



Wetland and Waterbody Functional Assessment Report

Port Lions Airport Improvements Project (Z527960000)

Alaska Department of Transportation and Public
Facilities – Southcoast Region

Port Lions, Alaska
January 25, 2019

Prepared for:
Alaska Department of Transportation and
Public Facilities – Southcoast Region
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Table of Contents

1.0	Introduction and Purpose	1
2.0	Methods	2
2.1.	Wetland Mapping and Classification	2
2.2.	Functional Assessment.....	2
2.3.	Wetland and Waterbody Categorization.....	3
3.0	Summary of Wetland and Waterbody Functions.....	3
3.1.	AA1.....	4
3.2.	AA2.....	5
3.3.	AA3.....	5
3.4.	AA4.....	6
3.5.	AA5.....	6
3.6.	Settler Cove.....	6
3.7.	Stream Functions and Services	7
4.0	Functional Assessment Mapping Results	8
5.0	References.....	9

Tables

Table 1.	Function and Service Scores for Wetland Assessment Area	4
Table 2.	Characteristics of Study Area Streams and Waterbodies	8
Table 3.	Wetland and Waterbody Areas ^a by Management Category.....	8

Insets

Inset 1.	Study Area Location	1
Inset 2.	AA1.	4
Inset 3.	AA2.	5
Inset 4.	AA3.	5
Inset 5.	AA4.	6
Inset 6.	AA5.	6

Figures

Figure 1. Vicinity Map

Figure 2. Study Area Overview and Wetland Mapping

Figure 3. Assessment Areas and Management Categories

Appendices

Appendix A. Wetland Assessment Data Forms

Appendix B. Waterbody Data and Characterization Forms

Appendix C. Alaska Department of Fish and Game Trip Report

Appendix D. Wildlife Assessment

Appendix E. Rare and Invasive Plant Survey

Abbreviations and Acronyms

AA	Assessment Area
ADF&G	Alaska Department of Fish and Game
AKWAM	Alaska Wetland Assessment Method
DOT&PF	Alaska Department of Transportation and Public Facilities
DPS	Distinct Population Segment
EM	emergent [wetland]
GIS	Geographic Information System
HDR	HDR, Inc.
HGM	hydrogeomorphic
JDR	Jurisdictional Determination Report
NWI	National Wetlands Inventory
PEM	palustrine emergent [wetland]
PFO	palustrine forested [wetland]
PSS	palustrine scrub-shrub [wetland]
PUB	palustrine unconsolidated bottom [pond]
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey

1.0 Introduction and Purpose

The State of Alaska Department of Transportation and Public Facilities (DOT&PF) Southcoast Region is proposing to realign and lengthen the Port Lions Airport runway safety area and conduct other improvements that would address functional, operational, and safety needs to bring the airport into compliance with Federal Aviation Administration and DOT&PF standards. This project requires authorization from the U.S. Army Corps of Engineers (USACE) for work in wetlands or waterbodies. To assist in regulatory permitting activities required for construction, DOT&PF contracted HDR, Inc. (HDR) to conduct wetland and waterbody mapping and a wetland functional assessment for the project.

The Jurisdictional Determination Report (JDR) prepared by HDR identifies wetlands and waterbodies within the study area that are potentially subject to USACE jurisdiction under authority of Section 404 of the Clean Water Act of 1972 (as amended) or Section 10 of the Rivers and Harbors Act of 1899 (HDR 2019). The JDR was submitted to DOT&PF on January 25, 2019. This Functional Assessment report assesses the ecological functions and values of the aquatic resources mapped within the study area.

The study area is located in the community of Port Lions on the north coast of Kodiak Island, 19 miles west-northwest of the City of Kodiak (Figure 1). The study area is situated on the shore of Settler Cove in Kizhuyak Bay at the base of Mount Ellison (Inset 1). The 331-acre study area includes the existing airport and the proposed airport realignment boundary, as well as potential material sites and waste areas.

The study area is located within the Alaska Peninsula Mountains ecoregion (USACE 2007). The approximate center of the study area is at 57.884954° North latitude and 152.847819° West longitude (NAD83) and is found on the Kodiak D-3 U.S. Geological Survey (USGS) quadrangle, within Township 26 South, Range 22 West, Sections 27, 28, 33, and 34 (Seward Meridian). The study area is within 12-digit Hydrologic Unit Code watershed 190807011305, Settler Cove-Frontal Kizhuyak Bay (USGS 2018).



Inset 1. Study Area Location

2.0 Methods

2.1. Wetland Mapping and Classification

HDR wetland scientists collected information on wetlands and waterbodies in the study area during field surveys on May 7 and July 19 to 24, 2018. The methods used to collect data and the methods and data sources used to map and classify wetlands and waterbodies are described in the JDR (HDR 2019). The wetland and waterbody functions assessed within this report are based on the boundaries presented in the JDR, and are shown on Figure 2.

2.2. Functional Assessment

Wetlands documented within the study area were evaluated using the DOT&PF Alaska Wetland Assessment Method (AKWAM; DOT&PF 2010). Depending on the characteristics of the wetland being assessed, up to 10 functions or services may be evaluated through the use of AKWAM, including:

- Habitat for species of concern
- General wildlife support
- General fish support
- Water storage
- Sediment/nutrient/toxicant retention and removal
- Sediment/shoreline stabilization
- Groundwater discharge/recharge
- Uniqueness
- Recreation/education potential
- Production export/terrestrial and aquatic food chain support

Wetland scientists used field data and Geographic Information System (GIS)-based wetland mapping to define wetland assessment areas (AAs) and identify physical features that contribute to the performance of certain functions. Scientists identified AAs following the guidance in the AKWAM manual. Wetland AAs often encompass contiguous wetland areas of different types (as classified by National Wetlands Inventory [NWI] mapping codes [Cowardin et al. 1979]), as well as adjacent waterbodies or parts of waterbodies, to allow consideration of a wetland's functions in relation to adjacent waterbodies. AAs may also extend up to 1,000 feet beyond the study area boundaries. Scientists then evaluated each wetland AA for features that serve as functional indicators, such as the presence or absence of streams, surface inlets and outlets, vegetation, underlying soil type, the amount of open water present, the type and number of NWI wetland types, hydrogeomorphic (HGM) class (Brinson 1993), and the wetland's topographic position and location in the watershed.

For each AA, scientists considered these functional indicators and other observations in specific wetlands to complete the Wetland Assessment Data Form included in the AKWAM manual. For each function, an AA was given a quantitative score between 0 and 1 and a qualitative rating of high (H), moderate (M), or low (L) based on a combination of field observations and office-based analysis. Wetland data sheets, site photographs, GIS data layers, and other project-area-related information were used to aid in the completion of each Wetland Assessment Data Form and to identify indicators of wetland function or dysfunction. Wetland Determination Forms, site photographs, and other field data are presented in the JDR (HDR 2019). Additional project-area-specific reports used to complete Wetland Assessment Data Forms are attached to this report as appendices.

AKWAM also provides a separate assessment methodology for waterbodies, which are defined as open water areas that do not support an abundance of vegetation extending above the water surface. This includes waterbodies that are flowing or standing, as well as permanent, seasonal, intermittent, or ephemeral. Instead of assessing the individual functions of a waterbody, AKWAM uses its general characteristics to place it into the appropriate management category using a Waterbody Data and Characterization Form. These characteristics include the degree of physical alteration of the waterbody and the status of its recovery, whether it is used by species of concern, the type of fish it supports, and its use for human subsistence and recreation purposes.

Scientists assigned an identifying number to each stream mapped within the study area. Connected tributaries with the same flow regime were given the same stream number. Scientists then grouped streams with similar characteristics, including flow regime, connectivity, relationship to wetland AAs, and fish presence, and evaluated each group with a representative Waterbody Data and Characterization Form.

2.3. Wetland and Waterbody Categorization

AKWAM classifies wetlands and waterbodies into management categories based on their functional capacity, in order to satisfy the compensatory mitigation requirements of the Section 404 permitting process. The rating system employed by AKWAM is based on the 2009 USACE Regulatory Guidance Letter No. 09-01 (since rescinded), which categorizes wetlands into four management categories (Categories I through IV) based on their functional performance (USACE 2009). HDR combined Categories III and IV into a single category (Category III). Updating the AKWAM assignment to three categories (Categories I through III) complies with current USACE guidance (USACE 2014). Category I wetlands and waterbodies are high functioning, Category II are moderate functioning, and Category III are low functioning.

3.0 Summary of Wetland and Waterbody Functions

Wetlands documented within the study area were grouped into five AAs. The functional performance of each AA was evaluated with a Wetland Function and Services Assessment Form (Table 1, Appendix A).

Waterbodies in the study area consist of estuarine areas of Settler Cove and 17 perennial and intermittent streams. Streams with similar characteristics, including flow regime, connectivity, and fish presence, were evaluated together (see Section 3.7). Seven Waterbody Data and Characterization Forms were completed for the waterbodies documented within the study area (see Appendix B).

The wetland AAs and waterbodies evaluated within the study area are shown on Figure 3.

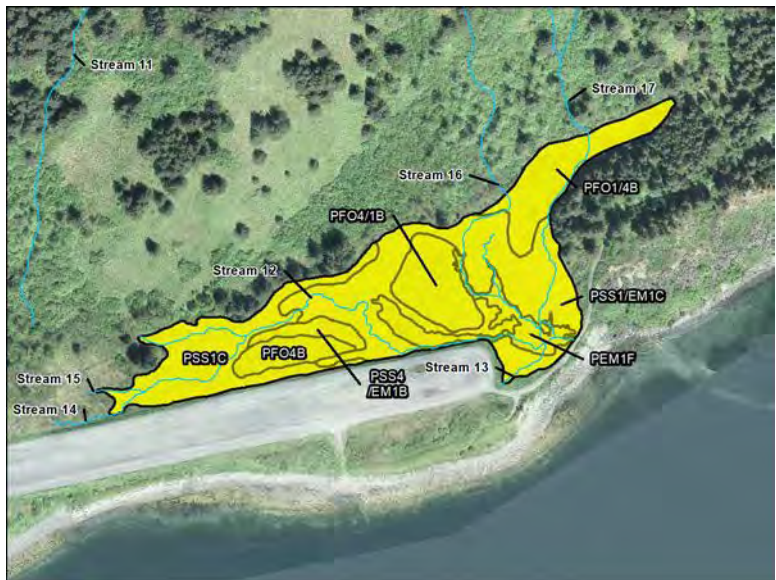
Table 1. Function and Service Scores for Wetland Assessment Area

Assessment Area	AA1	AA2	AA3	AA4	AA5
NWI Classification(s)	PFO, PSS, PSS/EM, PEM	PSS, PSS/EM	PSS/EM	PSS/EM	PSS/EM, PUB
HGM Type	Slope	Slope	Slope	Slope	Slope
Acres	10.74	0.80	0.05	0.31	6.21
Habitat for Federally Listed or Candidate T&E Species & Other Species of Concern	0.1L	0.1L	0.1L	0.1L	0.1L
General Wildlife Support	0.7M	0.1L	0.7M	0.2L	0.9H
General Fish Support	N/A	N/A	N/A <td N/A	N/A	
Water Storage	1.0H	0.4M	0.2L	0.2L	0.6M
Sediment/Nutrient/Toxicant Removal	1.0H	1.0H	0.7M	0.7M	N/A
Sediment/Shoreline Stabilization	0.7M	N/A	0.6M	0.6M	0.3L
Production Export/Food Chain Support	0.8H	0.3L	0.6M	0.4M	0.8H
Groundwater Discharge/Recharge	1.0H	0.7M	0.7M	0.4M	1.0H
Uniqueness	0.9H	0.1L	0.3L	0.2L	0.4M
Recreation/Education Potential	N/A	N/A	N/A	N/A	N/A
Total Possible Function Points	6.2	2.7	3.9	2.8	4.1
Total Actual Function Points	8.0	7.0	8.0	8.0	4.0
Percentage of Possible Score	78%	39%	49%	35%	59%
Wetland Category	I	III	III	III	II

Note: PFO = palustrine forested (wetland), PSS = palustrine scrub-shrub (wetland); EM = emergent (wetland); PEM = palustrine emergent (wetland); PUB = palustrine unconsolidated bottom (pond); T&E = Threatened and Endangered.

3.1. AA1

AA1 consists of the large slope wetland complex at the base of Mount Ellison. Vegetation communities include open Sitka spruce forest, open Sitka spruce-Kenai birch forest, closed willow tall shrub, open sweetgale-sedge bog, and fresh sedge marsh. Groundwater discharge at the slope break is the primary water source, with some input from intermittent streams. Several intermittent streams and one perennial stream (Stream 12) flow through AA1. AA2 and AA5 are connected to AA1 via intermittent streams (Streams 13 and 17). AA1 flows to Settler Cove via



Inset 2. AA1.

Stream 12, which flows through a culvert in the access road.

AA1 was rated high for multiple functions, including Water Storage, Sediment/Nutrient/Toxicant Removal, and Groundwater Discharge. Although the AA receives disturbance from Port Lions Airport, the interspersed wetland types within the AA contribute to its higher functional scores. Because forested wetlands are considered difficult to replace wetland types and are relatively rare in the region, AA1 was rated high for Uniqueness and was designated Category I.

3.2. AA2

AA2 consists of slope wetlands behind the upland beach berm above the shore of Settler Cove. Vegetation consists of sweetgale-sedge bog and closed alder tall shrub. Groundwater discharge at the slope break is the primary water source. AA2 is connected to AA1 via an intermittent stream that flows through a culvert under Airport Road (Stream 13).

AA2 was rated high for one function, Sediment/Nutrient/Toxicant Removal, and was rated low to moderate for most functions. The functional performance of the AA is impacted by disturbance from the airport, and AA2 was designated Category III.

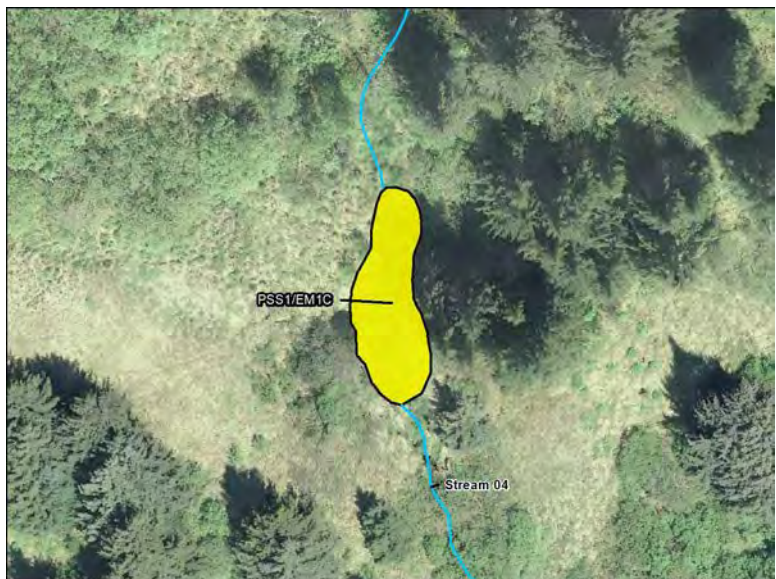


Inset 3. AA2.

3.3. AA3

AA3 consists of a small slope wetland on a slight bench on the hillside above the airport. Vegetation consists of open willow tall shrub dominated by diamond-leaf willow. Groundwater discharge is the primary water source, with some input from the intermittent stream (Stream 04) that crosses the AA.

AA3 was rated moderate for several functions, including General Wildlife Support, Sediment/Nutrient/Toxicant Removal, and Groundwater Discharge. The functional performance of the AA

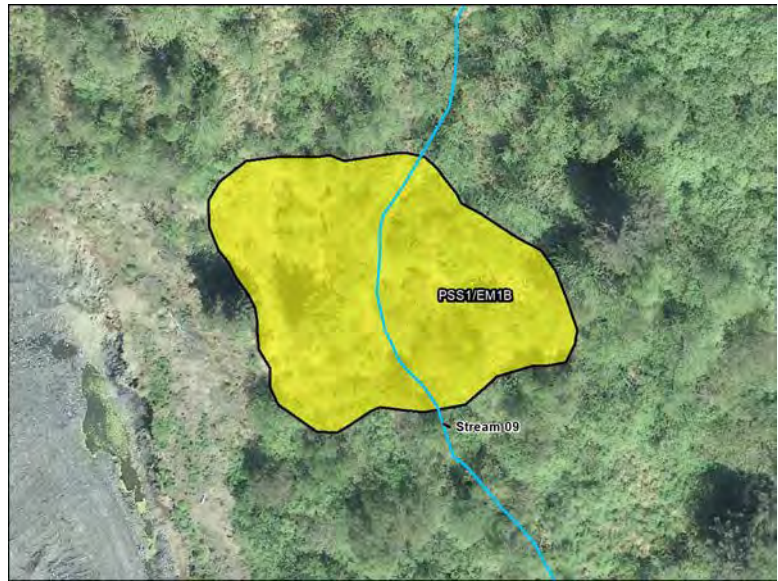


Inset 4. AA3.

is limited by its small size, and AA3 was designated Category III.

3.4. AA4

AA4 consists of a small slope wetland adjacent to the excavated material site on the hillside above the airport. Vegetation consists of broadleaf woodland dominated by Kenai birch. Groundwater discharge is the primary water source, with some input from the intermittent stream (Stream 09) that crosses the AA.

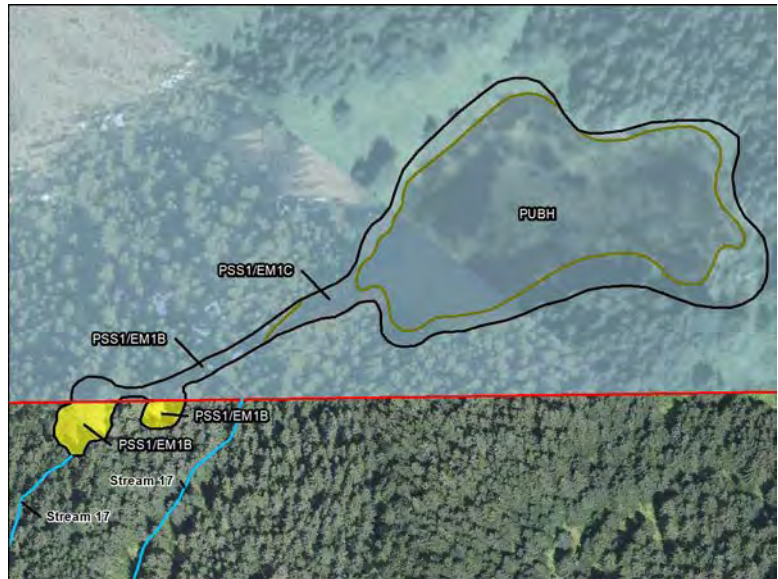


Inset 5. AA4.

AA4 was rated moderate for few functions, including Sediment/Nutrient/ Toxicant Removal and Production Export/Food Chain Support. The functional performance of the AA is impacted by disturbance from the material site, and AA4 was designated Category III.

3.5. AA5

AA5 consists of a pond and slope wetlands perched on a bench below a slope break on the hillside above the airport. Only a small portion (0.26 acre) of the AA is within the study area. Vegetation consists of open willow low shrub. Groundwater discharge is the primary water source. AA5 is connected to AA1 via an intermittent stream (Stream 17).



Inset 6. AA5.

AA5 was rated high for several functions, including Groundwater Discharge, General Wildlife Support, and Production Export/Food Chain Support, and was designated Category II.

3.6. Settler Cove

Portions of the subtidal and estuarine areas of Settler Cove are within the study area. Subtidal areas are the permanently inundated waters that are flooded at all tides. Intertidal areas are irregularly flooded unconsolidated shore, and consist of unvegetated gravel and cobbles. The

area of Settler Cove considered for this assessment include extends 1,000 feet beyond the study area boundary.

The waters of Settler Cove within the study area are critical habitat for the Northern Distinct Population Segment (DPS) of Northern sea otter, which is listed as threatened under the Endangered Species Act (see Appendix D). Critical habitat for the endangered Western DPS of Steller sea lion is less than 1 mile from the study area, and individuals may use the area incidentally. Although AKWAM was not developed to assess marine or estuarine areas, these portions of Settler Cove within the study area were designated Category I for their support of federally listed threatened and endangered species.

3.7. Stream Functions and Services

Seventeen perennial and intermittent streams were mapped in the study area. These include one perennial stream, known locally as Airport Creek, that is included in the Alaska Department of Fish and Game (ADF&G) *Anadromous Waters Catalog* (ADF&G 2018). On May 7, 2018, an ADF&G biologist sampled Airport Creek and two other streams in the study area for fish presence. The trip report is included as Appendix C. Young-of-year pink salmon were captured in Airport Creek (Stream 01), and the entire length of the stream within the study area was confirmed to be anadromous fish habitat. Based on its support of salmon, Airport Creek was designated Category I.

Dolly Varden were captured in an unnamed perennial stream west of the runway (Stream 02). ADF&G noted that the sampling was not conducted at the right time of year to determine whether the Dolly Vardens are anadromous, but determined that they are likely resident and that the all perennial reaches of Stream 02 within the study area likely provide resident fish habitat (W. Frost, personal communication, December 12, 2018). Based on its support for resident fish species, Stream 02 was designated Category II.

All perennial and intermittent streams within wetland AA1 were grouped together and evaluated as Stream 12. The ADF&G biologist did not capture any fish in Stream 12, and this stream was determined not to provide fish habitat. Based on the absence of fish, the AKWAM Waterbody Data and Characterization Form places Stream 12 in Category III. However, wetland AA1 was rated as Category I based on its relatively high performance of multiple functions. AKWAM allows investigators to override categorizations based on best professional judgment. Stream 12 was assigned to Category I for its contributions to the functional performance of wetland AA1.

The results of ADF&G's sampling, as well as other characteristics including flow regime, connectivity, and degree of alteration, were used to group streams with similar characteristics, and to categorize one stream per group using Waterbody Data and Characterization Forms (Appendix B). Table 2 summarizes the general characteristics of the streams and the recommended category for each.



Table 2. Characteristics of Study Area Streams and Waterbodies

Stream Number	Flow Regime	Waterbody Characteristics	Management Category
1	Perennial	Airport Creek, flows directly to Settler Cove. Anadromous fish habitat.	Category I
2	Perennial	Unnamed stream, flows directly to Settler Cove. Resident fish habitat.	Category II
3, 4, 5, 6	Intermittent	Tributaries to Stream 02. Do not support fish.	Category III
7, 8, 9, 10, 11	Intermittent	Streams that terminate at the slope break of Mount Ellison. Do not support fish.	Category III
12	Perennial/ Intermittent	Stream within wetland AA1, flows directly to Settler Cove. Does not support fish. Contributes to the functional performance of wetland AA1.	Category I
13, 14, 15, 16, 17	Perennial/ Intermittent	Tributaries to Stream 12. Do not support fish.	Category III

Note: **Bold** stream numbers are those for which a Waterbody Data and Characterization Form was completed (see Appendix B).

4.0 Functional Assessment Mapping Results

A total of 12.16 acres of wetlands and waterbodies, as well as 25,797 linear feet of streams, were evaluated for their contributions to the local ecosystem. Wetlands and waterbodies within the study area were designated as Category I, II, or III based on their functional performance. Streams within the study area were designated as Category I, II, or III based on the presence of anadromous or resident fish species. The portions of streams routed through culverts within the study area were designated Category III – Culverted. Figure 3 displays wetlands and waterbodies mapped within the study area by management category. The total acres of wetlands and waterbodies and linear feet of streams within each management category within the study area are provided in Table 3.

Table 3. Wetland and Waterbody Areas^a by Management Category

Management Category	Wetland Area (acres)	Estuarine Area (acres)	Stream Area (acres)	Total Area (acres)	Stream Length (linear feet)
Category I	10.74	38.25	0.31	49.30	4,205
Category II	0.26	-	0.11	0.38	6,402
Category III	1.16	-	-	1.16	14,986
Category III – Culverted	-	-	-	-	205
Total^a	12.16	38.25	0.42	50.84	25,797

^a Total acreage presented may not reflect the sum of the individual cells due to rounding.

5.0 References

- ADF&G (Alaska Department of Fish and Game). 2018. *Anadromous Waters Catalog*. Accessed at <http://extra.sf.adfg.state.ak.us/FishResourceMonitor/?mode=awc> on November 8, 2018.
- Brinson, M.M. 1993. A hydrogeomorphic classification for wetlands. Technical Report WRP-DE-4, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. Office of Biological Services, U.S. Fish and Wildlife Service, FWS/OBS-79-31. Washington, DC.
- DOT&PF (Alaska Department of Transportation and Public Facilities). 2010. Alaska Wetland Assessment Method Version 1. Anchorage, AK.
- HDR (HDR, Inc.). 2019. Jurisdictional Determination Report for the Port Lions Airport Improvements Project. Prepared for Alaska Department of Transportation and Public Facilities, Southcoast Region. Juneau, AK. January 25, 2019.
- NOAA (National Oceanic and Atmospheric Administration), Alaska Region Protected Resources Division. 2018. *Species Distribution Mapper*. Accessed at <https://alaskafisheries.noaa.gov/portal/apps/webappviewer/> on November 8, 2018.
- USACE (U.S. Army Corps of Engineers). 2007. *Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Alaska Region*. Corps of Engineers Research and Development Center. Vicksburg, MS.
- . 2009. Alaska District Regulatory Guidance Letter. RGL ID No. 09-01.
- . 2014. Description of Wetland Categories and Ratios for Compensatory Mitigation. U.S. Army Corps of Engineers Alaska District. Accessed at <http://www.poa.usace.army.mil/Portals/34/docs/regulatory/HOWWetlandCategoriesRatios.pdf> on November 8, 2018.
- USFWS (U.S. Fish and Wildlife Service). 2018. National Wetlands Inventory Mapping. Downloaded from <http://enterprise.nwi.fws.gov/shapedata/alaska/> on February 12, 2018.
- USGS (U.S. Geological Survey). 2018. National Hydrography Dataset. Downloaded from <https://nhd.usgs.gov/> on February 12, 2018.



Figures



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- Study Area
- City



Figure 1: Vicinity Map
 Port Lions Airport Improvements
 Wetland and Waterbody Functional Assessment Report








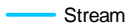
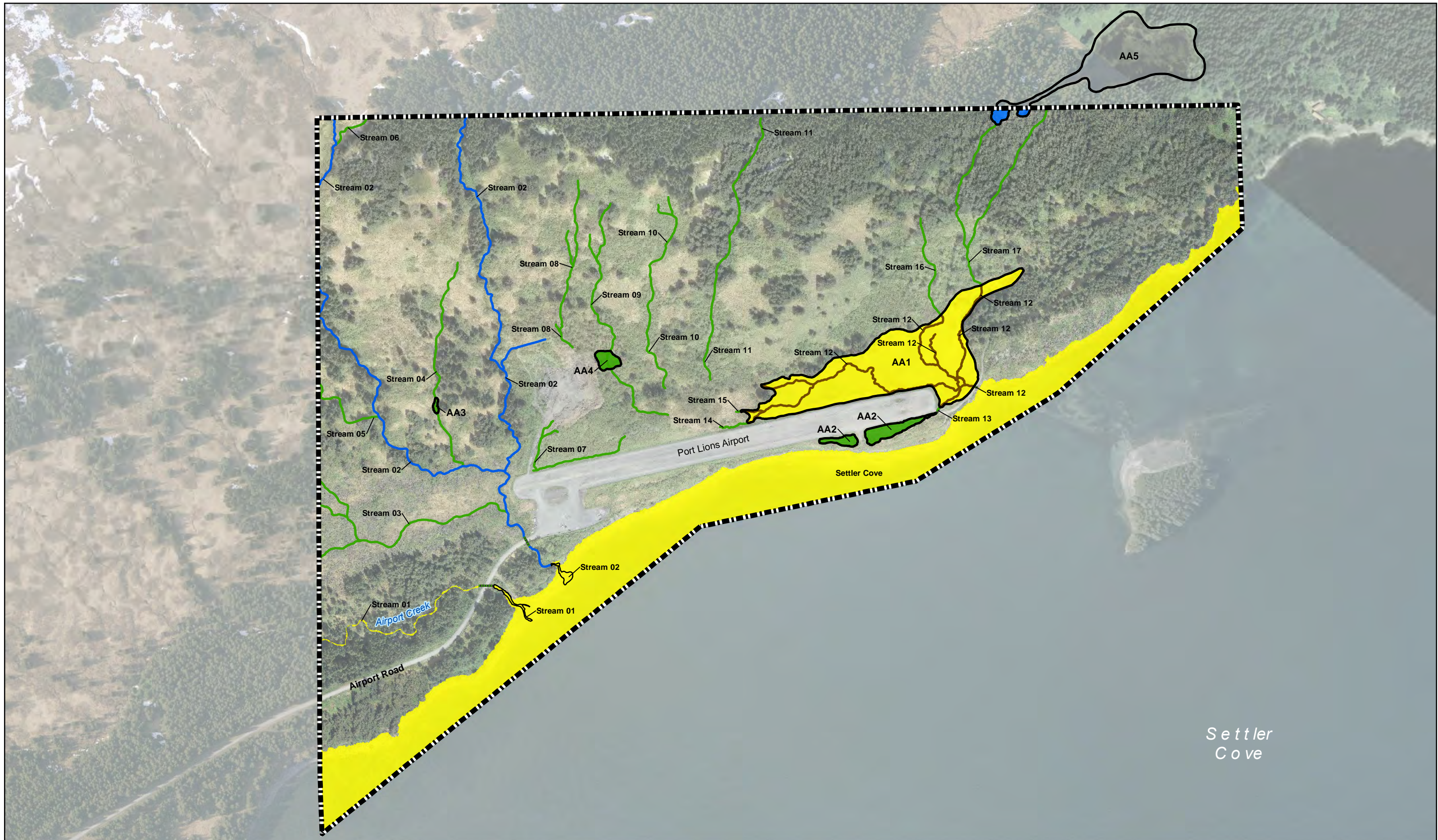
- | | |
|--|---|
|  Study Area | 2018 HDR Wetland and Waterbody Mapping |
|  10 ft. Contours |  Wetland |
|  2018 Data Collection Site |  Waterbody |
| |  Stream |



Figure 2: Study Area Overview and Wetland Mapping

Port Lions Airport Improvements - Wetland and Waterbody
Functional Assessment Report












-  Study Area
-  Assessment Areas
-  Category I
-  Category II
-  Category III
-  Category III - Culverted Stream
-  Category I Stream
-  Category II Stream
-  Category III Stream

Figure 3: Assessment Areas and Management Categories
 Port Lions Airport Improvements - Wetland and Waterbody
 Functional Assessment Report

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Appendix A

Wetland Assessment Data Forms

November 2018



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Appendix A Wetland Assessment Data Form

Digital Form – Use only if completing on a computer. Otherwise, use form in AKWAM manual. Use this form to assess areas that are primarily wetlands (versus waterbodies). For waterbodies, use the Waterbody Categorization Form.

1. Project name and ADOT&PF #: Port Lions Airport Improvements
 3. Evaluation date: November 21, 2018
 4. Evaluator(s) and affiliation: Alena Gerlek, HDR
 5. Purpose of evaluation:

2. Assessment Area #(s): AA1

- Wetland/waterbody potentially affected by a proposed project Mitigation wetlands; pre-construction
 Mitigation wetlands; post-construction Other _____

6. Wetland location(s):

Legal: T. 26S R. 22W; s. 27, 33 and 34; Seward Meridian
 Lat. (dec. deg.): 57.886193 Long.: -152.842284 Datum: NAD 83 Nearest community: Port Lions, Alaska
 Watershed: Settler Cove-Frontal Kizhuak Bay Ecoregion (from USCOE 2007): Alaska Peninsula Mountains

7. Identifying numbers of related data: Wetland Determination Forms 003, 004, 006, 035, 038, 039 Observation Points 002, 008, 035, 036, 598, 599

Map (#) showing AA: Figure 2, Tile 4

Briefly describe the features that define the limits of the AA (e.g., tributary, wetland/upland boundary, extreme low tide elevation):
Wetland/upland boundary at slope break, gravel fill for road embankment and runway.

8. Wetland size (total acres, not just AA): _____ acres (visually estimated) or 10.74 acres (measured, e.g., in GIS)

9. Assessment area (AA) size: _____ acres (visually estimated) or 10.74 acres (measured)

Acreeage of the AA MINUS the part that is waterbody that will be separately assessed using the waterbody form: 10.74 acres of wetland in AA

10. Classification of Wetland and Waterbody in the Wetland AA:

Class (Cowardin)	Water Regime (Cowardin)	Modifier (if any; Cowardin)	% of AA
FO	T/E		30%
SS	S/I		60%
SS	T/E		2%
EM	P/P		8%
UB	P/P		<1%
UB	S/I		<1%

HGM Class (Brinson)	% of AA
Slope	100%
Riverine Channel	<1%

HGM Classes: Riverine (R), Depressional (D), Slope (S), Flat (F), Lacustrine Fringe (LF)

Abbreviations:

Cowardin Classes: Forested Wetland (FO), Scrub-Shrub Wetland (SS), Emergent Wetland (EM), Moss-lichen Wetland (ML), Aquatic Bed (AB), Unvegetated (UN)

Water (Inundation) Regimes: Permanent/Perennial (P/P), Seasonal/Intermittent (S/I), Temporary/Ephemeral/Saturated (T/E)

Modifiers: Excavated (X), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A), Beaver-modified (B)

11. Estimated relative abundance of similar wetlands within the same 6th level hydrologic unit subregion (see definitions in user's manual):

- (check one) Unknown Rare Common Abundant

What information sources did you use for this estimate?

NWI Mapping (USFWS 2018). Within the 6-digit HUC watershed (190207 Kodiak-Shelikof), palustrine forested wetlands are 9% of all vegetated wetlands mapped in the NWI, palustrine scrub-shrub wetlands are 35%, and palustrine emergent wetlands are 56%. Forested wetlands are relatively rare. The high degree of structural diversity and interspersion of wetland types within AA1 are also relatively rare.

12. General condition of AA:

i. Disturbance (see user's manual for descriptions of disturbance levels; check appropriate box):

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

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

AA1 is partially impounded by gravel fill for the airport runway and access road, and receives gravel spray and deposition from air and ground traffic. Historic wetlands within the AA were likely filled for construction of the runway.

ii. Consider the 6th level HU containing the AA again. If you estimate that **more than 10% of the land in the 6th level HU is disturbed**, check here , and choose (below) the disturbance level that is one level higher:

low disturbance moderate disturbance high disturbance

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

Orange hawkweed (*Hieracium aurantiacum*) and oxeye daisy (*Leucanthemum vulgare*) are present in the disturbed uplands adjacent to AA1 (Appendix E). Introduced and feral animal species present in the area are listed in the Wildlife Assessment (Appendix D).

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

AA1 consists of a slope wetland complex at the base of Mount Ellison. Vegetation communities include open Sitka spruce forest, open Sitka spruce-Kenai birch forest, closed willow tall shrub, open sweetgale-sedge bog, and fresh sedge marsh. Groundwater discharge at the slope break is the primary water source with some input from intermittent streams (Streams 9, 11, 12, 13, 18). Several intermittent streams (Streams 14, 15) and one perennial stream (Stream 12) flow through AA1. AA2 and AA5 connected to AA1 via intermittent streams (Streams 13, 17). AA1 flows to Settler Cove through a culvert in the access road.

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

Existing # of Cowardin vegetated classes in AA	Rating
≥3 classes; or 2 classes if 1 is forested	<input checked="" type="checkbox"/> H
2 classes; or 1 class if forested	<input type="checkbox"/> M
1 class, and humans do not prevent establishment of additional classes	<input type="checkbox"/> M
1 class, and humans limit establishment of additional classes	<input type="checkbox"/> L

14A. Habitat for Federally Listed or Candidate Threatened or Endangered Plants or Animals or Other Species of Concern:

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

Primary or critical habitat (list species) D S species: _____

Secondary habitat (list species) D S species: _____

Incidental habitat (list species) D S species: peregrine falcon, marbled murrelet

None or unknown

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

Highest Habitat Level	doc/ primary	sus/ primary	doc/ secondary	sus/ secondary	doc/ incidental	sus/ incidental	None
One or more of the species listed in 14A.i. is a federally Listed or Candidate Threatened or Endangered Species	<input type="checkbox"/> 1H	<input type="checkbox"/> .8H	<input type="checkbox"/> .9M	<input type="checkbox"/> .7M	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L	<input type="checkbox"/> 0L
Species listed 14A.i. are all "Other Species of Concern" (i.e., not listed under the Endangered Species Act)	<input type="checkbox"/> .8M	<input type="checkbox"/> .7M	<input type="checkbox"/> .6M	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input checked="" type="checkbox"/> .1L	<input type="checkbox"/> 0L

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

The Wildlife Assessment (Appendix D) notes that peregrine falcons and marbled murrelets are seasonal residents of the project area, but they have not been documented within the AA. The spruce trees within the AA are unlikely to be large or old enough to support murrelet nests.

iii. Final Score and Rating: 0.1L Enter on the summary page on the Habitat for Federally Listed Species row.

14B. General Wildlife Support Rating:

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

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

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

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

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

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

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

ii. Wildlife habitat features Working from top to bottom, check appropriate AA attributes in the matrix to arrive at the rating.

Structural diversity is from question #13.

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

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

Structural diversity (from #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Longest duration of surface water in ≥ 10% of AA, or immediately abutting the AA																				
Low disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M
Moderate disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input checked="" type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L
High disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L

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

Evidence of wildlife use (i)	Wildlife habitat features rating (ii)			
	Exceptional	High	Moderate	Low
Substantial	<input type="checkbox"/> 1E	<input type="checkbox"/> .9H	<input type="checkbox"/> .8H	<input type="checkbox"/> .7M
Moderate	<input type="checkbox"/> .9H	<input checked="" type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L
Minimal	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

iv. Final Score and Rating: 0.7M Enter on the summary page on the General Wildlife Support row.

Comments:

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

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

Duration of surface water in AA	Permanent / Perennial			Seasonal / Intermittent			Temporary / Ephemeral		
	Optimal	Adequate	Poor	Optimal	Adequate	Poor	Optimal	Adequate	Poor
Aquatic hiding / resting / escape cover in waterbody (Table 3 in manual)									
Anadromous salmon species	<input type="checkbox"/> 1E	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L
Resident and non-salmon sport and subsistence species	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L
Other resident species	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L

Sources used to identify fish species potentially found in AA:

ADF&G survey on May 7, 2018 (Appendix C). No fish were captured or observed within the AA.

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

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

Y N If yes, reduce the score in 14C.i. by 0.1: _____ (If no, do not change the score.)

b) Do noxious or invasive plant species or invasive fish species (see Appendices F and G) occur in the AA?

Y N If yes, reduce the score in 14C.i. by 0.1: _____ (If no, do not change the score.)

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

Comments:

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

i. Rating

Estimate the variation in the water volume stored in the **wetland** portion of the AA that experiences surface ponding or flooding during the typical year, between break-up and freeze-up. First, identify the part of the AA that is both wetland and has surface water sometime between breakup and freezeup (the "flooded wetland"). Estimate its area in acres: 7.5 acres = A.

Second, estimate the range in that flooded wetland's water surface elevation between its lowest and highest elevation during the unfrozen period, in feet. Call this D for depth: 1 feet = D. For example, if the water table is typically one foot below the ground surface during the driest part of summer, and is typically 6 inches above the surface following breakup, the range is 18 inches, or 1.5 feet. Consider evidence such as water marks, staining on vegetation or rocks, drift lines, and the depth to the water table in your soil pit. Consider also the elevation of the wetland surface relative to the elevation of the water surface in an adjacent stream (i.e., does the channel overflow its banks into the wetland?). During a flood, the depth of water over a stream channel is likely to be double its depth when the stream is full to its banks. Consider the area the stream would flood when the water is that deep.

Multiply the range in the flooded wetland's water surface elevation (D) times the area (A) to estimate the maximum storage volume in acre-feet. D 1 feet X A 7.5 acres = 7.5 acre-feet. Use this storage volume estimate in the matrix below.

Next, determine the portion of the flooded wetland that is forested, shrub-dominated, or is neither of those but is dominated by hummocks or tussocks at least one foot in height:

% of AA that experiences water surface fluctuation that is forested or scrub/shrub 85%

plus the additional % of the flooded wetland that is hummocky 0%

= 85% of flooded wetland with water-slowing roughness. Use this percentage in the second row of the matrix below.

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

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

ii. Final Score and Rating: 1H Enter on the summary page on the Water Storage row.

Comments:

iii. Potential Property Protection

Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? Y N (This information will be used later.)

Comments:

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

i. **Rating** (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use (including proposed future land use) has potential to deliver levels of sediments, nutrients, or toxicants at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication are present, or sources are suspected.				Waterbody is on Alaska's Section 303(d) List of Impaired Waterbodies or AA receives or surrounding land use has potential to deliver high levels of sediments, nutrients, or toxicants such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, unnatural turbidity, or signs of eutrophication are present.			
	≥ 70%		< 70%		≥ 70%		< 70%	
% cover of vegetation in AA								
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	<input checked="" type="checkbox"/> 1H	<input type="checkbox"/> .8H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
AA contains unrestricted outlet	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

ii. **Final Score and Rating:** 1H Enter on the summary page on the Sediment/Nutrient/Toxicant Retention row.

Comments:

AA receives sediment and gravel spray, as well as runoff that may include toxicants, from airport and access road.

14F. Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14F does not apply, check **NA** here and proceed to 14G.)

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

For the wetland area subjected to erosive forces, % cover of species with deep, soil-binding root masses	Duration of surface water adjacent to rooted vegetation in the AA		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	<input type="checkbox"/> 1H	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M
35-64%	<input checked="" type="checkbox"/> .7M	<input type="checkbox"/> .6M	<input type="checkbox"/> .5M
< 35%	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

ii. **Final Score and Rating:** 0.7M Enter on the summary page on the Sediment/Shoreline Stabilization row.

Comments:

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings from 14B and 14C [check appropriate box in matrix])

General Fish Habitat Rating (14C.iii.)	General Wildlife Habitat Rating (14B.iii.)		
	E/H	M	L
E/H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M
M	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M
L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L
NA	<input type="checkbox"/> M	<input checked="" type="checkbox"/> M	<input type="checkbox"/> L

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

Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14G.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as defined under #10 above, and A = "absent")

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
B	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	<input type="checkbox"/> 1H	<input type="checkbox"/> .7M	<input checked="" type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .9H	<input type="checkbox"/> .6M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
S/I	<input type="checkbox"/> .9H	<input type="checkbox"/> .6M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
T/E or A	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

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

A **Vegetated Upland Buffer** is an area with ≥ 30% plant cover, ≤ 2% noxious or invasive plant cover, and that is not subjected to periodic mowing or clearing (unless for weed control).

a) Is there an average ≥50-foot-wide vegetated upland buffer around ≥75% of the AA circumference?

Y N If yes, add 0.1 to the score in **14G.ii.** above and adjust the rating accordingly: _____

iv. **Final Score and Rating:** 0.8H Enter on the summary page on the Production Export row.

Comments:

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

i. Discharge Indicators

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

ii. Recharge Indicators (NA for fringe wetlands)

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

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

Criteria	Duration of saturation at AA wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM			
	P/P	S/I	T/E	None
Groundwater discharge or recharge indicators exist	<input checked="" type="checkbox"/> 1H	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .1L
Permafrost underlies the wetland or insufficient information exists	<input type="checkbox"/> NA			

iv. Final Score and Rating: 1H Enter on the summary page on the Groundwater Discharge/Recharge row.

Comments:

14I. Uniqueness:

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

Replacement potential	AA contains irreplaceable wetland types [fens, bogs, springs, seeps, or mature forested wetland type] OR a plant association listed as S1, S2, G1, or G2 by the AKNHP (Appendix J)			AA does not contain irreplaceable wetland types and structural diversity (#13) is high OR contains plant association listed as S3, G3, S?, or G? by the AKNHP (Appendix J)			AA does not contain irreplaceable wetland types and structural diversity (#13) is low to moderate (Appendix J)		
	rare	common	abundant	rare	common	abundant	rare	common	abundant
Estimated relative abundance of wetland types (from 11)									
Low disturbance at AA (from 12i and ii)	<input type="checkbox"/> 1H	<input type="checkbox"/> .6M	<input type="checkbox"/> .5M	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L
Moderate disturbance at AA (from 12i and ii)	<input checked="" type="checkbox"/> .9H	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
High disturbance at AA (from 12i and ii)	<input type="checkbox"/> .7M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L	<input type="checkbox"/> .4M	<input type="checkbox"/> .1L	<input type="checkbox"/> .1L

ii. Final Score and Rating: 0.9H Enter on the summary page on the Uniqueness row.

Comments:

AA contains forested wetlands.

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

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

ii. Check categories that apply to the AA:

- Educational/scientific study
- Consumptive recreation
- Non-consumptive recreation
- Other: _____

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	<input type="checkbox"/> .2H	<input type="checkbox"/> .15H
Private ownership with general public access (no permission required)	<input type="checkbox"/> .15H	<input type="checkbox"/> .1M
Private or public ownership without general public access, or requiring permission for public access	<input type="checkbox"/> .1M	<input type="checkbox"/> .05L

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

Comments:

General Site Notes:

FUNCTION AND SERVICE SUMMARY AND OVERALL RATING FOR WETLAND AA #(s): AA1

Functions and Services	Rating (E, H, M, L)	Actual Functional Points (0 to 1.0)	Possible Functional Points	Optional: Functional Units Affected (Actual Points x AA Acreage Affected)	Indicate the four most prominent functions with a check
A. Habitat for Federally Listed/Candidate T&E Species or Other Species of Concern	L	0.1	1.0		<input type="checkbox"/>
B. General Wildlife Support	M	0.7	1.0		<input type="checkbox"/>
C. General Fish Support	N/A	N/A	N/A		<input type="checkbox"/>
D. Water Storage	H	1.0	1.0		<input checked="" type="checkbox"/>
E. Sediment/Nutrient/Toxicant Removal	H	1.0	1.0		<input checked="" type="checkbox"/>
F. Sediment/Shoreline Stabilization	M	0.7	1.0		<input type="checkbox"/>
G. Production Export/Food Chain Support	H	0.8	1.0		<input type="checkbox"/>
H. Groundwater Discharge/Recharge	H	1.0	1.0		<input checked="" type="checkbox"/>
I. Uniqueness	H	0.9	1.0		<input checked="" type="checkbox"/>
J. Recreation/Education Potential (bonus points)	N/A	N/A	N/A		<input type="checkbox"/>
Totals:		6.2	8.0		
Percent of Possible Score (actual points divided by possible points)		78%			

- Category 1 Wetland:** Must satisfy **one** of the following criteria; otherwise go to Category 2
- Score of 0.9 to 1 functional point for Threatened or Endangered Species or Other Species of Concern; **or**
 - Score of 0.9 or 1 functional point for Uniqueness; **or**
 - Score of 0.9 or 1 functional point for Water Storage **and** answer to Question 14Dii is "yes"; **or**
 - Score of 0.9 or 1 functional point for General Fish Support; **or**
 - Percent of possible score \geq 70% (round to nearest whole number); **or**
 - Percent of possible score \geq 50% **and** 6th level hydrologic unit has already experienced \geq 15% land development.
- Category 2 Wetland:** Criteria for Category 1 not satisfied **and** meets any **one** of the following criteria; otherwise go to Category 4
- Score of 0.8 functional point for Threatened or Endangered Species or Other Species of Concern; **or**
 - Score of 0.9 or 1 functional point for General Wildlife Support; **or**
 - Score of 0.6 to 0.8 functional point for General Fish Support; **or**
 - Score of 0.8 functional point for Uniqueness; **or**
 - Score 0.7 or 0.8 functional point for Water Storage **and** answer to Question 14Dii is "yes"; **or**
 - Percent of possible score \geq 50% (round to nearest whole number).
- Category 3 Wetland:** Criteria for Categories 1, 2, and 4 are not satisfied
- Does not qualify as Category 1, 2, or 4
- Category 4 Wetland:** Criteria for Categories 1 and 2 not satisfied **and** all of the following criteria are met; if not, go to Category 3
- Vegetated wetland component of AA < 1 acre (do not include upland vegetated buffer); **and**
 - Score of 0.5 or lower for Uniqueness; **and**
 - General Wildlife Support is 0.4 or lower; **and**
 - General Fish Support score is 0.3 or lower; **and**
 - If answer to 14Dii is "no", score for Water Storage is 0.2, 0.1, or NA; **and**
 - Is not rated "High" for any function or service; **and**
 - Percent of possible score < 35% (round to nearest whole number).

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

Category: 1 2 3 4

Appendix A Wetland Assessment Data Form

Digital Form – Use only if completing on a computer. Otherwise, use form in AKWAM manual. Use this form to assess areas that are primarily wetlands (versus waterbodies). For waterbodies, use the Waterbody Categorization Form.

1. Project name and ADOT&PF #: Port Lions Airport Improvements

2. Assessment Area #(s): AA2

3. Evaluation date: November 21, 2018

4. Evaluator(s) and affiliation: Alena Gerlek, HDR

5. Purpose of evaluation:

- Wetland/waterbody potentially affected by a proposed project Mitigation wetlands; pre-construction
 Mitigation wetlands; post-construction Other _____

6. Wetland location(s):

Legal: T. 26S R. 22W; s. 33 and 34; Seward Meridian

Lat. (dec. deg.): 57.885044 Long.: -152.842818 Datum: NAD 83 Nearest community: Port Lions, Alaska

Watershed: Settler Cove-Frontal Kizhuak Bay Ecoregion (from USCOE 2007): Alaska Peninsula Mountains

7. Identifying numbers of related data: Wetland Determination Forms 009, 011

Map (#) showing AA: Figure 2, Tile 4

Briefly describe the features that define the limits of the AA (e.g., tributary, wetland/upland boundary, extreme low tide elevation):
Wetland/upland boundary at beach berm, gravel fill for road embankment and runway.

8. Wetland size (total acres, not just AA): _____ acres (visually estimated) or 0.80 acres (measured, e.g., in GIS)

9. Assessment area (AA) size: _____ acres (visually estimated) or 0.80 acres (measured)

Acreage of the AA MINUS the part that is waterbody that will be separately assessed using the waterbody form: 0.80 acres of wetland in AA

10. Classification of Wetland and Waterbody in the Wetland AA:

Class (Cowardin)	Water Regime (Cowardin)	Modifier (if any; Cowardin)	% of AA
SS	S/I		70%
EM	S/I		30%

HGM Class (Brinson)	% of AA
Slope	100%

HGM Classes: Riverine (R), Depressional (D), Slope (S), Flat (F), Lacustrine Fringe (LF)

Abbreviations:

Cowardin Classes: Forested Wetland (FO), Scrub-Shrub Wetland (SS), Emergent Wetland (EM), Moss-lichen Wetland (ML), Aquatic Bed (AB), Unvegetated (UN)

Water (Inundation) Regimes: Permanent/Perennial (P/P), Seasonal/Intermittent (S/I), Temporary/Ephemeral/Saturated (T/E)

Modifiers: Excavated (X), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A), Beaver-modified (B)

11. Estimated relative abundance of similar wetlands within the same 6th level hydrologic unit subregion (see definitions in user's manual):

(check one) Unknown Rare Common Abundant

What information sources did you use for this estimate?

NWI Mapping (USFWS 2018). Within the 6-digit HUC watershed (190207 Kodiak-Shelikof), palustrine forested wetlands are 9% of all vegetated wetlands mapped in the NWI, palustrine scrub-shrub wetlands are 35%, and palustrine emergent wetlands are 56%. Scrub-shrub wetlands are relatively common.

12. General condition of AA:

i. Disturbance (see user's manual for descriptions of disturbance levels; check appropriate box):

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

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

AA2 is adjacent to the airport runway and is bisected by a gravel access road, and receives gravel spray and deposition from air and ground traffic. Wetlands within the AA were likely substantially impacted by construction of the runway.

ii. Consider the 6th level HU containing the AA again. If you estimate that **more than 10% of the land in the 6th level HU is disturbed**, check here , and choose (below) the disturbance level that is one level higher:

low disturbance moderate disturbance high disturbance

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

Orange hawkweed (*Hieracium aurantiacum*) and oxeye daisy (*Leucanthemum vulgare*) are present in the disturbed uplands adjacent to AA2 (Appendix E). Introduced and feral animal species present in the area are listed in the Wildlife Assessment (Appendix D).

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

AA2 consists of slope wetlands behind the upland beach berm above the shore of Settler Cove. Vegetation consists of sweetgale-sedge bog and closed alder tall shrub. Groundwater discharge at the slope break is the primary water source. AA2 is connected to AA1 via an intermittent stream (Stream 13).

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

Existing # of Cowardin vegetated classes in AA	Rating
≥3 classes; or 2 classes if 1 is forested	<input type="checkbox"/> H
2 classes; or 1 class if forested	<input checked="" type="checkbox"/> M
1 class, and humans do not prevent establishment of additional classes	<input type="checkbox"/> M
1 class, and humans limit establishment of additional classes	<input type="checkbox"/> L

14A. Habitat for Federally Listed or Candidate Threatened or Endangered Plants or Animals or Other Species of Concern:

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

Primary or critical habitat (list species) D S species: _____

Secondary habitat (list species) D S species: _____

Incidental habitat (list species) D S species: peregrine falcon, marbled murrelet

None or unknown

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

Highest Habitat Level	doc/ primary	sus/ primary	doc/ secondary	sus/ secondary	doc/ incidental	sus/ incidental	None
One or more of the species listed in 14A.i. is a federally Listed or Candidate Threatened or Endangered Species	<input type="checkbox"/> 1H	<input type="checkbox"/> .8H	<input type="checkbox"/> .9M	<input type="checkbox"/> .7M	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L	<input type="checkbox"/> 0L
Species listed 14A.i. are all "Other Species of Concern" (i.e., not listed under the Endangered Species Act)	<input type="checkbox"/> .8M	<input type="checkbox"/> .7M	<input type="checkbox"/> .6M	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input checked="" type="checkbox"/> .1L	<input type="checkbox"/> 0L

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

The Wildlife Assessment (Appendix D) notes that peregrine falcons and marbled murrelets are seasonal residents of the project area, but they have not been documented within the AA.

iii. Final Score and Rating: 0.1L Enter on the summary page on the Habitat for Federally Listed Species row.

14B. General Wildlife Support Rating:

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

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

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

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

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

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

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

ii. **Wildlife habitat features** Working from top to bottom, check appropriate AA attributes in the matrix to arrive at the rating.

Structural diversity is from question #13.

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

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

Structural diversity (from #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Longest duration of surface water in ≥ 10% of AA, or immediately abutting the AA																				
Low disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M
Moderate disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L
High disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> M	<input checked="" type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L

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

Evidence of wildlife use (i)	Wildlife habitat features rating (ii)			
	Exceptional	High	Moderate	Low
Substantial	<input type="checkbox"/> 1E	<input type="checkbox"/> .9H	<input type="checkbox"/> .8H	<input type="checkbox"/> .7M
Moderate	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L
Minimal	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input checked="" type="checkbox"/> .1L

iv. **Final Score and Rating:** 0.1L Enter on the summary page on the General Wildlife Support row.

Comments:

Disturbance from the airport likely reduces wildlife use of the AA, and higher value habitat exists nearby.

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

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

Duration of surface water in AA	Permanent / Perennial			Seasonal / Intermittent			Temporary / Ephemeral		
	Optimal	Adequate	Poor	Optimal	Adequate	Poor	Optimal	Adequate	Poor
Aquatic hiding / resting / escape cover in waterbody (Table 3 in manual)									
Anadromous salmon species	<input type="checkbox"/> 1E	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L
Resident and non-salmon sport and subsistence species	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L
Other resident species	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L

Sources used to identify fish species potentially found in AA:

Insufficient surface water within AA.

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

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

Y N If yes, reduce the score in 14C.i. by 0.1: _____ (If no, do not change the score.)

b) Do noxious or invasive plant species or invasive fish species (see Appendices F and G) occur in the AA?

Y N If yes, reduce the score in 14C.i. by 0.1: _____ (If no, do not change the score.)

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

Comments:

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

i. Rating

Estimate the variation in the water volume stored in the **wetland** portion of the AA that experiences surface ponding or flooding during the typical year, between break-up and freeze-up. First, identify the part of the AA that is both wetland and has surface water sometime between breakup and freezeup (the "flooded wetland"). Estimate its area in acres: 0.8 acres = A.

Second, estimate the range in that flooded wetland's water surface elevation between its lowest and highest elevation during the unfrozen period, in feet. Call this D for depth: 0.5 feet = D. For example, if the water table is typically one foot below the ground surface during the driest part of summer, and is typically 6 inches above the surface following breakup, the range is 18 inches, or 1.5 feet. Consider evidence such as water marks, staining on vegetation or rocks, drift lines, and the depth to the water table in your soil pit. Consider also the elevation of the wetland surface relative to the elevation of the water surface in an adjacent stream (i.e., does the channel overflow its banks into the wetland?). During a flood, the depth of water over a stream channel is likely to be double its depth when the stream is full to its banks. Consider the area the stream would flood when the water is that deep.

Multiply the range in the flooded wetland's water surface elevation (D) times the area (A) to estimate the maximum storage volume in acre-feet. D 0.5 feet X A 0.8 acres = 0.4 acre-feet. Use this storage volume estimate in the matrix below.

Next, determine the portion of the flooded wetland that is forested, shrub-dominated, or is neither of those but is dominated by hummocks or tussocks at least one foot in height:

% of AA that experiences water surface fluctuation that is forested or scrub/shrub 70%

plus the additional % of the flooded wetland that is hummocky 5%

= 75% of flooded wetland with water-slowng roughness. Use this percentage in the second row of the matrix below.

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

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

ii. Final Score and Rating: 0.4M Enter on the summary page on the Water Storage row.

Comments:

Outlet restricted by culvert, only flows during high water.

iii. Potential Property Protection

Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? Y N (This information will be used later.)

Comments:

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

i. **Rating** (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use (including proposed future land use) has potential to deliver levels of sediments, nutrients, or toxicants at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication are present, or sources are suspected.				Waterbody is on Alaska's Section 303(d) List of Impaired Waterbodies or AA receives or surrounding land use has potential to deliver high levels of sediments, nutrients, or toxicants such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, unnatural turbidity, or signs of eutrophication are present.			
	≥ 70%		< 70%		≥ 70%		< 70%	
% cover of vegetation in AA								
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	<input checked="" type="checkbox"/> 1H	<input type="checkbox"/> .8H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
AA contains unrestricted outlet	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

ii. **Final Score and Rating:** 1H Enter on the summary page on the Sediment/Nutrient/Toxicant Retention row.

Comments:

AA receives sediment and gravel spray, as well as runoff that may include toxicants, from airport and access road.

14F. Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14F does not apply, check **NA** here and proceed to 14G.)

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

For the wetland area subjected to erosive forces, % cover of species with deep, soil-binding root masses	Duration of surface water adjacent to rooted vegetation in the AA		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	<input type="checkbox"/> 1H	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M
35-64%	<input type="checkbox"/> .7M	<input type="checkbox"/> .6M	<input type="checkbox"/> .5M
< 35%	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

ii. **Final Score and Rating:** N/A Enter on the summary page on the Sediment/Shoreline Stabilization row.

Comments:

No stream within AA.

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings from 14B and 14C [check appropriate box in matrix])

General Fish Habitat Rating (14C.iii.)	General Wildlife Habitat Rating (14B.iii.)		
	E/H	M	L
E/H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> L
M	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> L
L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L
NA	<input type="checkbox"/> M	<input type="checkbox"/> M	<input checked="" type="checkbox"/> L

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

Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14G.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as defined under #10 above, and A = "absent")

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	<input type="checkbox"/> 1H	<input type="checkbox"/> .7M	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .9H	<input type="checkbox"/> .6M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
S/I	<input type="checkbox"/> .9H	<input type="checkbox"/> .6M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input checked="" type="checkbox"/> .3L	<input type="checkbox"/> .2L
T/E or A	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

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

A **Vegetated Upland Buffer** is an area with ≥ 30% plant cover, ≤ 2% noxious or invasive plant cover, and that is not subjected to periodic mowing or clearing (unless for weed control).

a) Is there an average ≥50-foot-wide vegetated upland buffer around ≥75% of the AA circumference?

Y N If yes, add 0.1 to the score in **14G.ii.** above and adjust the rating accordingly: _____

iv. **Final Score and Rating:** 0.3L Enter on the summary page on the Production Export row.

Comments:

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

i. Discharge Indicators

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

ii. Recharge Indicators (NA for fringe wetlands)

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

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

Criteria	Duration of saturation at AA wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM			
	P/P	S/I	T/E	None
Groundwater discharge or recharge indicators exist	<input type="checkbox"/> 1H	<input checked="" type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .1L
Permafrost underlies the wetland or insufficient information exists	<input type="checkbox"/> NA			

iv. Final Score and Rating: 0.7M Enter on the summary page on the Groundwater Discharge/Recharge row.

Comments:

14I. Uniqueness:

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

Replacement potential	AA contains irreplaceable wetland types [fens, bogs, springs, seeps, or mature forested wetland type] OR a plant association listed as S1, S2, G1, or G2 by the AKNHP (Appendix J)			AA does not contain irreplaceable wetland types and structural diversity (#13) is high OR contains plant association listed as S3, G3, S?, or G? by the AKNHP (Appendix J)			AA does not contain irreplaceable wetland types and structural diversity (#13) is low to moderate (Appendix J)		
	rare	common	abundant	rare	common	abundant	rare	common	abundant
Estimated relative abundance of wetland types (from 11)									
Low disturbance at AA (from 12i and ii)	<input type="checkbox"/> 1H	<input type="checkbox"/> .6M	<input type="checkbox"/> .5M	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L
Moderate disturbance at AA (from 12i and ii)	<input type="checkbox"/> .9H	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
High disturbance at AA (from 12i and ii)	<input type="checkbox"/> .7M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L	<input type="checkbox"/> .4M	<input checked="" type="checkbox"/> .1L	<input type="checkbox"/> .1L

ii. Final Score and Rating: 0.1L Enter on the summary page on the Uniqueness row.

Comments:

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

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

ii. Check categories that apply to the AA:

- Educational/scientific study
- Consumptive recreation
- Non-consumptive recreation
- Other _____

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	<input type="checkbox"/> .2H	<input type="checkbox"/> .15H
Private ownership with general public access (no permission required)	<input type="checkbox"/> .15H	<input type="checkbox"/> .1M
Private or public ownership without general public access, or requiring permission for public access	<input type="checkbox"/> .1M	<input type="checkbox"/> .05L

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

Comments:

General Site Notes:

FUNCTION AND SERVICE SUMMARY AND OVERALL RATING FOR WETLAND AA #(s): AA2

Functions and Services	Rating (E, H, M, L)	Actual Functional Points (0 to 1.0)	Possible Functional Points	Optional: Functional Units Affected (Actual Points x AA Acreage Affected)	Indicate the four most prominent functions with a check
A. Habitat for Federally Listed/Candidate T&E Species or Other Species of Concern	L	0.1	1.0		<input type="checkbox"/>
B. General Wildlife Support	L	0.1	1.0		<input type="checkbox"/>
C. General Fish Support	N/A	N/A	N/A		<input type="checkbox"/>
D. Water Storage	M	0.4	1.0		<input checked="" type="checkbox"/>
E. Sediment/Nutrient/Toxicant Removal	H	1.0	1.0		<input checked="" type="checkbox"/>
F. Sediment/Shoreline Stabilization	N/A	N/A	N/A		<input type="checkbox"/>
G. Production Export/Food Chain Support	L	0.3	1.0		<input checked="" type="checkbox"/>
H. Groundwater Discharge/Recharge	M	0.7	1.0		<input checked="" type="checkbox"/>
I. Uniqueness	L	0.1	1.0		<input type="checkbox"/>
J. Recreation/Education Potential (bonus points)	N/A	N/A	N/A		<input type="checkbox"/>
Totals:		2.7	7.0		
Percent of Possible Score (actual points divided by possible points)		39%			

Category 1 Wetland: Must satisfy **one** of the following criteria; otherwise go to Category 2

- Score of 0.9 to 1 functional point for Threatened or Endangered Species or Other Species of Concern; **or**
- Score of 0.9 or 1 functional point for Uniqueness; **or**
- Score of 0.9 or 1 functional point for Water Storage **and** answer to Question 14Dii is "yes"; **or**
- Score of 0.9 or 1 functional point for General Fish Support; **or**
- Percent of possible score \geq 70% (round to nearest whole number); **or**
- Percent of possible score \geq 50% **and** 6th level hydrologic unit has already experienced \geq 15% land development.

Category 2 Wetland: Criteria for Category 1 not satisfied **and** meets any **one** of the following criteria; otherwise go to Category 4

- Score of 0.8 functional point for Threatened or Endangered Species or Other Species of Concern; **or**
- Score of 0.9 or 1 functional point for General Wildlife Support; **or**
- Score of 0.6 to 0.8 functional point for General Fish Support; **or**
- Score of 0.8 functional point for Uniqueness; **or**
- Score 0.7 or 0.8 functional point for Water Storage **and** answer to Question 14Dii is "yes"; **or**
- Percent of possible score \geq 50% (round to nearest whole number).

Category 3 Wetland: Criteria for Categories 1, 2, and 4 are not satisfied

- Does not qualify as Category 1, 2, or 4

Category 4 Wetland: Criteria for Categories 1 and 2 not satisfied **and** all of the following criteria are met; if not, go to Category 3

- Vegetated wetland component of AA < 1 acre (do not include upland vegetated buffer); **and**
- Score of 0.5 or lower for Uniqueness; **and**
- General Wildlife Support is 0.4 or lower; **and**
- General Fish Support score is 0.3 or lower; **and**
- If answer to 14Dii is "no", score for Water Storage is 0.2, 0.1, or NA; **and**
- Is not rated "High" for any function or service; **and**
- Percent of possible score < 35% (round to nearest whole number).

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

Category: 1 2 3 4

Appendix A

Wetland Assessment Data Form

Digital Form – Use only if completing on a computer. Otherwise, use form in AKWAM manual. Use this form to assess areas that are primarily wetlands (versus waterbodies). For waterbodies, use the Waterbody Categorization Form.

1. Project name and ADOT&PF #: Port Lions Airport Improvements

2. Assessment Area #(s): AA3

3. Evaluation date: November 21, 2018

4. Evaluator(s) and affiliation: Alena Gerlek, HDR

5. Purpose of evaluation:

- Wetland/waterbody potentially affected by a proposed project Mitigation wetlands; pre-construction
 Mitigation wetlands; post-construction Other _____

6. Wetland location(s):

Legal: T. 26S R. 22W; S. 33; Seward Meridian

Lat. (dec. deg.): 57.885619 Long.: -152.856655 Datum: NAD 83 Nearest community: Port Lions, Alaska

Watershed: Settler Cove-Frontal Kizhuak Bay Ecoregion (from USCOE 2007): Alaska Peninsula Mountains

7. Identifying numbers of related data: Wetland Determination Forms 031

Map (#) showing AA: Figure 2, Tile 3

Briefly describe the features that define the limits of the AA (e.g., tributary, wetland/upland boundary, extreme low tide elevation):
Wetland/upland boundary.

8. Wetland size (total acres, not just AA): _____ acres (visually estimated) or 0.05 acres (measured, e.g., in GIS)

9. Assessment area (AA) size: _____ acres (visually estimated) or 0.05 acres (measured)

Acreage of the AA MINUS the part that is waterbody that will be separately assessed using the waterbody form: 0.05 acres of wetland in AA

10. Classification of Wetland and Waterbody in the Wetland AA:

Class (Cowardin)	Water Regime (Cowardin)	Modifier (if any; Cowardin)	% of AA
SS	S/I		50%
EM	S/I		50%
UB	S/I		<1%

HGM Class (Brinson)	% of AA
Slope	100%
Riverine Channel	<1%

HGM Classes: Riverine (R), Depressional (D), Slope (S), Flat (F), Lacustrine Fringe (LF)

Abbreviations:

Cowardin Classes: Forested Wetland (FO), Scrub-Shrub Wetland (SS), Emergent Wetland (EM), Moss-lichen Wetland (ML), Aquatic Bed (AB), Unvegetated (UN)

Water (Inundation) Regimes: Permanent/Perennial (P/P), Seasonal/Intermittent (S/I), Temporary/Ephemeral/Saturated (T/E)

Modifiers: Excavated (X), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A), Beaver-modified (B)

11. Estimated relative abundance of similar wetlands within the same 6th level hydrologic unit subregion (see definitions in user's manual):

(check one) Unknown Rare Common Abundant

What information sources did you use for this estimate?

NWI Mapping (USFWS 2018). Within the 6-digit HUC watershed (190207 Kodiak-Shelikof), palustrine forested wetlands are 9% of all vegetated wetlands mapped in the NWI, palustrine scrub-shrub wetlands are 35%, and palustrine emergent wetlands are 56%. Emergent wetlands are relatively abundant.

12. General condition of AA:

i. Disturbance (see user's manual for descriptions of disturbance levels; check appropriate box):

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

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

AA3 is undisturbed, but is within 1/4 mile of the excavated material site and airport.

ii. Consider the 6th level HU containing the AA again. If you estimate that more than 10% of the land in the 6th level HU is disturbed, check here , and choose (below) the disturbance level that is one level higher:

low disturbance moderate disturbance high disturbance

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

Orange hawkweed (*Hieracium aurantiacum*) and oxeye daisy (*Leucanthemum vulgare*) are present in the study area (Appendix E). Introduced and feral animal species present in the area are listed in the Wildlife Assessment (Appendix D).

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

AA3 consists of a slope wetland on a slight bench on the hillside above the airport. Vegetation consists of open willow tall shrub dominated by diamond-leaf willow. Groundwater discharge is the primary water source with some input from the intermittent stream (Stream 04) that crosses the AA.

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

Existing # of Cowardin vegetated classes in AA	Rating
≥3 classes; or 2 classes if 1 is forested	<input type="checkbox"/> H
2 classes; or 1 class if forested	<input checked="" type="checkbox"/> M
1 class, and humans do not prevent establishment of additional classes	<input type="checkbox"/> M
1 class, and humans limit establishment of additional classes	<input type="checkbox"/> L

14A. Habitat for Federally Listed or Candidate Threatened or Endangered Plants or Animals or Other Species of Concern:

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

Primary or critical habitat (list species) D S species: _____

Secondary habitat (list species) D S species: _____

Incidental habitat (list species) D S species: peregrine falcon, marbled murrelet

None or unknown

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

Highest Habitat Level	doc/ primary	sus/ primary	doc/ secondary	sus/ secondary	doc/ incidental	sus/ incidental	None
One or more of the species listed in 14A.i. is a federally Listed or Candidate Threatened or Endangered Species	<input type="checkbox"/> 1H	<input type="checkbox"/> .8H	<input type="checkbox"/> .9M	<input type="checkbox"/> .7M	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L	<input type="checkbox"/> 0L
Species listed 14A.i. are all "Other Species of Concern" (i.e., not listed under the Endangered Species Act)	<input type="checkbox"/> .8M	<input type="checkbox"/> .7M	<input type="checkbox"/> .6M	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input checked="" type="checkbox"/> .1L	<input type="checkbox"/> 0L

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

The Wildlife Assessment (Appendix D) notes that peregrine falcons and marbled murrelets are seasonal residents of the project area, but they have not been documented within the AA.

iii. Final Score and Rating: 0.1L Enter on the summary page on the Habitat for Federally Listed Species row.

14B. General Wildlife Support Rating:

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

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

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

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

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

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

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

ii. Wildlife habitat features Working from top to bottom, check appropriate AA attributes in the matrix to arrive at the rating.

Structural diversity is from question #13.

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

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

Structural diversity (from #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Longest duration of surface water in ≥ 10% of AA, or immediately abutting the AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> E	<input checked="" type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M
Moderate disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L
High disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L

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

Evidence of wildlife use (i)	Wildlife habitat features rating (ii)			
	Exceptional	High	Moderate	Low
Substantial	<input type="checkbox"/> 1E	<input type="checkbox"/> .9H	<input type="checkbox"/> .8H	<input type="checkbox"/> .7M
Moderate	<input type="checkbox"/> .9H	<input checked="" type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L
Minimal	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

iv. Final Score and Rating: 0.7M Enter on the summary page on the General Wildlife Support row.

Comments:

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

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

Duration of surface water in AA	Permanent / Perennial			Seasonal / Intermittent			Temporary / Ephemeral		
	Optimal	Adequate	Poor	Optimal	Adequate	Poor	Optimal	Adequate	Poor
Aquatic hiding / resting / escape cover in waterbody (Table 3 in manual)									
Anadromous salmon species	<input type="checkbox"/> 1E	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L
Resident and non-salmon sport and subsistence species	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L
Other resident species	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L

Sources used to identify fish species potentially found in AA:

Insufficient surface water within AA.

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

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

Y N If yes, reduce the score in 14C.i. by 0.1: _____ (If no, do not change the score.)

b) Do noxious or invasive plant species or invasive fish species (see Appendices F and G) occur in the AA?

Y N If yes, reduce the score in 14C.i. by 0.1: _____ (If no, do not change the score.)

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

Comments:

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

i. Rating

Estimate the variation in the water volume stored in the **wetland** portion of the AA that experiences surface ponding or flooding during the typical year, between break-up and freeze-up. First, identify the part of the AA that is both wetland and has surface water sometime between breakup and freezeup (the "flooded wetland"). Estimate its area in acres: 0.05 acres = A.

Second, estimate the range in that flooded wetland's water surface elevation between its lowest and highest elevation during the unfrozen period, in feet. Call this D for depth: 0.25 feet = D. For example, if the water table is typically one foot below the ground surface during the driest part of summer, and is typically 6 inches above the surface following breakup, the range is 18 inches, or 1.5 feet. Consider evidence such as water marks, staining on vegetation or rocks, drift lines, and the depth to the water table in your soil pit. Consider also the elevation of the wetland surface relative to the elevation of the water surface in an adjacent stream (i.e., does the channel overflow its banks into the wetland?). During a flood, the depth of water over a stream channel is likely to be double its depth when the stream is full to its banks. Consider the area the stream would flood when the water is that deep.

Multiply the range in the flooded wetland's water surface elevation (D) times the area (A) to estimate the maximum storage volume in acre-feet. D 0.25 feet X A 0.05 acres = 0.0125 acre-feet. Use this storage volume estimate in the matrix below.

Next, determine the portion of the flooded wetland that is forested, shrub-dominated, or is neither of those but is dominated by hummocks or tussocks at least one foot in height:

% of AA that experiences water surface fluctuation that is forested or scrub/shrub 50%

plus the additional % of the flooded wetland that is hummocky 5%

= 55% of flooded wetland with water-slowing roughness. Use this percentage in the second row of the matrix below.

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

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

ii. Final Score and Rating: 0.2L Enter on the summary page on the Water Storage row.

Comments:

iii. Potential Property Protection

Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? Y N (This information will be used later.)

Comments:

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

i. **Rating** (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use (including proposed future land use) has potential to deliver levels of sediments, nutrients, or toxicants at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication are present, or sources are suspected.				Waterbody is on Alaska's Section 303(d) List of Impaired Waterbodies or AA receives or surrounding land use has potential to deliver high levels of sediments, nutrients, or toxicants such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, unnatural turbidity, or signs of eutrophication are present.			
	≥ 70%		< 70%		≥ 70%		< 70%	
% cover of vegetation in AA	Yes	No	Yes	No	Yes	No	Yes	No
Evidence of flooding / ponding in AA	<input type="checkbox"/> 1H	<input type="checkbox"/> .8H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
AA contains no or restricted outlet	<input type="checkbox"/> 1H	<input type="checkbox"/> .8H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
AA contains unrestricted outlet	<input type="checkbox"/> .9H	<input checked="" type="checkbox"/> .7M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

ii. **Final Score and Rating:** 0.7M Enter on the summary page on the Sediment/Nutrient/Toxicant Retention row.

Comments: Expansion of the existing material site would be likely to deliver sediment and/or toxicants to the AA.

14F. Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14F does not apply, check **NA** here and proceed to 14G.)

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

For the wetland area subjected to erosive forces, % cover of species with deep, soil-binding root masses	Duration of surface water adjacent to rooted vegetation in the AA		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	<input type="checkbox"/> 1H	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M
35-64%	<input type="checkbox"/> .7M	<input checked="" type="checkbox"/> .6M	<input type="checkbox"/> .5M
< 35%	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

ii. **Final Score and Rating:** 0.6M Enter on the summary page on the Sediment/Shoreline Stabilization row.

Comments:

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings from 14B and 14C [check appropriate box in matrix])

General Fish Habitat Rating (14C.iii.)	General Wildlife Habitat Rating (14B.iii.)		
	E/H	M	L
E/H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M
M	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M
L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L
NA	<input checked="" type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L

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

Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14G.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as defined under #10 above, and A = "absent")

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	<input type="checkbox"/> 1H	<input type="checkbox"/> .7M	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .9H	<input type="checkbox"/> .6M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
S/I	<input type="checkbox"/> .9H	<input type="checkbox"/> .6M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input checked="" type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
T/E or A	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

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

A **Vegetated Upland Buffer** is an area with ≥ 30% plant cover, ≤ 2% noxious or invasive plant cover, and that is not subjected to periodic mowing or clearing (unless for weed control).

a) Is there an average ≥50-foot-wide vegetated upland buffer around ≥75% of the AA circumference?

Y **N** If yes, add 0.1 to the score in **14G.ii.** above and adjust the rating accordingly: 0.6

iv. **Final Score and Rating:** 0.6M Enter on the summary page on the Production Export row.

Comments:

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

i. Discharge Indicators

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

ii. Recharge Indicators (NA for fringe wetlands)

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

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

Criteria	Duration of saturation at AA wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM			
	P/P	S/I	T/E	None
Groundwater discharge or recharge indicators exist	<input type="checkbox"/> 1H	<input checked="" type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .1L
Permafrost underlies the wetland or insufficient information exists	<input type="checkbox"/> NA			

iv. Final Score and Rating: 0.7M Enter on the summary page on the Groundwater Discharge/Recharge row.

Comments:

AA occurs on bench. Multiple seeps observed throughout.

14I. Uniqueness:

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

Replacement potential	AA contains irreplaceable wetland types [fens, bogs, springs, seeps, or mature forested wetland type] OR a plant association listed as S1, S2, G1, or G2 by the AKNHP (Appendix J)			AA does not contain irreplaceable wetland types and structural diversity (#13) is high OR contains plant association listed as S3, G3, S?, or G? by the AKNHP (Appendix J)			AA does not contain irreplaceable wetland types and structural diversity (#13) is low to moderate (Appendix J)		
	rare	common	abundant	rare	common	abundant	rare	common	abundant
Estimated relative abundance of wetland types (from 11)									
Low disturbance at AA (from 12i and ii)	<input type="checkbox"/> 1H	<input type="checkbox"/> .6M	<input type="checkbox"/> .5M	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input checked="" type="checkbox"/> .3L
Moderate disturbance at AA (from 12i and ii)	<input type="checkbox"/> .9H	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
High disturbance at AA (from 12i and ii)	<input type="checkbox"/> .7M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L	<input type="checkbox"/> .4M	<input type="checkbox"/> .1L	<input type="checkbox"/> .1L

ii. Final Score and Rating: 0.3L Enter on the summary page on the Uniqueness row.

Comments:

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

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

ii. Check categories that apply to the AA:

- Educational/scientific study
- Consumptive recreation
- Non-consumptive recreation
- Other _____

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	<input type="checkbox"/> .2H	<input type="checkbox"/> .15H
Private ownership with general public access (no permission required)	<input type="checkbox"/> .15H	<input type="checkbox"/> .1M
Private or public ownership without general public access, or requiring permission for public access	<input type="checkbox"/> .1M	<input type="checkbox"/> .05L

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

Comments:

General Site Notes:

FUNCTION AND SERVICE SUMMARY AND OVERALL RATING FOR WETLAND AA #(s): AA3

Functions and Services	Rating (E, H, M, L)	Actual Functional Points (0 to 1.0)	Possible Functional Points	Optional: Functional Units Affected (Actual Points x AA Acreage Affected)	Indicate the four most prominent functions with a check
A. Habitat for Federally Listed/Candidate T&E Species or Other Species of Concern	L	0.1	1.0		<input type="checkbox"/>
B. General Wildlife Support	M	0.7	1.0		<input checked="" type="checkbox"/>
C. General Fish Support	N/A	N/A	N/A		<input type="checkbox"/>
D. Water Storage	L	0.2	1.0		<input type="checkbox"/>
E. Sediment/Nutrient/Toxicant Removal	M	0.7	1.0		<input checked="" type="checkbox"/>
F. Sediment/Shoreline Stabilization	M	0.6	1.0		<input checked="" type="checkbox"/>
G. Production Export/Food Chain Support	M	0.6	1.0		<input checked="" type="checkbox"/>
H. Groundwater Discharge/Recharge	M	0.7	1.0		<input checked="" type="checkbox"/>
I. Uniqueness	L	0.3	1.0		<input type="checkbox"/>
J. Recreation/Education Potential (bonus points)	N/A	N/A	N/A		<input type="checkbox"/>
Totals:		3.9	8.0		
Percent of Possible Score (actual points divided by possible points)		49%			

Category 1 Wetland: Must satisfy **one** of the following criteria; otherwise go to Category 2

- Score of 0.9 to 1 functional point for Threatened or Endangered Species or Other Species of Concern; **or**
- Score of 0.9 or 1 functional point for Uniqueness; **or**
- Score of 0.9 or 1 functional point for Water Storage **and** answer to Question 14Dii is "yes"; **or**
- Score of 0.9 or 1 functional point for General Fish Support; **or**
- Percent of possible score \geq 70% (round to nearest whole number); **or**
- Percent of possible score \geq 50% **and** 6th level hydrologic unit has already experienced \geq 15% land development.

Category 2 Wetland: Criteria for Category 1 not satisfied **and** meets any **one** of the following criteria; otherwise go to Category 4

- Score of 0.8 functional point for Threatened or Endangered Species or Other Species of Concern; **or**
- Score of 0.9 or 1 functional point for General Wildlife Support; **or**
- Score of 0.6 to 0.8 functional point for General Fish Support; **or**
- Score of 0.8 functional point for Uniqueness; **or**
- Score 0.7 or 0.8 functional point for Water Storage **and** answer to Question 14Dii is "yes"; **or**
- Percent of possible score \geq 50% (round to nearest whole number).

Category 3 Wetland: Criteria for Categories 1, 2, and 4 are not satisfied

- Does not qualify as Category 1, 2, or 4

Category 4 Wetland: Criteria for Categories 1 and 2 not satisfied **and** all of the following criteria are met; if not, go to Category 3

- Vegetated wetland component of AA < 1 acre (do not include upland vegetated buffer); **and**
- Score of 0.5 or lower for Uniqueness; **and**
- General Wildlife Support is 0.4 or lower; **and**
- General Fish Support score is 0.3 or lower; **and**
- If answer to 14Dii is "no", score for Water Storage is 0.2, 0.1, or NA; **and**
- Is not rated "High" for any function or service; **and**
- Percent of possible score < 35% (round to nearest whole number).

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

Category: 1 2 3 4

Appendix A

Wetland Assessment Data Form

Digital Form – Use only if completing on a computer. Otherwise, use form in AKWAM manual. Use this form to assess areas that are primarily wetlands (versus waterbodies). For waterbodies, use the Waterbody Categorization Form.

1. Project name and ADOT&PF #: Port Lions Airport Improvements

2. Assessment Area #(s): AA4

3. Evaluation date: November 21, 2018

4. Evaluator(s) and affiliation: Alena Gerlek, HDR

5. Purpose of evaluation:

- Wetland/waterbody potentially affected by a proposed project Mitigation wetlands; pre-construction
 Mitigation wetlands; post-construction Other _____

6. Wetland location(s):

Legal: T. 26S R. 22W; S. 33; Seward Meridian

Lat. (dec. deg.): 57.886399 Long.: -152.851246 Datum: NAD 83 Nearest community: Port Lions, Alaska

Watershed: Settler Cove-Frontal Kizhuak Bay Ecoregion (from USCOE 2007): Alaska Peninsula Mountains

7. Identifying numbers of related data: Wetland Determination Forms 016 Observation Points 015, 017

Map (#) showing AA: Figure 2, Tile 3

Briefly describe the features that define the limits of the AA (e.g., tributary, wetland/upland boundary, extreme low tide elevation):
Wetland/upland boundary, berm surrounding materials site.

8. Wetland size (total acres, not just AA): _____ acres (visually estimated) or 0.31 acres (measured, e.g., in GIS)

9. Assessment area (AA) size: _____ acres (visually estimated) or 0.31 acres (measured)

Acreage of the AA MINUS the part that is waterbody that will be separately assessed using the waterbody form: 0.31 acres of wetland in AA

10. Classification of Wetland and Waterbody in the Wetland AA:

Class (Cowardin)	Water Regime (Cowardin)	Modifier (if any; Cowardin)	% of AA
SS	T/E		50%
EM	T/E		50%
UB	S/I		<1%

HGM Class (Brinson)	% of AA
Slope	100%
Riverine Channel	<1%

HGM Classes: Riverine (R), Depressional (D), Slope (S), Flat (F), Lacustrine Fringe (LF)

Abbreviations:

Cowardin Classes: Forested Wetland (FO), Scrub-Shrub Wetland (SS), Emergent Wetland (EM), Moss-lichen Wetland (ML), Aquatic Bed (AB), Unvegetated (UN)

Water (Inundation) Regimes: Permanent/Perennial (P/P), Seasonal/Intermittent (S/I), Temporary/Ephemeral/Saturated (T/E)

Modifiers: Excavated (X), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A), Beaver-modified (B)

11. Estimated relative abundance of similar wetlands within the same 6th level hydrologic unit subregion (see definitions in user's manual):

(check one) Unknown Rare Common Abundant

What information sources did you use for this estimate?

NWI Mapping (USFWS 2018). Within the 6-digit HUC watershed (190207 Kodiak-Shelikof), palustrine forested wetlands are 9% of all vegetated wetlands mapped in the NWI, palustrine scrub-shrub wetlands are 35%, and palustrine emergent wetlands are 56%. Emergent wetlands are relatively abundant.

12. General condition of AA:

i. Disturbance (see user's manual for descriptions of disturbance levels; check appropriate box):

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

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

AA4 is adjacent to the excavated material site, and may have received some minor sedimentation from the gravel berm around the site.

ii. Consider the 6th level HU containing the AA again. If you estimate that more than 10% of the land in the 6th level HU is disturbed, check here , and choose (below) the disturbance level that is one level higher:

low disturbance moderate disturbance high disturbance

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

Orange hawkweed (*Hieracium aurantiacum*) and oxeye daisy (*Leucanthemum vulgare*) are present in the disturbed uplands adjacent to the AA (Appendix E). Introduced and feral animal species present in the area are listed in the Wildlife Assessment (Appendix D).

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

AA4 consists of a slope wetland on a slight bench on the hillside above the airport. Vegetation consists of broadleaf woodland dominated by Kenai birch. Groundwater discharge is the primary water source with some input from the intermittent stream (Stream 09) that crosses the AA.

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

Existing # of Cowardin vegetated classes in AA	Rating
≥3 classes; or 2 classes if 1 is forested	<input type="checkbox"/> H
2 classes; or 1 class if forested	<input checked="" type="checkbox"/> M
1 class, and humans do not prevent establishment of additional classes	<input type="checkbox"/> M
1 class, and humans limit establishment of additional classes	<input type="checkbox"/> L

14A. Habitat for Federally Listed or Candidate Threatened or Endangered Plants or Animals or Other Species of Concern:

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

Primary or critical habitat (list species) D S species: _____

Secondary habitat (list species) D S species: _____

Incidental habitat (list species) D S species: peregrine falcon, marbled murrelet

None or unknown

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

Highest Habitat Level	doc/ primary	sus/ primary	doc/ secondary	sus/ secondary	doc/ incidental	sus/ incidental	None
One or more of the species listed in 14A.i. is a federally Listed or Candidate Threatened or Endangered Species	<input type="checkbox"/> 1H	<input type="checkbox"/> .8H	<input type="checkbox"/> .9M	<input type="checkbox"/> .7M	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L	<input type="checkbox"/> 0L
Species listed 14A.i. are all "Other Species of Concern" (i.e., not listed under the Endangered Species Act)	<input type="checkbox"/> .8M	<input type="checkbox"/> .7M	<input type="checkbox"/> .6M	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input checked="" type="checkbox"/> .1L	<input type="checkbox"/> 0L

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

The Wildlife Assessment (Appendix D) notes that peregrine falcons and marbled murrelets are seasonal residents of the project area, but they have not been documented within the AA.

iii. Final Score and Rating: 0.1L Enter on the summary page on the Habitat for Federally Listed Species row.

14B. General Wildlife Support Rating:

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

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

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

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

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

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

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

ii. Wildlife habitat features Working from top to bottom, check appropriate AA attributes in the matrix to arrive at the rating.

Structural diversity is from question #13.

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

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

Structural diversity (from #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Longest duration of surface water in ≥ 10% of AA, or immediately abutting the AA																				
Low disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M
Moderate disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> H	<input type="checkbox"/> H	<input checked="" type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L
High disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L

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

Evidence of wildlife use (i)	Wildlife habitat features rating (ii)			
	Exceptional	High	Moderate	Low
Substantial	<input type="checkbox"/> 1E	<input type="checkbox"/> .9H	<input type="checkbox"/> .8H	<input type="checkbox"/> .7M
Moderate	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L
Minimal	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input checked="" type="checkbox"/> .2L	<input type="checkbox"/> .1L

iv. Final Score and Rating: 0.2L Enter on the summary page on the General Wildlife Support row.

Comments:

Disturbance from the material site likely reduces wildlife use of the AA, and higher value habitat exists nearby.

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

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

Duration of surface water in AA	Permanent / Perennial			Seasonal / Intermittent			Temporary / Ephemeral		
	Optimal	Adequate	Poor	Optimal	Adequate	Poor	Optimal	Adequate	Poor
Aquatic hiding / resting / escape cover in waterbody (Table 3 in manual)									
Anadromous salmon species	<input type="checkbox"/> 1E	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L
Resident and non-salmon sport and subsistence species	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L
Other resident species	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L

Sources used to identify fish species potentially found in AA:

Insufficient surface water within AA.

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

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

Y N If yes, reduce the score in 14C.i. by 0.1: _____ (If no, do not change the score.)

b) Do noxious or invasive plant species or invasive fish species (see Appendices F and G) occur in the AA?

Y N If yes, reduce the score in 14C.i. by 0.1: _____ (If no, do not change the score.)

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

Comments:

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

i. Rating

Estimate the variation in the water volume stored in the **wetland** portion of the AA that experiences surface ponding or flooding during the typical year, between break-up and freeze-up. First, identify the part of the AA that is both wetland and has surface water sometime between breakup and freezeup (the "flooded wetland"). Estimate its area in acres: 0.05 acres = A.

Second, estimate the range in that flooded wetland's water surface elevation between its lowest and highest elevation during the unfrozen period, in feet. Call this D for depth: 0.25 feet = D. For example, if the water table is typically one foot below the ground surface during the driest part of summer, and is typically 6 inches above the surface following breakup, the range is 18 inches, or 1.5 feet. Consider evidence such as water marks, staining on vegetation or rocks, drift lines, and the depth to the water table in your soil pit. Consider also the elevation of the wetland surface relative to the elevation of the water surface in an adjacent stream (i.e., does the channel overflow its banks into the wetland?). During a flood, the depth of water over a stream channel is likely to be double its depth when the stream is full to its banks. Consider the area the stream would flood when the water is that deep.

Multiply the range in the flooded wetland's water surface elevation (D) times the area (A) to estimate the maximum storage volume in acre-feet. D 0.25 feet X A 0.05 acres = 0.0125 acre-feet. Use this storage volume estimate in the matrix below.

Next, determine the portion of the flooded wetland that is forested, shrub-dominated, or is neither of those but is dominated by hummocks or tussocks at least one foot in height:

% of AA that experiences water surface fluctuation that is forested or scrub/shrub 50%

plus the additional % of the flooded wetland that is hummocky 5%

= 55% of flooded wetland with water-slowing roughness. Use this percentage in the second row of the matrix below.

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

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

ii. Final Score and Rating: 0.2L Enter on the summary page on the Water Storage row.

Comments:

iii. Potential Property Protection

Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? Y N (This information will be used later.)

Comments:

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

i. **Rating** (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use (including proposed future land use) has potential to deliver levels of sediments, nutrients, or toxicants at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication are present, or sources are suspected.				Waterbody is on Alaska's Section 303(d) List of Impaired Waterbodies or AA receives or surrounding land use has potential to deliver high levels of sediments, nutrients, or toxicants such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, unnatural turbidity, or signs of eutrophication are present.			
	≥ 70%		< 70%		≥ 70%		< 70%	
% cover of vegetation in AA								
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	<input type="checkbox"/> 1H	<input type="checkbox"/> .8H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
AA contains unrestricted outlet	<input type="checkbox"/> .9H	<input checked="" type="checkbox"/> .7M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

ii. **Final Score and Rating:** 0.7M Enter on the summary page on the Sediment/Nutrient/Toxicant Retention row.

Comments:

AA receives sedimentation from berm surrounding materials site.

14F. Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14F does not apply, check **NA** here and proceed to 14G.)

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

For the wetland area subjected to erosive forces, % cover of species with deep, soil-binding root masses	Duration of surface water adjacent to rooted vegetation in the AA		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	<input type="checkbox"/> 1H	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M
35-64%	<input type="checkbox"/> .7M	<input checked="" type="checkbox"/> .6M	<input type="checkbox"/> .5M
< 35%	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

ii. **Final Score and Rating:** 0.6ML Enter on the summary page on the Sediment/Shoreline Stabilization row.

Comments:

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings from 14B and 14C [check appropriate box in matrix])

General Fish Habitat Rating (14C.iii.)	General Wildlife Habitat Rating (14B.iii.)		
	E/H	M	L
E/H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M
M	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M
L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L
NA	<input type="checkbox"/> M	<input type="checkbox"/> M	<input checked="" type="checkbox"/> L

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

Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14G.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as defined under #10 above, and A = "absent")

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	<input type="checkbox"/> 1H	<input type="checkbox"/> .7M	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .9H	<input type="checkbox"/> .6M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
S/I	<input type="checkbox"/> .9H	<input type="checkbox"/> .6M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input checked="" type="checkbox"/> .3L	<input type="checkbox"/> .2L
T/E or A	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

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

A **Vegetated Upland Buffer** is an area with ≥ 30% plant cover, ≤ 2% noxious or invasive plant cover, and that is not subjected to periodic mowing or clearing (unless for weed control).

a) Is there an average ≥50-foot-wide vegetated upland buffer around ≥75% of the AA circumference?

Y N If yes, add 0.1 to the score in **14G.ii.** above and adjust the rating accordingly: 0.4

iv. **Final Score and Rating:** 0.4M Enter on the summary page on the Production Export row.

Comments:

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

i. Discharge Indicators

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

ii. Recharge Indicators (NA for fringe wetlands)

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

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

Criteria	Duration of saturation at AA wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM			
	P/P	S/I	T/E	None
Groundwater discharge or recharge indicators exist	<input type="checkbox"/> 1H	<input type="checkbox"/> .7M	<input checked="" type="checkbox"/> .4M	<input type="checkbox"/> .1L
Permafrost underlies the wetland or insufficient information exists	<input type="checkbox"/> NA			

iv. Final Score and Rating: 0.4M Enter on the summary page on the Groundwater Discharge/Recharge row.

Comments:

AA occurs on bench. Multiple seeps observed throughout.

14I. Uniqueness:

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

Replacement potential	AA contains irreplaceable wetland types [fens, bogs, springs, seeps, or mature forested wetland type] OR a plant association listed as S1, S2, G1, or G2 by the AKNHP (Appendix J)			AA does not contain irreplaceable wetland types and structural diversity (#13) is high OR contains plant association listed as S3, G3, S?, or G? by the AKNHP (Appendix J)			AA does not contain irreplaceable wetland types and structural diversity (#13) is low to moderate (Appendix J)		
	rare	common	abundant	rare	common	abundant	rare	common	abundant
Estimated relative abundance of wetland types (from 11)									
Low disturbance at AA (from 12i and ii)	<input type="checkbox"/> 1H	<input type="checkbox"/> .6M	<input type="checkbox"/> .5M	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L
Moderate disturbance at AA (from 12i and ii)	<input type="checkbox"/> .9H	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input checked="" type="checkbox"/> .2L
High disturbance at AA (from 12i and ii)	<input type="checkbox"/> .7M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L	<input type="checkbox"/> .4M	<input type="checkbox"/> .1L	<input type="checkbox"/> .1L

ii. Final Score and Rating: 0.2L Enter on the summary page on the Uniqueness row.

Comments:

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

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

ii. Check categories that apply to the AA:

- Educational/scientific study
- Consumptive recreation
- Non-consumptive recreation
- Other: _____

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	<input type="checkbox"/> .2H	<input type="checkbox"/> .15H
Private ownership with general public access (no permission required)	<input type="checkbox"/> .15H	<input type="checkbox"/> .1M
Private or public ownership without general public access, or requiring permission for public access	<input type="checkbox"/> .1M	<input type="checkbox"/> .05L

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

Comments:

General Site Notes:

FUNCTION AND SERVICE SUMMARY AND OVERALL RATING FOR WETLAND AA #(s): AA4

Functions and Services	Rating (E, H, M, L)	Actual Functional Points (0 to 1.0)	Possible Functional Points	Optional: Functional Units Affected (Actual Points x AA Acreage Affected)	Indicate the four most prominent functions with a check
A. Habitat for Federally Listed/Candidate T&E Species or Other Species of Concern	L	0.1	1.0		<input type="checkbox"/>
B. General Wildlife Support	L	0.2	1.0		<input type="checkbox"/>
C. General Fish Support	N/A	N/A	N/A		<input type="checkbox"/>
D. Water Storage	L	0.2	1.0		<input type="checkbox"/>
E. Sediment/Nutrient/Toxicant Removal	M	0.7	1.0		<input checked="" type="checkbox"/>
F. Sediment/Shoreline Stabilization	M	0.6	1.0		<input checked="" type="checkbox"/>
G. Production Export/Food Chain Support	M	0.4	1.0		<input checked="" type="checkbox"/>
H. Groundwater Discharge/Recharge	M	0.4	1.0		<input checked="" type="checkbox"/>
I. Uniqueness	L	0.2	1.0		<input type="checkbox"/>
J. Recreation/Education Potential (bonus points)	N/A	N/A	N/A		<input type="checkbox"/>
Totals:		2.8	8.0		
Percent of Possible Score (actual points divided by possible points)		35%			

Category 1 Wetland: Must satisfy **one** of the following criteria; otherwise go to Category 2

- Score of 0.9 to 1 functional point for Threatened or Endangered Species or Other Species of Concern; **or**
- Score of 0.9 or 1 functional point for Uniqueness; **or**
- Score of 0.9 or 1 functional point for Water Storage **and** answer to Question 14Dii is "yes"; **or**
- Score of 0.9 or 1 functional point for General Fish Support; **or**
- Percent of possible score \geq 70% (round to nearest whole number); **or**
- Percent of possible score \geq 50% **and** 6th level hydrologic unit has already experienced \geq 15% land development.

Category 2 Wetland: Criteria for Category 1 not satisfied **and** meets any **one** of the following criteria; otherwise go to Category 4

- Score of 0.8 functional point for Threatened or Endangered Species or Other Species of Concern; **or**
- Score of 0.9 or 1 functional point for General Wildlife Support; **or**
- Score of 0.6 to 0.8 functional point for General Fish Support; **or**
- Score of 0.8 functional point for Uniqueness; **or**
- Score 0.7 or 0.8 functional point for Water Storage **and** answer to Question 14Dii is "yes"; **or**
- Percent of possible score \geq 50% (round to nearest whole number).

Category 3 Wetland: Criteria for Categories 1, 2, and 4 are not satisfied

- Does not qualify as Category 1, 2, or 4

Category 4 Wetland: Criteria for Categories 1 and 2 not satisfied **and** all of the following criteria are met; if not, go to Category 3

- Vegetated wetland component of AA < 1 acre (do not include upland vegetated buffer); **and**
- Score of 0.5 or lower for Uniqueness; **and**
- General Wildlife Support is 0.4 or lower; **and**
- General Fish Support score is 0.3 or lower; **and**
- If answer to 14Dii is "no", score for Water Storage is 0.2, 0.1, or NA; **and**
- Is not rated "High" for any function or service; **and**
- Percent of possible score < 35% (round to nearest whole number).

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

Category: 1 2 3 4

Appendix A Wetland Assessment Data Form

Digital Form – Use only if completing on a computer. Otherwise, use form in AKWAM manual. Use this form to assess areas that are primarily wetlands (versus waterbodies). For waterbodies, use the Waterbody Categorization Form.

1. Project name and ADOT&PF #: Port Lions Airport Improvements

2. Assessment Area #(s): AA5

3. Evaluation date: November 21, 2018

4. Evaluator(s) and affiliation: Alena Gerlek, HDR

5. Purpose of evaluation:

- Wetland/waterbody potentially affected by a proposed project Mitigation wetlands; pre-construction
 Mitigation wetlands; post-construction Other _____

6. Wetland location(s):

Legal: T. 26S R. 22W; S. 27; Seward Meridian

Lat. (dec. deg.): 57.891237 Long.: -152.834713 Datum: NAD 83 Nearest community: Port Lions, Alaska

Watershed: Settler Cove-Frontal Kizhuak Bay Ecoregion (from USCOE 2007): Alaska Peninsula Mountains

7. Identifying numbers of related data: Wetland Determination Forms 032

Map (#) showing AA: Figure 2, Tile 2

Briefly describe the features that define the limits of the AA (e.g., tributary, wetland/upland boundary, extreme low tide elevation):
Wetland/upland boundary.

8. Wetland size (total acres, not just AA): _____ acres (visually estimated) or 6.21 acres (measured, e.g., in GIS)

9. Assessment area (AA) size: _____ acres (visually estimated) or 6.21 acres (measured)

Acreage of the AA MINUS the part that is waterbody that will be separately assessed using the waterbody form: 2.16 acres of wetland in AA

10. Classification of Wetland and Waterbody in the Wetland AA:

Class (Cowardin)	Water Regime (Cowardin)	Modifier (if any; Cowardin)	% of AA
SS	S/I		13%
SS	T/E		5%
EM	S/I		12%
EM	T/E		5%
UB	P/P		65%

HGM Class (Brinson)	% of AA
Slope	100%

HGM Classes: Riverine (R), Depressional (D), Slope (S), Flat (F), Lacustrine Fringe (LF)

Abbreviations:

Cowardin Classes: Forested Wetland (FO), Scrub-Shrub Wetland (SS), Emergent Wetland (EM), Moss-lichen Wetland (ML), Aquatic Bed (AB), Unvegetated (UN)

Water (Inundation) Regimes: Permanent/Perennial (P/P), Seasonal/Intermittent (S/I), Temporary/Ephemeral/Saturated (T/E)

Modifiers: Excavated (X), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A), Beaver-modified (B)

11. Estimated relative abundance of similar wetlands within the same 6th level hydrologic unit subregion (see definitions in user's manual):

(check one) Unknown Rare Common Abundant

What information sources did you use for this estimate?

NWI Mapping (USFWS 2018). Within the 6-digit HUC watershed (190207 Kodiak-Shelikof), palustrine forested wetlands are 9% of all vegetated wetlands mapped in the NWI, palustrine scrub-shrub wetlands are 35%, and palustrine emergent wetlands are 56%. Scrub-shrub wetlands are relatively common, and emergent wetlands are relatively abundant. The association of the wetlands with a palustrine pond contribute to the rating of this AA as common.

12. General condition of AA:

i. Disturbance (see user's manual for descriptions of disturbance levels; check appropriate box):

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

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

AA5 is in a natural state.

ii. Consider the 6th level HU containing the AA again. If you estimate that more than 10% of the land in the 6th level HU is disturbed, check here , and choose (below) the disturbance level that is one level higher:

low disturbance moderate disturbance high disturbance

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

Orange hawkweed (*Hieracium aurantiacum*) and oxeye daisy (*Leucanthemum vulgare*) are present in the undisturbed uplands surrounding the AA (Appendix E). Introduced and feral animal species present in the area are listed in the Wildlife Assessment (Appendix D).

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

AA5 consists of a pond and slope wetlands perched on a bench below a slope break on the hillside above the airport. Vegetation consists of open willow low shrub. Groundwater discharge is the primary water source. AA5 is connected to AA1 via an intermittent stream (Stream 17).

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

Existing # of Cowardin vegetated classes in AA	Rating
≥3 classes; or 2 classes if 1 is forested	<input type="checkbox"/> H
2 classes; or 1 class if forested	<input checked="" type="checkbox"/> M
1 class, and humans do not prevent establishment of additional classes	<input type="checkbox"/> M
1 class, and humans limit establishment of additional classes	<input type="checkbox"/> L

14A. Habitat for Federally Listed or Candidate Threatened or Endangered Plants or Animals or Other Species of Concern:

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

Primary or critical habitat (list species) D S species: _____

Secondary habitat (list species) D S species: _____

Incidental habitat (list species) D S species: peregrine falcon, marbled murrelet

None or unknown

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

Highest Habitat Level	doc/ primary	sus/ primary	doc/ secondary	sus/ secondary	doc/ incidental	sus/ incidental	None
One or more of the species listed in 14A.i. is a federally Listed or Candidate Threatened or Endangered Species	<input type="checkbox"/> 1H	<input type="checkbox"/> .8H	<input type="checkbox"/> .9M	<input type="checkbox"/> .7M	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L	<input type="checkbox"/> 0L
Species listed 14A.i. are all "Other Species of Concern" (i.e., not listed under the Endangered Species Act)	<input type="checkbox"/> .8M	<input type="checkbox"/> .7M	<input type="checkbox"/> .6M	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input checked="" type="checkbox"/> .1L	<input type="checkbox"/> 0L

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

The Wildlife Assessment (Appendix D) notes that peregrine falcons and marbled murrelets are seasonal residents of the project area, but they have not been documented within the AA.

iii. Final Score and Rating: 0.1L Enter on the summary page on the Habitat for Federally Listed Species row.

14B. General Wildlife Support Rating:

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

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

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

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

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

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

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

ii. Wildlife habitat features Working from top to bottom, check appropriate AA attributes in the matrix to arrive at the rating.

Structural diversity is from question #13.

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

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

Structural diversity (from #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Longest duration of surface water in ≥ 10% of AA, or immediately abutting the AA																				
Low disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> E	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> H	<input checked="" type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> E	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M
Moderate disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L
High disturbance at AA (see #12i & 12ii)	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> M	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L	<input type="checkbox"/> L

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

Evidence of wildlife use (i)	Wildlife habitat features rating (ii)			
	Exceptional	High	Moderate	Low
Substantial	<input type="checkbox"/> 1E	<input type="checkbox"/> .9H	<input type="checkbox"/> .8H	<input type="checkbox"/> .7M
Moderate	<input checked="" type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L
Minimal	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

iv. Final Score and Rating: 0.9H Enter on the summary page on the General Wildlife Support row.

Comments:

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

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

Duration of surface water in AA	Permanent / Perennial			Seasonal / Intermittent			Temporary / Ephemeral		
	Optimal	Adequate	Poor	Optimal	Adequate	Poor	Optimal	Adequate	Poor
Aquatic hiding / resting / escape cover in waterbody (Table 3 in manual)									
Anadromous salmon species	<input type="checkbox"/> 1E	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L
Resident and non-salmon sport and subsistence species	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L
Other resident species	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L

Sources used to identify fish species potentially found in AA:

Pond unlikely to support fish.

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

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

Y N If yes, reduce the score in 14C.i. by 0.1: _____ (If no, do not change the score.)

b) Do noxious or invasive plant species or invasive fish species (see Appendices F and G) occur in the AA?

Y N If yes, reduce the score in 14C.i. by 0.1: _____ (If no, do not change the score.)

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

Comments:

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

i. Rating

Estimate the variation in the water volume stored in the **wetland** portion of the AA that experiences surface ponding or flooding during the typical year, between break-up and freeze-up. First, identify the part of the AA that is both wetland and has surface water sometime between breakup and freezeup (the "flooded wetland"). Estimate its area in acres: 1.5 acres = A.

Second, estimate the range in that flooded wetland's water surface elevation between its lowest and highest elevation during the unfrozen period, in feet. Call this D for depth: 1 feet = D. For example, if the water table is typically one foot below the ground surface during the driest part of summer, and is typically 6 inches above the surface following breakup, the range is 18 inches, or 1.5 feet. Consider evidence such as water marks, staining on vegetation or rocks, drift lines, and the depth to the water table in your soil pit. Consider also the elevation of the wetland surface relative to the elevation of the water surface in an adjacent stream (i.e., does the channel overflow its banks into the wetland?). During a flood, the depth of water over a stream channel is likely to be double its depth when the stream is full to its banks. Consider the area the stream would flood when the water is that deep.

Multiply the range in the flooded wetland's water surface elevation (D) times the area (A) to estimate the maximum storage volume in acre-feet. D 1 feet X A 1.5 acres = 1.5 acre-feet. Use this storage volume estimate in the matrix below.

Next, determine the portion of the flooded wetland that is forested, shrub-dominated, or is neither of those but is dominated by hummocks or tussocks at least one foot in height:

% of AA that experiences water surface fluctuation that is forested or scrub/shrub 50%

plus the additional % of the flooded wetland that is hummocky 15%

= 65% of flooded wetland with water-slowing roughness. Use this percentage in the second row of the matrix below.

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

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

ii. Final Score and Rating: 0.6M Enter on the summary page on the Water Storage row.

Comments:

iii. Potential Property Protection

Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (check)? Y N (This information will be used later.)

Comments:

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

i. **Rating** (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating [H = high, M = moderate, or L = low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use (including proposed future land use) has potential to deliver levels of sediments, nutrients, or toxicants at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication are present, or sources are suspected.				Waterbody is on Alaska's Section 303(d) List of Impaired Waterbodies or AA receives or surrounding land use has potential to deliver high levels of sediments, nutrients, or toxicants such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, unnatural turbidity, or signs of eutrophication are present.			
	≥ 70%		< 70%		≥ 70%		< 70%	
% cover of vegetation in AA	Yes		No		Yes		No	
Evidence of flooding / ponding in AA	Yes		No		Yes		No	
AA contains no or restricted outlet	<input type="checkbox"/> 1H	<input type="checkbox"/> .8H	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
AA contains unrestricted outlet	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

ii. **Final Score and Rating:** N/A Enter on the summary page on the Sediment/Nutrient/Toxicant Retention row.

Comments: The AA is at the far upslope end of the study area and would not receive sediment/nutrients/toxicants from any of the proposed activities.

14F. Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14F does not apply, check **NA** here and proceed to 14G.)

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

For the wetland area subjected to erosive forces, % cover of species with deep, soil-binding root masses	Duration of surface water adjacent to rooted vegetation in the AA		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	<input type="checkbox"/> 1H	<input type="checkbox"/> .9H	<input type="checkbox"/> .7M
35-64%	<input type="checkbox"/> .7M	<input type="checkbox"/> .6M	<input type="checkbox"/> .5M
< 35%	<input checked="" type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

ii. **Final Score and Rating:** 0.3L Enter on the summary page on the Sediment/Shoreline Stabilization row.

Comments:

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings from 14B and 14C [check appropriate box in matrix])

General Fish Habitat Rating (14C.iii.)	General Wildlife Habitat Rating (14B.iii.)		
	E/H	M	L
E/H	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> L
M	<input type="checkbox"/> H	<input type="checkbox"/> M	<input type="checkbox"/> L
L	<input type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L
NA	<input checked="" type="checkbox"/> M	<input type="checkbox"/> M	<input type="checkbox"/> L

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

Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14G.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as defined under #10 above, and A = "absent")

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	<input type="checkbox"/> 1H	<input type="checkbox"/> .7M	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .9H	<input type="checkbox"/> .6M	<input checked="" type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .8H	<input type="checkbox"/> .6M	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
S/I	<input type="checkbox"/> .9H	<input type="checkbox"/> .6M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .7M	<input type="checkbox"/> .5M	<input type="checkbox"/> .5M	<input type="checkbox"/> .3L	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
T/E or A	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input type="checkbox"/> .3L	<input type="checkbox"/> .1L	<input type="checkbox"/> .6M	<input type="checkbox"/> .4M	<input type="checkbox"/> .4M	<input type="checkbox"/> .2L	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L

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

A **Vegetated Upland Buffer** is an area with ≥ 30% plant cover, ≤ 2% noxious or invasive plant cover, and that is not subjected to periodic mowing or clearing (unless for weed control).

a) Is there an average ≥50-foot-wide vegetated upland buffer around ≥75% of the AA circumference?

Y **N** If yes, add 0.1 to the score in **14G.ii.** above and adjust the rating accordingly: 0.8

iv. **Final Score and Rating:** 0.8H Enter on the summary page on the Production Export row.

Comments:

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

i. Discharge Indicators

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

ii. Recharge Indicators (NA for fringe wetlands)

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

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

Criteria	Duration of saturation at AA wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM			
	P/P	S/I	T/E	None
Groundwater discharge or recharge indicators exist	<input checked="" type="checkbox"/> 1H	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .1L
Permafrost underlies the wetland or insufficient information exists	<input type="checkbox"/> NA			

iv. Final Score and Rating: 1H Enter on the summary page on the Groundwater Discharge/Recharge row.

Comments:

AA occurs on bench.

14I. Uniqueness:

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

Replacement potential	AA contains irreplaceable wetland types [fens, bogs, springs, seeps, or mature forested wetland type] OR a plant association listed as S1, S2, G1, or G2 by the AKNHP (Appendix J)			AA does not contain irreplaceable wetland types and structural diversity (#13) is high OR contains plant association listed as S3, G3, S?, or G? by the AKNHP (Appendix J)			AA does not contain irreplaceable wetland types and structural diversity (#13) is low to moderate (Appendix J)		
	rare	common	abundant	rare	common	abundant	rare	common	abundant
Estimated relative abundance of wetland types (from 11)									
Low disturbance at AA (from 12i and ii)	<input type="checkbox"/> 1H	<input type="checkbox"/> .6M	<input type="checkbox"/> .5M	<input type="checkbox"/> .8H	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input checked="" type="checkbox"/> .4M	<input type="checkbox"/> .3L
Moderate disturbance at AA (from 12i and ii)	<input type="checkbox"/> .9H	<input type="checkbox"/> .5M	<input type="checkbox"/> .4M	<input type="checkbox"/> .7M	<input type="checkbox"/> .4M	<input type="checkbox"/> .3L	<input type="checkbox"/> .6M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L
High disturbance at AA (from 12i and ii)	<input type="checkbox"/> .7M	<input type="checkbox"/> .3L	<input type="checkbox"/> .2L	<input type="checkbox"/> .5M	<input type="checkbox"/> .2L	<input type="checkbox"/> .1L	<input type="checkbox"/> .4M	<input type="checkbox"/> .1L	<input type="checkbox"/> .1L

ii. Final Score and Rating: 0.4M Enter on the summary page on the Uniqueness row.

Comments:

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

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

ii. Check categories that apply to the AA:

- Educational/scientific study
- Consumptive recreation
- Non-consumptive recreation
- Other: _____

iii. Rating (use the matrix below to arrive at [check] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	<input type="checkbox"/> .2H	<input type="checkbox"/> .15H
Private ownership with general public access (no permission required)	<input type="checkbox"/> .15H	<input type="checkbox"/> .1M
Private or public ownership without general public access, or requiring permission for public access	<input type="checkbox"/> .1M	<input type="checkbox"/> .05L

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

Comments:

General Site Notes:

FUNCTION AND SERVICE SUMMARY AND OVERALL RATING FOR WETLAND AA #(s): AA5

Functions and Services	Rating (E, H, M, L)	Actual Functional Points (0 to 1.0)	Possible Functional Points	Optional: Functional Units Affected (Actual Points x AA Acreage Affected)	Indicate the four most prominent functions with a check
A. Habitat for Federally Listed/Candidate T&E Species or Other Species of Concern	L	0.1	1.0		<input type="checkbox"/>
B. General Wildlife Support	H	0.9	1.0		<input checked="" type="checkbox"/>
C. General Fish Support	N/A	N/A	N/A		<input type="checkbox"/>
D. Water Storage	M	0.6	1.0		<input checked="" type="checkbox"/>
E. Sediment/Nutrient/Toxicant Removal	N/A	N/A	N/A		<input type="checkbox"/>
F. Sediment/Shoreline Stabilization	L	0.3	1.0		<input type="checkbox"/>
G. Production Export/Food Chain Support	H	0.8	1.0		<input checked="" type="checkbox"/>
H. Groundwater Discharge/Recharge	H	1.0	1.0		<input checked="" type="checkbox"/>
I. Uniqueness	M	0.4	1.0		<input type="checkbox"/>
J. Recreation/Education Potential (bonus points)	N/A	N/A	N/A		<input type="checkbox"/>
Totals:		4.1	7.0		
Percent of Possible Score (actual points divided by possible points)		59%			

Category 1 Wetland: Must satisfy **one** of the following criteria; otherwise go to Category 2

- Score of 0.9 to 1 functional point for Threatened or Endangered Species or Other Species of Concern; **or**
- Score of 0.9 or 1 functional point for Uniqueness; **or**
- Score of 0.9 or 1 functional point for Water Storage **and** answer to Question 14Dii is "yes"; **or**
- Score of 0.9 or 1 functional point for General Fish Support; **or**
- Percent of possible score \geq 70% (round to nearest whole number); **or**
- Percent of possible score \geq 50% **and** 6th level hydrologic unit has already experienced \geq 15% land development.

Category 2 Wetland: Criteria for Category 1 not satisfied **and** meets any **one** of the following criteria; otherwise go to Category 4

- Score of 0.8 functional point for Threatened or Endangered Species or Other Species of Concern; **or**
- Score of 0.9 or 1 functional point for General Wildlife Support; **or**
- Score of 0.6 to 0.8 functional point for General Fish Support; **or**
- Score of 0.8 functional point for Uniqueness; **or**
- Score 0.7 or 0.8 functional point for Water Storage **and** answer to Question 14Dii is "yes"; **or**
- Percent of possible score \geq 50% (round to nearest whole number).

Category 3 Wetland: Criteria for Categories 1, 2, and 4 are not satisfied

- Does not qualify as Category 1, 2, or 4

Category 4 Wetland: Criteria for Categories 1 and 2 not satisfied **and** all of the following criteria are met; if not, go to Category 3

- Vegetated wetland component of AA < 1 acre (do not include upland vegetated buffer); **and**
- Score of 0.5 or lower for Uniqueness; **and**
- General Wildlife Support is 0.4 or lower; **and**
- General Fish Support score is 0.3 or lower; **and**
- If answer to 14Dii is "no", score for Water Storage is 0.2, 0.1, or NA; **and**
- Is not rated "High" for any function or service; **and**
- Percent of possible score < 35% (round to nearest whole number).

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

Category: 1 2 3 4



Appendix B

Waterbody Data and Characterization Forms

November 2018



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Appendix B

Waterbody Data and Categorization Form

Digital Form – Use only if completing on a computer. Otherwise, use form in AKWAM manual.

Even if all or part of a waterbody is being rated as part of a wetland Assessment Area, it should also be rated separately on this form. Evaluate any waterbody that lies within your project's potential direct or indirect effect area, extending at least as far as the project's right-of-way limits.

The landward extent of the waterbody is the Ordinary High Water line for a non-tidal waterbody or the wetland boundary, whichever of those limits is located least landward.

1. **Project name and ADOT&PF #:** Port Lions Airport Improvements
 2. **Waterbody name** (if applicable): Settler Cove
 3. **Evaluation date:** November 21, 2018 4. **Evaluator(s) and affiliation:** Alena Gerlek, HDR
 5. **Purpose of evaluation:**

- Waterbody potentially affected by a proposed project Mitigation waterbody; pre-construction
 Mitigation waterbody; post-construction Other: _____

6. Waterbody location(s):

Legal: T. 26S; R. 22W; Sec. 27, 33 and 34; Seward Meridian
Lat. (dec.deg.): 57.882571 **Long:** -152.845200 **Datum:** NAD 83 **Nearest community:** Port Lions, Alaska
Watershed: Settler Cove-Frontal Kizhuak Bay

7. Relationship to wetland AA:

Is this waterbody also part of one or more wetland AAs? **Y** **N** If yes, pertinent AA numbers: _____
 Identifying numbers of related data: Observation Points 596, 597
 Map (#) showing waterbody: Figure 2, Tiles 2, 3, 4, 5

8. Waterbody description:

If a pond or lake, total area: _____ acres estimated? Or measured?
 If a stream: **width** in project area: _____ feet (avg) _____ feet (range) **gradient** (% slope): _____%
 Diameter and condition of any **culverts** in the project area on this waterbody: _____
 For any waterbody: avg. **depth at low water** _____ feet avg. **depth at bankfull** _____ feet
 description or average diameter of **substrate**, if observable (e.g., silt, sand, 2", 10") _____
 Sketch the typical cross-sectional bank shape(s):

Describe the waterbody and surrounding land use and habitat types (water source, inlets, outlets, topography, adjacent land uses, relationship to other waterbodies and wetlands): The waterbody consists of subtidal and estuarine areas of Settler Cove. Subtidal areas are the permanently inundated waters below the elevation of the lowest astronomical tide. Intertidal areas are irregularly flooded unconsolidated shore and consist of unvegetated gravel and cobbles. The portion of the waterbody assessed with this form includes the estuarine areas extending 1,000 beyond the project area.

Briefly describe the condition of the 6th level hydrologic unit subregion with respect to human activities. Estimate the % that is modified, and list the predominant types of modification. The Settler Cove-Frontal Kizhuak Bay watershed is mostly undisturbed (less than 1% modified). The watershed contains the forested mountainsides surrounding Kizhuak Bay, and is adjacent to the Kodiak National Wildlife Refuge. The community of Port Lions is within the watershed.

9. Classification of Waterbody:

- Is the waterbody a
 Stream – flowing water
 Lake – larger than 20 acres in size when full of water
 Pond – a still waterbody smaller than 20 acres in size when full, unvegetated or with floating or submerged vegetation

Class (Cowardin)	Water Regime	Modifier (if any)	% of the Waterbody
E1UB	P/P		90%
E2US	S/I		10%
			%

Abbreviations:

Cowardin Classes (modified): Aquatic Bed (**AB**), Unvegetated (**UN**)
Water (Inundation) Regimes (see section 10 and Table 1 in the User's Manual): Permanent/Perennial I(**P/P**), Seasonal/Intermittent (**S/I**), Temporary/Ephemeral (**T/E**)
Modifiers: Excavated (**X**), Impounded (**I**), Diked (**D**), Partly Drained (**PD**),

Artificial (**A**), Beaver-modified (**B**)

10. Disturbance of waterbody: Place check marks in the rows below that describe any past or present types of disturbance that may affect the waterbody within the project area. Describe any disturbance below.

- On the Category 5/Section 303(d) Impaired Waterbodies list (see Appendix I).
- Receives potentially low-quality runoff from development within the project area.
- Receives potentially low-quality runoff as non-point discharges from human activities upstream.
- Pipes discharge water from human developments upstream of, or within, the project area.
- Within the project area, the waterbody's banks or bed have been altered by grading, re-routing, placement of fill, excavation, or similar activities.
- The hydrologic regime has been altered by upstream developments (extensive storm drain systems, water withdrawals, a dam, etc.).
- The banks or bed are mildly altered by human activities such as trampling, removal of some vegetation, building or clearing to the top of bank.
- The waterbody has been affected by disturbance such as described above, but it has physically regained some features of natural banks or bed ("naturalized") such as development of pools and riffles, slight sinuosity, vertical or overhanging banks, overhanging vegetation.
- Known or suspected to contain invasive or exotic plants or animals – anywhere in the waterbody. (See User's manual Appendix F for noxious and invasive plant information and Appendix G for a list of invasive animal species.) Write **NA** if not within your expertise.
- Disturbance other than described above.
- None of the above; waterbody is in essentially pristine condition.

Describe any disturbance (types, age, intensity, source, location):

List any noxious or invasive plant or animal species in the waterbody (Appendices F and G). If it is not within your expertise to accurately answer this question, or you were unable to investigate this, just cross out this question or record explanatory notes.

Orange hawkweed (*Hieracium aurantiacum*) and oxeye daisy (*Leucanthemum vulgare*) are present in the uplands adjacent to Settler Cove (Appendix E). Introduced and feral animal species present in the area are listed in the Wildlife Assessment (Appendix D).

11. Habitat for Federally Listed or Candidate Threatened or Endangered Animals or Other Species of Concern (see Appendix H):

Waterbody is Documented (D) or Suspected (S) to support (check based on definitions in instructions):

- | | | |
|--|--|---|
| Primary or critical habitat (list species) | <input checked="" type="checkbox"/> D <input type="checkbox"/> S | <u>AA includes CH for the Northern DPS of sea otters. CH for the Western DPS of Steller sea lion is less than 1 mile from the project area.</u> |
| Secondary habitat (list species) | <input type="checkbox"/> D <input type="checkbox"/> S | _____ |
| Incidental habitat (list species) | <input type="checkbox"/> D <input checked="" type="checkbox"/> S | <u>Red-throated loon, black oystercatcher, lesser yellowlegs, rock sandpiper</u> |
| Sources for documented use (e.g., observations, records, etc): | | <u>Wildlife Assessment (Appendix D)</u> |

12. Wildlife Habitat:

Evidence of overall wildlife use in/on the waterbody (check substantial, moderate, or low based on supporting evidence):

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

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

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

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

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

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

Other special wildlife features not addressed above:

13. Fish Habitat: (Answer this if the waterbody is used by fish or the existing situation is "correctable" such that the waterbody could be used by fish.

If the waterbody is not used by fish, fish use is not restorable, or is not desired from a management perspective, then check **NA** here.)

Is the part of the waterbody within the project area shown in the ADF&G Anadromous Waters Catalog? **Y** **N**

Fish species or groups known or suspected to use the waterbody (any part of it):

The waters of Settler Cove are Essential Fish Habitat for all five species of Pacific salmon as well as several species of groundfish, including Pacific cod, walleye pollock, rock sole, yellowfin sole, and arrowtooth flounder.

Sources used for identifying fish species potentially found in the waterbody:

NOAA NMFS

Aquatic cover category (see Table 3) (check one): Optimal Adequate Poor

Is fish use of the waterbody precluded or substantially reduced by a culvert, dike, or other man-made structure or activity? Y N

Does the waterbody contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for anadromous fish or sport fish? Y N

Do noxious or invasive plant species (see **Appendix F**) or invasive fish species (see **Appendix G**) occur in the waterbody (anywhere)?
 Y N

Comments, or refer to section 10 above:

14. Recreation or Subsistence Potential:

Is the waterbody a known or potential recreation site? Y N Used for subsistence activities? Y N

If 'Yes,' describe (travel, transport, boating, fishing, trail parallels or crosses it, next to a park or camping area, in proximity to where kids play, etc.). Readily accessible from Port Lions

Which best describes the current waterbody ownership in the project area?

- Public ownership or public easement with general public access (no permission required)
- Private ownership with general public access (no permission required)
- Private or public ownership without general public access, or requiring permission for public access

Chart for Assignment of a Waterbody to a Management Category

Determine the appropriate category for the waterbody by working through the chart below. Look at the choices in the first column and choose the one that best describes the waterbody. Then, look at the choices in the second column to the right of the category you chose in column 1; choose the best type from column 2. To the right of that choice, select the best choice from column 3. Continue working to right through the chart until you reach the last column, where the Waterbody Category is assigned.

Waterbody Type	Waterbody Characteristics			Category	
Flowing Waterbody	Any flowing waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species (see Appendix H)			<input type="checkbox"/> 1	
	Any flowing waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary habitat for other species of concern (see Appendix H)			<input type="checkbox"/> 2	
	stream	open channel— perennial, seasonal, intermittent, temporary, or ephemeral	natural (undisturbed) or naturalized (recovered from disturbance, with natural-like banks, sinuosity, substrate)	supports salmon	<input type="checkbox"/> 1
				Supports resident and other non-salmon fish species	<input type="checkbox"/> 2
				Not known or thought to support fish	<input type="checkbox"/> 3
			Channelized and not naturalized	supports salmon	<input type="checkbox"/> 1
				does not support salmon	<input type="checkbox"/> 3
			Originally a stream, now in a culvert		
	ditch (originally formed by excavation; did not originally replace a stream)	open channel, supports salmon			<input type="checkbox"/> 2
		Naturalized, does not support salmon			<input type="checkbox"/> 3
		Not naturalized, does not support salmon			<input type="checkbox"/> 4
	Inactive (abandoned) channel	Seasonally or more often connected to active channel			same as active channel
		irregularly (less than annually) connected to active channel that is...	Category 1		<input type="checkbox"/> 2
			Category 2		<input type="checkbox"/> 3
			Category 3		
Category 4			<input type="checkbox"/> 4		
No existing connection to an active channel, even at high water			<input type="checkbox"/> 4		
Still Waterbody (pond, lake)	Any still waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species (see Appendix H)			<input checked="" type="checkbox"/> 1	
	Any still waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary habitat for other species of concern (see Appendix H)			<input type="checkbox"/> 2	
	Other still waterbodies	supports <i>salmon</i>	Spawning or rearing in potentially affected area		<input type="checkbox"/> 1
			Affected area is migratory route only		<input type="checkbox"/> 2
		Supports resident and other non-salmon fish species used for subsistence or recreation	Spawning or rearing in potentially affected area		<input type="checkbox"/> 1
			Affected area is migratory route only		<input type="checkbox"/> 2
		Supports fish not used by humans			<input type="checkbox"/> 3
		<i>Does not support fish</i>			<input type="checkbox"/> 3

Assigned Waterbody Category: 1 2 3 4

Appendix B

Waterbody Data and Categorization Form

Digital Form – Use only if completing on a computer. Otherwise, use form in AKWAM manual.

Even if all or part of a waterbody is being rated as part of a wetland Assessment Area, it should also be rated separately on this form. Evaluate any waterbody that lies within your project's potential direct or indirect effect area, extending at least as far as the project's right-of-way limits.

The landward extent of the waterbody is the Ordinary High Water line for a non-tidal waterbody or the wetland boundary, whichever of those limits is located least landward.

1. Project name and ADOT&PF #: Port Lions Airport Improvements

2. Waterbody name: Airport Creek

Project specific waterbody identifier: Stream 01

3. Evaluation date: November 28, 2018

4. Evaluator(s) and affiliation: Alena Gerlek, HDR

5. Purpose of evaluation:

- Waterbody potentially affected by a proposed project Mitigation waterbody; pre-construction
 Mitigation waterbody; post-construction Other: _____

6. Waterbody location(s):

Legal: T. 26S; R. 22W; Sec. 33; Seward Meridian

Lat. (dec.deg.): 57.882149 Long: -152.856754 Datum: NAD 83

Nearest community: Port Lions, Alaska

Watershed: Settler Cove-Frontal Kizhuak Bay

7. Relationship to wetland AA:

Is this waterbody also part of one or more wetland AAs? Y N If yes, pertinent AA numbers: _____

Identifying numbers of related data: Observation Points 025, 594, 595, 596

Map (#) showing waterbody: Figure 2, Tile 5

8. Waterbody description:

If a pond or lake, total area: _____ acres estimated? Or measured?

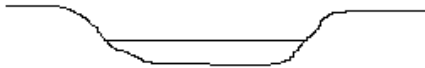
If a stream: width in project area: 10 feet (avg) 5-15 feet (range) gradient (% slope): 2%

Diameter and condition of any culverts in the project area on this waterbody: 2 60" culverts where the stream is crossed by Airport Road

For any waterbody: avg. depth at low water 0.5 feet avg. depth at bankfull 1 feet

description or average diameter of substrate, if observable (e.g., silt, sand, 2", 10") cobbles

Sketch the typical cross-sectional bank shape(s):



Describe the waterbody and surrounding land use and habitat types (water source, inlets, outlets, topography, adjacent land uses, relationship to other waterbodies and wetlands): Airport Creek originates as a series of perennial streams draining from the slopes of Mount Ellison. The stream flows into the study area from the west and flows for approximately 1,300 feet before flowing through two culverts under Airport Road and ultimately discharging into Settler Cove. Within the study area the stream flows through open Sitka spruce forest.

Briefly describe the condition of the 6th level hydrologic unit subregion with respect to human activities. Estimate the % that is modified, and list the predominant types of modification. The Settler Cove-Frontal Kizhuak Bay watershed is mostly undisturbed (less than 1% modified). The watershed contains the forested mountainsides surrounding Kizhuak Bay, and is adjacent to the Kodiak National Wildlife Refuge. The community of Port Lions is within the watershed.

9. Classification of Waterbody:

Is the waterbody a

- Stream – flowing water
 Lake – larger than 20 acres in size when full of water
 Pond – a still waterbody smaller than 20 acres in size when full, unvegetated or with floating or submerged vegetation

Class (Cowardin)	Water Regime	Modifier (if any)	% of the Waterbody
R3UB	P/P		75%
R1UB	P/P		25%
			%

Abbreviations:

Cowardin Classes (modified): Aquatic Bed (AB), Unvegetated (UN)

Water (Inundation) Regimes (see section 10 and Table 1 in the User's Manual): Permanent/Perennial I(P/P), Seasonal/Intermittent (SI), Temporary/Ephemeral (T/E)

Modifiers: Excavated (X), Impounded (I), Diked (D), Partly Drained (PD),

Artificial (A), Beaver-modified (B)

10. Disturbance of waterbody: Place check marks in the rows below that describe any past or present types of disturbance that may affect the waterbody within the project area. Describe any disturbance below.

- On the Category 5/Section 303(d) Impaired Waterbodies list (see Appendix I).
- Receives potentially low-quality runoff from development within the project area.
- Receives potentially low-quality runoff as non-point discharges from human activities upstream.
- Pipes discharge water from human developments upstream of, or within, the project area.
- Within the project area, the waterbody's banks or bed have been altered by grading, re-routing, placement of fill, excavation, or similar activities.
- The hydrologic regime has been altered by upstream developments (extensive storm drain systems, water withdrawals, a dam, etc.).
- The banks or bed are mildly altered by human activities such as trampling, removal of some vegetation, building or clearing to the top of bank.
- The waterbody has been affected by disturbance such as described above, but it has physically regained some features of natural banks or bed ("naturalized") such as development of pools and riffles, slight sinuosity, vertical or overhanging banks, overhanging vegetation.
- Known or suspected to contain invasive or exotic plants or animals – anywhere in the waterbody. (See User's manual Appendix F for noxious and invasive plant information and Appendix G for a list of invasive animal species.) Write **NA** if not within your expertise.
- Disturbance other than described above.
- None of the above; waterbody is in essentially pristine condition.

Describe any disturbance (types, age, intensity, source, location):

Airport Creek may receive some runoff from Airport Road, and is routed through two culverts that are likely a barrier to fish passage.

List any noxious or invasive plant or animal species in the waterbody (Appendices F and G). If it is not within your expertise to accurately answer this question, or you were unable to investigate this, just cross out this question or record explanatory notes.

Orange hawkweed (*Hieracium aurantiacum*) and oxeye daisy (*Leucanthemum vulgare*) are present along Airport Road near Airport Creek (Appendix E). Introduced and feral animal species present in the area are listed in the Wildlife Assessment (Appendix D).

11. Habitat for Federally Listed or Candidate Threatened or Endangered Animals or Other Species of Concern (see Appendix H):

Waterbody is Documented (D) or Suspected (S) to support (check based on definitions in instructions):

- Primary or critical habitat (**list species**) D S _____
- Secondary habitat (**list species**) D S _____
- Incidental habitat (**list species**) D S _____

Sources for documented use (e.g., observations, records, etc): The Wildlife Assessment (Appendix D) notes that peregrine falcons and marbled murrelets are seasonal residents of the project area, and they may incidentally use the waterbody or adjacent areas.

12. Wildlife Habitat:

Evidence of overall wildlife use in/on the waterbody (check substantial, moderate, or low based on supporting evidence):

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

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

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

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

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

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

Other special wildlife features not addressed above:

13. Fish Habitat: (Answer this if the waterbody is used by fish or the existing situation is "correctable" such that the waterbody could be used by fish.

If the waterbody is not used by fish, fish use is not restorable, or is not desired from a management perspective, then check **NA** here.)

Is the part of the waterbody within the project area shown in the ADF&G Anadromous Waters Catalog? **Y** **N**

Fish species or groups known or suspected to use the waterbody (any part of it):

The entire length of Airport Creek within the study area is included in the Anadromous Waters Catalog as spawning habitat for pink salmon. During a site visit on May 7, 2018, ADF&G biologists captured 5 Dolly Varden and 10 sculpin in the creek downstream of the culverts, three young-of-year pink salmon in a pool downstream of the culverts, and 2 Dolly Varden upstream of the culverts.

Sources used for identifying fish species potentially found in the waterbody:

ADF&G Anadromous Waters Catalog; ADF&G May 7, 2018 site visit (Appendix C)

Aquatic cover category (see Table 3) (check one): Optimal Adequate Poor

Is fish use of the waterbody precluded or substantially reduced by a culvert, dike, or other man-made structure or activity? **Y** **N**

Does the waterbody contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for anadromous fish or sport fish? **Y** **N**

Do noxious or invasive plant species (see **Appendix F**) or invasive fish species (see **Appendix G**) occur in the waterbody (anywhere)?

Y **N**

Comments, or refer to section 10 above:

Culverts may inhibit fish passage.

14. Recreation or Subsistence Potential:

Is the waterbody a known or potential recreation site? **Y** **N** Used for subsistence activities? **Y** **N**

If 'Yes,' describe (travel, transport, boating, fishing, trail parallels or crosses it, next to a park or camping area, in proximity to where kids play, etc.). Readily accessible from Port Lions via Airport Road.

Which best describes the current waterbody ownership in the project area?

Public ownership or public easement with general public access (no permission required)

Private ownership with general public access (no permission required)

Private or public ownership without general public access, or requiring permission for public access

Chart for Assignment of a Waterbody to a Management Category

Determine the appropriate category for the waterbody by working through the chart below. Look at the choices in the first column and choose the one that best describes the waterbody. Then, look at the choices in the second column to the right of the category you chose in column 1; choose the best type from column 2. To the right of that choice, select the best choice from column 3. Continue working to right through the chart until you reach the last column, where the Waterbody Category is assigned.

Waterbody Type	Waterbody Characteristics			Category	
Flowing Waterbody	Any flowing waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species (see Appendix H)			<input type="checkbox"/> 1	
	Any flowing waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary habitat for other species of concern (see Appendix H)			<input type="checkbox"/> 2	
	stream	open channel— perennial, seasonal, intermittent, temporary, or ephemeral	natural (undisturbed) or naturalized (recovered from disturbance, with natural-like banks, sinuosity, substrate)	supports salmon	<input checked="" type="checkbox"/> 1
				Supports resident and other non-salmon fish species	<input type="checkbox"/> 2
				Not known or thought to support fish	<input type="checkbox"/> 3
			Channelized and not naturalized	supports salmon	<input type="checkbox"/> 1
				does not support salmon	<input type="checkbox"/> 3
			Originally a stream, now in a culvert		
	ditch (originally formed by excavation; did not originally replace a stream)	open channel, supports salmon		<input type="checkbox"/> 2	
		Naturalized, does not support salmon		<input type="checkbox"/> 3	
		Not naturalized, does not support salmon		<input type="checkbox"/> 4	
	Inactive (abandoned) channel	Seasonally or more often connected to active channel			same as active channel
		irregularly (less than annually) connected to active channel that is...	Category 1		<input type="checkbox"/> 2
			Category 2		<input type="checkbox"/> 3
			Category 3		
Category 4			<input type="checkbox"/> 4		
No existing connection to an active channel, even at high water			<input type="checkbox"/> 4		
Still Waterbody (pond, lake)	Any still waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species (see Appendix H)			<input type="checkbox"/> 1	
	Any still waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary habitat for other species of concern (see Appendix H)			<input type="checkbox"/> 2	
	Other still waterbodies	supports <i>salmon</i>	Spawning or rearing in potentially affected area		<input type="checkbox"/> 1
			Affected area is migratory route only		<input type="checkbox"/> 2
		Supports resident and other non-salmon fish species used for subsistence or recreation	Spawning or rearing in potentially affected area		<input type="checkbox"/> 1
			Affected area is migratory route only		<input type="checkbox"/> 2
		Supports fish not used by humans			<input type="checkbox"/> 3
		<i>Does not support fish</i>			<input type="checkbox"/> 3

Assigned Waterbody Category: 1 2 3 4

Appendix B

Waterbody Data and Categorization Form

Digital Form – Use only if completing on a computer. Otherwise, use form in AKWAM manual.

Even if all or part of a waterbody is being rated as part of a wetland Assessment Area, it should also be rated separately on this form. Evaluate any waterbody that lies within your project's potential direct or indirect effect area, extending at least as far as the project's right-of-way limits.

The landward extent of the waterbody is the Ordinary High Water line for a non-tidal waterbody or the wetland boundary, whichever of those limits is located least landward.

1. Project name and ADOT&PF #: Port Lions Airport Improvements

2. Project specific waterbody identifier: Stream 02

3. Evaluation date: November 28, 2018

4. Evaluator(s) and affiliation: Alena Gerlek, HDR

5. Purpose of evaluation:

- Waterbody potentially affected by a proposed project Mitigation waterbody; pre-construction
 Mitigation waterbody; post-construction Other: _____

6. Waterbody location(s):

Legal: T. 26S; R. 22W; Sec. 28 and 33; Seward Meridian

Lat. (dec.deg.): 57.889884 Long: -152.855745 Datum: NAD 83

Nearest community: Port Lions, Alaska

Watershed: Settler Cove-Frontal Kizhuak Bay

7. Relationship to wetland AA:

Is this waterbody also part of one or more wetland AAs? Y N If yes, pertinent AA numbers:

Identifying numbers of related data: Observation Points 029, 579, 580, 586, 591, 592, 593, 597

Map (#) showing waterbody: Figure 2, Tile 1, 3

8. Waterbody description:

If a pond or lake, total area: _____ acres estimated? Or measured?

If a stream: width in project area: 3 feet (avg) 3-10 feet (range) gradient (% slope): 7-15%

Diameter and condition of any culverts in the project area on this waterbody: N/A

For any waterbody: avg. depth at low water 0.5 feet avg. depth at bankfull 1.5 feet

description or average diameter of substrate, if observable (e.g., silt, sand, 2", 10") Cobbles, gravel

Sketch the typical cross-sectional bank shape(s):



Describe the waterbody and surrounding land use and habitat types (water source, inlets, outlets, topography, adjacent land uses, relationship to other waterbodies and wetlands): Stream 02 is a perennial stream that flows from the slopes of Mount Ellison and flows through a culvert under Airport Road before ultimately discharging into Settler Cove. The stream flows primarily through upland open alder tall shrub and open Sitka spruce forest, and is 1 to 3 feet incised with upland banks.

Briefly describe the condition of the 6th level hydrologic unit subregion with respect to human activities. Estimate the % that is modified, and list the predominant types of modification. The Settler Cove-Frontal Kizhuak Bay watershed is mostly undisturbed (less than 1% modified). The watershed contains the forested mountainsides surrounding Kizhuak Bay, and is adjacent to the Kodiak National Wildlife Refuge. The community of Port Lions is within the watershed.

9. Classification of Waterbody:

Is the waterbody a

- Stream – flowing water
 Lake – larger than 20 acres in size when full of water
 Pond – a still waterbody smaller than 20 acres in size when full, unvegetated or with floating or submerged vegetation

Class (Cowardin)	Water Regime	Modifier (if any)	% of the Waterbody
R3UB	P/P		100%
			%
			%

Abbreviations:

Cowardin Classes (modified): Aquatic Bed (**AB**), Unvegetated (**UN**)

Water (Inundation) Regimes (see section 10 and Table 1 in the User's Manual): Permanent/Perennial I(**P/P**), Seasonal/Intermittent (**SI**), Temporary/Ephemeral (**T/E**)

Modifiers: Excavated (**X**), Impounded (**I**), Diked (**D**), Partly Drained (**PD**),

Artificial (**A**), Beaver-modified (**B**)

10. Disturbance of waterbody: Place check marks in the rows below that describe any past or present types of disturbance that may affect the waterbody within the project area. Describe any disturbance below.

- On the Category 5/Section 303(d) Impaired Waterbodies list (see Appendix I).
- Receives potentially low-quality runoff from development within the project area.
- Receives potentially low-quality runoff as non-point discharges from human activities upstream.
- Pipes discharge water from human developments upstream of, or within, the project area.
- Within the project area, the waterbody's banks or bed have been altered by grading, re-routing, placement of fill, excavation, or similar activities.
- The hydrologic regime has been altered by upstream developments (extensive storm drain systems, water withdrawals, a dam, etc.).
- The banks or bed are mildly altered by human activities such as trampling, removal of some vegetation, building or clearing to the top of bank.
- The waterbody has been affected by disturbance such as described above, but it has physically regained some features of natural banks or bed ("naturalized") such as development of pools and riffles, slight sinuosity, vertical or overhanging banks, overhanging vegetation.
- Known or suspected to contain invasive or exotic plants or animals – anywhere in the waterbody. (See User's manual Appendix F for noxious and invasive plant information and Appendix G for a list of invasive animal species.) Write **NA** if not within your expertise.
- Disturbance other than described above.
- None of the above; waterbody is in essentially pristine condition.

Describe any disturbance (types, age, intensity, source, location):

The stream is essentially pristine, but a small branch of the stream originates upslope from the material site and may have been influenced by its excavation.

List any noxious or invasive plant or animal species in the waterbody (Appendices F and G). If it is not within your expertise to accurately answer this question, or you were unable to investigate this, just cross out this question or record explanatory notes.

Orange hawkweed (*Hieracium aurantiacum*) and oxeye daisy (*Leucanthemum vulgare*) are present in the disturbed and undisturbed uplands near the stream (Appendix E). Introduced and feral animal species present in the area are listed in the Wildlife Assessment (Appendix D).

11. Habitat for Federally Listed or Candidate Threatened or Endangered Animals or Other Species of Concern (see Appendix H):

Waterbody is Documented (D) or Suspected (S) to support (check based on definitions in instructions):

- Primary or critical habitat (**list species**) D S _____
- Secondary habitat (**list species**) D S _____
- Incidental habitat (**list species**) D S _____

Sources for documented use (e.g., observations, records, etc): The Wildlife Assessment (Appendix D) notes that peregrine falcons and marbled murrelets are seasonal residents of the project area, and they may incidentally use the waterbody or adjacent areas.

12. Wildlife Habitat:

Evidence of overall wildlife use in/on the waterbody (check substantial, moderate, or low based on supporting evidence):

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

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

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

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

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

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

Other special wildlife features not addressed above:

13. Fish Habitat: (Answer this if the waterbody is used by fish or the existing situation is "correctable" such that the waterbody could be used by fish.

If the waterbody is not used by fish, fish use is not restorable, or is not desired from a management perspective, then check **NA** here.)

Is the part of the waterbody within the project area shown in the ADF&G Anadromous Waters Catalog? Y N

Fish species or groups known or suspected to use the waterbody (any part of it):

ADF&G captured 5 Dolly Varden (likely resident) during the May 2018 site visit. ADF&G determined that the reaches of the stream within the study area likely support resident Dolly Varden.

Sources used for identifying fish species potentially found in the waterbody:

ADF&G Anadromous Waters Catalog; AFD&G May 7, 2018 site visit (Appendix C)

Aquatic cover category (see Table 3) (check one): Optimal Adequate Poor

Is fish use of the waterbody precluded or substantially reduced by a culvert, dike, or other man-made structure or activity? Y N

Does the waterbody contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for anadromous fish or sport fish? Y N

Do noxious or invasive plant species (see **Appendix F**) or invasive fish species (see **Appendix G**) occur in the waterbody (anywhere)?

Y N

Comments, or refer to section 10 above:

Culvert may inhibit fish passage.

14. Recreation or Subsistence Potential:

Is the waterbody a known or potential recreation site? Y N Used for subsistence activities? Y N

If 'Yes,' describe (travel, transport, boating, fishing, trail parallels or crosses it, next to a park or camping area, in proximity to where kids play, etc.). Readily accessible from Port Lions via Airport Road.

Which best describes the current waterbody ownership in the project area?

Public ownership or public easement with general public access (no permission required)

Private ownership with general public access (no permission required)

Private or public ownership without general public access, or requiring permission for public access

Chart for Assignment of a Waterbody to a Management Category

Determine the appropriate category for the waterbody by working through the chart below. Look at the choices in the first column and choose the one that best describes the waterbody. Then, look at the choices in the second column to the right of the category you chose in column 1; choose the best type from column 2. To the right of that choice, select the best choice from column 3. Continue working to right through the chart until you reach the last column, where the Waterbody Category is assigned.

Waterbody Type	Waterbody Characteristics			Category	
Flowing Waterbody	Any flowing waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species (see Appendix H)			<input type="checkbox"/> 1	
	Any flowing waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary habitat for other species of concern (see Appendix H)			<input type="checkbox"/> 2	
	stream	open channel— perennial, seasonal, intermittent, temporary, or ephemeral	natural (undisturbed) or naturalized (recovered from disturbance, with natural-like banks, sinuosity, substrate)	supports salmon	<input type="checkbox"/> 1
				Supports resident and other non-salmon fish species	<input checked="" type="checkbox"/> 2
				Not known or thought to support fish	<input type="checkbox"/> 3
			Channelized and not naturalized	supports salmon	<input type="checkbox"/> 1
				does not support salmon	<input type="checkbox"/> 3
			Originally a stream, now in a culvert		
	ditch (originally formed by excavation; did not originally replace a stream)	open channel, supports salmon		<input type="checkbox"/> 2	
		Naturalized, does not support salmon		<input type="checkbox"/> 3	
		Not naturalized, does not support salmon		<input type="checkbox"/> 4	
	Inactive (abandoned) channel	Seasonally or more often connected to active channel			same as active channel
		irregularly (less than annually) connected to active channel that is...	Category 1		<input type="checkbox"/> 2
			Category 2		<input type="checkbox"/> 3
			Category 3		
Category 4			<input type="checkbox"/> 4		
No existing connection to an active channel, even at high water			<input type="checkbox"/> 4		
Still Waterbody (pond, lake)	Any still waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species (see Appendix H)			<input type="checkbox"/> 1	
	Any still waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary habitat for other species of concern (see Appendix H)			<input type="checkbox"/> 2	
	Other still waterbodies	supports <i>salmon</i>	Spawning or rearing in potentially affected area		<input type="checkbox"/> 1
			Affected area is migratory route only		<input type="checkbox"/> 2
		Supports resident and other non-salmon fish species used for subsistence or recreation	Spawning or rearing in potentially affected area		<input type="checkbox"/> 1
			Affected area is migratory route only		<input type="checkbox"/> 2
		Supports fish not used by humans			<input type="checkbox"/> 3
		<i>Does not support fish</i>			<input type="checkbox"/> 3

Assigned Waterbody Category: 1 2 3 4

Appendix B

Waterbody Data and Categorization Form

Digital Form – Use only if completing on a computer. Otherwise, use form in AKWAM manual.

Even if all or part of a waterbody is being rated as part of a wetland Assessment Area, it should also be rated separately on this form. Evaluate any waterbody that lies within your project's potential direct or indirect effect area, extending at least as far as the project's right-of-way limits.

The landward extent of the waterbody is the Ordinary High Water line for a non-tidal waterbody or the wetland boundary, whichever of those limits is located least landward.

1. Project name and ADOT&PF #: Port Lions Airport Improvements

2. Project specific waterbody identifier: Stream 04

3. Evaluation date: November 28, 2018

4. Evaluator(s) and affiliation: Alena Gerlek, HDR

5. Purpose of evaluation:

- Waterbody potentially affected by a proposed project Mitigation waterbody; pre-construction
 Mitigation waterbody; post-construction Other: _____

6. Waterbody location(s):

Legal: T. 26S; R. 22W; Sec. 28 and 33; Seward Meridian

Lat. (dec.deg.): 57.887395 Long: -152.856408 Datum: NAD 83

Nearest community: Port Lions, Alaska

Watershed: Settler Cove-Frontal Kizhuak Bay

7. Relationship to wetland AA:

Is this waterbody also part of one or more wetland AAs? Y N If yes, pertinent AA numbers: AA3

Identifying numbers of related data: Observation Points 030, 588, 590

Map (#) showing waterbody: Figure 2, Tile 1, 3

8. Waterbody description:

If a pond or lake, total area: _____ acres estimated? Or measured?

If a stream: width in project area: 5 feet (avg) 3-10 feet (range) gradient (% slope): 10%

Diameter and condition of any culverts in the project area on this waterbody: N/A

For any waterbody: avg. depth at low water 0.25 feet avg. depth at bankfull 0.5 feet

description or average diameter of substrate, if observable (e.g., silt, sand, 2", 10") Muck, litter

Sketch the typical cross-sectional bank shape(s):



Describe the waterbody and surrounding land use and habitat types (water source, inlets, outlets, topography, adjacent land uses, relationship to other waterbodies and wetlands): Stream 04 is a seep-fed intermittent stream that joins the unnamed perennial stream west of the airport at the base of Mount Ellison (Stream 02). Several seeps contribute to flow. The stream flows primarily through upland open alder tall shrub and open Sitka spruce forest, as well as one small willow-dominated wetland (AA3).

Streams 03, 05, and 06 have similar characteristics to Stream 04. This Form is also used to categorize these streams.

Briefly describe the condition of the 6th level hydrologic unit subregion with respect to human activities. Estimate the % that is modified, and list the predominant types of modification. The Settler Cove-Frontal Kizhuak Bay watershed is mostly undisturbed (less than 1% modified). The watershed contains the forested mountainsides surrounding Kizhuak Bay, and is adjacent to the Kodiak National Wildlife Refuge. The community of Port Lions is within the watershed.

9. Classification of Waterbody:

Is the waterbody a

- Stream – flowing water
 Lake – larger than 20 acres in size when full of water
 Pond – a still waterbody smaller than 20 acres in size when full, unvegetated or with floating or submerged vegetation

Class (Cowardin)	Water Regime	Modifier (if any)	% of the Waterbody
R4SB	S/I		100%
			%
			%

Abbreviations:

Cowardin Classes (modified): Aquatic Bed (AB), Unvegetated (UN)

Water (Inundation) Regimes (see section 10 and Table 1 in the User's Manual): Permanent/Perennial I(P/P), Seasonal/Intermittent (S/I), Temporary/Ephemeral (T/E)

Modifiers: Excavated (X), Impounded (I), Diked (D), Partly Drained (PD),

Artificial (A), Beaver-modified (B)

10. Disturbance of waterbody: Place check marks in the rows below that describe any past or present types of disturbance that may affect the waterbody within the project area. Describe any disturbance below.

- On the Category 5/Section 303(d) Impaired Waterbodies list (see Appendix I).
- Receives potentially low-quality runoff from development within the project area.
- Receives potentially low-quality runoff as non-point discharges from human activities upstream.
- Pipes discharge water from human developments upstream of, or within, the project area.
- Within the project area, the waterbody's banks or bed have been altered by grading, re-routing, placement of fill, excavation, or similar activities.
- The hydrologic regime has been altered by upstream developments (extensive storm drain systems, water withdrawals, a dam, etc.).
- The banks or bed are mildly altered by human activities such as trampling, removal of some vegetation, building or clearing to the top of bank.
- The waterbody has been affected by disturbance such as described above, but it has physically regained some features of natural banks or bed ("naturalized") such as development of pools and riffles, slight sinuosity, vertical or overhanging banks, overhanging vegetation.
- Known or suspected to contain invasive or exotic plants or animals – anywhere in the waterbody. (See User's manual Appendix F for noxious and invasive plant information and Appendix G for a list of invasive animal species.) Write **NA** if not within your expertise.
- Disturbance other than described above.
- None of the above; waterbody is in essentially pristine condition.

Describe any disturbance (types, age, intensity, source, location):

List any noxious or invasive plant or animal species in the waterbody (Appendices F and G). If it is not within your expertise to accurately answer this question, or you were unable to investigate this, just cross out this question or record explanatory notes.

Orange hawkweed (*Hieracium aurantiacum*) and oxeye daisy (*Leucanthemum vulgare*) are present in the study area, but were not documented near the stream (Appendix E). Introduced and feral animal species present in the area are listed in the Wildlife Assessment (Appendix D).

11. Habitat for Federally Listed or Candidate Threatened or Endangered Animals or Other Species of Concern (see Appendix H):

Waterbody is Documented (D) or Suspected (S) to support (check based on definitions in instructions):

Primary or critical habitat (**list species**) D S _____

Secondary habitat (**list species**) D S _____

Incidental habitat (**list species**) D S _____

Sources for documented use (e.g., observations, records, etc): The Wildlife Assessment (Appendix D) notes that peregrine falcons and marbled murrelets are seasonal residents of the project area, and they may incidentally use the waterbody or adjacent areas.

12. Wildlife Habitat:

Evidence of overall wildlife use in/on the waterbody (check substantial, moderate, or low based on supporting evidence):

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

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

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

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

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

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

Other special wildlife features not addressed above:

13. Fish Habitat: (Answer this if the waterbody is used by fish or the existing situation is "correctable" such that the waterbody could be used by fish.

If the waterbody is not used by fish, fish use is not restorable, or is not desired from a management perspective, then check **NA** here.)

Is the part of the waterbody within the project area shown in the ADF&G Anadromous Waters Catalog? Y N

Fish species or groups known or suspected to use the waterbody (any part of it):

Insufficient flow to support fish.

Sources used for identifying fish species potentially found in the waterbody:

ADF&G Anadromous Waters Catalog; AFD&G May 7, 2018 site visit (Appendix C)

Aquatic cover category (see Table 3) (check one): Optimal Adequate Poor

Is fish use of the waterbody precluded or substantially reduced by a culvert, dike, or other man-made structure or activity? Y N

Does the waterbody contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for anadromous fish or sport fish? Y N

Do noxious or invasive plant species (see **Appendix F**) or invasive fish species (see **Appendix G**) occur in the waterbody (anywhere)?

Y N

Comments, or refer to section 10 above:

14. Recreation or Subsistence Potential:

Is the waterbody a known or potential recreation site? Y N Used for subsistence activities? Y N

If 'Yes,' describe (travel, transport, boating, fishing, trail parallels or crosses it, next to a park or camping area, in proximity to where kids play, etc.).

Which best describes the current waterbody ownership in the project area?

Public ownership or public easement with general public access (no permission required)

Private ownership with general public access (no permission required)

Private or public ownership without general public access, or requiring permission for public access

Chart for Assignment of a Waterbody to a Management Category

Determine the appropriate category for the waterbody by working through the chart below. Look at the choices in the first column and choose the one that best describes the waterbody. Then, look at the choices in the second column to the right of the category you chose in column 1; choose the best type from column 2. To the right of that choice, select the best choice from column 3. Continue working to right through the chart until you reach the last column, where the Waterbody Category is assigned.

Waterbody Type	Waterbody Characteristics			Category	
Flowing Waterbody	Any flowing waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species (see Appendix H)			<input type="checkbox"/> 1	
	Any flowing waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary habitat for other species of concern (see Appendix H)			<input type="checkbox"/> 2	
	stream	open channel— perennial, seasonal, intermittent, temporary, or ephemeral	natural (undisturbed) or naturalized (recovered from disturbance, with natural-like banks, sinuosity, substrate)	supports salmon	<input type="checkbox"/> 1
				Supports resident and other non-salmon fish species	<input type="checkbox"/> 2
				Not known or thought to support fish	<input checked="" type="checkbox"/> 3
		Channelized and not naturalized	supports salmon	<input type="checkbox"/> 1	
			does not support salmon	<input type="checkbox"/> 3	
		Originally a stream, now in a culvert			<input type="checkbox"/> 4
	ditch (originally formed by excavation; did not originally replace a stream)	open channel, supports salmon			<input type="checkbox"/> 2
		Naturalized, does not support salmon			<input type="checkbox"/> 3
		Not naturalized, does not support salmon			<input type="checkbox"/> 4
	Inactive (abandoned) channel	Seasonally or more often connected to active channel			same as active channel
		irregularly (less than annually) connected to active channel that is...	Category 1		<input type="checkbox"/> 2
			Category 2		<input type="checkbox"/> 3
			Category 3		
Category 4			<input type="checkbox"/> 4		
No existing connection to an active channel, even at high water			<input type="checkbox"/> 4		
Still Waterbody (pond, lake)	Any still waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species (see Appendix H)			<input type="checkbox"/> 1	
	Any still waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary habitat for other species of concern (see Appendix H)			<input type="checkbox"/> 2	
	Other still waterbodies	supports salmon	Spawning or rearing in potentially affected area		<input type="checkbox"/> 1
			Affected area is migratory route only		<input type="checkbox"/> 2
		Supports resident and other non-salmon fish species used for subsistence or recreation	Spawning or rearing in potentially affected area		<input type="checkbox"/> 1
			Affected area is migratory route only		<input type="checkbox"/> 2
		Supports fish not used by humans			<input type="checkbox"/> 3
		Does not support fish			<input type="checkbox"/> 3

Assigned Waterbody Category: 1 2 3 4

Appendix B

Waterbody Data and Categorization Form

Digital Form – Use only if completing on a computer. Otherwise, use form in AKWAM manual.

Even if all or part of a waterbody is being rated as part of a wetland Assessment Area, it should also be rated separately on this form. Evaluate any waterbody that lies within your project's potential direct or indirect effect area, extending at least as far as the project's right-of-way limits.

The landward extent of the waterbody is the Ordinary High Water line for a non-tidal waterbody or the wetland boundary, whichever of those limits is located least landward.

1. Project name and ADOT&PF #: Port Lions Airport Improvements

2. Project specific waterbody identifier: Stream 09

3. Evaluation date: November 29, 2018

4. Evaluator(s) and affiliation: Alena Gerlek, HDR

5. Purpose of evaluation:

- Waterbody potentially affected by a proposed project Mitigation waterbody; pre-construction
 Mitigation waterbody; post-construction Other: _____

6. Waterbody location(s):

Legal: T. 26S; R. 22W; Sec. 28 and 33; Seward Meridian

Lat. (dec.deg.): 57.885893 Long: -152.850508 Datum: NAD 83

Nearest community: Port Lions, Alaska

Watershed: Settler Cove-Frontal Kizhuak Bay

7. Relationship to wetland AA:

Is this waterbody also part of one or more wetland AAs? Y N If yes, pertinent AA numbers: AA4

Identifying numbers of related data: Observation Points 015, 017, 019, 020, 564

Map (#) showing waterbody: Figure 2, Tile 1, 3

8. Waterbody description:

If a pond or lake, total area: _____ acres estimated? Or measured?

If a stream: width in project area: 2 feet (avg) 2-4feet (range) gradient (% slope): 5-10%

Diameter and condition of any culverts in the project area on this waterbody: N/A

For any waterbody: avg. depth at low water 0.25 feet avg. depth at bankfull 0.5 feet

description or average diameter of substrate, if observable (e.g., silt, sand, 2", 10") muck, gravel

Sketch the typical cross-sectional bank shape(s):



Describe the waterbody and surrounding land use and habitat types (water source, inlets, outlets, topography, adjacent land uses, relationship to other waterbodies and wetlands): Stream 09 is a seep-fed intermittent stream that terminates in uplands at the base of Mount Ellison. Flow from the stream likely infiltrates into the thick layers of fine volcanic ash prevalent throughout the study area and likely continues as shallow subsurface flow before entering the large wetland complex northeast of the airport (AA1). The stream flows primarily through upland open alder tall shrub, as well as one small wetland dominated by Kenai birch and alder shrubs (AA4). The stream is 1 to 2 feet incised with upland banks.

Streams 07, 08, 10 and 11 have similar characteristics to Stream 09. This Form is also used to categorize these streams.

Briefly describe the condition of the 6th level hydrologic unit subregion with respect to human activities. Estimate the % that is modified, and list the predominant types of modification. The Settler Cove-Frontal Kizhuak Bay watershed is mostly undisturbed (less than 1% modified). The watershed contains the forested mountainsides surrounding Kizhuak Bay, and is adjacent to the Kodiak National Wildlife Refuge. The community of Port Lions is within the watershed.

9. Classification of Waterbody:

Is the waterbody a

- Stream – flowing water
- Lake – larger than 20 acres in size when full of water
- Pond – a still waterbody smaller than 20 acres in size when full, unvegetated or with floating or submerged vegetation

Class (Cowardin)	Water Regime	Modifier (if any)	% of the Waterbody
R4SB	S/I		100%
			%
			%

Abbreviations:

Cowardin Classes (modified): Aquatic Bed (AB), Unvegetated (UN)

Water (Inundation) Regimes (see section 10 and Table 1 in the User’s Manual): Permanent/Perennial I(P/P), Seasonal/Intermittent (S/I), Temporary/Ephemeral (T/E)

Modifiers: Excavated (X), Impounded (I), Diked (D), Partly Drained (PD),

Artificial (A), Beaver-modified (B)

10. Disturbance of waterbody: Place check marks in the rows below that describe any past or present types of disturbance that may affect the waterbody within the project area. Describe any disturbance below.

- On the Category 5/Section 303(d) Impaired Waterbodies list (see Appendix I).
- Receives potentially low-quality runoff from development within the project area.
- Receives potentially low-quality runoff as non-point discharges from human activities upstream.
- Pipes discharge water from human developments upstream of, or within, the project area.
- Within the project area, the waterbody’s banks or bed have been altered by grading, re-routing, placement of fill, excavation, or similar activities.
- The hydrologic regime has been altered by upstream developments (extensive storm drain systems, water withdrawals, a dam, etc.).
- The banks or bed are mildly altered by human activities such as trampling, removal of some vegetation, building or clearing to the top of bank.
- The waterbody has been affected by disturbance such as described above, but it has physically regained some features of natural banks or bed (“naturalized”) such as development of pools and riffles, slight sinuosity, vertical or overhanging banks, overhanging vegetation.
- Known or suspected to contain invasive or exotic plants or animals – anywhere in the waterbody. (See User’s manual Appendix F for noxious and invasive plant information and Appendix G for a list of invasive animal species.) Write **NA** if not within your expertise.
- Disturbance other than described above.
- None of the above; waterbody is in essentially pristine condition.

Describe any disturbance (types, age, intensity, source, location):

The stream is essentially pristine, but is within 100 feet of the material site and may have been influenced by its excavation. Infiltration of the stream at the base of Mount Ellison appears to be natural and not caused by disturbance.

List any noxious or invasive plant or animal species in the waterbody (Appendices F and G). If it is not within your expertise to accurately answer this question, or you were unable to investigate this, just cross out this question or record explanatory notes.

Orange hawkweed (*Hieracium aurantiacum*) and oxeye daisy (*Leucanthemum vulgare*) are present in the disturbed and undisturbed uplands near the stream (Appendix E). Introduced and feral animal species present in the area are listed in the Wildlife Assessment (Appendix D).

11. Habitat for Federally Listed or Candidate Threatened or Endangered Animals or Other Species of Concern (see Appendix H):

Waterbody is Documented (D) or Suspected (S) to support (check based on definitions in instructions):

- Primary or critical habitat (**list species**) D S _____
- Secondary habitat (**list species**) D S _____
- Incidental habitat (**list species**) D S _____

Sources for documented use (e.g., observations, records, etc): The Wildlife Assessment (Appendix D) notes that peregrine falcons and marbled murrelets are seasonal residents of the project area, and they may incidentally use the waterbody or adjacent areas.

12. Wildlife Habitat:

Evidence of overall wildlife use in/on the waterbody (check substantial, moderate, or low based on supporting evidence):

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

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

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

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

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

- observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources

interviews with local biologists with knowledge of the AA

Other special wildlife features not addressed above:

13. Fish Habitat: (Answer this if the waterbody is used by fish or the existing situation is "correctable" such that the waterbody could be used by fish.

If the waterbody is not used by fish, fish use is not restorable, or is not desired from a management perspective, then check **NA** here.)

Is the part of the waterbody within the project area shown in the ADF&G Anadromous Waters Catalog? Y N

Fish species or groups known or suspected to use the waterbody (any part of it):

Insufficient flow to support fish

Sources used for identifying fish species potentially found in the waterbody:

ADF&G Anadromous Waters Catalog; AFD&G May 7, 2018 site visit (Appendix C)

Aquatic cover category (see Table 3) (check one): Optimal Adequate Poor

Is fish use of the waterbody precluded or substantially reduced by a culvert, dike, or other man-made structure or activity? Y N

Does the waterbody contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for anadromous fish or sport fish? Y N

Do noxious or invasive plant species (see **Appendix F**) or invasive fish species (see **Appendix G**) occur in the waterbody (anywhere)?

Y N

Comments, or refer to section 10 above:

14. Recreation or Subsistence Potential:

Is the waterbody a known or potential recreation site? Y N Used for subsistence activities? Y N

If 'Yes,' describe (travel, transport, boating, fishing, trail parallels or crosses it, next to a park or camping area, in proximity to where kids play, etc.). Readily accessible from Port Lions via Airport Road.

Which best describes the current waterbody ownership in the project area?

Public ownership or public easement with general public access (no permission required)

Private ownership with general public access (no permission required)

Private or public ownership without general public access, or requiring permission for public access

Chart for Assignment of a Waterbody to a Management Category

Determine the appropriate category for the waterbody by working through the chart below. Look at the choices in the first column and choose the one that best describes the waterbody. Then, look at the choices in the second column to the right of the category you chose in column 1; choose the best type from column 2. To the right of that choice, select the best choice from column 3. Continue working to right through the chart until you reach the last column, where the Waterbody Category is assigned.

Waterbody Type	Waterbody Characteristics			Category	
Flowing Waterbody	Any flowing waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species (see Appendix H)			<input type="checkbox"/> 1	
	Any flowing waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary habitat for other species of concern (see Appendix H)			<input type="checkbox"/> 2	
	stream	open channel— perennial, seasonal, intermittent, temporary, or ephemeral	natural (undisturbed) or naturalized (recovered from disturbance, with natural-like banks, sinuosity, substrate)	supports salmon	<input type="checkbox"/> 1
				Supports resident and other non-salmon fish species	<input type="checkbox"/> 2
				Not known or thought to support fish	<input checked="" type="checkbox"/> 3
			Channelized and not naturalized	supports salmon	<input type="checkbox"/> 1
				does not support salmon	<input type="checkbox"/> 3
			Originally a stream, now in a culvert		
	ditch (originally formed by excavation; did not originally replace a stream)	open channel, supports salmon			<input type="checkbox"/> 2
		Naturalized, does not support salmon			<input type="checkbox"/> 3
		Not naturalized, does not support salmon			<input type="checkbox"/> 4
	Inactive (abandoned) channel	Seasonally or more often connected to active channel			same as active channel
		irregularly (less than annually) connected to active channel that is...	Category 1		<input type="checkbox"/> 2
			Category 2		<input type="checkbox"/> 3
			Category 3		
Category 4			<input type="checkbox"/> 4		
No existing connection to an active channel, even at high water			<input type="checkbox"/> 4		
Still Waterbody (pond, lake)	Any still waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species (see Appendix H)			<input type="checkbox"/> 1	
	Any still waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary habitat for other species of concern (see Appendix H)			<input type="checkbox"/> 2	
	Other still waterbodies	supports <i>salmon</i>	Spawning or rearing in potentially affected area		<input type="checkbox"/> 1
			Affected area is migratory route only		<input type="checkbox"/> 2
		Supports resident and other non-salmon fish species used for subsistence or recreation	Spawning or rearing in potentially affected area		<input type="checkbox"/> 1
			Affected area is migratory route only		<input type="checkbox"/> 2
		Supports fish not used by humans			<input type="checkbox"/> 3
		<i>Does not support fish</i>			<input type="checkbox"/> 3

Assigned Waterbody Category: 1 2 3 4

Appendix B

Waterbody Data and Categorization Form

Digital Form – Use only if completing on a computer. Otherwise, use form in AKWAM manual.

Even if all or part of a waterbody is being rated as part of a wetland Assessment Area, it should also be rated separately on this form. Evaluate any waterbody that lies within your project's potential direct or indirect effect area, extending at least as far as the project's right-of-way limits.

The landward extent of the waterbody is the Ordinary High Water line for a non-tidal waterbody or the wetland boundary, whichever of those limits is located least landward.

1. Project name and ADOT&PF #: Port Lions Airport Improvements

2. Project specific waterbody identifier: Stream 12

3. Evaluation date: November 29, 2018

4. Evaluator(s) and affiliation: Alena Gerlek, HDR

5. Purpose of evaluation:

- Waterbody potentially affected by a proposed project Mitigation waterbody; pre-construction
 Mitigation waterbody; post-construction Other: _____

6. Waterbody location(s):

Legal: T. 26S; R. 22W; Sec. 33; Seward Meridian

Lat. (dec.deg.): 57.885839 Long: -152.840661 Datum: NAD 83

Nearest community: Port Lions, Alaska

Watershed: Settler Cove-Frontal Kizhuak Bay

7. Relationship to wetland AA:

Is this waterbody also part of one or more wetland AAs? Y N If yes, pertinent AA numbers: AA1

Identifying numbers of related data: Observation Points 036, 598, 599

Map (#) showing waterbody: Figure 2, Tile 3, 4

8. Waterbody description:

If a pond or lake, total area: _____ acres estimated? Or measured?

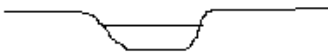
If a stream: width in project area: 2 feet (avg) 1-6 feet (range) gradient (% slope): 3%

Diameter and condition of any culverts in the project area on this waterbody: 3 24" culverts where the stream is crossed by Airport Road

For any waterbody: avg. depth at low water 1 feet avg. depth at bankfull 2 feet

description or average diameter of substrate, if observable (e.g., silt, sand, 2", 10") Muck, organics

Sketch the typical cross-sectional bank shape(s):



Describe the waterbody and surrounding land use and habitat types (water source, inlets, outlets, topography, adjacent land uses, relationship to other waterbodies and wetlands): Stream 12 is a network of intermittent and perennial streams flowing through large wetland complex northeast of the airport (AA1). The water source for the stream includes groundwater discharge and multiple intermittent streams from the surrounding areas (Streams 07, 09, 10, 11, 13, 14, 15, 16, 17). The stream widens over the course of its flowpath before flowing through three culverts under Airport Road and discharging into Settler Cove.

Briefly describe the condition of the 6th level hydrologic unit subregion with respect to human activities. Estimate the % that is modified, and list the predominant types of modification. The Settler Cove-Frontal Kizhuak Bay watershed is mostly undisturbed (less than 1% modified). The watershed contains the forested mountainsides surrounding Kizhuak Bay, and is adjacent to the Kodiak National Wildlife Refuge. The community of Port Lions is within the watershed.

9. Classification of Waterbody:

Is the waterbody a

Stream – flowing water

Lake – larger than 20 acres in size when full of water

Pond – a still waterbody smaller than 20 acres in size when full, unvegetated or with floating or submerged vegetation

Class (Cowardin)	Water Regime	Modifier (if any)	% of the Waterbody
R3UB	P/P		100%
			%
			%

Abbreviations:

Cowardin Classes (modified): Aquatic Bed (AB), Unvegetated (UN)

Water (Inundation) Regimes (see section 10 and Table 1 in the User's Manual): Permanent/Perennial I(P/P), Seasonal/Intermittent (SI), Temporary/Ephemeral (T/E)

Modifiers: Excavated (X), Impounded (I), Diked (D), Partly Drained (PD),

Artificial (A), Beaver-modified (B)

10. Disturbance of waterbody: Place check marks in the rows below that describe any past or present types of disturbance that may affect the waterbody within the project area. Describe any disturbance below.

- On the Category 5/Section 303(d) Impaired Waterbodies list (see Appendix I).
- Receives potentially low-quality runoff from development within the project area.
- Receives potentially low-quality runoff as non-point discharges from human activities upstream.
- Pipes discharge water from human developments upstream of, or within, the project area.
- Within the project area, the waterbody's banks or bed have been altered by grading, re-routing, placement of fill, excavation, or similar activities.
- The hydrologic regime has been altered by upstream developments (extensive storm drain systems, water withdrawals, a dam, etc.).
- The banks or bed are mildly altered by human activities such as trampling, removal of some vegetation, building or clearing to the top of bank.
- The waterbody has been affected by disturbance such as described above, but it has physically regained some features of natural banks or bed ("naturalized") such as development of pools and riffles, slight sinuosity, vertical or overhanging banks, overhanging vegetation.
- Known or suspected to contain invasive or exotic plants or animals – anywhere in the waterbody. (See User's manual Appendix F for noxious and invasive plant information and Appendix G for a list of invasive animal species.) Write **NA** if not within your expertise.
- Disturbance other than described above.
- None of the above; waterbody is in essentially pristine condition.

Describe any disturbance (types, age, intensity, source, location):

The stream may receive some runoff or gravel spray from the airport and Airport Road, and is routed through three culverts that are likely a barrier to fish passage.

List any noxious or invasive plant or animal species in the waterbody (Appendices F and G). If it is not within your expertise to accurately answer this question, or you were unable to investigate this, just cross out this question or record explanatory notes.

Orange hawkweed (*Hieracium aurantiacum*) and oxeye daisy (*Leucanthemum vulgare*) are present along Airport Road and the airport runway (Appendix E). Introduced and feral animal species present in the area are listed in the Wildlife Assessment (Appendix D).

11. Habitat for Federally Listed or Candidate Threatened or Endangered Animals or Other Species of Concern (see Appendix H):

Waterbody is Documented (D) or Suspected (S) to support (check based on definitions in instructions):

- Primary or critical habitat (**list species**) D S _____
- Secondary habitat (**list species**) D S _____
- Incidental habitat (**list species**) D S _____

Sources for documented use (e.g., observations, records, etc): The Wildlife Assessment (Appendix D) notes that peregrine falcons and marbled murrelets are seasonal residents of the project area, and they may incidentally use the waterbody or adjacent areas.

12. Wildlife Habitat:

Evidence of overall wildlife use in/on the waterbody (check substantial, moderate, or low based on supporting evidence):

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

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

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

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

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

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

Other special wildlife features not addressed above:

13. Fish Habitat: (Answer this if the waterbody is used by fish or the existing situation is "correctable" such that the waterbody could be used by fish. If the waterbody is not used by fish, fish use is not restorable, or is not desired from a management perspective, then check **NA** here.)

Is the part of the waterbody within the project area shown in the ADF&G Anadromous Waters Catalog? Y N

Fish species or groups known or suspected to use the waterbody (any part of it):

No fish were captured or observed upstream of the culverts during the May 2018 site visit.

Sources used for identifying fish species potentially found in the waterbody:

ADF&G Anadromous Waters Catalog; AFD&G May 7, 2018 site visit (Appendix C)

Aquatic cover category (see Table 3) (check one): Optimal Adequate Poor

Is fish use of the waterbody precluded or substantially reduced by a culvert, dike, or other man-made structure or activity? Y N

Does the waterbody contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for anadromous fish or sport fish? Y N

Do noxious or invasive plant species (see **Appendix F**) or invasive fish species (see **Appendix G**) occur in the waterbody (anywhere)?

Y N

Comments, or refer to section 10 above:

14. Recreation or Subsistence Potential:

Is the waterbody a known or potential recreation site? Y N Used for subsistence activities? Y N

If 'Yes,' describe (travel, transport, boating, fishing, trail parallels or crosses it, next to a park or camping area, in proximity to where kids play, etc.). Readily accessible from Port Lions via Airport Road.

Which best describes the current waterbody ownership in the project area?

Public ownership or public easement with general public access (no permission required)

Private ownership with general public access (no permission required)

Private or public ownership without general public access, or requiring permission for public access

Based on the absence of fish, the AKWAM Waterbody Data and Characterization Form places Stream 12 in Category III. However, wetland AA1 was rated as Category I based on its relatively high performance of multiple functions. AKWAM allows investigators to override categorizations based on best professional judgment. Stream 12 was assigned to Category I for its contributions to the functional performance of wetland AA1.

Chart for Assignment of a Waterbody to a Management Category

Determine the appropriate category for the waterbody by working through the chart below. Look at the choices in the first column and choose the one that best describes the waterbody. Then, look at the choices in the second column to the right of the category you chose in column 1; choose the best type from column 2. To the right of that choice, select the best choice from column 3. Continue working to right through the chart until you reach the last column, where the Waterbody Category is assigned.

Waterbody Type	Waterbody Characteristics			Category	
Flowing Waterbody	Any flowing waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species (see Appendix H)			<input type="checkbox"/> 1	
	Any flowing waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary habitat for other species of concern (see Appendix H)			<input type="checkbox"/> 2	
	stream	open channel— perennial, seasonal, intermittent, temporary, or ephemeral	natural (undisturbed) or naturalized (recovered from disturbance, with natural-like banks, sinuosity, substrate)	supports salmon	<input type="checkbox"/> 1
				Supports resident and other non-salmon fish species	<input type="checkbox"/> 2
				Not known or thought to support fish	<input type="checkbox"/> 3
			Channelized and not naturalized	supports salmon	<input type="checkbox"/> 1
				does not support salmon	<input type="checkbox"/> 3
			Originally a stream, now in a culvert		
	ditch (originally formed by excavation; did not originally replace a stream)	open channel, supports salmon			<input type="checkbox"/> 2
		Naturalized, does not support salmon			<input type="checkbox"/> 3
		Not naturalized, does not support salmon			<input type="checkbox"/> 4
	Inactive (abandoned) channel	Seasonally or more often connected to active channel			same as active channel
		irregularly (less than annually) connected to active channel that is...	Category 1		<input type="checkbox"/> 2
			Category 2		<input type="checkbox"/> 3
			Category 3		
Category 4			<input type="checkbox"/> 4		
No existing connection to an active channel, even at high water			<input type="checkbox"/> 4		
Still Waterbody (pond, lake)	Any still waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species (see Appendix H)			<input type="checkbox"/> 1	
	Any still waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary habitat for other species of concern (see Appendix H)			<input type="checkbox"/> 2	
	Other still waterbodies	supports <i>salmon</i>	Spawning or rearing in potentially affected area		<input type="checkbox"/> 1
			Affected area is migratory route only		<input type="checkbox"/> 2
		Supports resident and other non-salmon fish species used for subsistence or recreation	Spawning or rearing in potentially affected area		<input type="checkbox"/> 1
			Affected area is migratory route only		<input type="checkbox"/> 2
		Supports fish not used by humans			<input type="checkbox"/> 3
		<i>Does not support fish</i>			<input type="checkbox"/> 3

Assigned Waterbody Category: 1 2 3 4

Appendix B

Waterbody Data and Categorization Form

Digital Form – Use only if completing on a computer. Otherwise, use form in AKWAM manual.

Even if all or part of a waterbody is being rated as part of a wetland Assessment Area, it should also be rated separately on this form. Evaluate any waterbody that lies within your project's potential direct or indirect effect area, extending at least as far as the project's right-of-way limits.

The landward extent of the waterbody is the Ordinary High Water line for a non-tidal waterbody or the wetland boundary, whichever of those limits is located least landward.

1. Project name and ADOT&PF #: Port Lions Airport Improvements

2. Project specific waterbody identifier: Stream 17

3. Evaluation date: November 29, 2018

4. Evaluator(s) and affiliation: Alena Gerlek, HDR

5. Purpose of evaluation:

- Waterbody potentially affected by a proposed project Mitigation waterbody; pre-construction
 Mitigation waterbody; post-construction Other: _____

6. Waterbody location(s):

Legal: T. 26S; R. 22W; Sec. 27 and 34; Seward Meridian

Lat. (dec.deg.): 57.888215 Long: -152.839972 Datum: NAD 83

Nearest community: Port Lions, Alaska

Watershed: Settler Cove-Frontal Kizhuak Bay

7. Relationship to wetland AA:

Is this waterbody also part of one or more wetland AAs? Y N If yes, pertinent AA numbers:

Identifying numbers of related data: Observation Points 034

Map (#) showing waterbody: Figure 2, Tile 2

8. Waterbody description:

If a pond or lake, total area: _____ acres estimated? Or measured?

If a stream: width in project area: 2 feet (avg) 1-3 feet (range) gradient (% slope): 5-10%

Diameter and condition of any culverts in the project area on this waterbody: 3 24" culverts where the stream is crossed by Airport Road

For any waterbody: avg. depth at low water 0.25 feet avg. depth at bankfull 1 feet

description or average diameter of substrate, if observable (e.g., silt, sand, 2", 10") Cobbles, gravel

Sketch the typical cross-sectional bank shape(s):



Describe the waterbody and surrounding land use and habitat types (water source, inlets, outlets, topography, adjacent land uses, relationship to other waterbodies and wetlands): Stream 17 is an intermittent stream draining from the wetlands and pond perched on a bench above the airport (AA5) to the perennial stream (Stream 12) flowing through the large wetland complex northeast of the airport (AA1). The stream flows primarily through upland open alder tall shrub and open Sitka spruce forest, and is 1 foot incised with upland banks.

Streams 13, 14, 15, and 16 have similar characteristics to Stream 17. This Form is also used to categorize these streams.

Briefly describe the condition of the 6th level hydrologic unit subregion with respect to human activities. Estimate the % that is modified, and list the predominant types of modification. The Settler Cove-Frontal Kizhuak Bay watershed is mostly undisturbed (less than 1% modified). The watershed contains the forested mountainsides surrounding Kizhuak Bay, and is adjacent to the Kodiak National Wildlife Refuge. The community of Port Lions is within the watershed.

9. Classification of Waterbody:

Is the waterbody a

- Stream – flowing water
 Lake – larger than 20 acres in size when full of water
 Pond – a still waterbody smaller than 20 acres in size when full, unvegetated or with floating or submerged vegetation

Class (Cowardin)	Water Regime	Modifier (if any)	% of the Waterbody
R4SB	S/I		100%
			%
			%

Abbreviations:

Cowardin Classes (modified): Aquatic Bed (AB), Unvegetated (UN)

Water (Inundation) Regimes (see section 10 and Table 1 in the User's Manual): Permanent/Perennial I(P/P), Seasonal/Intermittent (S/I), Temporary/Ephemeral (T/E)

Modifiers: Excavated (X), Impounded (I), Diked (D), Partly Drained (PD),

Artificial (A), Beaver-modified (B)

10. Disturbance of waterbody: Place check marks in the rows below that describe any past or present types of disturbance that may affect the waterbody within the project area. Describe any disturbance below.

- On the Category 5/Section 303(d) Impaired Waterbodies list (see Appendix I).
- Receives potentially low-quality runoff from development within the project area.
- Receives potentially low-quality runoff as non-point discharges from human activities upstream.
- Pipes discharge water from human developments upstream of, or within, the project area.
- Within the project area, the waterbody's banks or bed have been altered by grading, re-routing, placement of fill, excavation, or similar activities.
- The hydrologic regime has been altered by upstream developments (extensive storm drain systems, water withdrawals, a dam, etc.).
- The banks or bed are mildly altered by human activities such as trampling, removal of some vegetation, building or clearing to the top of bank.
- The waterbody has been affected by disturbance such as described above, but it has physically regained some features of natural banks or bed ("naturalized") such as development of pools and riffles, slight sinuosity, vertical or overhanging banks, overhanging vegetation.
- Known or suspected to contain invasive or exotic plants or animals – anywhere in the waterbody. (See User's manual Appendix F for noxious and invasive plant information and Appendix G for a list of invasive animal species.) Write **NA** if not within your expertise.
- Disturbance other than described above.
- None of the above; waterbody is in essentially pristine condition.

Describe any disturbance (types, age, intensity, source, location):

List any noxious or invasive plant or animal species in the waterbody (Appendices F and G). If it is not within your expertise to accurately answer this question, or you were unable to investigate this, just cross out this question or record explanatory notes.

Orange hawkweed (*Hieracium aurantiacum*) and oxeye daisy (*Leucanthemum vulgare*) are present in the study area, but were not documented near the stream (Appendix E). Introduced and feral animal species present in the area are listed in the Wildlife Assessment (Appendix D).

11. Habitat for Federally Listed or Candidate Threatened or Endangered Animals or Other Species of Concern (see Appendix H):

Waterbody is Documented (D) or Suspected (S) to support (check based on definitions in instructions):

Primary or critical habitat (**list species**) D S _____

Secondary habitat (**list species**) D S _____

Incidental habitat (**list species**) D S _____

Sources for documented use (e.g., observations, records, etc): The Wildlife Assessment (Appendix D) notes that peregrine falcons and marbled murrelets are seasonal residents of the project area, and they may incidentally use the waterbody or adjacent areas.

12. Wildlife Habitat:

Evidence of overall wildlife use in/on the waterbody (check substantial, moderate, or low based on supporting evidence):

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

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

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

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

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

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

Other special wildlife features not addressed above:

13. Fish Habitat: (Answer this if the waterbody is used by fish or the existing situation is "correctable" such that the waterbody could be used by fish.

If the waterbody is not used by fish, fish use is not restorable, or is not desired from a management perspective, then check **NA** here.)

Is the part of the waterbody within the project area shown in the ADF&G Anadromous Waters Catalog? **Y** **N**

Fish species or groups known or suspected to use the waterbody (any part of it):

Insufficient flow to support fish.

Sources used for identifying fish species potentially found in the waterbody:

ADF&G Anadromous Waters Catalog; AFD&G May 7, 2018 site visit (Appendix C)

Aquatic cover category (see Table 3) (check one): Optimal Adequate Poor

Is fish use of the waterbody precluded or substantially reduced by a culvert, dike, or other man-made structure or activity? **Y** **N**

Does the waterbody contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for anadromous fish or sport fish? **Y** **N**

Do noxious or invasive plant species (see **Appendix F**) or invasive fish species (see **Appendix G**) occur in the waterbody (anywhere)?

Y **N**

Comments, or refer to section 10 above:

14. Recreation or Subsistence Potential:

Is the waterbody a known or potential recreation site? **Y** **N** Used for subsistence activities? **Y** **N**

If 'Yes,' describe (travel, transport, boating, fishing, trail parallels or crosses it, next to a park or camping area, in proximity to where kids play, etc.). Readily accessible from Port Lions via Airport Road.

Which best describes the current waterbody ownership in the project area?

Public ownership or public easement with general public access (no permission required)

Private ownership with general public access (no permission required)

Private or public ownership without general public access, or requiring permission for public access

Chart for Assignment of a Waterbody to a Management Category

Determine the appropriate category for the waterbody by working through the chart below. Look at the choices in the first column and choose the one that best describes the waterbody. Then, look at the choices in the second column to the right of the category you chose in column 1; choose the best type from column 2. To the right of that choice, select the best choice from column 3. Continue working to right through the chart until you reach the last column, where the Waterbody Category is assigned.

Waterbody Type	Waterbody Characteristics			Category		
Flowing Waterbody	Any flowing waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species (see Appendix H)			<input type="checkbox"/> 1		
	Any flowing waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary habitat for other species of concern (see Appendix H)			<input type="checkbox"/> 2		
	stream	open channel— perennial, seasonal, intermittent, temporary, or ephemeral	natural (undisturbed) or naturalized (recovered from disturbance, with natural-like banks, sinuosity, substrate)	supports salmon	<input type="checkbox"/> 1	
				Supports resident and other non-salmon fish species	<input type="checkbox"/> 2	
				Not known or thought to support fish	<input checked="" type="checkbox"/> 3	
		Channelized and not naturalized			supports salmon	<input type="checkbox"/> 1
					does not support salmon	<input type="checkbox"/> 3
		Originally a stream, now in a culvert			<input type="checkbox"/> 4	
	ditch (originally formed by excavation; did not originally replace a stream)	open channel, supports salmon			<input type="checkbox"/> 2	
		Naturalized, does not support salmon			<input type="checkbox"/> 3	
		Not naturalized, does not support salmon			<input type="checkbox"/> 4	
	Inactive (abandoned) channel	Seasonally or more often connected to active channel			same as active channel	
		irregularly (less than annually) connected to active channel that is...	Category 1		<input type="checkbox"/> 2	
			Category 2		<input type="checkbox"/> 3	
			Category 3			
Category 4			<input type="checkbox"/> 4			
No existing connection to an active channel, even at high water			<input type="checkbox"/> 4			
Still Waterbody (pond, lake)	Any still waterbody that is documented or suspected critical or primary habitat for listed or candidate threatened or endangered species (see Appendix H)			<input type="checkbox"/> 1		
	Any still waterbody that is secondary habitat for listed or candidate threatened or endangered species or primary habitat for other species of concern (see Appendix H)			<input type="checkbox"/> 2		
	Other still waterbodies	supports <i>salmon</i>	Spawning or rearing in potentially affected area		<input type="checkbox"/> 1	
			Affected area is migratory route only		<input type="checkbox"/> 2	
		Supports resident and other non-salmon fish species used for subsistence or recreation	Spawning or rearing in potentially affected area		<input type="checkbox"/> 1	
			Affected area is migratory route only		<input type="checkbox"/> 2	
		Supports fish not used by humans			<input type="checkbox"/> 3	
		<i>Does not support fish</i>			<input type="checkbox"/> 3	

Assigned Waterbody Category: 1 2 3 4



Appendix C

Alaska Department of Fish and Game Trip Report

June 5, 2018



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MEMORANDUM

State of Alaska

Department of Fish and Game
Division of Habitat

TO: John C. Barnett
Regional Environmental
Manager
ADOT&PF, Southcoast Region

DATE: June 5, 2018

SUBJECT: Trip Report Port Lions Airport
May 2018

FROM: Will Frost 
Habitat Biologist

PHONE NO: 267-2813

The Alaska Department of Transportation and Public Utilities (ADOT&PF) and the Federal Aviation Administration are proposing safety improvements to the Port Lions Airport. The improvements would address a variety of deficiencies and allow the airport to fulfill its role as a community class airport. The proposed project will increase the runway length from 2,200 feet to 3,300 feet. This will require re-orienting the runway and constructing of a new Runway Safety Area, apron, and connecting taxiway. Existing trails and access roads will be relocated and connected.

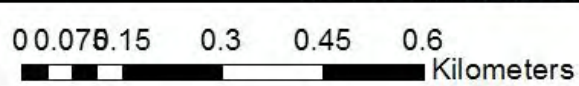
On May 7, 2018, I met with Emily Haynes and Chuck Tripp, ADOT&PF, Mac Salway, HDR, and Michael Holden, Native Village of Port Lions for the purpose of sampling streams located in the project area that may be impacted by the proposed project (Figure 1). We began sampling using an electrofisher at the mouth of "Airport Creek" (Stream No. 252-36-10005). The stream is located at 57.882 N, 152.853 W. We sampled upstream from tidewater 125 meters to the airport access road. I used a Garmin GPS to map the correct location of Airport Creek. The stream channel at tidewater has filled with gravel (Figure 2). Mr. Holden stated the stream channel has filled with gravel in recent years, limiting access to upstream habitat for adult pink salmon. We captured about 5 Dolly Varden and 10 sculpin. At the road, we observed two 60-inch diameter culverts. The culvert on the left bank looking downstream was dry and the culvert on the right bank is on a gradient of about 10%. We captured three young-of-year pink salmon in a pool downstream of the culverts (Figure 3). We sampled upstream of the culverts 170 meters. We captured 2 Dolly Varden. The culverts are likely a barrier to fish passage. Mr. Tripp stated if the airport access road is relocated as part of the airport improvement project the culverts would be removed. The young-of-year pink salmon and correct location of Airport Creek will be updated to the Anadromous Waters Catalog.

We walked to an unnamed stream located at 57.883 N, 152.853 W. We sampled from tidewater upstream 150 meters to a perched 60-inch diameter culvert located under the airport access road (Figure 4). We captured 5 sculpin and 5 Dolly Varden. We sampled upstream of the culvert 210 meters and captured 5 Dolly Varden. The culvert is likely a barrier to fish passage. Mr. Tripp stated if the airport access road is relocated as part of the airport improvement project the culvert would be removed.

We drove to the north end of the runway and sampled an unnamed stream located at 57.885 N, 152.839 W. The mouth of the stream flows over bedrock. We sampled upstream from tidewater 40 meters to three culverts. The culverts were about 24-inch diameter. No fish were captured or observed. We sampled upstream 60 meters from the road into a wetland (Figure 5). No fish were captured or observed. The ADF&G will not likely require fish passage improvements at this site.



Figure 1



ADF&G

Streams in the project area.



Figure 2. Bedload covering the outlet of Airport Creek at tidewater.



Figure 3. Young-of-year pink salmon captured in Airport Creek.



Figure 4. Perched culvert outlet located at the south end of the runway.



Figure 5. Unnamed stream located at the north end of the runway. View to east.



Figure 6. Wetland area located at north end of the runway. View to south.

cc: K. Schaberg, ADF&G
T. Polum, ADF&G
N. Svoboda, ADF&G
A. Ott, ADF&G
G. O'Doherty, ADF&G
M. Slife, KIB
C. Tripp, ADOT&PF
E. Hynes, ADOT&PF
M. Holden, Native Village of Port Lions



Appendix D

Wildlife Assessment



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PORT LIONS AIRPORT IMPROVEMENT
Wildlife Assessment

Project Z527960000

09 July 2018

Larry Van Daele, PhD
Kodiak Wildlife Services
3401 Antone Way
Kodiak, Alaska 99615
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(907) 654-8822

Table of Contents

INTRODUCTION..... 3

LOCATION 3

METHODOLOGY..... 3

CLIMATE 4

VEGETATION..... 4

MAMMALS 5

Brown Bear 6

Sitka Black-tailed Deer 7

Red Fox..... 8

Other Terrestrial Mammals (elk, squirrel, hare, vole, bat, otter, beaver, weasel, rat, mouse).... 8

Marine Mammals 9

BIRDS 9

REPTILES AND AMPHIBIANS 10

THREATENED AND ENDANGERED SPECIES 10

US FISH AND WILDLIFE SERVICE LISTED SPECIES 10

Steller’s Eider..... 10

Northern Sea Otter 11

NATIONAL MARINE FISHERIES SERVICE LISTED SPECIES 11

Western Steller Sea Lion 12

USFWS BIRDS OF CONSERVATION CONCERN 12

BALD EAGLE PROTECTION ACT 13

EXXON VALDEZ OIL SPILL TRUSTEES COUNCIL..... 14

ANTICIPATED IMPACTS ON WILDLIFE..... 15

Sitka Black-tailed Deer 15

Brown Bear 16

Marbled Murrelet 16

Bald Eagle..... 16

LITERATURE CITED..... 17

FIGURES 19

Figure 1. Port Lions Airport Wildlife Study Area land ownership..... 19

Figure 2. Port Lions Airport Wildlife Study Area vegetative cover types (Fleming and Spencer 2004). 20

Figure 3. Port Lions Airport proposed expansion footprint (ADOT 2018). 21

TABLES..... 22

Table 1. Analysis of vegetative cover types¹ within the Port Lions Airport Wildlife Study Area (excluding marine and intertidal areas), based on Fleming and Page (2004). 22

Table 2. Common mammals within and adjacent to the Port Lions Airport Wildlife Study Area (PLAWSA), Alaska. 23

Table 3. Common birds within and adjacent to the Port Lions Airport Wildlife Study Area (PLAWSA), Alaska. 24

Table 4. Analysis of vegetative cover types¹ within proposed footprint of the expanded and realigned Port Lions airport (Runway Object Free Area), based on Fleming and Page (2004). 25

APPENDICES..... 26

Appendix 1. Google Earth views of the Port Lions airport area 26

Appendix 2. Analysis of vegetative cover types within the Port Lions Airport Wildlife Study Area. 28

Appendix 3: Results of on-site survey of Port Lions Airport Wildlife Study Area, 14 May 2018..... 32

Appendix 4: Birds of the Kodiak Archipelago (247 species grouped by family) – USFWS 2009a..... 40

Appendix 5. Bald Eagle nest aerial survey, Port Lions Wildlife Study Area, 14 May 2018.. 47

PORT LIONS AIRPORT IMPROVEMENT WILDLIFE ASSESSMENT

INTRODUCTION

The Port Lions airport improvement project is designed to realign and expand the existing village runway to provide enhanced aviation and passenger safety. This wildlife assessment examines the flora and fauna within and adjacent to the project area, highlights the species of special concern, and assesses the anticipated impacts of the project on those species and their habitats.

LOCATION

The Port Lions airport is located on the north end of Kodiak Island, Alaska at the head of Kizhuyak Bay (N57.8850° x W152.8472°), 1.8 mi (2.9 km) northeast of the village and 250 mi (402 km) south of Anchorage (Appendix 1). Kodiak, the largest and most complex island in the Kodiak Archipelago, is located in the western Gulf of Alaska. It is up to 100 mi (160 km) long, varies from 9 to 80 mi (15 to 130 km) in width and has a landmass of 3,465 mi² (8,975 km²). No point of the island is farther than 13 mi (21 km) from the sea as deep fjords slice into the island. Shelikof Strait separates Kodiak from the mainland on the west, with a 25 to 40 mi (40–65 km) swath of extreme ocean currents and windswept waves.

The Port Lions Airport Wildlife Study Area (PLAWSA) encompasses approximately 263 acres (106 ha) in the immediate vicinity of the existing Port Lions airport including upland areas above mean high tide. Land ownership is primarily State of Alaska (Department of Natural Resources) and Afognak Native Corporation, with smaller parcels owned by the Native Village of Port Lions and the City of Port Lions (Figure 1). There are no private (individual) parcels identified within the area. The airport and the PLAWSA are within the municipal boundaries of the City of Port Lions.

METHODOLOGY

Information on flora and fauna likely to be present in and adjacent to the study area was derived from personal knowledge of the author based on working on Kodiak Island as a professional wildlife biologist for 36 years and living in the area for most of that time, interviews of local residents, a comprehensive bird list for Kodiak created by Audubon Society and US Fish and Wildlife Service (USFWS) (USFWS 2009a), review of available survey and harvest data from State and Federal agencies, and a comprehensive cover type analysis conducted for the Kodiak archipelago in 2000 (Fleming and Paige 2004). Additionally, a bald eagle nesting survey and a ground survey of flora and fauna in the study areas were conducted on 14 May 2018.

Determination of species of special concern was based on a review of pertinent State and Federal laws and regulations, and unique situations (*Exxon Valdez* oil spill recovery). Analysis of potential impacts on all avian and mammalian species was based on professional judgement of direct impacts on individual animals (mortality and displacement) and on anticipated alterations of habitat.

CLIMATE

The Kodiak Archipelago has a sub-polar oceanic climate. Low-pressure systems, spawned along the Aleutian Chain, spin counterclockwise into the Archipelago with easterly winds that bring cool moist weather to the Port Lions area throughout the year. These systems are periodically disrupted by high-pressure systems that develop over mainland Alaska. The resultant winds from those systems are from the northwest and they typically bring drier weather with more extreme temperatures. Whenever especially strong systems collide, the resultant storms can bring hurricane force winds with heavy rains. Fog is common, especially on the rare days when winds are calm.

Historical weather data from the archipelago is only available from Kodiak city, located 18 miles (29 km) east of Port Lions. Average February temperatures (the coldest month) range from 26.1 to 35.5°F (-3.3 to 1.9°C) and average August temperatures (the warmest month) range from 49.0 to 61.0°F (9.4 to 16.1°C). The highest temperature ever recorded was 86 °F (30.0°C) and the lowest was -16 °F (-26.7°C). Average annual precipitation is 75.4 in (191.5 cm). Winds were common throughout the year with an average annual wind speed of 11 mph (4.9 mps); velocities over 50 mph (22.4 mps) have been recorded in every month. Most of the eastern side of Kodiak Island, including Port Lions, has weather patterns similar to those recorded at Kodiak city.

The sea surrounding Kodiak Island remains ice-free throughout the year, including Kizhuyak and Marmot Bays and Whale Pass near Port Lions. Narrow bays with substantial freshwater influence and protection from most storms, such as Antone Larsen Bay between Kodiak and Port Lions, often freeze during several months in winter. Nearshore ocean temperatures typically vary from 32.9°F (0.5°C) in January to 55.4°F (13.0°C) in August. The daily tides on the east side of the archipelago, including Kizhuyak Bay, average 7.9 ft (2.4 m) while those on the west side of Whale Pass average 16.0 ft (4.9 m), with 2 sets of tides being the daily norm. The maximum daily variation on the east side is 13.8 ft (4.2 m) and on the west side the maximum is 23.6 ft (7.2 m). This dramatic tidal difference between each side of the archipelago creates substantial tide rips within Whale Pass.

VEGETATION

Sitka spruce (*Picea sitchensis*) are the only native conifer trees on the Kodiak archipelago, and are common on Shuyak, Afognak and the northeastern end of Kodiak Island, with Port Lions being near the southern fringe of their range. They are a relatively new inhabitants to the

archipelago, expanding southward from the Kenai Peninsula within the last 800 years. Devil's club (*Echinopanax horridum*), high-bush blueberry (*Vaccinium ovalifolium*), and Northwest lady fern (*Athyrium filix-femina*) are the principle understory vegetation in forested areas.

A diversity of habitats occur in non-forested areas of Kodiak Island near Port Lions, with shrub-grass-forb complexes predominant throughout lowland and mid-slope areas (<1,500 ft; <457 m). Representative species are Sitka alder (*Alnus crispa sinuata*), Kenai birch (*Betula kenaica*), salmonberry (*Rubus spectabilis*), red-topped grass (*Calamagrostis canadensis*), European red elder (*Sambucus racemosa*), willows (*Salix* spp.), fireweed (*Epilobium angustifolium*), and cow parsnip (*Heracleum lanatum*). Cottonwood (*Populus balsamifera*), and willow communities are common along stream bottoms.

The PLAWSA is principally a gentle south-facing slope with a flat plateau where the current runway is located. It encompasses approximately 263 acres (106 ha) with elevations ranging from sea level to 250 ft (76.2 m). Based on an analysis of a vegetative cover map created in 2000 by Fleming and Paige (2004), the PLAWSA is primarily characterized by alder (39.3%), spruce (38.1%), gravel (11.1%), and meadow (7.6%) (Table 1)(Appendix 2). Only 3.9% of the area is classified as wetland. These topographic and vegetative features provide rich and varied habitats for birds and mammals in a relatively small area.

An on-site survey of the flora and fauna of the PLAWSA was conducted by air and walking on 14 May 2018 (Appendix 3). During that survey, direct evidence of 21 bird species and 7 mammal species was observed. These observations represent a minimal snap-shot of fauna within and adjacent to the area during spring. Vegetative cover was generally confirmed to be as described in Fleming and Paige (2004) with the exception of several acres of spruce forest at either end of the runway that had been cut after the cover map was created.

MAMMALS

Only six land mammals are considered indigenous to Kodiak Island. These original inhabitants were brown bear (*Ursus arctos middendorffi*), red fox (*Vulpes vulpes*), river otter (*Lontra canadensis*), short-tailed weasel (*Mustela erminea*), little brown bat (*Myotis lucifugus*), and tundra vole (*Microtus oeconomus*) (Rausch 1969)(Table 2). Confirmation of original inhabitants is, however, impossible due to the geologic history of the islands. The constant uplifting and erosion of the terrain is not conducive for development of a useable fossil record.

Sitka black-tailed deer (*Odocoileus hemionus sitkensis*) were introduced from southeastern Alaska in the late 1800s. By the 1960s deer had dispersed throughout the Archipelago. Winter mortality is the most significant limiting factor for the deer population, with estimated population sizes ranging from <50,000 to >100,000 from 1982-2014 (Svoboda and Crye 2015). Deer are an important hunting resource for the residents of and visitors to the Kodiak islands.

Mountain goats (*Oreamnos americanus*) were translocated to northern Kodiak Island from the Kenai Peninsula in 1952 and 1953. The first hunting season was authorized in 1968, as the

population expanded in number and range. In 2012, the estimated goat population was 2,390 and they occupied all suitable habitats on Kodiak Island (Svoboda and Crye 2014). Other successful translocations to Kodiak included red squirrels (*Tamiasciurus hudsonicus*) (1952), Arctic ground squirrels (*Citellus undulatus*) (prehistoric), reindeer (*Rangifer tarandus*) (1924); muskrat (*Ondatra zibethica*) (1925); beaver (*Castor canadensis*) (1925); and snowshoe hares (*Lepus americanus*) (1934) (Paul 2009). Roosevelt elk (*Cervus canadensis roosevelti*) were introduced to nearby Afognak Island in 1929, and although they have never become established on Kodiak Island, small bands occasionally cross Raspberry Straits and come onto the north end of Kodiak. Norway rats (*Rattus norvegicus*), house mice (*Mus musculus*), feral cats (*Felis catus*) and feral dogs (*Canis familiaris*) have also been accidentally introduced into the wild since western explorers and settlers first came to the island.

Brown Bear

Kodiak brown bears are the most common large mammal using the PLAWSA. Although no studies have been conducted within the PLAWSA, Alaska Department of Fish and Game (ADF&G) conducted extensive research in the Terror Lake hydroelectric project area immediately south of Port Lions village (Smith and Van Daele 1990, 1991). Results of those investigations and supplemental intensive aerial surveys, suggested the population density of independent bears (not including cubs) in the Terror Lake area was 222/1,000 km² (0.58/mi²) in 2011 (SE = 7.81). This estimate was not significantly different ($P > 0.05$) than estimates derived from surveys conducted in 1987 (228/1,000 km²; SE = 25.29) (0.59 mi²) and in 1997 (273/1,000 km²; SE = 31.70) (0.71/mi²), and it suggests the population is healthy and productive (memorandum from L. Van Daele-ADF&G to G. Wheeler-Kodiak National Wildlife Refuge, 21 June 2011).

It is unlikely any bears den within the PLAWSA (Van Daele et al 1990), but the low elevation south-facing habitat offered by the site is very good spring bear habitat (Van Daele 2007) with intertidal detritus, invertebrates and carrion on the beaches, as well as some of the first emerging forbs as bears come out of their dens in the spring. There are no salmon spawning streams within the study area, but many nearby streams, including an artificially enhanced run in Settler's Cove, are important feeding areas for bears during the summer (Van Daele et al 2013). Salmonberries, elderberries and blueberries, all of which are important bear foods, are readily available in the late summer and early fall within and adjacent to the PLAWSA (Van Daele et al 2012).

Bears are commonly seen by local residents both in person and on remote game cameras passing through the PLAWSA. Prior to improving the local landfill to make it more bear resistant with electric fencing and routine incineration in 2009, several bears would routinely feed in the dump and rest in dense spruce and alder thickets within the PLAWSA and along the road to the village. According to local residents, such occurrences are rare nowadays, but it serves as a reminder to maintain a clean camp with no bear attractants during any construction activities associated with airport expansion.

Brown bear hunting is popular and important to Kodiak's economy. Nonresident hunters are required to have a registered guide, costing \$20-35,000 per hunt, or be guided by an Alaskan

resident relative. Most resident hunters must enter into a lottery for a chance to hunt, and the odds of success are less than 1% in many of the 32 separate hunt areas on the archipelago. Consequently, bear hunting is closely regulated and managed by ADF&G to assure the population is sustained in a robust and healthy manner (Van Daele and Barnes 2010). Bear hunting periods are divided into spring (01 April – 15 May) and fall (25 October – 30 November) seasons with a limited number of permits available to resident and non-resident hunters in each area. The hunt area that includes the PLAWSA extends from northern Kizhuyak Bay to Viekoda Bay and has 17 bear hunting permits available annually, 6 fall resident (DB226), 6 spring residents (DB256), 2 fall non-residents (DB126), and 3 spring non-residents (DB156). From 2006-2016, an annual average of 4.7 bears were harvested in this hunt area (ADFG 2018a), with the vast majority of the hunting activity occurring south and west of the airport. Only one bear has ever been reported as being legally harvested within the PLAWSA (1966).

Bears may also be legally shot whenever they are considered a threat to a person's life or certain types of property (5AAC 92.410 – Defense of Life or Property). As noted earlier, for many years bears routinely used the Port Lions dump, located about 0.5 mi (0.8 km) southwest of the PLAWSA, resting within and adjacent to the area between feeding forays. During that time, several bears were killed, both legally and illegally, because they were perceived as real or potential threats. No bears are known to have been killed in defense of life or property within the PLAWSA since the landfill was improved.

Sitka Black-tailed Deer

Deer are the most important source of wild red meat for the people of Port Lions and the Kodiak Archipelago. When the village was moved from Afognak Island to its current location at Settlers Cove, deer were just beginning to become established in the area. By the early 1980s, populations peaked resulting in liberal hunting seasons and bag limits (up to 7 deer) and a commensurate increase in hunting activities by both local and non-local hunters. To limit the impacts on resident deer and reduce safety concerns, a special hunt area was established around the village and the airport in 1981, in which hunters were restricted to only 1 deer per year.

ADF&G has never conducted comprehensive deer population surveys on northern Kodiak Island. Anecdotal and harvest data indicate that current deer populations are lower than they were 30 years ago, but they are still common in the area and provide a great deal of food and recreation for a variety of hunters.

The PLAWSA provides excellent winter and spring habitat for deer with a mosaic of cover and vegetation types. Wind-firm mature spruce forests offer shelter during wind storms and intercept snow during the winter. Adjacent alder thickets which include willow and elder bushes provide important winter forage, and the low elevation south-facing slope is a source for some of the first green vegetation in the spring. During harsh winters with deep snow, deer forage along the beach below the airstrip and may use the plowed surface of the airstrip and roads to travel and rest.

The hunting season for deer in the area including the PLAWSA is open from 01 August – 31 October (1 buck) for all hunters, and from 01-14 November (1 deer – either sex) for hunters

using archery or muzzleloader weapons. An additional season is available for youth hunters (ages 10-18) from 15 November – 31 December (1 deer – either sex). If a hunter takes a deer in any other hunt area, or if they take their first deer within this area, they are ineligible to take another deer from the area (Svoboda and Crye 2015). Deer are occasionally taken from the PLAWSA, but the restrictive regulations and limited size of the area result in a very small annual harvest (estimated to be <5 annually).

Red Fox

Red fox are commonly seen and trapped in the Port Lions area, and they live within and adjacent to the PLAWSA year round. No fox dens have been identified within the area, but based on available habitat denning could be possible. Red foxes are considered to be endemic to the Kodiak archipelago, but the current fox population may have been supplemented by genetics from feral silver (a color phase of the red fox) and blue/arctic foxes (*Vulpes lagopus*) that either escaped or were released from fox farms in the 1930s, a few of which were within 20 mi (32 km) of Port Lions. There have been no ADF&G population surveys for this species, but anecdotal reports suggest the population is stable.

Fox trapping season is open from 10 November – 31 March and there is no annual bag limit. There is also a fox hunting season from 01 September – 15 February with a bag limit of 2 foxes. ADF&G does not keep track of the number of foxes harvested nor the locations they are taken from. Fox snares have occasionally be set within the PLAWSA, but local knowledge suggests that effort is sporadic and opportunistic.

Other Terrestrial Mammals (elk, squirrel, hare, vole, bat, otter, beaver, weasel, rat, mouse)

Roosevelt elk are rare visitors to the northern part of Kodiak Island, with small bands (<10 animals) observed about once each decade. ADF&G do not manage for establishment of a viable herd on Kodiak, so hunters are allowed to harvest these elk from 25 September – 22 October (drawing permit DE715/717) and from 23 October – 30 November (registration permit RE755). These regulations typically result in all of the elk being harvested within a year of coming onto Kodiak. The last reported sighting of elk within and near the PLAWSA was in 2004 and no elk have been reported as killed from within the area.

Red squirrels occur in the spruce forests, and snowshoe hares and voles occupy the shrub/meadow areas of the PLAWSA. Population densities of these species are variable, but there has been no effort at monitoring abundance or harvest. Hunting seasons are open year-round and there is no limit to the number of these animals that can be taken.

Little brown bats, otters, beaver, weasels, rats and mice have been observed transiting through the PLAWSA, but sightings and harvest of any of these species is uncommon. Feral dogs and cats are occasionally reported from the area, but they are typically captured and repatriated or shot within a short time of being seen.

Mountain goats occupy the mountainous habitats south of the study area and seasonally move down into low elevation areas, but there have never been any reports within 10 mi (16 km) of

PLAWSA. Reindeer, arctic ground squirrels, and muskrats have never been reported within 25 mi (40 km) of the PLAWSA.

Marine Mammals

The nearshore waters adjacent to the PLAWSA in Kizhuyak Bay are used by resident harbor seals, northern sea otters and Dall's porpoise. Pacific white-sided and harbor porpoises are less common, but also present. Steller's sea lions are prevalent around the Kodiak Archipelago and transit near the study area. Common whales that seasonally use northern Kizhuyak Bay, Whale Pass and Marmot Bay include killer (orca), humpback, gray, sei, minke and fin whales.

BIRDS

USFWS has identified 247 bird species that have been observed on the Kodiak Archipelago. Ninety-nine of these were known to nest in the archipelago (USFWS 2009a)(Appendix 4). There have been no comprehensive bird surveys conducted within or near the PLAWSA, so estimates of species present and anticipated frequency of occurrence must be extrapolated from information gleaned from similar habitats on northeast Kodiak Island.

While any of the 247 species could potentially overfly or temporarily roost in or near the PLAWSA, 41 species have been identified as likely to be seasonal or year-round residents of the area (Table 2). An additional 40 species, primarily shorebirds, waterfowl and seabirds, likely use intertidal and nearshore waters adjacent to the PLAWSA in Kizhuyak Bay (Table 3). Three species that regularly use the PLAWSA have been given special designation by resource agencies – marbled murrelet, peregrine falcon, and bald eagle.

The marbled murrelet, a species that is likely a seasonal resident to the PLAWSA, is a seabird that nests on moss-covered spruce branches in mature spruce forests around Kodiak and feeds and spends most of its non-nesting time at sea. Internationally, the marbled murrelet is listed by the IUCN as endangered. In the United States, the species was listed as "threatened" in 1993 in Washington and Oregon and "endangered" in California. In Canada, it is "red-listed" nationally, a status comparable to "threatened" (ADF&G 2018b). Its population status in Alaska is currently under review and has not been listed as either threatened or endangered, but it has been listed as a species impacted by the *Exxon Valdez* oil spill that has not yet fully recovered from that incident (EVOS 2018) and it is included on the USFWS list of Birds of Special Concern (USFWS 2008).

Peregrine falcons have been observed feeding and roosting within PLAWSA. While many subspecies of peregrines are migratory, the Peale's subspecies that is most common on the Kodiak Archipelago remains in the area year-round and is the largest subspecies of peregrine. These birds prefer cliffs for nesting areas, none of which occur in the PLAWSA. Peregrines were listed as "endangered" in Canada from 1978 to 2017, but the three subspecies that are found in Alaska have never been designated as such. They are, however, included on the

USFWS list of Birds of Special Concern (USFWS 2008). ADF&G allows a carefully restricted take of peregrines by licensed falconers.

Bald eagles are common year-round residents of the entire Kodiak Archipelago, including the PLAWSA. The statewide population is estimated at 30,000 and has never been considered for threatened or endangered status. From 1917 to 1953, there was a Territorial bounty on eagles because of the perception that they were jeopardizing salmon stocks (ADFG 2018c). In the Kodiak area, eagles nest on rocky capes or in large mature spruce or cottonwood trees, typically near the ocean or large lakes. The eagles living in the archipelago utilize a wide variety of foods, both living (waterfowl and fish) and dead (beached marine mammals, winter-killed deer and elk, hunter-killed bears, and spawned-out salmon). The Bald Eagle Protection Act of 1940 made it illegal to kill, disturb, or possess any part of a bald eagle, although there are special exemptions for the use of eagle parts for Native American traditional practices (USFWS 2009b).

REPTILES AND AMPHIBIANS

There are no reptiles or amphibians endemic or successfully introduced to the Kodiak Archipelago. Consequently, none are expected to be within the PLAWSA.

THREATENED AND ENDANGERED SPECIES

US Fish and Wildlife Service listed species

USFWS currently lists the following species as “endangered” or “threatened” in Alaska (USFWS 2014):

- 1) Short-tailed albatross (*Phoebastria albatrus*) (endangered)
- 2) Eskimo curlew (*Numenius borealis*) (endangered)
- 3) Aleutian shield fern (*Polystichum aleuticum*) (endangered)
- 4) Steller’s eider (*Polysticta stelleri*) (threatened)
- 5) Northern sea otter (*Enhydra lutris kenyoni*) (threatened) Southwest distinct population
- 6) Spectacled eider (*Somateria fischeri*) (threatened)
- 7) Polar bear (*Ursus maritimus*) (threatened)
- 8) Wood bison (*Bison bison athabasca*) (threatened)

None of these species occur within the PLAWSA, but two (Steller’s eider and northern sea otter) regularly use nearby marine habitat in Kizhuyak Bay.

Steller’s Eider

Steller’s eiders molt and winter in near shore waters throughout the Alaska Peninsula and Kodiak Island. They nest along the Yukon Kuskokwim Delta in western Alaska and the

North Slope in northern Alaska, and are winter visitors to Kizhuyak Bay. USFWS has designated 5 units of critical habitat, including the breeding habitat on the Yukon Kuskokwim Delta and four units in marine waters of southwest Alaska (including Kodiak) that are important for molting, resting, feeding, and wintering. Approximately 2,800 mi² (7,252 km²) and 850 mi (1,368 km) of coastline are included in critical habitat (USFWS 2014). The conservation goals within these critical habitat areas are to: 1) protect adults and increase the number of young produced; 2) re-establish a healthy and stable population on the Yukon-Kuskokwim Delta; 3) monitor the population through aerial and ground surveys; and to 4) continue research to better understand the biology and needs of this species (USFWS 2014). Steller's Eiders are illegal to hunt under both State of Alaska and Federal Subsistence hunting regulations.

Northern Sea Otter

Sea otters occur around the Kodiak Archipelago and they are commonly observed year round in Kizhuyak Bay, Whale Pass and Marmot Bay near the PLAWSA. They are almost exclusively a marine mammal and only rarely haul-out on land, so it is very unlikely they would utilize any portion of the study area. USFWS has designated all of the Aleutian Islands, Bristol Bay, Kodiak Archipelago, the Alaska Peninsula, and western Cook Inlet (5,855 mi²; 15,164 km²) as critical habitat for the threatened southwest distinct population segment (USFWS 2014). Sea otters are protected from hunting by the Marine Mammal Protection Act (MMPA), although both the MMPA and the Endangered Species Act include an exemption specifically allowing Alaska Natives the right to harvest marine mammals for subsistence purposes.

National Marine Fisheries Service listed species

National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) currently lists the following species as "endangered" or "threatened" in Alaska (NMFS 2018):

- 1) Bowhead whale (*Balaena mysticetus*) (endangered)
- 2) Sei whale (*Balaenoptera borealis*) (endangered)
- 3) Blue whale (*Balaenoptera musculus*) (endangered)
- 4) Fin whale (*Balaenoptera physalus*) (endangered)
- 5) Cook Inlet beluga whale (*Delphinapterus leucas*)
- 6) Western North Pacific gray whale (*Eschrichtius robustus*) (endangered)
- 7) North Pacific right whale (*Eubalaena japonica*) (endangered)
- 8) Mexico humpback whale (*Megaptera novaeangliae*) (threatened)
- 9) Western North Pacific humpback whale (*Megaptera novaeangliae*) (endangered)
- 10) Sperm whale (*Physeter microcephalus*) (endangered)
- 11) Beringia bearded seal (*Erignathus barbatus nauticus*) (threatened)
- 12) Western Steller sea lion (*Eumetopias jubatus*) (endangered)

None of these species occur within the PLAWSA, but four whales (sei, fin, western North Pacific gray whale, and Western North Pacific humpback) regularly use nearby marine habitat in

Marmot Bay, Whale Pass and northern Kizhuyak Bay during the summer season. Western Steller Sea Lions are also present in the area and on extremely rare occasions may haul-out on intertidal areas adjacent to the PLAWSA.

Western Steller Sea Lion

Steller sea lions reside year-round in near shore waters around the Kodiak Archipelago and much of the Gulf of Alaska. They are generalist marine predators, utilizing a wide variety of fish and octopi species, hauling-out on rocky beaches to rest between feeding forays. Remote rocky beaches are also used as communal rookeries where pups are born and reared. Sea lions living west of Cape Suckling (144° W) have been listed as “endangered” since 1997 (NMFS 2018). All of the near shore (20 nm; 37 km) marine waters around Kodiak have been determined to be critical habitat, and marine access and fishing is prohibited within 3 nm (5.6 km) of the rookery on southern Marmot Island (43 mi; 69 km northeast of the PLAWSA). Sea lions are protected from hunting by the Marine Mammal Protection Act (MMPA), although both the MMPA and the Endangered Species Act include an exemption specifically allowing Alaska Natives the right to harvest marine mammals for subsistence purposes.

USFWS BIRDS OF CONSERVATION CONCERN

The 1988 amendment to the Fish and Wildlife Conservation Act mandates USFWS to “identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973.” Birds included on the “Birds of Conservation Concern” list fulfill that directive by including nongame birds, gamebirds without hunting seasons, subsistence-hunted nongame birds in Alaska; and Endangered Species Act candidate, proposed endangered or threatened, and recently delisted species (USFWS 2008). The list is intended to spur collaborative actions between Federal, State, Tribal, and private entities to develop research, monitoring, and management initiatives that will promote greater study and protection of the habitats and ecological communities upon which these species depend, thereby contributing to healthy avian populations and communities (USFWS 2008).

In Western Alaska, including Kodiak Island and the PLAWSA, the list includes:

- 1) Red-throated loon
- 2) Yellow-billed loon
- 3) Red-faced cormorant
- 4) Pelagic cormorant
- 5) Peregrine falcon
- 6) Black oystercatcher
- 7) Solitary sandpiper
- 8) Lesser yellowlegs
- 9) Whimbrel
- 10) Bristle-thighed curlew

- 11) Hudsonian godwit
- 12) Bar-tailed godwit
- 13) Marbled godwit
- 14) Red knot (*roselaari* subspecies)
- 15) Rock sandpiper (*ptilocnemis* subspecies)
- 16) Dunlin (*arcticola* subspecies)
- 17) Short-billed dowitcher
- 18) Aleutian tern
- 19) Arctic tern
- 20) Marbled murrelet
- 21) Kittlitz's murrelet
- 22) McKay's bunting

Two of the birds included on this list (peregrine falcon and marbled murrelet) are seasonal residents of the PLAWSA, and four (red-throated loon, black oystercatcher, lesser yellowlegs, and rock sandpiper) probably use adjacent intertidal and nearshore marine waters.

BALD EAGLE PROTECTION ACT

The Bald Eagle Protection Act (16 U.S.C. 668-668c), enacted in 1940, and amended several times since then, prohibits anyone, without a permit issued by the Secretary of the Interior, from "taking" bald eagles, including their parts, nests, or eggs. The Act provides criminal penalties for persons who "take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or any manner, any bald eagle ... [or any golden eagle], alive or dead, or any part, nest, or egg thereof." The Act defines "take" as "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb." (USFWS 2009b).

The USFWS website (USFWS 2009b) offers the following information on disturbing eagle nests that may be found within the project area:

Federal regulations, 50 CFR 22.26 and 22.27 published in November 2009, established the authority to issue permits allowing eagle take and eagle nest take, as follows:

***50 CFR 22.26** governs the issuance of permits to take bald eagles and golden eagles where the take is associated with, but not the purpose of, the activity and cannot practicably be avoided. Most take authorized under this section will be in the form of disturbance, however permits may authorize non-purposeful take that may result in mortality.*

***50 CFR 22.27** has established authority to issue permits for removing eagle nests where:*

- 1. necessary to alleviate a safety emergency to people or eagles*
- 2. necessary to ensure public health and safety*
- 3. the nest prevents the use of a human-engineered structure, or*
- 4. the activity or mitigation for the activity will provide a net benefit to eagles*

Your first responsibility is to avoid disturbance/impact of eagles and their nests. Note: Only inactive nests may be taken, except in the case of safety emergencies. To use this website most effectively, we recommend that you read the Bald Eagle Natural History and Sensitivity document and the National Bald Eagle Management Guidelines.

From 1982 – 2007, USFWS conducted eagle nest surveys throughout the Kodiak National Wildlife Refuge every five years. Data from those surveys indicated a stable population with 439 nests identified during the last year of their surveys. These surveys did not include PLAWSA, but a survey in 1989 that was conducted in conjunction with the *Exxon Valdez* oil spill recovery effort discovered a nest on the peninsula at the northeast tip of Settler’s Cove, about 1.0 mi (1.6 km) southeast of the PLAWSA.

An aerial bald eagle nest survey was flown over the PLAWSA and adjacent areas with a helicopter on 14 May 2018. No nests, old or active, were observed. A single adult bald eagle was observed on the lakeshore adjacent to the northeast boundary of the study area (Appendix 5).

EXXON VALDEZ OIL SPILL TRUSTEES COUNCIL

In November 1994, the *Exxon Valdez* Oil Spill Trustee Council adopted an official list of resources and services injured by the *Exxon Valdez* Oil Spill (EVOS) as part of its Restoration Plan. The main purposes were to identify natural resource and human service injuries caused by the oil spill, guide expenditure of restoration funds, and to provide an objective to monitor recovery of ecological functions and human services that depend on those resources. The Council recognized that other agencies and entities have responsibility and legal authority for long-term management of these species and resources, but the Council works to support natural restoration and encourages management consistent with long-term restoration. The Council has directed funds toward research that provides information that is critical to monitor and support the healthy functioning of the spill ecosystem (EVOS 2018).

The PLAWSA is within the area impacted by EVOS and is covered by the Restoration Plan. The Plan identifies marbled murrelets, Pacific herring, pigeon guillemots and the AT1 population of killer whales as “not recovering”. This designation indicates that these resources continue to show little or no clear improvement from injuries stemming from the oil spill and recovery objectives have not been met. The Plan identifies designated wilderness areas, intertidal communities, sediments, and the AB pod of killer whales as “recovering”. This designation indicates substantial progress toward recovery objectives, but there are still lingering adverse residual impacts caused by the oil spill (EVOS 2018).

Marbled murrelets are the only resource that is probably a seasonal resident of the PLAWSA that has been identified by the Restoration Plan as “not recovered” or “recovering”. Pigeon guillemots, Pacific herring, intertidal communities, and sediments are identified in the Plan as “not recovered” or “recovering” and occur in intertidal and nearshore waters adjacent to the PLAWSA.

ANTICIPATED IMPACTS ON WILDLIFE

Based on the proposed footprint of the expanded and realigned Port Lions runway, taxiway and apron (Figure 3), it appears that the Runway Object Free Area will affect about 52.8 acres (216.0 km²) of wildlife habitat changing it all to gravel. Based on data from Fleming and Paige (2004), in 2000 that area was 38.8% gravel, 28.4% spruce, 21.6% alder, 6.2% meadow, and 5.1% wetland (Table 4)(Appendix 2). Additional habitat alteration will likely occur at either end of the runway as large spruce trees are felled within the “Runway Protection Area”, some of which appears to have already been cut since 2000. All of these altered habitats will remain available to wildlife unless the runway, taxiway and apron are fenced.

Gravel habitat provides little feeding, cover or protection for birds and mammals that use the PLAWSA, but it may offer some resting habitat for deer in deep-snow winters when the runway is the cleared (if it is not fenced). Cleared spruce forests will eliminate nesting, cover, and protection habitat for forest birds, but may improve hunting opportunities for goshawks, merlins, peregrine falcons and sharp-shinned hawks. The project is not anticipated to alter any intertidal areas or near shore waters, so there will likely be no impact on species that use those areas adjacent to the PLAWSA.

The species most likely to be impacted by the project are Sitka black-tailed deer, brown bears, marbled murrelets, and bald eagles.

Sitka Black-tailed Deer

Dense spruce habitat near sea-level provides important winter habitat for deer, especially on abnormally cold, windy and/or snowy winters. Archipelago-wide, winter-mortality is the primary driver of deer population densities because of the lack of natural predators. Wind-firm stands of low elevation mature spruce intercept snow, block wind, and understory vegetation that includes blueberry, willow and devil’s club provides winter browse. These areas are enhanced when situated near meadows and beaches, creating an ideal mosaic of habitats during the spring and fall. The PLAWSA provides such a mosaic and the proposed airport expansion will convert about 32.3 acres (13.1 ha) of preferred deer habitat to gravel, a much less preferable habitat.

This habitat alteration is expected to impact a relatively small number of deer and will only be noticeable during times of high deer population densities and adverse winter weather conditions. The existence of suitable, unaltered deer habitat adjacent to the project area and throughout most of northern Kodiak Island is anticipated to maintain the overall deer population at a level commensurate to what would be expected if the project was not built.

Deer will be more vulnerable to harvest in areas cleared for the project, especially because of the easy access to the area along the Port Lions road system. Deer hunting regulations are already more restrictive in this area than on other parts of the archipelago and the impact of potential increased vulnerability on the deer population is expected to be minimal.

Brown Bear

Kodiak brown bears use the habitats impacted by airport expansion and realignment for cover (forest and alder) and spring-feeding (meadow and wetland). Gravel areas offer no benefits for bears. Bears, however, are opportunists and can readily adapt to relatively small habitat alterations when most of the adjoining areas are left intact. Overall, there are few anticipated adverse impacts on bears that will be caused by the project's habitat alteration.

The greatest potential impact on bears will be associated with construction of the project if appropriate bear safety measures are not taken. Bears living in the immediate vicinity of the project, especially subadult bears, will be attracted to any human food or garbage that is not secured properly. They may also be attracted to rubber or oil products associated with construction equipment and they could cause damage. While such attractants are rarely directly detrimental to bears, anything that brings bears in proximity to people can habituate them in a manner that they become dangerous or a nuisance and are killed in defense of life or property either by construction crew or villagers.

Marbled Murrelet

Deforestation of mature spruce stands within the Runway Object Free Area and on either end of the runway could potentially destroy murrelet nest sites or nesting habitat. Identifying specific nest sites is extremely difficult because the birds do not build nests, *per se*, laying their eggs on thick mats of moss on large spruce branches. Discovery is further complicated because they usually only come and go from the nest at dawn and dusk.

Extensive commercial timber harvest on Afognak Island, to the north of the PLASWA, has presumably had significant impact on murrelet nesting habitat. There has, however, been very little timber harvest on northern Kodiak Island (except along the Kodiak city road system), so there may be alternate nesting sites available to any murrelets displaced by this project. The majority of spruce remaining within the Runway Object Free Area are unlikely to be large enough or old enough to support murrelet nests. Potential impact to nesting murrelets could be minimized by restricting spruce-cutting to the non-nesting period (August – April). Murrelet feeding and resting habitat in the near-shore waters adjacent to the PLAWSA will not be impacted by the project.

Bald Eagle

Removing mature spruce trees from the Runway Object Free Area and on either end of the runway could destroy potential eagle nest sites. No eagle nests were found within the PLAWSA during an aerial nest survey on 14 May 2018, and several stands of large spruce will remain in the area after the project is completed, along with extensive virgin stands in adjacent areas. Removal of potential nest trees at either end of the new runway and within the Runway Object Free Area could ultimately prove beneficial to both eagles and aircraft because it will reduce the likelihood of collisions.

LITERATURE CITED

- ALASKA DEPARTMENT OF FISH AND GAME. 2018a. Brown/Grizzly Bear Hunting in Alaska, Harvest Statistics.
<http://www.adfg.alaska.gov/index.cfm?adfg=brownbearhunting.harvest> Accessed May 2018
- _____. 2018b. Marbled Murrelet species profile.
<http://www.adfg.alaska.gov/index.cfm?adfg=marbledmurrelet.main> Accessed May 2018.
- _____. 2018c. Bald Eagle species profile.
<http://www.adfg.alaska.gov/index.cfm?adfg=baldeagle.main> Accessed May 2018.
- EXXON VALDEZ OIL SPILL TRUSTEES COUNCIL. 2014. Status of injured resources and services.
<http://www.evostc.state.ak.us/index.cfm?FA=status.injured> Accessed May 2018.
- FLEMING, M. D. AND P. SPENCER. 2004. A vegetative cover map for the Kodiak Archipelago, Alaska. U.S. Geological Service, Alaska Science Center, Anchorage, Alaska, USA.
- _____. AND _____. 2007. Kodiak Archipelago Land Cover Classification User Guide. U.S. Geological Service, Alaska Science Center, Anchorage, Alaska, USA. 77 pp.
- NATIONAL MARINE FISHERIES SERVICE. 2018. Endangered, Threatened, and Candidate Species under NMFS' Authority in Alaska. <https://alaskafisheries.noaa.gov/pr/esa-species-list> Accessed May 2018.
- PAUL, T. W. 2009. Game transplants in Alaska. Technical bulletin No. 4, second edition. Alaska Department of Fish and Game. Juneau, Alaska. 150pp.
- RAUSCH, R. L. 1969. Origin of the terrestrial mammalian fauna of the Kodiak Archipelago. *in* Karlstrom, T. N. V., and G. R. Ball, editors. The Kodiak Island Refugium: Its geology, flora, fauna, and history. The Boreal Institute, University of Alberta. Ryerson Press, Toronto, Canada.
- SMITH, R. B., AND L. J. VAN DAELE. 1990. Impacts of hydroelectric development on brown bears, Kodiak Island, Alaska. International Conference on Bear Research and Management 8:93–103.
- _____. AND _____. 1991. Terror Lake hydroelectric project, Kodiak Island, Alaska—Final report on brown bear studies (1982–1986). Alaska Department of Fish and Game, Kodiak, Alaska, USA.
- SVOBODA, N. J., AND J. R. CRYE. 2015. Unit 8 deer management report. Pages 9-1 through 9-16 [In] P. Harper and L. A. McCarthy, editors. Deer management report of survey and inventory activities 1 July 2012–30 June 2014. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2015-3, Juneau.

- _____. AND _____. 2014. Unit 8 mountain goat management report. Pages 122–147 [In] P. Harper, editor, Mountain goat management report of survey and inventory activities 1 July 2011–30 June 2013, Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR 2014-3, Juneau.
- U. S. FISH AND WILDLIFE SERVICE. 2008. Birds of Conservation Concern 2008. United States Department of Interior, Fish and Wildlife Service, Division of Migratory Bird Management, Arlington, Virginia. 85 pp. [Online version available at <<http://www.fws.gov/migratorybirds/>>]
- _____. 2009a. Kodiak National Wildlife Refuge and the Kodiak Archipelago Birds. Kodiak National Wildlife Refuge, Kodiak, Alaska. 12 pp.
- _____. 2009b. US Fish and Wildlife Service Bald Eagle Permit Program. <https://www.fws.gov/alaska/eaglepermit/index.htm>. Accessed May 2018.
- _____. 2014. U.S. Fish and Wildlife Service Endangered Species – Alaska Region. <https://www.fws.gov/alaska/fisheries/endangered/listing.htm>. Accessed May 2018.
- VAN DAELE, L. J. 2003. The History of Bears on the Kodiak Archipelago. Alaska Natural History Association. Anchorage, Alaska, USA.
- _____. 2007b. Population dynamics and management of brown bears on Kodiak Island, Alaska. Doctoral dissertation. University of Idaho, Moscow, USA.
- _____. AND V. G. BARNES JR. 2010. Management of brown bear hunting on Kodiak Island, Alaska. Scandinavian Bear Conference. Rovdjurscentrum Orsa Gronklitt. Orsa, Sweden. January 2010.
- _____, _____, AND R. B. SMITH. 1990. Denning characteristics of brown bears on Kodiak Island, Alaska. International Conference on Bear Research and Management 8:257–267.
- _____, _____, AND J. L. BELANT. 2012. Ecological flexibility of brown bears on Kodiak Island, Alaska. *Ursus* 23(1):21-29
- VAN DAELE, M. B, C. T. ROBBINS, B. X. SEMMENS, E. J. WARD, L. J. VAN DAELE, AND W. B. LEACOCK. 2013. Salmon consumption by Kodiak brown bears (*Ursus arctos middendorffi*) with ecosystem management implications. *Canadian Journal of Zoology* 91:3, 164-174.

TABLES

Table 1. Analysis of vegetative cover types¹ within the Port Lions Airport Wildlife Study Area (excluding marine and intertidal areas), based on Fleming and Page (2004).

Description of cover type	Acres	Km²	Percent
Alder-forb meadow (includes scattered elder, cottonwood and birch) ²	90.2	369.0	31.5%
Dense Sitka spruce ¹	63.4	259.2	22.1%
Open Sitka spruce ¹	46.0	188.1	16.1%
Sand and gravel – roads ³	31.5	128.7	11.0%
Open alder- scattered spruce ²	22.4	91.8	7.8%
Fern-forb meadow ⁴	9.7	39.6	3.4%
Myrica gale-dwarf birch wetlands ⁵	4.8	19.8	1.7%
Sedge/moss wetland ⁵	4.8	19.8	1.7%
Grass-forb meadow ⁴	4.4	18.0	1.5%
Salmonberry meadow (includes devils club and elder) ⁴	4.2	17.1	1.5%
Mixed grasslands ⁴	3.5	14.4	1.2%
Ericaceous/Lichen Bog ⁵	0.9	3.6	0.3%
Sedge marsh ⁵	0.7	2.7	0.2%
Talus	0.2	0.9	0.1%
TOTAL	286.7	1,171.8	100.0%

1 – Fleming and Spencer (2004) types 12 and 41; listed as “spruce” in text.

2 – Fleming and Spencer (2004) types 9, 36, 37, 38, and 39; listed as “alder” in text.

3 – Fleming and Spencer (2004) types 48 and 57; listed as “gravel” in text.

4 – Fleming and Spencer (2004) types 18, 22, 32, 43, 44, and 45; listed as “meadow” in text.

5 – Fleming and Spencer (2004) types 17, 35, 49 and 50; listed as “wetland” in text.

Table 2. Common mammals within and adjacent to the Port Lions Airport Wildlife Study Area (PLAWSA), Alaska.

Mammals within PLAWSA¹		Mammals adjacent to PLAWSA²	
Endemic	Brown bear	Otter	Northern sea otter
	Red fox		Seal/Sea Lion
	River (land) otter	Steller's sea lion	
	Short-tailed weasel	Porpoises	
	Tundra vole		Harbor porpoise
	Little brown bat		White-sided porpoise
Introduced	Sitka black-tailed deer	Whales	Killer (Orca) whale
	Roosevelt elk		Pacific gray whale
	Snowshoe hare		Humpback whale
	Red squirrel		Fin whale
	Beaver		Minke whale
Feral	Norway rat	Sei whale	
	House mouse		
	Domestic dog		
	Domestic cat		

1 - Mammals likely to be seasonal or year-round residents of the PLAWSA

2 - Mammals that use intertidal or near-shore waters adjacent to the PLAWSA

Table 3. Common birds within and adjacent to the Port Lions Airport Wildlife Study Area (PLAWSA), Alaska.

Birds within PLAWSA¹		Birds adjacent to PLAWSA²	
Raptors	Bald eagle Sharp-shinned hawk Northern goshawk Merlin Peregrine falcon Boreal owl	Shorebirds	Semipalmated plover Black oystercatcher Wandering tattler Greater yellowlegs Lesser yellowlegs Western sandpiper Least sandpiper Rock sandpiper
Forest birds	Northwestern crow Common raven Marbled murrelet Downy woodpecker American three-toed woodpecker Black-capped chickadee Red-breasted nuthatch Brown creeper Winter wren Hermit thrush Varied thrush	Sea & water birds	Red-throated loon Pacific loon Common loon Black-legged kittiwake Mew gull Glaucous-winged gull Belted kingfisher Emperor goose Canada goose Gadwall American wigeon Mallard Northern shoveler Northern pintail Green-winged teal Greater scaup Lesser scaup Steller's eider Harlequin duck Surf scoter White-winged scoter Black scoter Long-tailed duck Bufflehead Common goldeneye Barrow's goldeneye Common merganser Red-breasted merganser Double-crested cormorant Common murre Pigeon guillemot Tufted puffin Horned puffin
Meadow/shrub birds	Dark-eyed junco Wilson's snipe Northern shrike Black-billed magpie Tree swallow Violet-green swallow Savannah sparrow Fox sparrow Song sparrow Golden-crowned sparrow American dipper Golden-crowned kinglet Ruby-crowned kinglet Bohemian waxwing Orange-crowned warbler Yellow warbler Yellow-rumped warbler Wilson's warbler Snow bunting Pine grosbeak Red crossbill White-winged crossbill Common redpoll Pine siskin		

1 - Birds likely to be seasonal or year-round residents of the PLAWSA

2 - Birds that use intertidal or near-shore waters adjacent to the PLAWSA

Table 4. Analysis of vegetative cover types¹ within proposed footprint of the expanded and realigned Port Lions airport (Runway Object Free Area), based on Fleming and Page (2004).

Description of cover type	Acres	Km²	Percent
Sand and gravel – roads ³	20.5	83.7	20.5%
Alder-forb meadow (includes scattered elder, cottonwood and birch) ²	9.2	37.8	17.5%
Open Sitka spruce ¹	7.7	31.5	14.6%
Dense Sitka spruce ¹	7.3	29.7	13.8%
Open alder- scattered spruce ²	2.2	9.0	4.2%
Mixed grasslands ⁴	2.0	8.1	3.8%
Sedge/moss wetland ⁵	1.8	7.2	3.3%
Fern-forb meadow ⁴	1.1	4.5	2.1%
Myrica gale-dwarf birch wetlands ⁵	0.7	2.7	1.3%
Salmonberry meadow (includes devils club and elder) ⁴	0.2	0.9	0.4%
Sedge marsh ⁵	0.2	0.9	0.4%
TOTAL	52.8	216.0	100.0%

1 – Fleming and Spencer (2004) types 12 and 41; listed as “spruce” in text.

2 – Fleming and Spencer (2004) types 9, 36, 37, 38, and 39; listed as “alder” in text.

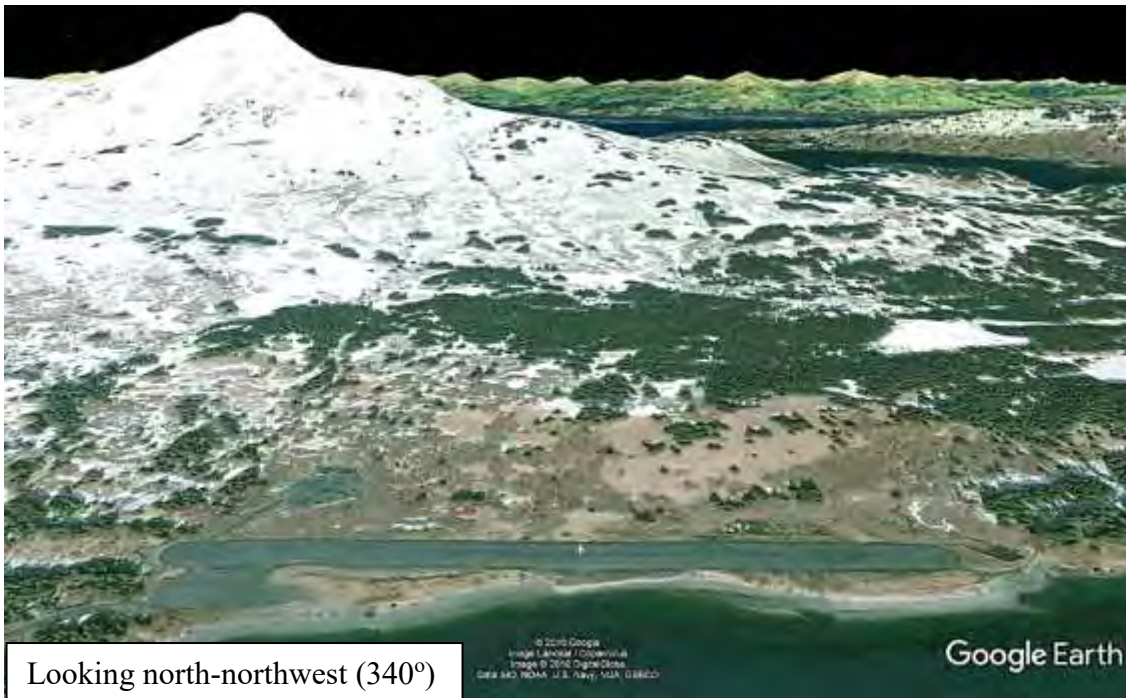
3 – Fleming and Spencer (2004) types 48; listed as “gravel” in text.

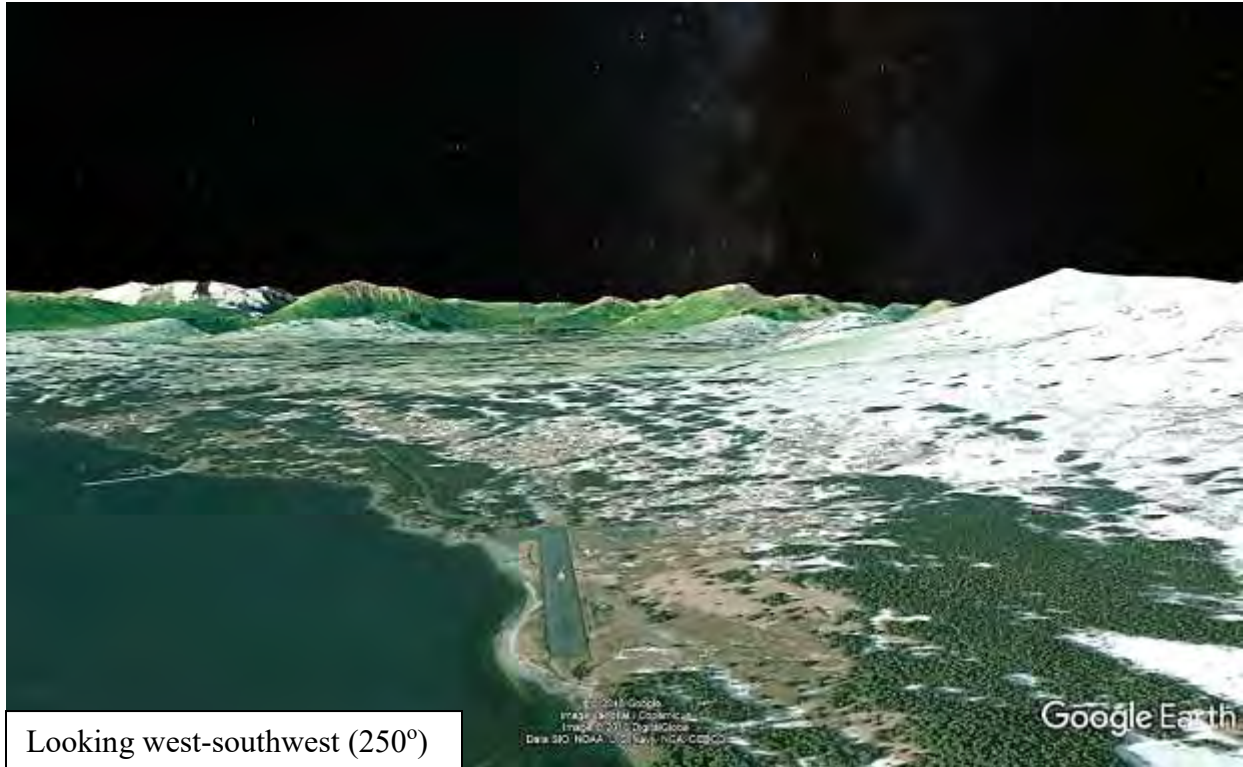
4 – Fleming and Spencer (2004) types 18, 22, 32, 43, 44, and 45; listed as “meadow” in text.

5 – Fleming and Spencer (2004) types 17, 35, 49 and 50; listed as “wetland” in text.

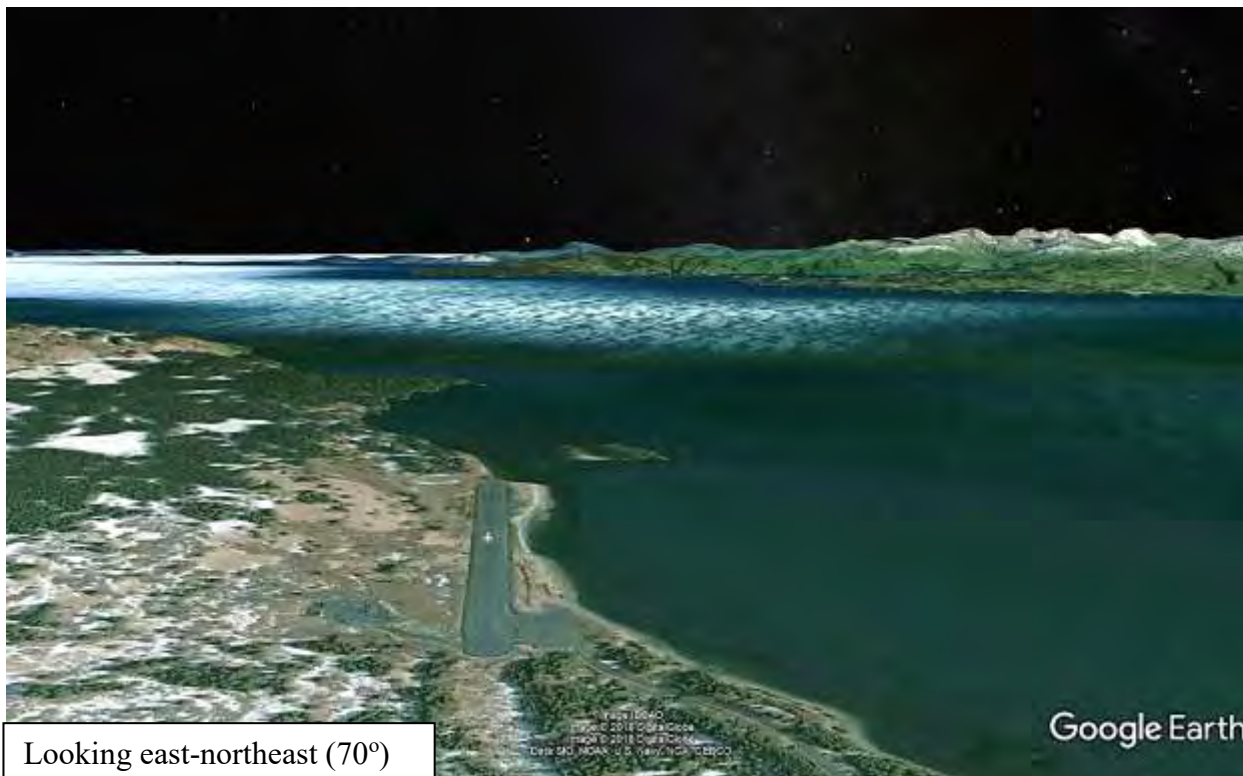
APPENDICES

Appendix 1. Google Earth views of the Port Lions airport area.





Looking west-southwest (250°)



Looking east-northeast (70°)

Vegetation code analysis – Port Lions Airport Wildlife Study Area

Raw data					Terrestrial only (above MHT - delete cells along beach)							
type	cells	sq meters	acres	percent	descriptive	type	cells	sq meters	acres	percent	descriptive	
12	289	290,100	63.58	21.1%	Dense Sitka spruce	12	289	290,200	63.36	22.1%	Dense Sitka spruce	
14	26	23,400	5.72	1.9%	Eelgrass	17	4	3,600	0.88	0.3%	Ericaceous/Lichen Bog	
17	4	3,600	0.88	0.3%	Ericaceous/Lichen Bog	18	44	39,600	9.88	3.4%	Fern-forb meadow	
18	44	39,600	9.88	3.2%	Fern-forb meadow	22	30	18,000	4.4	1.5%	Grass-forb meadow	
22	30	18,000	4.8	1.5%	Grass-forb meadow	32	16	14,400	3.52	1.2%	Mixed grasslands	
31	21	18,900	4.82	1.5%	high sediment marine water	35	22	19,800	4.84	1.7%	Myrica gale-dwarf birch wetlands	
32	16	14,400	3.52	1.2%	Mixed grasslands	36	410	369,000	90.2	33.5%	Alder-forb meadow (includes scattered elderberry, cottonwood and birch)	
35	22	19,800	4.84	1.6%	Myrica gale-dwarf birch wetlands	39	307	91,800	22.44	7.8%	Open alder- scattered spruce	
36	810	369,000	90.2	29.9%	Alder-forb meadow	41	209	188,100	45.98	16.1%	Open Sitka spruce	
39	102	91,800	22.44	7.4%	Open alder- scattered spruce	43	19	17,100	4.18	1.5%	Salmonberry meadow (includes devils club and elderberry)	
41	209	188,100	45.98	15.2%	Open Sitka spruce	48	143	128,700	31.46	11.0%	Sand and gravel - roads	
43	19	17,100	4.18	1.4%	Salmonberry meadow	49	3	2,700	0.66	0.2%	Sedge marsh	
48	162	145,800	35.64	11.8%	Sand and gravel - roads	50	22	19,800	4.84	1.7%	Sedge/moss wetland	
49	3	2,700	0.66	0.2%	Sedge marsh	57	1	900	0.22	0.1%	Talus	
50	22	19,800	4.84	1.6%	Sedge/moss wetland	TOTAL	F	1,303	1,171,800	286.66	100.0%	
57	3	2,700	0.66	0.2%	Talus							
TOTAL	1,372	1,234,800	301.84	100.0%								

descriptive	acres	percent	types
Spruce	109.34	38.14%	12 and 41
Meadow	21.78	7.60%	18,22,32, and 43
Alder	112.64	39.29%	36 and 39
Gravel	31.68	11.05%	48 and 57
Wetlands	11.22	3.91%	17,35,49 and 50
TOTAL	286.66		

Note: For this analysis, cover type 43 (salmonberry forb meadow) also includes type 44 (salmonberry, elderberry and devils club, logged) and type 45 (salmonberry and elderberry).

Cover type 36 (open alder forb meadow) also includes types 9 (dense alder), 37 (open alder, salmonberry, elderberry) and 38 (open alder, scattered cottonwood and birch).

A comprehensive description of each cover type can be found in Fleming and Spencer 2007 (http://akevt.gina.alaska.edu/data/Kodiak_UsersGuide_v1.1.pdf).

Appendix 3: Results of on-site survey of Port Lions Airport Wildlife Study Area, 14 May 2018.**PORT LIONS AIRPORT WILDLIFE STUDY AREA ON-SITE SURVEY
14 May 2018**

Method: R-44 helicopter/walking **Survey time:** 10:23-16:30
Pilot: K. Wattum, Deckload Aviation **Survey time:** 6.1 hrs
Observers: L. Van Daele, M. Van Daele **Weather:** CAVU*; winds SE@10 kts; 42°F

Survey Route: Aerial survey started at the lake on the northeast corner of the Port Lions Airport Wildlife Study Area (PLAWSA) and proceeded to transect the area in a serpentine pattern supplemented by bisecting passes. Mean altitude was ~300' above ground level. The primary reason for the aerial survey was to look for bald eagle nests, but we were also looking for all birds or mammals and we were getting an overview of the flora and terrain.

The on-ground survey included walking the entire perimeter of the PLAWSA, bisecting the middle of the area, and spending time in each major habitat type to look and listen for birds and mammals and ground-truth vegetative profiles. Permits were obtained to access Afognak Native Corporation lands (Permits #12428 and #12429).

Vegetative Phenology: Snow was gone from all of the area. Lakes were open. All vegetation was just starting to develop with no leaves obscuring observation and a hint of green in the meadows. Devils club and roses had swollen buds but no other development. Alders, cottonwoods, birch and willows were all budding, but leaves were not completely developed. Salmonberry and blueberry bushes had blossoms and some leaf development. Forbs such as angelica, cow parsnip, iris, chocolate lily, and false hellebore were emerged about 6" above the ground. Yellow violets were blooming. Beach rye and sedges were about 12" tall.

Human Activity: Scheduled Andrews Air Cherokee aircraft flights came into the runway three times during the survey. A few people associated with those flights were periodically on the ramp. The only other activity noted was a front-loader working in the gravel pit for about a half hour.

Mammal Observations:

Bear: beds and scat in 3 locations in spruce forest (Location "1A-C"). No bears or tracks observed.

Deer: well established trails throughout area, fresh tracks and scat in lower elevation meadows and spruce forest. Three piles of deer hair (probably winter kill) found in spruce forest (Location "2A-C"), one skull (at least a year old) found in recently cut timber at end of runway (Location

“2D”), four skeletons (probable winter-kill) found on beach below southwest end of runway (Location “2E”). No deer observed.

Fox: scat found in spruce forest along northwest border of study area (Location “3”). Old fox snare found in spruce near beach at northwest corner of study area. No fox observed.

Snowshoe hare: scat and trails common in meadow areas. Dead hare found in small meadow surrounded by spruce along northwest border of area (probably raptor-kill) (Location “4A”). One hare observed in alders above the gravel pit (completely brown except for white hind feet and ear tips) (Location “4B”).

Beaver: old beaver-chewed cottonwood and birch trees near lake adjacent to northwest corner of study area (Location “5”). No beavers observed.

Red squirrel: heard in spruce forest habitats in northwest portions of study area (Location “6”).

Vole: several well-established vole winter-runs in meadows near lake adjacent to northwest corner of study area (Location “7”). No voles observed.

Bird Observations:

Bald eagle: observed on the shoreline of the lake adjacent to the northwest corner of the PLAWSA. It took off when we passed near the area and flew to a large spruce tree at the edge of the recently cut spruce northeast of the runway (Location “8”).

Tundra swan: observed on the lake adjacent to the northwest corner of the PLAWSA, tipping-up and feeding along shoreline (Location “9”).

Barrow’s goldeneye: male and female swimming and feeding in the lake adjacent to the northeast corner of the PLAWSA (Location “10”).

Common raven: calling and flying in various locations around study area (Location “11”).

Varied thrush: calling and flying throughout spruce forest habitats (Location “12”).

Hermit thrush: calling and flying throughout spruce forest habitats (Location “13”).

Red-breasted nuthatch: calling and flying throughout spruce forest habitats (Location “14”).

Black-capped chickadee: calling and flying throughout spruce forest habitats (Location “15”).

American three-toed woodpecker: several individuals observed calling, flying and seeking food in spruce forest along northwest side of study area (Location “16”).

Winter wren: calling and flying in spruce forest habitats (Location “17”).

Fox sparrow: calling and flying throughout interfaces between meadow and spruce forest habitats (Location “18”).

Song sparrow: calling and flying throughout interfaces between meadow and spruce forest habitats (Location “19”).

Northern goshawk: one individual observed calling and flying in spruce forest on northwest edge of area (Location “20”).

Savannah sparrow: one individual observed calling and perching in wetland area at northeast end of runway (Location “21”).

Golden-crowned sparrow: heard in gravel/clearcut area at northeast end of runway (Location “22”).

Ruby-crowned kinglet: heard in gravel/clearcut area at northeast end of runway (Location “23”).

Black oystercatcher: two calling and flying along saltwater adjacent to runway (Location “24”).

Glaucous-winged gull: one calling and flying along saltwater adjacent to runway (Location “25”).

Double-crested cormorant: one flying along saltwater adjacent to runway (Location “26”).

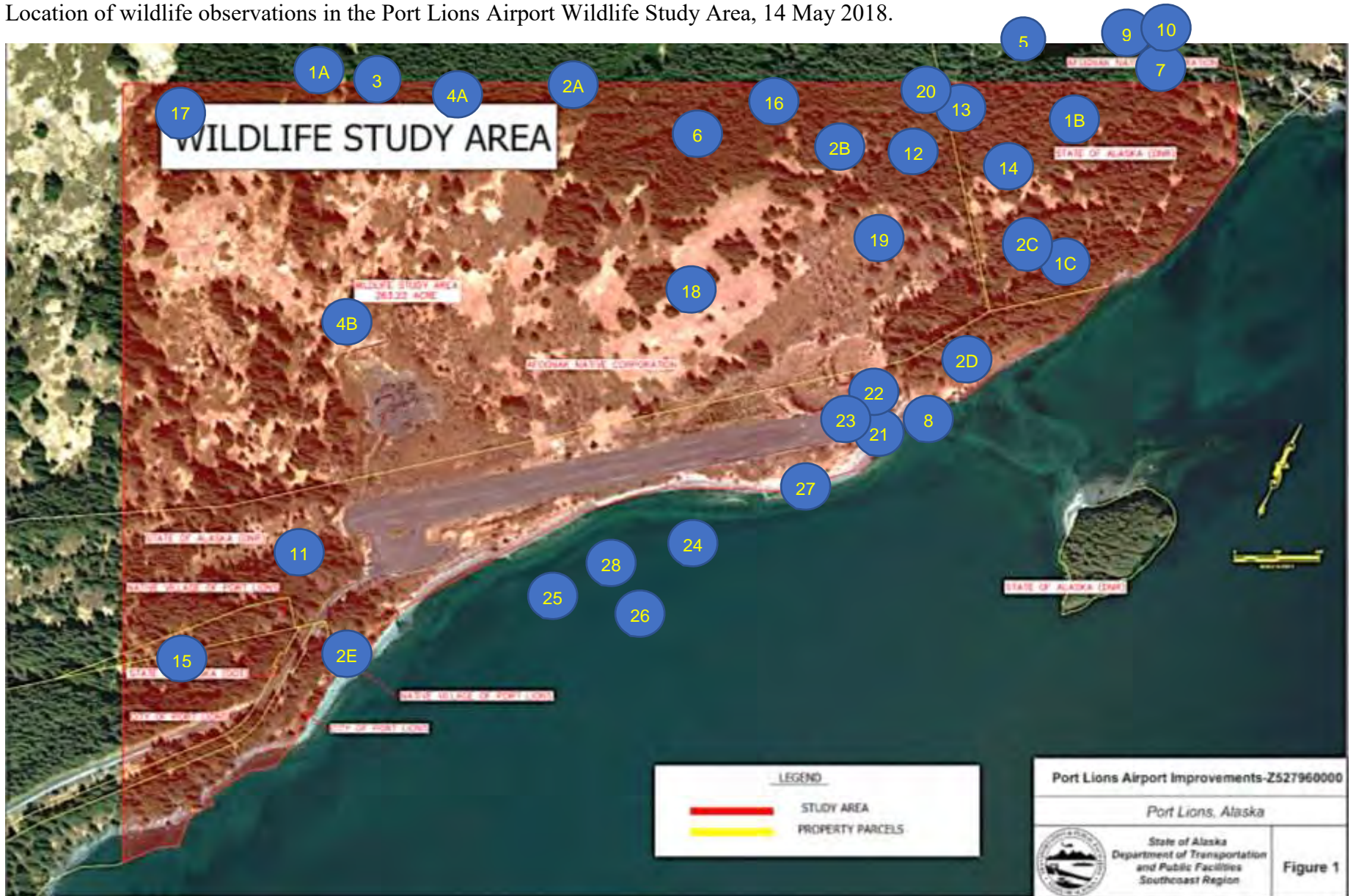
Greater yellowlegs: small flock (~12) calling, flying and eventually landing on the intertidal area adjacent to the runway (Location “27”).

Harlequin duck: male and female flying along saltwater adjacent to runway (Location “28”).

Other Observations: The spruce trees remaining within the area slated to be included in the Runway Object Free Area appear to be marginal to inadequate for marbled murrelet nesting habitat. Several 4-wheeler trails, including some primitive log bridges, traverse the PLAWSA providing access to areas to the north and west.

*CAVU – ceiling and visibility unlimited

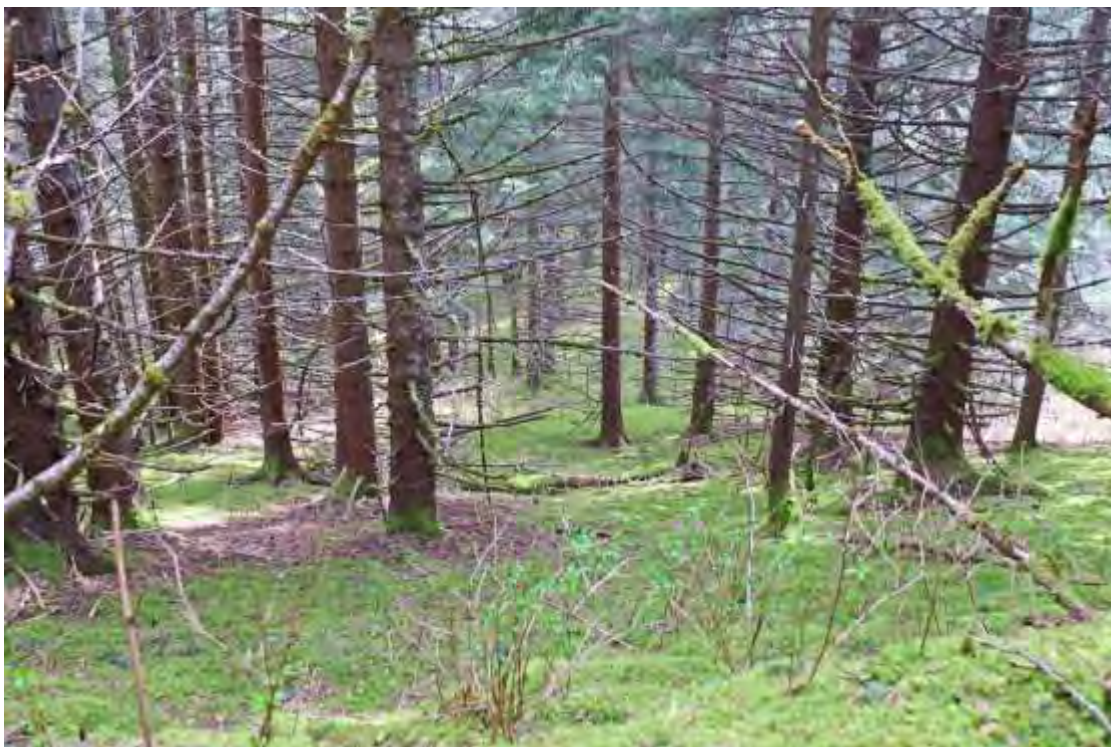
Location of wildlife observations in the Port Lions Airport Wildlife Study Area, 14 May 2018.



Images of Port Lions Airport Wildlife Study Area, 14 May 2018.



Wet meadow (N57.89350 x W152.83950)



Spruce forest (N57.89028 x W152.83342)



Lake adjacent to northwest corner of study area (N57.89188 x W152.83650)



Wetland at northeast end of runway (N57.88585 x W152.83956)



Clearcut at northeast end of runway (N57.88722 x W152.83658)



Gravel habitat along runway (N57.88456 x W152.84886)



Salmonberry meadow habitat (N57.89350 x W152.85456)



Alder habitat (N57.88764 x W152.85414)

Appendix 4: Birds of the Kodiak Archipelago (247 species grouped by family) – USFWS 2009a

Species	Nest	Spring	Summer	Autumn	Winter
Greater white-fronted goose		U	+	R	
Emperor goose		C	+	U	C
Snow goose		+		+	+
Brant		C	R	+	+
Cackling goose		U	R	R	+
Canada goose	*	U	U	U	U
Trumpeter swan		R	+	R	+
Tundra swan	*	U	U	U	R
Wood duck				+	
Gadwall	*	C	U	C	C
Eurasian wigeon		U	+	R	R
American wigeon	*	C	C	C	U
Mallard	*	A	C	A	A
Eastern spot-billed duck				+	
Blue-winged teal		+	+		
Cinnamon teal		+	+		
Northern shoveler		C	R	R	+
Northern pintail	*	A	C	A	A
Green-winged teal	*	C	C	C	U
Canvasback		R		R	R
Redhead		R	+	R	R
Ring-necked duck		R			R
Tufted duck		R	+	+	R
Greater scaup	*	A	C	A	A
Lesser scaup	*	U	R	U	U
Steller's eider		C	+	U	C
Spectacled eider		+			+
King eider		C	R	U	C
Common eider	*	U	U	U	U
Harlequin duck	*	C	C	C	C
Surf scoter		C	U	C	C
White-winged scoter		A	C	A	A
Black scoter	*	A	U	A	A
Long-tailed duck (oldsquaw)		A	R	A	A
Bufflehead		C	+	C	C
Common goldeneye		U	R	U	U
Barrow's goldeneye	*	C	U	C	C
Smew		+			+
Hooded merganser		+	+	+	+
Common merganser	*	C	C	C	C
Red-breasted merganser	*	C	C	C	C
Willow ptarmigan	*	C	C	C	C
Rock ptarmigan	*	C	C	C	C

Birds of the Kodiak Archipelago (247 species grouped by family) – USFWS 2009 (continued)

Species	Nest	Spring	Summer	Autumn	Winter
Red-throated loon	*	U	U	U	R
Pacific loon		R	+	C	U
Common loon	*	C	C	C	C
Yellow-billed loon		R	+	R	R
Pied-billed grebe					+
Horned grebe		C	R	C	C
Red-necked grebe	*	U	R	U	U
Laysan albatross		U	U	U	+
Black-footed albatross		C	C	C	+
Short-tailed albatross		+	R	R	+
Norther fulmar		A	A	A	C
Mottled petrel		U	U	U	
Pink-footed shearwater		+	+	+	
Flesh-footed shearwater		+	+		
Buller's shearwater		+	R	R	
Sooty shearwater		A	A	C	R
Short-tailed shearwater		A	A	C	R
Fork-tailed storm petrel	*	C	C	C	U
Leach's storm petrel	*	U	U	U	
Double-crested cormorant	*	U	U	U	U
Red-faced cormorant	*	U	U	U	R
Pelagic cormorant	*	C	C	C	C
Great blue heron		R	+	R	R
Great egret		+	+		
Osprey		+	+	+	
Bald eagle	*	C	C	C	C
Steller's sea eagle			+		
Northern harrier		U	R	U	R
Sharp-shinned hawk		R	U	U	R
Northern goshawk	*	U	U	U	U
Red-tailed hawk		+			
Rough-legged hawk	*	U	U	U	+
Golden eagle	*	U	U	U	U
American kestrel		+	+	+	+
Merlin	*	R	U	U	R
Gyr Falcon	*	R	R	R	R
Peregrine falcon	*	U	R	U	U
American coot				+	+

Birds of the Kodiak Archipelago (247 species grouped by family) – USFWS 2009 (continued)

Species	Nest	Spring	Summer	Autumn	Winter
Sandhill crane		+	+	+	
Black-bellied plover		U	U	U	
American golden plover		+		+	
Pacific golden plover		U	R	U	
Lesser sand plover			+		
Semipalmated plover	*	C	C	R	
Killdeer			+		+
Black oystercatcher	*	C	C	C	C
Spotted sandpiper	*	R	U	R	
Solitary sandpiper	*		R		
Gray-tailed tattler		+			
Wandering tattler		C	C	U	
Greater yellowlegs	*	U	C	U	
Common greenshank			+		
Lesser yellowlegs		R	C	R	
Upland sandpiper			+		
Whimbrel		U	R	R	
Bristle-thighed curlew		+	+	+	
Black-tailed godwit			+		
Hudsonian godwit		+	+		
Bar-tailed godwit		R	+	+	+
Marbled godwit		R	+		
Ruddy turnstone		R	R	R	
Black turnstone		U	U	U	U
Surfbird	*	U	U	U	U
Red knot		+	+	+	
Sanderling		R	R	R	+
Semipalmated plover		+	R	+	
Western sandpiper		U	C	U	
Temminck's stint			+		
Least sandpiper	*	C	C	R	
Baird's sandpiper			U	R	
Pectoral sandpiper		R	U	U	
Sharp-tailed sandpiper			+	U	+
Rock sandpiper	*	C	U	C	C
Dunlin		U	R	U	U
Curlew sandpiper			+		
Stilt sandpiper			R	+	
Buff-breasted sandpiper			R	R	
Ruff		+	+	+	
Short-billed dowitcher	*	U	U	R	
Long-billed dowitcher		+	+	R	+
Wilson's snipe	*	C	C	C	R

Birds of the Kodiak Archipelago (247 species grouped by family) – USFWS 2009 (continued)

Species	Nest	Spring	Summer	Autumn	Winter
Wilson's phalarope			+		
Red-necked phalarope	*	U	A	U	
Red phalarope		U	U	U	
Black-legged kittiwake	*	A	A	A	U
Red-legged kittiwake		+	+	+	+
Sabine's gull		U	U	U	
Bonaparte's gull		U	U	U	+
Black-headed gull		+	+		
Franklin's gull		+	+		
Black-tailed gull				+	
Mew gull	*	C	C	A	A
Ring-billed gull		+	+	+	
Western gull		+			
California gull		+	+	+	
Herring gull		U	R	U	R
Iceland (Thayer's) gull		R		R	R
Lesser Black-backed gull		+	+		
Slaty-backed gull		+	+	R	+
Glaucous-winged gull	*	A	A	A	A
Glaucous gull		U	+	U	U
Great Black-backed gull		+		+	
Aleutian tern	*	U	U	+	
Caspian tern			+		
Arctic tern	*	C	C	R	
South polar skua			+	+	
Pomarine jaeger		U	C	C	
Parasitic jaeger	*	U	C	C	
Long-tailed jaeger	*	U	U	U	
Dovekie			+		
Common murre	*	C	C	A	A
Thick-billed murre	*	R	R	R	R
Pigeon guillemot	*	C	C	C	C
Long-billed murrelet					+
Marbled murrelet	*	C	C	C	C
Kittlitz's murrelet	*	R	U	R	R
Ancient murrelet	*	R	U	U	R
Cassin's auklet		R	U	U	+
Parakeet auklet	*	R	R	R	+
Least auklet		+	+	+	+
Crested auklet		+	+	C	C
Rhinoceros auklet	*	R	U	R	R
Horned puffin	*	C	C	C	R
Tufted puffin	*	A	A	A	R

Birds of the Kodiak Archipelago (247 species grouped by family) – USFWS 2009 (continued)

Species	Nest	Spring	Summer	Autumn	Winter
Mourning dove			+	+	
Snowy owl		+	+	+	+
Northern hawk owl	*	R	R	R	R
Great gray owl					+
Short-eared owl	*	U	U	U	R
Boreal owl	*	U	U	U	U
Northern saw-whet owl		+			
Common nighthawk				+	
Costa's hummingbird			+	+	
Rufous hummingbird		+	R	R	
Belted kingfisher	*	C	C	C	C
Yellow-bellied sapsucker				+	
Red-breasted sapsucker		+	+	+	+
Downy woodpecker	*	U	U	U	U
Hairy woodpecker			+	+	+
American three-toed woodpecker	*	U	U	U	U
Norther flicker				+	
Olive-sided flycatcher		+	+		
Say's phoebe			+		
Eastern kingbird			+		
Northern shrike	*	U	U	U	U
Black-billed magpie	*	C	C	C	C
Northwestern crow	*	C	C	C	C
Common raven	*	C	C	C	C
Horned lark		+	+	+	
Tree swallow	*	C	C	R	
Violet-green swallow	*	C	C	R	
Bank swallow	*	U	C	R	
Cliff swallow		R	+		
Barn swallow		+	R		
Black-capped chickadee	*	C	C	C	C
Red-breasted nuthatch	*	C	C	C	C
Brown creeper	*	U	U	U	U
Winter wren	*	C	C	C	C

Birds of the Kodiak Archipelago (247 species grouped by family) – USFWS 2009 (continued)

Species	Nest	Spring	Summer	Autumn	Winter
American dipper	*	C	C	C	C
Golden-crowned kinglet	*	C	C	C	C
Ruby-crowned kinglet		R	+	R	R
Mountain bluebird					+
Gray-cheeked thrush	*	R	C	+	
Swainson's thrush			+		
Hermit thrush	*	A	A	C	+
American robin		R	R	R	R
Varied thrush	*	C	C	C	U
European starling		R		R	R
Eastern yellow wagtail			+		
American pipit	*	C	C	C	R
Bohemian waxwing		+		R	R
Cedar waxwing			+	R	+
Orange-crowned warbler	*	C	C	R	+
Yellow warbler	*	U	A	U	
Yellow-rumped warbler	*	C	C	R	+
Townsend's warbler			+	+	+
Palm warbler				+	
Blackpoll warbler			+		
Wilson's warbler	*	C	A	U	+
American tree sparrow		U		U	U
Savannah sparrow	*	A	A	C	+
Fox sparrow	*	A			+
Song sparrow	*	U	U	U	U
Lincoln's sparrow		+			+
White-throated sparrow				+	+
Harris's sparrow		+		+	+
White-crowned sparrow		R	+	R	R
Golden-crowned sparrow	*	A	A	C	R
Dark-eyed junco		U	+	U	U
Lapland longspur	*	A	A	C	+
Rustic bunting					+
Snow bunting	*	U	U	U	U
McKay's bunting		+			+
Black-headed grosbeak				+	

Birds of the Kodiak Archipelago (247 species grouped by family) – USFWS 2009 (continued)

Species	Nest	Spring	Summer	Autumn	Winter
Red-winged blackbird				+	
Rusty blackbird		R		R	R
Brambling		+		+	+
Gray-crowned rosy finch	*	U	U	U	U
Pine grosbeak	*	C	C	C	C
Red crossbill	*	U	U	U	U
White-winged crossbill	*	U	U	U	U
Common redpoll	*	C	C	C	C
Hoary redpoll		+			+
Pine siskin	*	C	C	C	C

A – Abundant, species is very numerous in all proper habitat; the region regularly hosts great numbers of the species; sighting likelihood excellent

C – Common, species occurs regularly in most proper habitat; sighting likelihood good

U – Uncommon, species usually present in relatively small numbers, or higher numbers unevenly distributed; sighting likelihood fair

R – Rare, species occurs regularly in region but in very small numbers; sighting likelihood fair to poor

+ - Species has been recorded no more than a few times in a season; sighting likelihood very poor

* - Species known to have nested on Kodiak Archipelago

Spring – March, April, May

Summer – June, July, August

Autumn – September, October, November

Winter – December, January, February

Appendix 5. Bald Eagle nest aerial survey, Port Lions Wildlife Study Area, 14 May 2018.**BALD EAGLE NEST SURVEY FLIGHT
14 May 2018****Aircraft:** R-44 helicopter**Flight time:** 10:23-10:52**Pilot:** K. Wattum**Survey time:** 0.5 hrs**Observers:** L. Van Daele, M. Van Daele**Weather:** CAVU*; winds SE@10 kts; 42°F

Survey Route: started at the lake on the northwest corner of the Port Lions Airport Wildlife Study Area (PLAWSA) and proceeded to transect the area to in a serpentine pattern supplemented by bisecting passes. Mean altitude was ~300' (~90 m) above ground level.

Vegetative Phenology: Snow is gone from all of the area. Lakes are open. All vegetation is just starting to develop with no leaves obscuring observation and a hint of green in the meadows.

Human Activity: One scheduled Andrews Air Cherokee aircraft came into the runway during the latter half of the survey. A few people associated with that flight were on the ramp. No other activity noted.

Eagle Observations: One adult bald eagle was observed on the shoreline of the lake adjacent to the northwest corner of the PLAWSA (57.89185°N x 152.83415°W). It took off when we passed near the area and flew to a large spruce tree at the edge of the recently cut spruce northeast of the runway.

Eagle Nest Observations: No active or inactive nests were observed during this survey. The only nearby active eagle nest observed was on a sea-stack rock near Kekur Point on the other side of Kizhuyak Bay. That nest was observed incidentally during the transit back to base at Kodiak.

Other Wildlife Observations: An adult tundra swan and a pair of Barrow's goldeneye ducks were on the same lake the adult eagle was on. No other animals were observed during the survey flight, but four brown bears, one of which was a large dark male, were observed in Elbow Creek during the transit flight from Kodiak to the survey area.

*CAVU – ceiling and visibility unlimited



Bald eagle nest aerial survey route, 14 May 2018.



Appendix E

Rare and Invasive Plant Survey



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Rare and Invasive Plant Survey

Port Lions Airport Improvements

August 16, 2018

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Introduction

The Alaska Department of Transportation and Public Facilities, (DOT&PF) Southcoast Region, is evaluating improvements at the Port Lions Airport. This work requires evaluation under the National Environmental Policy Act (NEPA) and must adhere to Executive Order (EO) 13112 to prevent the control and spread of invasive species. DOT&PF contracted HDR Alaska, Inc. (HDR), to identify rare and invasive plants within the study area in order to support project planning and permitting (Figures 1 and 2).

Methods

On July 19 through 24, 2018, HDR completed a field survey to identify and map the presence of rare and invasive plants within a 330-acre study area surrounding the Port Lions Airport. A pedestrian survey was conducted along all representative habitats and disturbed areas within the study area, including the runway, access roads, material site, and trails. All plant locations were recorded using an iPad with Bluetooth-linked sub-meter accuracy global positioning system (GPS). If a population was limited to a circular area with a radius less than 3 feet, a GPS point was collected. If the population extended beyond a 3-foot radius circle, the boundary of the population was walked, and points along the polygon boundary were collected.

Rare Plants

HDR surveyed the study area for 16 rare plant species (Table 1). In order to determine which species to survey, HDR contacted the Alaska Center for Conservation Science (ACCS) to obtain a list of rare plants that have potential suitable habitat within the study area. All plants identified by ACCS as having potential suitable habitat in the study area were surveyed. No threatened or endangered plant species are within the study area or would be expected to occur within the study area.

Rare plant surveys were concentrated on potential habitats, such as coastal herbaceous meadows, wetlands, and open gravelly riparian areas. Rare plant surveys were also conducted during the wetland delineation and invasive plant surveys. The survey was conducted during late July to optimize the search during the best point in the phenology of all plants on the list. Late-flowering species such as fourpart dwarf gentian (*Gentianella propinqua* ssp. *Aleutica*) may not have fully emerged (e.g., the only gentian observed was autumn dwarf gentian [*Gentianella amarella*]).

Table 1. List of Rare Plant Species Included in Survey

Common Name	Scientific Name	State Rank	Global Rank	Federal Listings
Alaska moonwort	<i>Botrychium alaskense</i>	S3	G4	
Rattlesnake fern	<i>Botrychium virginianum</i>	S3	G5	
Lapland sedge	<i>Carex lapponica</i>	S3S4	G4G5Q	
Sessileleaf scurvygrass	<i>Cochlearia sessilifolia</i>	S2Q	G1G2Q	USFS, BLM Watch
Quill spikerush	<i>Eleocharis nitida</i>	S1S2	G3G4	

Table 1. List of Rare Plant Species Included in Survey

Common Name	Scientific Name	State Rank	Global Rank	Federal Listings
Thinleaf cottonsedge	<i>Eriophorum viridicarinatum</i>	S2S3	G5	
Aleutian fourpart dwarf gentian	<i>Gentianella propinqua</i> ssp. <i>aleutica</i>	S3	G5T2T4	
American silvertop	<i>Glehnia littoralis</i> ssp. <i>leiocarpa</i>	S2S3	G5T5	
Western quillwort	<i>Isoetes occidentalis</i>	S3S4	G4G5	
Jointleaf rush	<i>Juncus articulatus</i>	S1S2	G5	
Tall blue lettuce	<i>Lactuca biennis</i>	S2S3	G5	
Toothed surfgrass	<i>Phyllospadix serrulatus</i>	S3	G4	
Fowler's knotweed	<i>Polygonum fowleri</i> ssp. <i>fowleri</i>	S3S4	G5TNR	
Alaska mistmaiden	<i>Romanzoffia unalaschcensis</i>	S3S4	G3	USFS
Circumpolar starwort	<i>Stellaria ruscifolia</i> ssp. <i>aleutica</i>	S2S3	G4T3	
Horned pondweed	<i>Zannichellia palustris</i> ssp. <i>palustris</i>	S3S4	G5	

#Q = Taxon is questionable.

State Rank

S1 = Critically imperiled within the state; at very high risk of extirpation because of very few occurrences, declining populations, or extremely limited range and/or habitat.

S2 = Imperiled within the state; at high risk of extirpation because of few occurrences, declining populations, limited range, and/or habitat.

S3 = Rare within the state; at moderate risk of extirpation because of restricted range, narrow habitat specificity, recent population decline, small population sizes, and moderate number of occurrences.

S4 = Apparently secure but uncommon within the state; may be a long-term conservation concern.

Global Rank

G1 = Critically imperiled; at very high risk of extinction because of extreme rarity, very steep declines, or other factors.

G2 = Imperiled; at high risk of extinction because of very restricted range, few occurrences, small populations, steep declines, or other factors.

G3 = Vulnerable; at moderate risk of extinction because of restricted range, relatively few occurrences, small populations, recent and widespread declines, or other factors.

G4 = Apparently secure but uncommon; some cause for long-term concern because of declines or other factors.

G5 = Secure; common, widespread, and abundant.

T# = Indicates the global rank of a subspecies or variety and is appended to the end of a rank for the species.

NR = Global rank not yet assessed.

Note: USFS = U.S. Forest Service; BLM = U.S. Bureau of Land Management

Invasive Species

Thirty-seven invasive species were surveyed for within the study area (Table 2). This includes all invasive species on the Alaska Department of Natural Resources' (ADNR's) Prohibited and Noxious Weed and Invasives Species of Interest lists. Orange hawkweed (*Hieracium aurantiacum*), a prohibited and restricted noxious weed, as well as oxeye daisy (*Leucanthemum vulgare*) and common tansy (*Tanacetum vulgare*), invasive species of interest, were previously documented in the Port Lions area. The invasive species survey included all disturbed, and directly adjacent, areas within the study area as well as other areas covered during the rare plant and wetland surveys.

Table 2. List of Invasive Species Included in Survey

ADNR Prohibited and Restricted Noxious Weeds	
Common Name	Scientific Name
Leafy spurge	<i>Euphorbia esula</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Orange hawkweed	<i>Hieracium aurantiacum</i>
Canada thistle	<i>Cirsium arvense</i>
Perennial sowthistle	<i>Sonchus arvensis</i>
Whitetops and its varieties	<i>Cardaria draba, C. pubescens, Lepidium latifolium</i>
Russian knapweed	<i>Acroptilon repens</i>
Quackgrass	<i>Elymus repens</i>
Field bindweed	<i>Convolvulus arvensis</i>
Hempnettle	<i>Galeopsis tetrahit</i>
Galinsoga	<i>Galinsoga parviflora</i>
Austrian fieldcress	<i>Rorippa austriaca</i>
Horsenettle	<i>Solanum carolinense</i>
Blue-flowering lettuce	<i>Lactuca tatarica, Lactuca pulchella</i>
Other Invasive Species of Interest to be Identified	
Common Name	Scientific Name
Japanese knotweed	<i>Polygonum cuspidatum, P. bohemicum</i>
Spotted knapweed	<i>Centaurea stoebe, C. maculosa</i>
Reed canarygrass	<i>Phalaris arundinacea</i>
Ornamental jewelweed	<i>Impatiens glandulifera</i>
White sweetclover	<i>Melilotus alba</i>
Meadow hawkweed	<i>Hieracium caespitosum</i>
Cheatgrass	<i>Bromus tectorum</i>
Siberian pea shrub	<i>Caragana arborescens</i>
European bird cherry	<i>Prunus padus</i>
Bird vetch	<i>Vicia cracca</i>
Garlic mustard	<i>Alliaria petiolata</i>
Common toadflax	<i>Linaria vulgaris</i>
Scotchbroom	<i>Cytisus scoparius</i>
Rampion bellflower	<i>Campanula rapunculoides</i>
Foxtail barley	<i>Hordeum jubatum</i>
Tansy ragwort	<i>Senecio jacobaea</i>
Bull thistle	<i>Cirsium vulgare</i>
Oxeye daisy	<i>Leucanthemum vulgare</i>
Common tansy	<i>Tanacetum vulgare</i>
Narrowleaf hawksbeard	<i>Crepis tectorum</i>
Splitlip hempnettle	<i>Galeopsis bifida</i>
Western salsify	<i>Tragopogon dubius</i>
Hairy catsear	<i>Hypochaeris radicata</i>

Survey Results

Rare Plants

No rare plants were observed during the survey. Some of the plants surveyed for do not have appropriate habitat within the study area (e.g., alpine areas and habitats below the high tide line). Representative transects were conducted on the extensive, steep, south-facing herbaceous meadows in the center of the study area, as well as meadows in the western portion and the coastal strand. When similar species were encountered (such as Sitka mistmaiden (*Romanzoffia sitchensis*; similar to Alaska mistmaiden) and northern green rush (*Juncus alpinoarticulatus*; similar to jointleaf rush), the specimens were collected and examined closely to determine that they were not target species.

Invasive Species

Two of the invasive species surveyed for were documented within the study area: orange hawkweed and oxeye daisy. Orange hawkweed was observed at 104 locations (Attachment A; Figure 3) and oxeye daisy was observed at 97 locations (Attachment B; Figure 3) within the study area. At orange hawkweed infestations, the number of flowering stems and percent cover were recorded. At oxeye daisy infestations, the number of flowering stems, number of sprouts (i.e., seedlings or rosettes), and percent cover were recorded. Photographs of some of the infestations are included in Attachment C.

No other invasive species surveyed for were observed within the study area. Other non-native plants not on either of ADNR’s lists were observed within the study area (Table 3). These plants were limited to the disturbed areas adjacent to the runway, except for common dandelion (*Taraxacum officinale*), which was found in herbaceous meadows away from the runway. Alsike clover (*Trifolium hybridum*) infestations were extensive throughout the disturbed areas.

Table 3. Other Non-native Species Identified During the Field Survey

Common Name	Scientific Name
Creeping bentgrass	<i>Agrostis stolonifera</i>
Common mouse-ear chickweed	<i>Cerastium fontanum</i>
Disc mayweed	<i>Matricaria discoidea</i>
Common plantain	<i>Plantago major</i>
Annual bluegrass	<i>Poa annua</i>
Canada bluegrass	<i>Poa compressa</i>
Tall buttercup	<i>Ranunculus acris</i>
Common sheep sorrel	<i>Rumex acetosella</i>
Curly dock	<i>Rumex crispus</i>
Old-man-in-the-Spring	<i>Senecio vulgaris</i>
Red sandspurry	<i>Spergularia rubra</i>
Common dandelion	<i>Taraxacum officinale</i> ssp. <i>officinale</i>
Alsike clover	<i>Trifolium hybridum</i>
Neckweed	<i>Veronica peregrina</i>

Figures

Figure 1: Vicinity Map

Figure 2: Survey Study Area

Figure 3: Sheets 1-4



- Study Area
- City
- Existing Roads

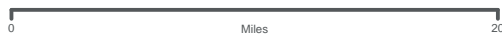


Figure 1: Vicinity Map
 Port Lions Airport Improvements
 Invasive Species Survey

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Invasive Species Infestations - 2018

- Orange Hawkweed
- Oxeye Daisy
- Study Area
- Mapbook Sheets

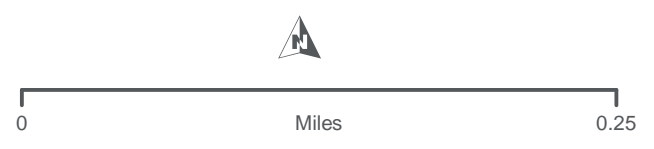


Figure 2: Survey Study Area
 Port Lions Airport Improvements
 Invasive Species Survey

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Invasive Species Infestations - 2018

- Orange Hawkweed
- Oxeye Daisy
- Study Area



Figure 3: Sheet 2 of 4
 Port Lions Airport Improvements
 Invasive Species Survey

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Invasive Species Infestations - 2018

- Orange Hawkweed
- Oxeye Daisy
- Study Area



Figure 3: Sheet 3 of 4
 Port Lions Airport Improvements
 Invasive Species Survey

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Invasive Species Infestations - 2018

Orange Hawkweed
 Oxeye Daisy
 Study Area



Figure 3: Sheet 4 of 4
 Port Lions Airport Improvements
 Invasive Species Survey

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Attachment A

Orange Hawkweed Infestations



<i>Site Name</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Type (Point/Polygon)</i>	<i>Acres</i>	<i>Square Feet</i>	<i>Percent Cover</i>	<i>Number of Flowering Stems</i>	<i>Comments</i>
OH1	57.885238	-152.847452	Point	0.000648	28	25	8	
OH2	57.883956	-152.854054	Point	0.000648	28	2	5	
OH3	57.883792	-152.854243	Point	0.000648	28	<1	2	
OH4	57.883776	-152.854039	Point	0.000648	28	<1	1	
OH5	57.883677	-152.854332	Polygon	0.036149	1,575	<1	350	5 groupings
OH6	57.883612	-152.854658	Point	0.000648	28	22	25	
OH7	57.883534	-152.854487	Polygon	0.006929	302	<1	52	
OH8	57.883722	-152.854677	Polygon	0.043397	1,890	1	107	9 groupings
OH9	57.883812	-152.854625	Polygon	0.003702	161	1	30	3 groupings
OH10	57.883616	-152.854899	Point	0.000648	28	20	8	
OH11	57.883852	-152.854864	Point	0.000648	28	15	32	3 groupings
OH12	57.884111	-152.855778	Point	0.000648	28	<1	1	
OH13	57.883538	-152.853982	Polygon	0.014755	643	5	238	4 groupings
OH14	57.883607	-152.853864	Polygon	0.009926	432	3	137	7 groupings
OH15	57.883883	-152.853683	Point	0.000648	28	<1	1	
OH16	57.883775	-152.853801	Polygon	0.000632	28	<1	19	
OH17	57.883391	-152.853323	Point	0.000648	28	30	26	
OH18	57.883411	-152.853212	Polygon	0.005546	242	5	86	
OH19	57.883445	-152.85305	Point	0.000648	28	3	7	1 group
OH20	57.883444	-152.85291	Polygon	0.0042	183	15	47	
OH21	57.883459	-152.85262	Polygon	0.007732	337	3	98	
OH22	57.883651	-152.850998	Polygon	0.47065	20,502	55	~280,000	Large infestation. 55% on entire slope. 1 square meter - 75%, 200 culms
OH23	57.88275	-152.853152	Polygon	0.043709	1,904	70	~33,000	Large infestation, 95% on both ends
OH24	57.884137	-152.849237	Point	0.000648	28	75	1,000	
OH25	57.884235	-152.848656	Point	0.000648	28	5	25	

<i>Site Name</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Type (Point/Polygon)</i>	<i>Acres</i>	<i>Square Feet</i>	<i>Percent Cover</i>	<i>Number of Flowering Stems</i>	<i>Comments</i>
OH26	57.88439	-152.848183	Polygon	0.000648	28	<1	6	
OH27	57.883879	-152.851078	Polygon	0.14332	6,243	1	220	Main concentration between windsock and parking lot. Majority is leaf cover without culms. Two primary clumps surrounding windsock and at edge of parking lot. 18 groupings
OH28	57.883911	-152.851415	Polygon	0.011242	490	90	900	Major infestation, adjacent to OH27
OH29	57.883878	-152.851814	Polygon	0.01771	771	50	465	
OH30	57.883984	-152.852043	Polygon	0.000767	33	5	57	One major clump with a few scattered throughout.
OH31	57.884084	-152.852016	Point	0.000648	28	<1	3	
OH32	57.884277	-152.851315	Point	0.000648	28	<1	1	
OH33	57.884435	-152.849213	Polygon	0.002675	117	35	82	
OH34	57.884267	-152.853187	Point	0.000648	28	<1	1	
OH35	57.882403	-152.85379	Polygon	0.034064	1,484	10	194	9 groupings
OH36	57.882578	-152.854488	Polygon	0.08183	3,565	1	4,300	One long primary clump along roadside (95% cover). 10 scattered clumps on hillside.
OH37	57.883174	-152.854347	Point	0.000648	28	<1	2	
OH38	57.883326	-152.85393	Point	0.000648	28	<1	2	
OH39	57.883359	-152.853721	Point	0.000648	28	<1	2	
OH40	57.883313	-152.854201	Point	0.000648	28	<1	2	
OH41	57.883388	-152.854445	Polygon	0.006979	304	<1	5	3 groupings
OH42	57.883194	-152.854494	Point	0.000648	28	1	10	
OH43	57.883102	-152.854642	Point	0.000648	28	<1	1	
OH44	57.882931	-152.854989	Polygon	0.032058	1,396	3	342	Along road and continues up driveway ~40 feet.
OH45	57.882802	-152.855097	Point	0.000648	28	<1	1	



<i>Site Name</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Type (Point/Polygon)</i>	<i>Acres</i>	<i>Square Feet</i>	<i>Percent Cover</i>	<i>Number of Flowering Stems</i>	<i>Comments</i>
OH46	57.88258	-152.855335	Point	0.000648	28	<1	6	
OH47	57.8818	-152.856283	Polygon	0.004318	188	5	40	
OH48	57.881728	-152.856385	Point	0.000648	28	<1	1	
OH49	57.881638	-152.856603	Polygon	0.003273	143	<1	20	
OH50	57.881253	-152.858064	Point	0.000648	28	<1	3	
OH51	57.88077	-152.860276	Point	0.000648	28	<1	2	
OH52	57.880949	-152.859462	Point	0.000648	28	<1	2	
OH53	57.881341	-152.857386	Point	0.000648	28	<1	4	
OH54	57.881496	-152.856796	Point	0.000648	28	<1	7	
OH55	57.881571	-152.85656	Point	0.000648	28	<1	7	
OH56	57.881637	-152.856411	Point	0.000648	28	<1	7	
OH57	57.881694	-152.856302	Point	0.000648	28	<1	1	
OH58	57.881917	-152.855951	Polygon	0.002079	91	10	63	
OH59	57.882676	-152.855105	Point	0.000648	28	<1	11	
OH60	57.882747	-152.854943	Polygon	0.017236	751	20	850	L shaped along road
OH61	57.882692	-152.854704	Point	0.000648	28	25	20	
OH62	57.882473	-152.854552	Polygon	0.024799	1,080	20	2,250	4 groupings
OH63	57.88199	-152.854663	Polygon	0.054197	2,361	30	2,270	Side slope
OH64	57.88537	-152.840576	Polygon	0.003215	140	40	642	
OH65	57.886135	-152.839513	Point	0.000648	28	15	65	
OH66	57.888711	-152.834857	Polygon	0.002665	116	<1	51	
OH67	57.889063	-152.834906	Polygon	0.001229	54	<1	20	
OH68	57.890336	-152.833231	Point	0.000648	28	5	6	On trail
OH69	57.884573	-152.853847	Point	0.000648	28	<1	2	
OH70	57.884709	-152.853719	Point	0.000648	28	1	5	
OH71	57.884852	-152.853563	Point	0.000648	28	<1	1	
OH72	57.884945	-152.853592	Point	0.000648	28	<1	3	
OH73	57.885283	-152.853093	Point	0.000648	28	<1	1	



<i>Site Name</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Type (Point/Polygon)</i>	<i>Acres</i>	<i>Square Feet</i>	<i>Percent Cover</i>	<i>Number of Flowering Stems</i>	<i>Comments</i>
OH74	57.885339	-152.852861	Point	0.000648	28	<1	1	
OH75	57.885422	-152.852258	Point	0.000648	28	<1	1	
OH76	57.885486	-152.851968	Polygon	0.000801	35	<1	57	
OH77	57.885571	-152.851782	Point	0.000648	28	5	15	
OH78	57.886222	-152.851678	Polygon	0.001805	79	20	137	Surrounded by upland
OH79	57.886297	-152.851668	Point	0.000648	28	<1	0	No culms, 1 rosette. Surrounded by upland, disturbed.
OH80	57.885697	-152.851674	Point	0.000648	28	<1	1	
OH81	57.88564	-152.851905	Polygon	0.01068	465	<1	77	8 groupings
OH82	57.885633	-152.852056	Point	0.000648	28	<1	3	
OH83	57.885662	-152.852108	Point	0.000648	28	<1	3	
OH84	57.885594	-152.852135	Point	0.000648	28	<1	2	
OH85	57.885592	-152.852056	Point	0.000648	28	<1	1	
OH86	57.88579	-152.853416	Point	0.000648	28	1	11	1 group
OH87	57.886287	-152.853099	Point	0.000648	28	<1	3	On top of outcropping
OH88	57.885511	-152.853339	Point	0.000648	28	<1	4	
OH89	57.885616	-152.853494	Point	0.000648	28	<1	16	
OH90	57.885988	-152.853666	Point	0.000648	28	5	5	
Oh91	57.88604	-152.853505	Point	0.000648	28	8	11	
OH92	57.886139	-152.853792	Point	0.000648	28	1	8	
Oh93	57.88726	-152.854329	Point	0.000648	28	1	16	
OH94	57.887515	-152.854279	Point	0.000648	28	2	27	
OH95	57.887615	-152.854231	Point	0.000648	28	<1	3	
OH96	57.888331	-152.853938	Polygon	0.003054	133	20	179	
OH97	57.886715	-152.854441	Point	0.000648	28	<1	1	
OH98	57.884647	-152.853762	Point	0.000648	28	<1	2	
OH99	57.884566	-152.853837	Point	0.000648	28	<1	3	
OH100	57.886531	-152.852599	Polygon	0.003485	152	1	12	



<i>Site Name</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Type (Point/Polygon)</i>	<i>Acres</i>	<i>Square Feet</i>	<i>Percent Cover</i>	<i>Number of Flowering Stems</i>	<i>Comments</i>
OH101	57.886519	-152.852838	Point	0.000648	28	8	6	
OH102	57.886334	-152.846825	Point	0.000648	28	5	0	No culms, only leaves
OH103	57.886868	-152.84656	Polygon	0.002149	94	1	39	
OH104	57.889154	-152.841677	Polygon	0.000986	43	5	83	Flowers have been bitten off by wildlife



Attachment B

Oxeye Daisy Infestations



Site Name	Latitude	Longitude	Type (Point/Polygon)	Acres	Square Feet	Percent Cover	Number of Flowering Stems	Number of Sprouts	Comments
OD1	57.885436	-152.840974	Point	0.000648	28	<1	3	0	
OD2	57.885509	-152.840971	Polygon	0.003599	157	1	40	97	
OD3	57.885679	-152.84103	Polygon	0.00411	179	25	75	1,300	
OD4	57.885767	-152.841128	Polygon	0.023526	1,025	2	325	2,810	410 sprouts on the 10' wide graded edge. 2,400 sprouts in vegetation outside of graded edge.
OD5	57.885762	-152.841424	Polygon	0.017119	746	5	220	610	180 sprouts on graded edge (triangular area starting at 30"wide). 430 sprouts in outside vegetation.
OD6	57.885726	-152.84176	Polygon	0.014118	615	15	750	1,140	300 sprouts on graded edge. 840 sprouts in outside vegetation.
OD7	57.885702	-152.842019	Polygon	0.005335	232	5	200	85	40 sprouts on graded edge. 45 in outside vegetation.
OD8	57.885704	-152.842181	Point	0.000648	28	<1	1	3	
OD9	57.88565	-152.842452	Point	0.000648	28	<1	2	0	
OD10	57.885608	-152.842989	Polygon	0.002836	124	2	33	5	
OD11	57.8855	-152.844101	Point	0.000648	28	<1	1	2	
OD12	57.885425	-152.844855	Polygon	0.001704	74	5	31	235	Sprouts on graded edge
OD13	57.885417	-152.845143	Polygon	0.000881	38	2	6	80	
OD14	57.885366	-152.845476	Polygon	0.009114	397	<1	61	80	Sprouts on graded edge
OD15	57.885334	-152.845795	Polygon	0.000623	27	<1	10	5	
OD16	57.885328	-152.845939	Point	0.000648	28	<1	2	0	
OD17	57.88524	-152.846579	Point	0.000648	28	<1	0	2	
OD18	57.885141	-152.84763	Point	0.000648	28	<1	2	5	
OD19	57.885108	-152.847831	Point	0.000648	28	<1	1	5	
OD20	57.885082	-152.847968	Point	0.000648	28	<1	1	0	
OD21	57.885071	-152.848056	Polygon	0.000903	39	<1	3	25	
OD22	57.885061	-152.848316	Polygon	0.000263	11	<1	11	5	
OD23	57.884962	-152.849091	Polygon	0.001272	55	5	30	20	
OD24	57.884976	-152.849234	Polygon	0.000755	33	2	30	22	
OD25	57.884678	-152.852043	Point	0.000648	28	<1	3	2	
OD26	57.88465	-152.852192	Point	0.000648	28	<1	1	0	



<i>Site Name</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Type (Point/Polygon)</i>	<i>Acres</i>	<i>Square Feet</i>	<i>Percent Cover</i>	<i>Number of Flowering Stems</i>	<i>Number of Sprouts</i>	<i>Comments</i>
OD27	57.884631	-152.852485	Point	0.000648	28	<1	2	0	
OD28	57.884553	-152.853262	Polygon	0.011511	501	2	126	15	
OD29	57.883961	-152.853909	Point	0.000648	28	<1	3	5	
OD30	57.883776	-152.854039	Point	0.000648	28	<1	0	1	
OD31	57.883618	-152.853848	Point	0.000648	28	<1	2	0	
OD32	57.88392	-152.853697	Polygon	0.001688	74	1	3	12	
OD33	57.883868	-152.853751	Polygon	0.01668	727	<1	176	775	
OD34	57.883703	-152.853764	Polygon	0.018663	813	8	1,040	2,040	
OD35	57.883568	-152.853747	Point	0.000648	28	20	20	55	
OD36	57.883385	-152.853462	Polygon	0.002097	91	15	150	260	
OD37	57.883391	-152.853349	Point	0.000648	28	1	9	0	
OD38	57.882787	-152.85302	Point	0.000648	28	5	20	0	In middle of OH infestation
OD39	57.882785	-152.853039	Point	0.000648	28	2	15	0	In middle of OH infestation
OD40	57.883979	-152.852038	Polygon	0.001675	73	5	45	80	
OD41	57.884305	-152.851011	Polygon	0.001907	83	15	30	25	
OD42	57.884366	-152.850552	Polygon	0.000951	41	15	40	40	
OD43	57.884352	-152.8506	Point	0.000648	28	1	2	5	
OD44	57.884384	-152.85034	Polygon	0.000624	27	2	9	1	
OD45	57.884407	-152.850179	Polygon	0.001567	68	20	85	50	
OD46	57.884433	-152.849879	Polygon	0.010346	451	20	185	85	
OD47	57.884467	-152.849603	Polygon	0.007436	324	10	275	54	
OD48	57.884496	-152.849313	Polygon	0.018877	822	8	220	305	
OD49	57.884528	-152.848922	Polygon	0.017999	784	35	360	270	
OD50	57.884576	-152.848553	Polygon	0.00959	418	80	185	90	
OD51	57.88461	-152.848305	Polygon	0.000716	31	8	17	16	
OD52	57.884635	-152.84793	Polygon	0.018306	797	10	420	720	
OD53	57.884674	-152.84764	Point	0.000648	28	10	26	35	
OD54	57.884727	-152.847177	Polygon	0.027994	1,219	5	410	800	



<i>Site Name</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Type (Point/Polygon)</i>	<i>Acres</i>	<i>Square Feet</i>	<i>Percent Cover</i>	<i>Number of Flowering Stems</i>	<i>Number of Sprouts</i>	<i>Comments</i>
OD55	57.884794	-152.846443	Polygon	0.019865	865	10	180	1,030	
OD56	57.884839	-152.845968	Polygon	0.00696	303	7	83	150	
OD57	57.884924	-152.845302	Point	0.000648	28	<1	1	0	
OD58	57.884935	-152.845028	Polygon	0.011643	507	3	110	315	
OD59	57.885172	-152.842841	Polygon	0.000698	30	1	11	65	
OD60	57.885257	-152.842045	Polygon	0.001263	55	<1	8	5	
OD61	57.885275	-152.841881	Point	0.000648	28	<1	4	10	
OD62	57.885306	-152.841667	Polygon	0.002158	94	<1	14	160	
OD63	57.88532	-152.841508	Polygon	0.001708	74	<1	2	15	
OD64	57.885323	-152.841336	Point	0.000648	28	<1	0	5	
OD65	57.88536	-152.84093	Polygon	0.002317	101	1	9	125	
OD66	57.885386	-152.840767	Point	0.000648	28	<1	6	0	
OD67	57.885408	-152.840969	Point	0.000648	28	<1	4	0	
OD68	57.885375	-152.841987	Polygon	0.009743	424	1	230	110	
OD69	57.885407	-152.842127	Point	0.000648	28	<1	1	0	
OD70	57.885469	-152.842035	Point	0.000648	28	<1	2	1	
OD71	57.885594	-152.842093	Polygon	0.014659	639	<1	85	21	
OD72	57.881827	-152.856258	Point	0.000648	28	<1	5	0	
OD73	57.88112	-152.858748	Point	0.000648	28	<1	1	1	
OD74	57.881362	-152.857253	Point	0.000648	28	1	14	0	
OD75	57.881389	-152.857189	Point	0.000648	28	<1	5	0	
OD76	57.882429	-152.854451	Polygon	0.001272	55	<1	13	0	
OD77	57.885082	-152.841253	Polygon	0.000121	5	<1	3	0	
OD78	57.885335	-152.840694	Point	0.000648	28	<1	1	2	
OD79	57.885375	-152.840593	Polygon	0.000818	36	2	23	10	Overlaps with OH poly
OD80	57.889217	-152.832292	Polygon	0.001277	56	<1	22	107	North side of road
OD81	57.889245	-152.832292	Point	0.000648	28	<1	2	0	
OD82	57.889763	-152.831392	Point	0.000648	28	<1	1	0	



<i>Site Name</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Type (Point/Polygon)</i>	<i>Acres</i>	<i>Square Feet</i>	<i>Percent Cover</i>	<i>Number of Flowering Stems</i>	<i>Number of Sprouts</i>	<i>Comments</i>
OD83	57.888881	-152.834867	Point	0.000648	28	<1	4	15	
OD84	57.885152	-152.853102	Polygon	0.009755	425	<1	40	5	
OD85	57.885196	-152.853185	Point	0.000648	28	<1	1	0	
OD86	57.885252	-152.853105	Polygon	0.001523	66	10	51	0	
OD87	57.88534	-152.853005	Point	0.000648	28	2	33	0	
OD88	57.885384	-152.853054	Point	0.000648	28	<1	11	0	
OD89	57.885337	-152.852863	Point	0.000648	28	<1	6	0	
OD90	57.88563	-152.852003	Point	0.000648	28	<1	1	0	
OD91	57.885668	-152.852092	Polygon	0.000507	22	2	15	40	
OD92	57.885585	-152.852129	Point	0.000648	28	<1	0	2	
OD93	57.885642	-152.853237	Point	0.000648	28	1	14	1	
OD94	57.885469	-152.853246	Polygon	0.001164	51	5	62	125	
OD95	57.885607	-152.853498	Point	0.000648	28	<1	4	1	
OD96	57.885328	-152.853316	Point	0.000648	28	<1	1	0	
OD97	57.886667	-152.853271	Point	0.000648	28	<1	4	2	



Attachment C

Photographs
July 19-24, 2018



Site OD04. Oxeye daisy sprouts along the graded edge of the runway. Photograph taken July 20, 2018.



Site OD04. Oxeye daisy infestation along the graded edge of runway. Photograph taken July 20, 2018.



Site OD04. Oxeye daisy mixed with adjacent vegetation. Photograph taken July 20, 2018.



Site OD05. Oxeye daisy infestation along runway. Photograph taken July 20, 2018.



Site OD06. Oxeye daisy infestation. Photograph taken July 20, 2018.



Site OD07. Oxeye daisy. Photograph taken July 20, 2018.



Site OD10. Oxeye daisy. Photograph taken July 20, 2018.



Site OD14. Oxeye daisy. Photograph taken July 20, 2018.



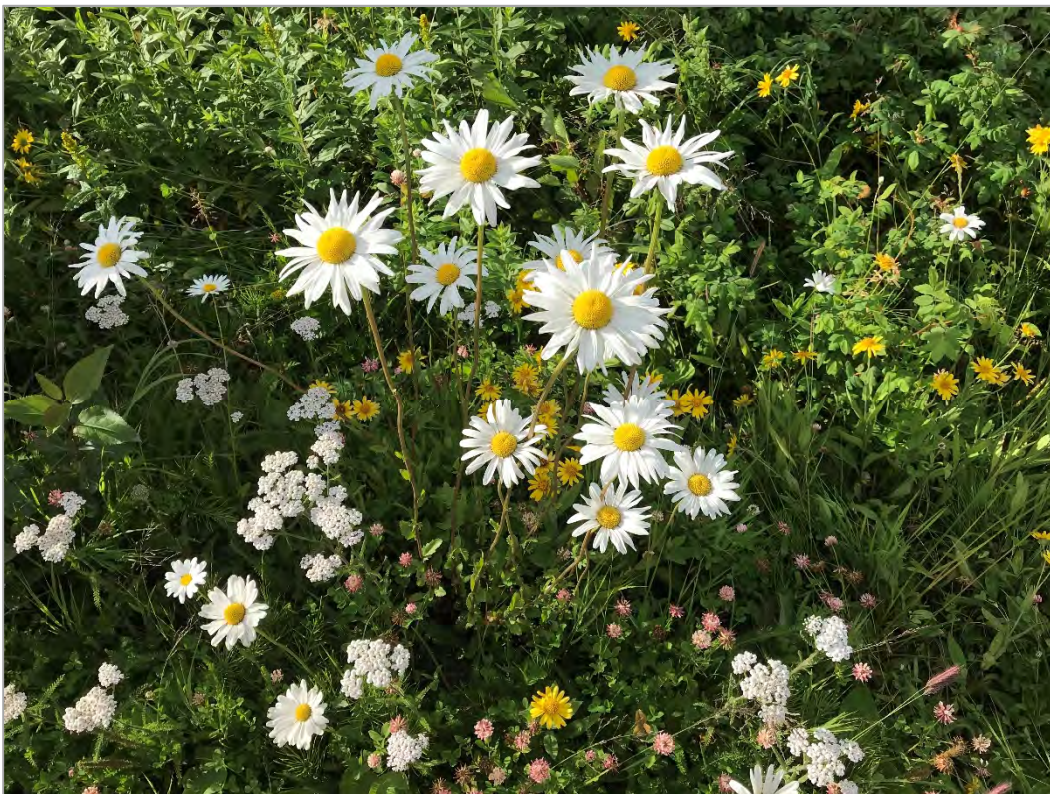
Site OD28. Oxeye daisy. Photograph taken July 20, 2018.



Site OD36. Oxeye daisy infestation at Port Lions sign. Photograph taken July 20, 2018.



Site OD41. Oxeye daisy. Photograph taken July 21, 2018.



Site OD42. Oxeye daisy. Photograph taken July 21, 2018.



Site OD47. Oxeye daisy. Photograph taken July 21, 2018.



Site OD55. Oxeye daisy mixed with alders. Photograph taken July 21, 2018.



Site OD65. Oxeye daisy. Photograph taken July 21, 2018.



Site OH05. Orange hawkweed. Photograph taken July 21, 2018.



Site OH13. Orange hawkweed grouping. Photograph taken July 21, 2018.



Site OH27. Orange hawkweed. Photograph taken July 21, 2018.



Site OH44. Orange hawkweed along and within ATV trail. Photograph taken July 21, 2018.



Site OH62. Orange hawkweed along beach access road. Photograph taken July 21, 2018.



Site OH64. Orange hawkweed. Photograph taken July 21, 2018.



Site OH66. Orange hawkweed. Photograph taken July 21, 2018.



Site OH96. Orange hawkweed. Photograph taken July 21, 2018.



Site OH103. Orange hawkweed. Photograph taken July 22, 2018.



Site OH103. Orange hawkweed. Photograph taken July 22, 2018.



Site OH104. Orange hawkweed. Photograph taken July 23, 2018.