	28
FACW species	8	x 2 =	16
FAC species	15.5	x 3 =	46.5
FACU species	1	x 4 =	4
UPL species	0	x 5 =	0
Column Totals:	52.5 (A)		94.5 (B)

Prevalence Index = B/A = 1.800

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 45

Total Cover of Bryophytes 45

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks: trace unid herbs

SOIL

Sampling Point: CB_67

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

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

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

Hydric Soil Indicators:

- ☐ Histosol or Histel (A1)
- ☐ Histic Epipedon (A2)
- ☐ Hydrogen Sulfide (A4)
- ☐ Thick Dark Surface (A12)
- ☐ Alaska Gleyed (A13)
- ☐ Alaska Redox (A14)
- ☐ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- ☐ Alaska Color Change (TA4)[4]
- ☐ Alaska Alpine swales (TA5)
- ☐ Alaska Redox With 2.5Y Hue
- ☐ Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- ☑ Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- ☐ Water Stained Leaves (B9)
- ☐ Drainage Patterns (B10)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Salt Deposits (C5)
- ☐ Stunted or Stressed Plants (D1)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ Microtopographic Relief (D4)
- ☑ FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes ◉ No ○ Depth (inches): 6

Water Table Present? Yes ○ No ◉ Depth (inches):

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

Wetland Hydrology Present? Yes ◉ No ○

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

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.

WETLAND DETERMINATION DATA FORM - Alaska Region

Project/Site: Cape Blossom Wetlands **Borough/City:** Northwest Arctic Borough **Sampling Date:** 27-Aug-12

Applicant/Owner: Baker/ADOT&PF **Sampling Point:** CB_68

Investigator(s): SLI/EKJ **Landform (hillside, terrace, hummocks etc.):** Pothole

Local relief (concave, convex, none): concave **Slope:** 0.0 % / 0.0 ° **Elevation:** 95

Subregion : Northern Alaska **Lat.:** 66.8513883333333 **Long.:** -162.611326666667 **Datum:** WGS84

Soil Map Unit Name: **NWI classification:** PUBH

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ○ No ● **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ● No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

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

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

Remarks: PUBH with very narrow vegetated fringe. Characterizing pond as a whole.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.		☐	
2.		☐	
3.		☐	
4.		☐	
5.		☐	
Total Cover:	0		
50% of Total Cover: 0	20% of Total Cover: 0		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix glauca	2	☑	FAC
2. Salix richardsonii	3	☑	FACW
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	5		
50% of Total Cover: 2.5	20% of Total Cover: 1		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Carex aquatilis	2	☑	OBL
2. Eriophorum angustifolium	3	☑	OBL
3.		☐	
4.		☐	
5.		☐	
6.		☐	
7.		☐	
8.		☐	
9.		☐	
10.		☐	
Total Cover:	5		
50% of Total Cover: 2.5	20% of Total Cover: 1		

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	3	x 2 =	6
FAC species	2	x 3 =	6
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	10	(A)	17 (B)

Prevalence Index = B/A = 1.700

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius, or length x width) 10m

% Cover of Wetland Bryophytes (Where applicable)

% Bare Ground 98

Total Cover of Bryophytes 0

Hydrophytic Vegetation Present? Yes ● No ○

Remarks: bare ground includes open water. water level high, submerged willows. banks 1-3ft above water level.

SOIL

Sampling Point: CB_68

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

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

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

Hydric Soil Indicators:

- [ ] Histosol or Histel (A1)
- [ ] Histic Epipedon (A2)
- [ ] Hydrogen Sulfide (A4)
- [ ] Thick Dark Surface (A12)
- [ ] Alaska Gleyed (A13)
- [ ] Alaska Redox (A14)
- [ ] Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils:[3]

- [ ] Alaska Color Change (TA4)[4]
- [ ] Alaska Alpine swales (TA5)
- [ ] Alaska Redox With 2.5Y Hue
- [ ] Alaska Gleyed Without Hue 5Y or Redder Underlying Layer
- [x] Other (Explain in Remarks)

[3] One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present

[4] Give details of color change in Remarks

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes (●) No ( )

Remarks:

assume hydric soil due to hydrophytic vegetation and standing water

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one is sufficient)

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

Secondary Indicators (two or more are required)

- [ ] Water Stained Leaves (B9)
- [ ] Drainage Patterns (B10)
- [ ] Oxidized Rhizospheres along Living Roots (C3)
- [ ] Presence of Reduced Iron (C4)
- [ ] Salt Deposits (C5)
- [ ] Stunted or Stressed Plants (D1)
- [ ] Geomorphic Position (D2)
- [ ] Shallow Aquitard (D3)
- [ ] Microtopographic Relief (D4)
- [x] FAC-neutral Test (D5)

Field Observations:

Surface Water Present? Yes (●) No ( ) Depth (inches): 36

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

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

Wetland Hydrology Present? Yes (●) No ( )

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

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

Remarks:

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.

Appendix A1. 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 vaginatum*	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	PSS1B	8/25/2012	SLI, EKJ	*Salix glauca, Salix pulchra, Salix richardsonii, Vaccinium uliginosum, Calamagrostis Canadensis, Carex bigelowii*	Open low willow adjacent to bluff.
CB_V 04	PSS1B	8/25/2012	SLI, 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	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 angustifolium*	Wet sedge meadow tundra lacustrine fringe wetland with few scattered hummocks.
CB_V 09	L1UBH	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 A1. Continued.

Plot ID	Cowardin	Date 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*	Open low mixed shrub-sedge tussock tundra on the rims of low center polygons with wet sedge willow tundra. Ptarmigan and goose scat found on the rims of the polygons.
CB_V12	PEM1/SS1E	8/27/2012	SLI, EKJ	*Betula nana, Empetrum nigrum, Ledum decumbens, Vaccinium uliginosum, Vaccinium vitis-idaea, Eriophorum angustifolium, Rubus 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 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)

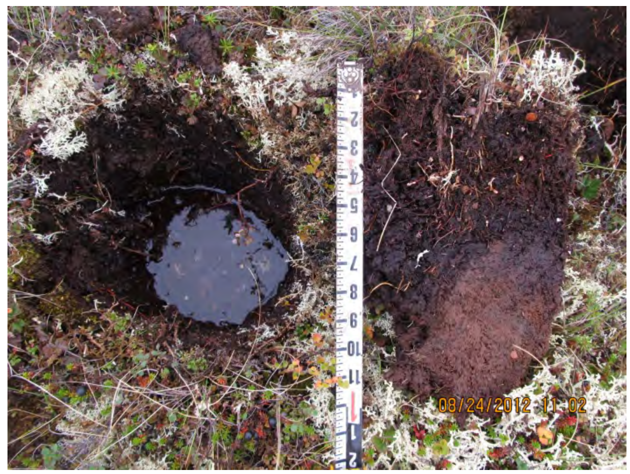
CB_03: Seasonally Flooded Saturated Sedge-Shrub Meadow
NWI Class: PEM1E

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

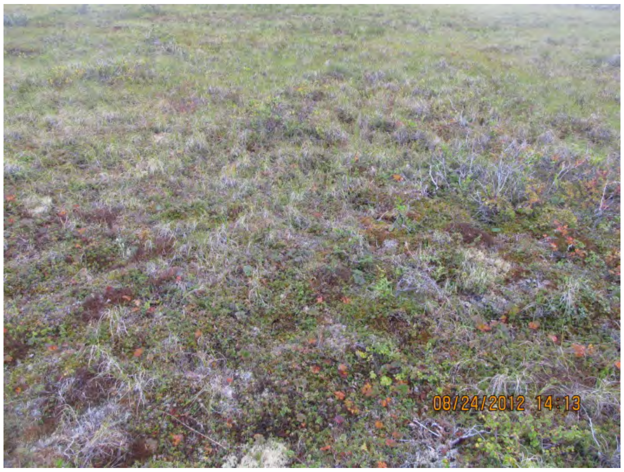
Hydrology: Saturated (A3) with high water table (A2)
Soils: Organics over silty clay loam (Problematic, Other)

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)

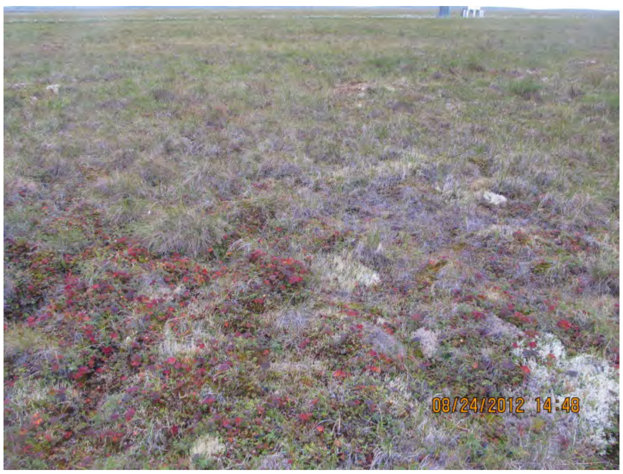
CB_09: Seasonally Flooded Saturated Sedge-Shrub Meadow
NWI Class: PEM1E

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



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

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



CB_11: 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_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

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

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

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

CB_21: Saturated Dwarf Shrub Tundra
NWI Class: PSS4B

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

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

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

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

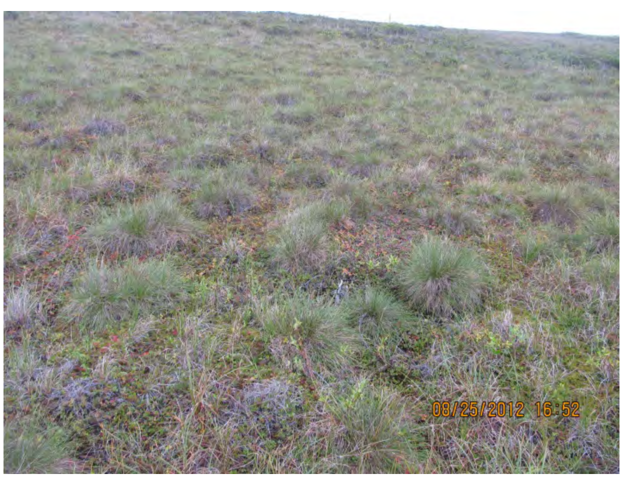
Hydrology: Saturation (A3) with a high water table (A2)
Soils: Organics (Histic Epipedon A2)

CB_25: Saturated Dwarf Shrub Tundra
NWI Class: PSS4B

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

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

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



CB_27: Saturated Dwarf Shrub Tundra
NWI Class: PSS4B

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

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

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

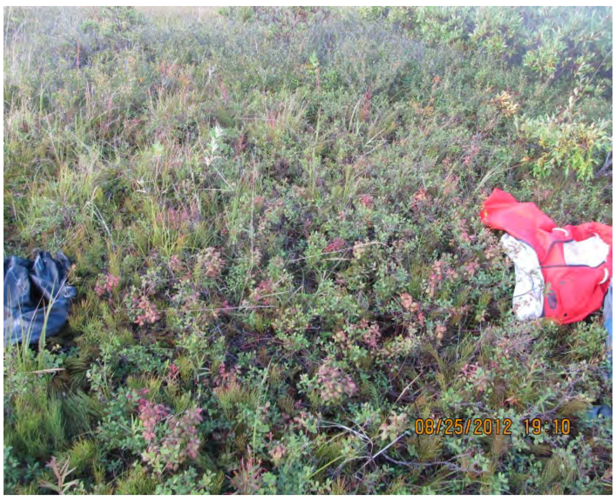
Hydrology: Saturation (A3) with a high water table (A2)
Soils: Organics (Histic Epipedon A2)

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

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



CB_32: Upland
NWI Class: Upland

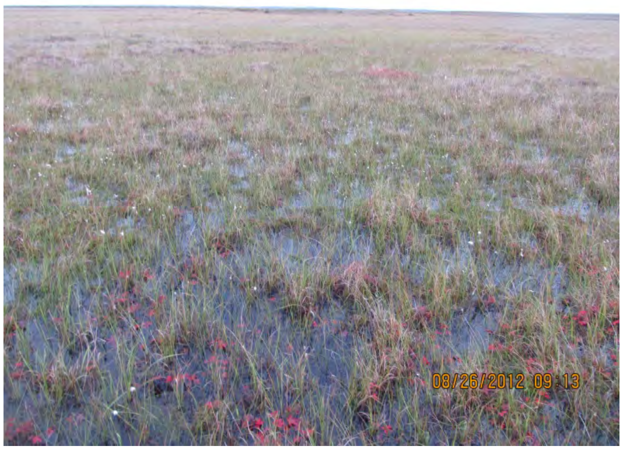
Hydrology: Well drained
Soils: Organics over silty clay loam

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

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

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



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

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

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

CB_38: Upland
NWI Class: Upland

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

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

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

CB_40: Permanently Flooded Sedge Marsh
NWI Class: PEM1F

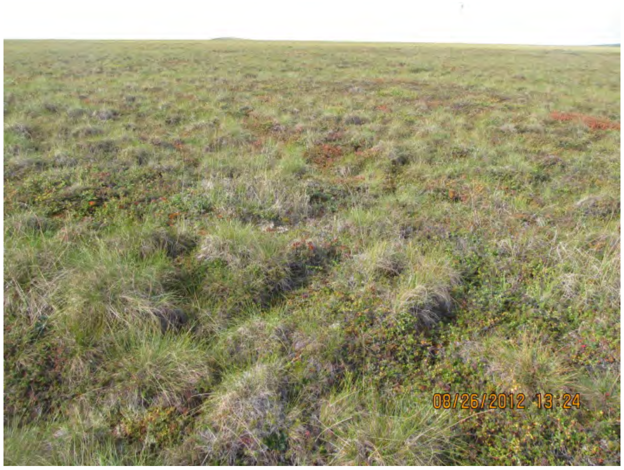
Hydrology: Saturated (A3) with high water table (A2)
Soils: Organics over slity clay loam (Alaska Redox A14)

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

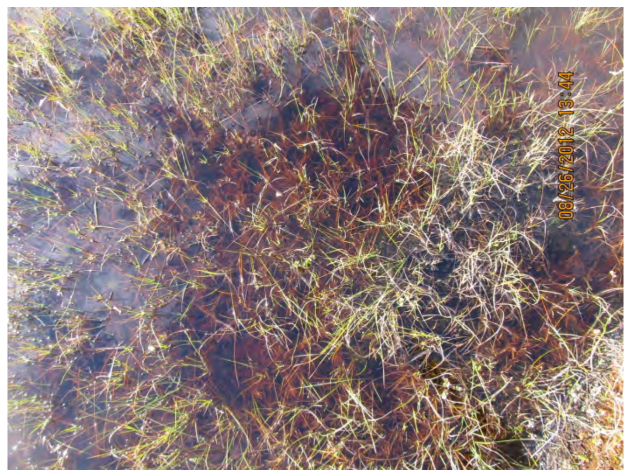
Hydrology: Surface water (A1)
Soils: No pit dug, inundated



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

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

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

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

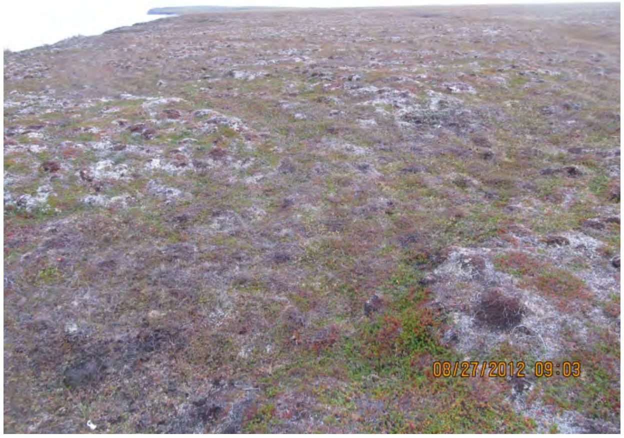
Hydrology: Surface water (A1)
Soils: No pit dug, inundated

CB_50: Saturated Emergent Sedge-Shrub Meadow
NWI Class: PSS1B

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

CB_51: Saturated Emergent Sedge-Shrub Meadow
NWI Class: PSS1B

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

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

CB_54: Seasonally Flooded Saturated Sedge-Shrub Meadow
NWI Class: PEM1/SS1E

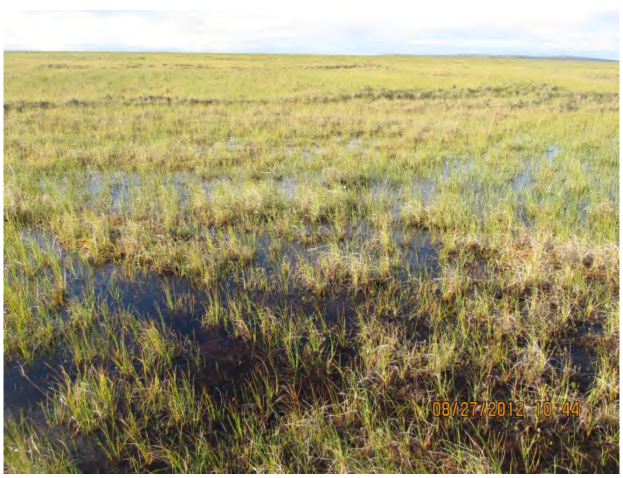
Hydrology: Saturation (A3) and high water table (A2)
Soils: Organics (Histic Epipedon A2)

CB_55: Seasonally Flooded Saturated Sedge-Shrub Meadow
NWI Class: PEM1E

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

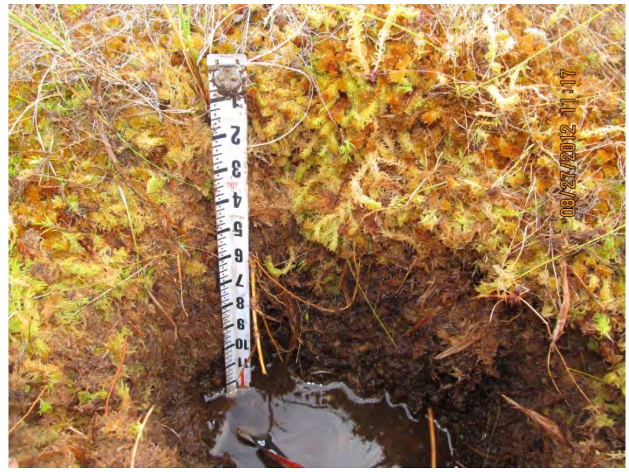
CB_56: Saturated Emergent Sedge-Shrub Meadow
NWI Class: PEM1/SS1B

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



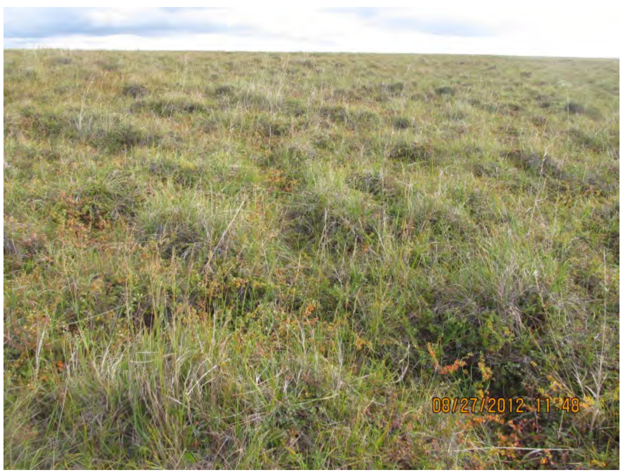
CB_57: Seasonally Flooded Saturated Sedge-Shrub Meadow
NWI Class: PEM1/SS1E

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

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

CB_60: Saturated Emergent Sedge-Shrub Meadow
NWI Class: PSS3/EM1B

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

CB_61: Saturated Emergent Sedge-Shrub Meadow
NWI Class: PSS3/EM1B

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

CB_62: Seasonally Flooded Saturated Sedge-Shrub Meadow
NWI Class: PEM1E

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

CB_63: Saturated Birch-Ericaceous Scrub Tundra
NWI Class: PSS1B

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

Hydrology: Saturation (A3) with high water table (A2)
Soils: Organics over silty clay loam (Alaska Gleyed A13)

CB_65: Upland
NWI Class: Upland

Hydrology: Well drained
Soils: course sandy loam

CB_66: Permanently Flooded Sedge Marsh
NWI Class: PEM1H

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

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

VERIFICATION SITE PHOTOS


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_V04: Saturated Low and Tall Deciduous Shrub
NWI Class: PSS1B

CB_V05: Saturated Low and Tall Deciduous Shrub
NWI Class: PSS1B

CB_V06: Saturated Emergent Sedge-Shrub Meadow
NWI Class: PSS1/PEM1B

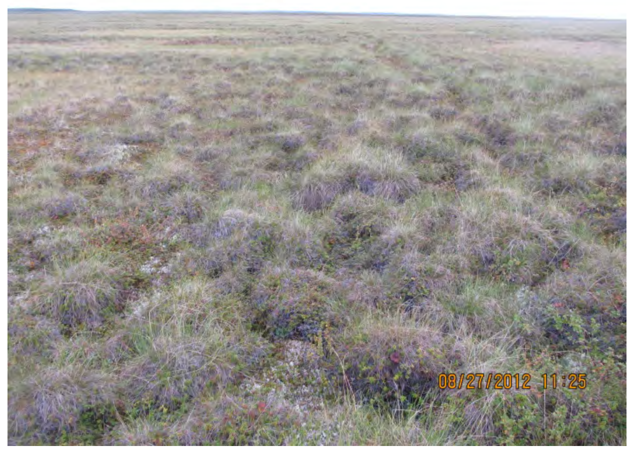
CB_V07: Saturated Low and Tall Deciduous Shrub
NWI Class: PSS1B

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 Cape 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**
1. Wetland is within a permafrost system, with a near-surface active layer. *If yes, proceed no further, wetland is low functioning.* 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense (≥40% cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	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**
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (≥50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	1. N/A 2. N/A 3. N/A 4. N/A 5. N/A 6. N/A ≥ 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: **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. *If no, proceed no further, wetland is low functioning.* 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) Rating: **Moderate Function**
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	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 (aquatic vegetation and/or gravel beds 5. Juvenile rest areas 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 wetland 2. 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 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**
1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).	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**
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. *If yes, wetland is high functioning.* 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined to be rare. 4. 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

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

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

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**
1. Wetland is within a permafrost system, with a near-surface active layer. *If yes, proceed no further, wetland is low functioning.* 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense (≥40% cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	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**
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (≥50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	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. 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: **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. *If no, proceed no further, wetland is low functioning.* 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) Rating: **Moderate Function**
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	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 (aquatic vegetation and/or gravel beds 5. Juvenile rest areas 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 wetland 2. 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 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**
1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. 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**
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. *If yes, wetland is high functioning.* 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined to be rare. 4. 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

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

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

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**
1. Wetland is within a permafrost system, with a near-surface active layer. *If yes, proceed no further, wetland is low functioning.* 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense (≥40% cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	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**
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (≥50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	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. 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: **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. *If no, proceed no further, wetland is low functioning.* 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/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) Rating: **Moderate Function**
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	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 (aquatic vegetation and/or gravel beds 5. Juvenile rest areas 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 wetland 2. 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 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. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. 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**
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. *If yes, wetland is high functioning.* 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined to be rare. 4. 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

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

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

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**
1. Wetland is within a permafrost system, with a near-surface active layer. *If yes, proceed no further, wetland is low functioning.* 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense (≥40% cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	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**
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (≥50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	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. *If no, proceed no further, wetland is low functioning*. 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) Rating: **Moderate Function**
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	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 (aquatic vegetation and/or gravel beds 5. Juvenile rest areas 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 wetland 2. 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 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. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. 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**
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. *If yes, wetland is high functioning.* 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined to be rare. 4. 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

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

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

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**
1. Wetland is within a permafrost system, with a near-surface active layer. *If yes, proceed no further, wetland is low functioning.* 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense (≥40% cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	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**
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (≥50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	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. 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. *If no, proceed no further, wetland is low functioning.* 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) Rating: **Moderate Function**
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	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: **Moderate 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 (aquatic vegetation and/or gravel beds 5. Juvenile rest areas present (e.g. pools with organic debris or overhanging vegetation).	1. N 2. N 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 wetland 2. 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 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. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. 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**
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. *If yes, wetland is high functioning.* 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined to be rare. 4. 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

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

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

Project: Proposed Kotzebue 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**
1. Wetland is within a permafrost system, with a near-surface active layer. *If yes, proceed no further, wetland is low functioning.* 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense (≥40% cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	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**
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (≥50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	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. *If no, proceed no further, wetland is low functioning.* 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) Rating: **High Function**
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	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 (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 wetland 2. 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 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. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. 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**
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. *If yes, wetland is high functioning.* 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined to be rare. 4. 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

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

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

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**
1. Wetland is within a permafrost system, with a near-surface active layer. *If yes, proceed no further, wetland is low functioning.* 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense (≥40% cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	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**
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (≥50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	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: **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. *If no, proceed no further, wetland is low functioning.* 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) Rating: **High Function**
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	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 wetland 2. 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 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. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. 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**
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. *If yes, wetland is high functioning.* 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined to be rare. 4. 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

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

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

Project: Proposed Kotzebue to Cape Blossom Road, AK Date: 10/18/2012
Wetland: Seasonally Flooded Saturated Low and Tall Decid. Shrub PM/RS: Wendy Davis

A. Flood Flow Regulation (Storage and Desynchronization)	Wetland likely to perform function? (**Y** or N) Rating: **Moderate Function**
1. Wetland is within a permafrost system, with a near-surface active layer. *If yes, proceed no further, wetland is low functioning.* 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense (≥40% cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	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**
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (≥50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	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. *If no, proceed no further, wetland is low functioning.* 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**
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. 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. 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: **Low Function**
Function only applicable in vegetated wetlands. 1. At least 20 native plant species occur in the wetland 2. 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: **Moderate Function**
1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. 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**
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. *If yes, wetland is high functioning.* 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined to be rare. 4. 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

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

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

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**
1. Wetland is within a permafrost system, with a near-surface active layer. *If yes, proceed no further, wetland is low functioning.* 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense (≥40% cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	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**
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (≥50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	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. 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: **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. *If no, proceed no further, wetland is low functioning.* 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) Rating: **High Function**
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	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 wetland 2. 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 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**
1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. 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**
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. *If yes, wetland is high functioning.* 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined to be rare. 4. 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

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

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

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**
1. Wetland is within a permafrost system, with a near-surface active layer. *If yes, proceed no further, wetland is low functioning.* 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense (≥40% cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	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**
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (≥50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	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. 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: **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. *If no, proceed no further, wetland is low functioning.* 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) Rating: **High Function**
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	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 wetland 2. 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 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**
1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. 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**
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. *If yes, wetland is high functioning.* 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined to be rare. 4. 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

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

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

Project: Proposed Kotzebue to Cape Blossom Road, AK Date: 10/18/2012
Wetland: Saturated Birch-Ericaceous Scrub Tundra PM/RS: Wendy Davis

A. Flood Flow Regulation (Storage and Desynchronization)	Wetland likely to perform function? (**Y** or N) Rating: **Low Function**
1. Wetland is within a permafrost system, with a near-surface active layer. *If yes, proceed no further, wetland is low functioning.* 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense (≥40% cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	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**
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (≥50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	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. 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: **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. *If no, proceed no further, wetland is low functioning.* 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) Rating: **High Function**
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	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 (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 wetland 2. 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 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**
1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. 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**
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. *If yes, wetland is high functioning.* 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined to be rare. 4. 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

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

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

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**
1. Wetland is within a permafrost system, with a near-surface active layer. *If yes, proceed no further, wetland is low functioning.* 2. Wetland is capable of retaining much higher volumes of water during storm events than under normal rainfall conditions. 3. Wetland is a closed (depressional) system subject to flooding or shows evidence of flooding. 4. If flow-through, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense (≥40% cover) woody vegetation. 6. Wetland receives floodwater from an adjacent water course at least once every 10 years. 7. Floodwaters enter and flow through wetland predominantly as sheet flow rather than channel flow.	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**
1. Sediment, nutrients and/or toxicants (from tillage, mining, construction or other sources of pollution) appear to be or are likely to be entering the wetland. 2. Slow-moving or still water is present or occurs during flooding that happens at least once every 10 years. 3. Dense (≥50% cover) herbaceous vegetation is present. 4. At least moderate interspersion of vegetation and water is present or occurs during flooding that happens at least once every 10 years. 5. Sediment deposits are present (evidence of deposition during floods). 6. Thick surface organic horizon and/or abundant fine organic litter is present.	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. *If no, proceed no further, wetland is low functioning.* 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) Rating: **Moderate Function**
1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undisturbed. 3. Diversity (evenness of cover) of plant species is moderately high (≥5 species with at least 10% cover each). 4. Plant community has two or more strata, with at least two of those strata having ≥10% total cover. 5. Wetland has at least a moderate degree of Cowardin Class interspersion. 6. Evidence of wildlife use (e.g., nests, tracks, scat, gnawed stumps, survey data) is present.	1. N 2. N 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 (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: **Low Function**
Function only applicable in vegetated wetlands. 1. At least 20 native plant species occur in the wetland 2. 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**
1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails are available. 4. Wetland supports subsistence activities (e.g., hunting, fishing, berry picking).	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**
1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. *If yes, wetland is high functioning.* 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species, respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined to be rare. 4. 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

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

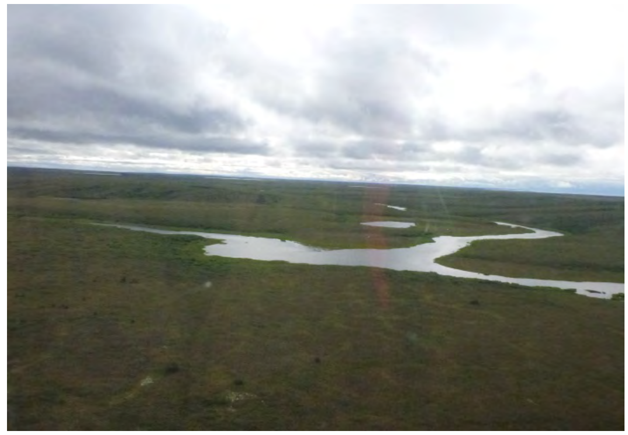


Plate 2. Aerial photo looking upstream of the north and south of Sadie Creek

Plate 3. Site NF2, looking upstream on north fork of Sadie Creek

Plate 4. Example of a fyke net set along stream margins, Site NF1

Plate 5. Aerial view of fyke nets set cod-end to cod-end

Plate 6. Fyke net blocking stream, Site NF3

Plate 7. Looking upstream on typical riparian vegetation of grasses, Site SF2

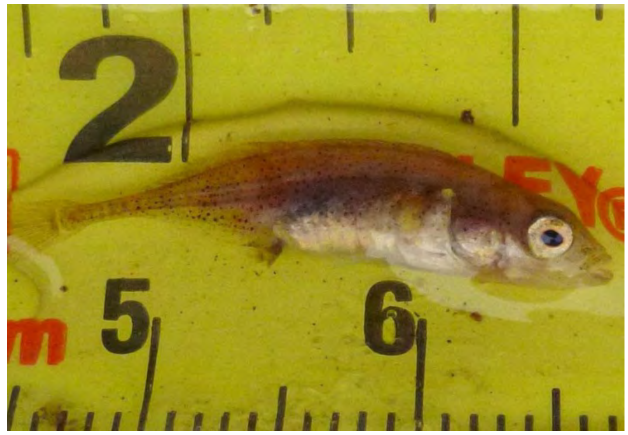


Plate 8. Nine-spine stickleback caught at Site TR1

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

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.

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 F. ADFG Fish Resource Permit #SF2012-259.

THE STATE
of ALASKA
GOVERNOR SEAN PARNELL

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

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 authorized and required to do, 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. 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.

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 Piorkowski

Bob Piorkowski
(907)465-6109
Robert.Piorkowski@alaska.gov

Enclosure

STATE OF ALASKA
DEPARTMENT OF FISH AND GAME
P.O. BOX 115525
JUNEAU, ALASKA 99811-5525

Permit #: **SF2012-259**

Expires: **9/30/2012**

Collections Report Due: **10/30/2012**

FISH RESOURCE PERMIT
(For Scientific/Educational Purposes)

This permit authorizes **John Seigle** *(whose signature is required on page 2 for permit validation)*
person

of **ABR Inc.-Environmental Research** **at** **Box 240268, Anchorage, AK 99524**
agency or organization *address*

to conduct the following activities **from** July 16, 2012 **to** 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

Final Disposition:
≤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 October 30, 2012. The report, using a data submission form furnished by ADF&G), shall include ***ALL*** species, numbers, dates, and locations of collection (datum/GPS coordinates in the decimal degrees format (dd.ddddd)) and disposition, and if applicable, sex, age, and breeding condition, and lengths and weights of fish handled. *It must also include the date/time the local biologist was contacted for final authorization to carry out collecting activities.* 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: ***March/2013***. 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

1. 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.
2. 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.
3. 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 exportation 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 any manner, by any means, at any time not permitted by those regulations.

Fish Resource Permit Coordinator
Division of Sport Fish

Director
Division of Sport Fish

7/20/12
Date

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 Scanlon** (443-5796; brendan.scanlon@alaska.gov) Northwest/North slope, must be notified **prior** to you engaging in any collecting activities. *The time/date of this contact must be included in your collections report (using the "data submission form" furnished by ADF&G).* 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; Robert.Piorkowski@alaska.gov), 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* **Final Disposition;** *modifies it to read:*

Any number fish may be captured/released alive at each sampling site.
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
Unintended mortalities must be recorded and returned to the capture site.

2) *under* **Authorized Personnel;** *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.

Bob Piorkowski
Division of Sport Fish

7/31/12
Date

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

Appendix G. Typical fish species found in fresh and brackish waters in northern Alaska.

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 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.

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. Continued.

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.

Date	Site	Gear	Species	Length (mm)
28 Jul 12	MS1	Seine	Ninespine Stickleback	36
28 Jul 12	MS1	Seine	Ninespine Stickleback	37
28 Jul 12	MS1	Seine	Ninespine Stickleback	35
28 Jul 12	MS1	Seine	Ninespine Stickleback	32
28 Jul 12	MS1	Seine	Ninespine Stickleback	26
28 Jul 12	MS1	Seine	Ninespine Stickleback	39
28 Jul 12	NF1	Minnow	Ninespine Stickleback	27
28 Jul 12	NF1	Minnow	Ninespine Stickleback	30
28 Jul 12	NF1	Minnow	Ninespine Stickleback	34
28 Jul 12	NF1	Minnow	Ninespine Stickleback	29
28 Jul 12	NF1	Minnow	Ninespine Stickleback	33
28 Jul 12	NF1	Minnow	Ninespine Stickleback	32
28 Jul 12	NF1	Minnow	Ninespine Stickleback	35
28 Jul 12	NF1	Minnow	Ninespine Stickleback	31
28 Jul 12	NF1	Minnow	Ninespine Stickleback	31
28 Jul 12	NF1	Minnow	Ninespine Stickleback	23
28 Jul 12	NF1	Minnow	Ninespine Stickleback	25
28 Jul 12	NF1	Minnow	Ninespine Stickleback	32
28 Jul 12	NF1	Minnow	Ninespine Stickleback	35
28 Jul 12	NF1	Minnow	Ninespine Stickleback	32
28 Jul 12	NF1	Minnow	Ninespine Stickleback	26
28 Jul 12	NF1	Minnow	Ninespine Stickleback	27
28 Jul 12	NF1	Minnow	Ninespine Stickleback	56
28 Jul 12	NF1	Minnow	Ninespine Stickleback	31
28 Jul 12	NF1	Minnow	Ninespine Stickleback	31
28 Jul 12	NF1	Minnow	Ninespine Stickleback	36
28 Jul 12	NF1	Minnow	Ninespine Stickleback	30
28 Jul 12	NF1	Minnow	Ninespine Stickleback	35
28 Jul 12	NF1	Minnow	Ninespine Stickleback	32
28 Jul 12	NF1	Minnow	Ninespine Stickleback	26
28 Jul 12	NF1	Minnow	Ninespine Stickleback	29
28 Jul 12	NF1	Minnow	Ninespine Stickleback	30
28 Jul 12	NF1	Minnow	Ninespine Stickleback	31
28 Jul 12	NF1	Minnow	Ninespine Stickleback	29
28 Jul 12	NF1	Minnow	Ninespine Stickleback	28
28 Jul 12	NF1	Minnow	Ninespine Stickleback	26
28 Jul 12	NF1	Minnow	Ninespine Stickleback	57
28 Jul 12	NF1	Minnow	Ninespine Stickleback	25
28 Jul 12	NF1	Minnow	Ninespine Stickleback	35
28 Jul 12	NF1	Minnow	Ninespine Stickleback	46
28 Jul 12	NF1	Minnow	Ninespine Stickleback	33

Appendix H. Continued.

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.

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
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	98
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	109
11 Aug 12	NF3	Fyke	Broad Whitefish	88
11 Aug 12	NF3	Fyke	Broad Whitefish	75
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	80
11 Aug 12	NF3	Fyke	Broad Whitefish	90
11 Aug 12	NF3	Fyke	Broad Whitefish	75
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	75
11 Aug 12	NF3	Fyke	Broad Whitefish	89
11 Aug 12	NF3	Fyke	Broad Whitefish	88
11 Aug 12	NF3	Fyke	Unidentified Juvenile 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
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	85
11 Aug 12	NF3	Fyke	Unidentified Juvenile	86

Appendix H. Continued.

Date	Site	Gear	Species	Length (mm)
			Whitefish	
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	94
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	58
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	75
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	81
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	83
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	71
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	71
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	81
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	73
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	75
11 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	78
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.

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.

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

Appendix H. Continued.

Date	Site	Gear	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	289
12 Aug 12	NF3	Fyke	Unidentified Juvenile 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	30
13 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	64
13 Aug 12	NF3	Fyke	Unidentified Juvenile 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.

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
13 Aug 12	NF3	Fyke	Unidentified Juvenile Whitefish	68
13 Aug 12	NF3	Fyke	Unidentified Juvenile 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
13 Aug 12	SF2	Fyke	Unidentified Juvenile 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

Appendix H. Continued.

Date	Site	Gear	Species	Length (mm)
13 Aug 12	SF2	Fyke	Northern Pike	125
13 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

Appendix H. Continued.

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	90
13 Aug 12	NF3	Fyke	Unidentified Juvenile 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

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
13 Aug 12	SF2	Fyke	Unidentified Juvenile Whitefish	88
13 Aug 12	SF2	Fyke	Unidentified Juvenile Whitefish	75
13 Aug 12	SF2	Fyke	Unidentified Juvenile Whitefish	90
13 Aug 12	SF2	Fyke	Unidentified Juvenile Whitefish	81
13 Aug 12	SF2	Fyke	Unidentified Juvenile Whitefish	86
13 Aug 12	SF2	Fyke	Ninespine Stickleback	40
13 Aug 12	SF2	Fyke	Northern Pike	446
13 Aug 12	SF2	Fyke	Unidentified Juvenile Whitefish	81
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	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

Appendix H. Continued.

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