WETLAND DELINEATION AND FUNCTIONAL ASSESSMENT

JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

- **February 2024**

DOWL No: 1138.63234.01 **State No: SFHWY00299** **Federal No: 0003259**

JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

Wetland Delineation and Functional Assessment

Program No: SFHWY00299
Federal No: 0003259

Prepared for:

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ACRONYMS AND ABBREVIATIONS

ADF&G ..... Alaska Department of Fish and Game
APT ..... Antecedent Precipitation Tool
DOT&PF ..... Department of Transportation & Public Facilities
FAC ..... Facultative
FACU ..... Facultative Upland
FACW ..... Facultative Wetland
GIS ..... Geographic information system
HTL ..... high tide line
HUC ..... Hydrologic unit codes
in ..... inches
MHW ..... Mean High Water
mm ..... millimeters
MWGSR ..... Mendenhall Wetlands Game State Refuge
NWI ..... National Wetlands Inventory
NRCS ..... National Resource Conservation Service
OBL ..... Obligate
PEL ..... Planning and Environmental Linkage
PP ..... Photo point
SP ..... Sample Point
USACE ..... United States Army Corps of Engineers
USGS ..... U.S. Geological Survey
WESPAK-SE ..... Wetland Ecosystem Services Protocol for Southeast Alaska
WOTUS ..... Waters of the United States

1.0 INTRODUCTION

The City and Borough of Juneau has partnered with Alaska Department of Transportation and Public Facilities (DOT&PF) to explore a north crossing between Juneau and Douglas Island, north of the existing Douglas Island Bridge. DOT&PF has chosen the Planning and Environmental Linkage (PEL) process to evaluate the purpose and need for a north crossing, identify potential north crossing alternatives, evaluate the alternatives, and identify recommended crossing(s). In support of the evaluation of alternatives environmental data is being collected to understand potential impacts of six proposed alternatives. One study being undertaken to collect current data on proposed alternatives is a wetland delineation.

The approximate 695.5 study area includes the tidally influenced Gastineau Channel between Douglas Island and mainland Juneau, Alaska. The Mendenhall Wetlands State Game Refuge (MWSGR) is located between Juneau and Douglas from the Mendenhall Peninsula to approximately the intersection of Glacier Highway and Channel Drive. The beginning of the project is located 58.341963 North Latitude; -134.628022 West Longitude and the end of the project is located at 58.299292 North Latitude; -134.429609 West Longitude, Copper River Meridian, see Table 1 for Township, Range, Section (Appendix 1; Figure 1).

Table 1: Project Location within the Copper River Meridian

Township	Range	Sections
40 South	65 East	25, 26, 27, 34, 36
40 South	66 East	30, 31, 32, 33, 34
41 South	66 East	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 17
41 South	67 East	4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 21, 22, 23, 27

DOWL was contracted to conduct a Wetland Delineation and Function and Values assessment (forthcoming) to identify areas that may fall under the United States Army Corps of Engineers (USACE) jurisdiction per Section 404 of the Clean Water Act.

While this report is in support of a planning study, a future recommended alternative may impact jurisdictional Waters of the United States (WOTUS). The data herein is intended to provide a planning level analysis with sufficient information to determine regulatory jurisdiction of aquatic resources subject to Section 404 of the Clean Water Act, and to evaluate the hydrological connectivity of such resources to a traditional navigable waterway, territorial sea, or navigable interstate waterway.

1.1 Environmental Setting

1.1.1 Regional Characteristics

The study area spans between Juneau and Douglas Island, Alaska, which are within two different yet similar United States Department of Agriculture, Natural Resources Conservation Service (NRCS) defined *Major Land Resource Areas*. Juneau is located within the Alaska's

Pacific Coastal Mountains ecoregion, while Douglas Island is located within Alaska's Coastal Western Hemlock-Sitka Spruce Forest ecoregion (NRCS 2022).

The Alaska Pacific Coastal Mountains ecoregion has steep terrain with active glaciers in higher elevations and experiences heavy precipitation. Dwarf and low scrub species dominate the region as slopes are typically barren of vegetation while lower elevations near drainage systems consist of needleleaf forests and dense tickets of low scrub communities (Gallant 1995). The growing season spans from May 29th to September 27th (USACE 2007).

The Alaska Coastal Western Hemlock-Sitka Spruce Forest ecoregion has the mildest winter temperatures in Alaska and receives a large amount of precipitation. Much of the terrain (deep and narrow bays, steep valley walls, irregular coastlines, high sea-cliffs, etc.) resulted from intense glaciation. Surface water is present for extended periods, especially early in the growing season, but is absent towards the end of the growing season in most years. When surface water is absent, the water table is often near the land surface. The abundant precipitation, mild temperatures, and undulating terrain with steep slopes generally restrict the establishment of permafrost. Vegetation is a mixture of needle-leaved evergreen forests, tall-to-mid-level scrub-shrub swamps or peatlands, and saturated emergent bogs (Gallant 1995). The growing season extends from April 29th to September 28th (USACE 2007).

1.1.2 Study Area Characteristics

The study area is approximately 695.5 acres within six potential crossing alignments: Mendenhall Peninsula, Sunny Point West, Sunny Point East, Vanderbilt, Twin Lakes, and Salmon Creek. The study area crosses the MWGSR, expanding the Gastineau Channel separating Douglas Island from mainland Juneau. The majority of the six alignments are within the Salmon Creek-Frontal Gastineau Channel 12-digit Hydrologic Unit watershed (U.S. Geological Survey [USGS] 2023). The southern portion of Mendenhall Peninsula is within Fritz Cove-Frontal Lynn Canal 12-digit Hydrologic Unit watershed (USGS 2023). The western end of Egan Drive crossing Lemon Creek is within Lemon Creek 12-digit Hydrologic Unit watershed (USGS 2023).

The study area has several mapped anadromous stream crossings, depositing freshwater to the Gastineau Channel (Alaska Department of Fish & Game [ADF&G] 2023a). The elevations within the study area range from sea level to 375 feet above sea level. The MWSGR is a large game refuge managed by ADF&G, approximately 4,000 acres and extending approximately nine miles along the shores of the Gastineau Channel, from Salmon Creek to the eastern side of the Mendenhall Peninsula. The airport was constructed in the 1930's and islands within the refuge were formed when the channel was dredged in the 1950's (ADF&G 2023b). The study area was once entirely glaciated which still has a strong influence as silt is deposited from several streams into the Gastineau Channel from the Mendenhall Glacier, Thomas Glacier, and Lemon Glacier. Isostatic rebound is causing the land to rise therefore some wetlands to dry as groundwater moves near the surface.

Federal and state definitions of navigable waters differ. Federal jurisdiction applies to waters subject to the ebb and flow of the tide, and/or are used or have been used for interstate or foreign commerce. State jurisdiction applies to tidally influenced areas and rivers/streams used for commerce or travel. The USACE has jurisdiction for structures constructed in or over navigable WOTUS. Navigable WOTUS are areas below the mean high water (MHW) influenced by the ebb and flow of the tide. Wetlands within the study area include the submerged and

intertidal regions dictated by the ebb and flow of the tides. The high tide line (HTL) for Juneau is 20.6 feet and the MHW is 15.6 feet (DOWL 2022b).

1.2 Precipitation and Climatic Data

The USACE Antecedent Precipitation Tool (APT) was used to evaluate climatic conditions prior to fieldwork. The APT uses global historical climatology network weather stations. The APT accumulates the daily precipitation values over a 30-day period and compares to historic normal range of precipitation to determine if surface hydrology or soil moisture conditions observed are normal, drier than normal, or wetter than normal (USACE 2023). The Coastal Western Hemlock-Sitka Spruce Forest and Pacific Coastal Mountains ecoregions have the mildest winters in the State and receives the most precipitation. The Coastal Western Hemlock-Sitka Spruce Forest approximate mean precipitation is from 1,350 millimeters (mm) (53 inches) to 3,900 mm (153.5 inches) while the Coastal Pacific Mountain receives approximately 2,030 mm (80 inches) to 7,000 mm (575.5 inches) (Gallant et al 1995).

The APT (2023) reported general conditions based on data from the following weather stations:

- Auke Bay
- Juneau 3.0 NW
- Juneau 2.8 NW
- Juneau Forecast Office
- Juneau Airport

Based on the APT, Juneau reported normal conditions for fieldwork conducted on September 18th followed with drier than normal conditions from September 19th through 20th (Appendix 5, Figure 1 and 2). Wetter than normal conditions were reported from September 21st through 22nd (Appendix 5, Figure 3). Douglas Island reported normal conditions from September 18th through 19th (Appendix 5, Figure 4). Wetter than normal conditions were reported from September 20th through 22nd (Appendix 5, Figure 5). During the four field days, Juneau Airport reported approximately 4.33 inches of precipitation. The Juneau area received approximately 13.64 inches of precipitation during the month of September, which exceeds 10.42 inches (threshold for 30 percent chance precipitation is more than for September) (Utah Climate Center 2023).

Observed surface water reflected normal conditions. The week preceding fieldwork Juneau Airport reported 6.03 inches of precipitation and additional precipitation occurred during fieldwork; precipitation exceeded September's monthly average. Areas of the project located where normal conditions were reported, surface and groundwater field observations were typical for this time of year. In areas of the project where wetter than normal conditions were reported, surface and groundwater field observations may be present in uplands as well as marginal wetlands with saturated soils, areas of inundations (surface water), or high groundwater table.

2.0 METHODS

2.1 Existing Data and Preparatory Analysis

The following sources were reviewed for the study area:

- USGS Juneau B-2 SW and SE Quadrangle
- USGS National Hydrography Dataset (2023)
- Aerial imagery (2023)
- Federal Emergency Management Agency Flood Insurance Rate Maps
- ADF&G Alaska Fish Resource Monitor (2023a)
- NRCS Web Soil Survey (NRCS 2021) (Appendix 1, Figure Set 2.1 to 2.7)
    - The NRCS has mapped approximately 309 acres of saline water and 22.2 acres of water within the study area while the remaining 363.9 acres have no digital data available (NRCS 2023).
- City and Borough of Juneau Wetlands Management Plan (2016)
- Geographic Information System (GIS) Mapping for Mendenhall Wetland State Game Refuge (Carstensen 2004)
- Juneau Douglas North Crossing PEL Study Wetlands and Waterways Data Summary (DOWL 2022).
- U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) (USFWS 2023). The NWI has mapped a total of 355.92 acres (51.18 percent) of wetlands within the study area (Appendix 1, Figure Set 3.1 to 3.7).

Table 2: National Wetlands Inventory Mapped Wetlands and Waters of the U.S.

Jurisdictional Type	Habitat Classification	Acres
Wetlands	Palustrine Emergent	31.5
	Palustrine Scrub-shrub	2.4
	Palustrine Forested	19.7
Waters of the U.S.	Estuarine Subtidal	54.4
	Estuarine Intertidal	250.8
	Lacustrine Limnetic	0.7
	Riverine	2.4
Uplands	Non-Labeled Areas	
Total Study Area		355.92 acres

2.2 Field Data Collection

2.2.1 Wetland Delineation Methods

DOWL Environmental Specialists Adam Morrill, PWS and Emily Anderson conducted the wetland delineation fieldwork on September 19th to September 22nd, 2023 in accordance with *Part IV of the Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region [Version 2.0,* (USACE 2007)*]*.

Wetlands were classified and grouped according to guidelines outlined in the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). Sampling locations were selected to verify the preliminary mapping of proposed paired point locations. Data was collected using the three-parameter approach combining site-specific indicators of hydrophytic vegetation, hydric soils, and wetland hydrology. Field notes were taken to document landscape topography, stream crossings, and general site characteristics. Additionally, photo points were taken to document site conditions, confirm dominant plant species, extrapolate data to similar habitat areas, or to make a wetland/upland determination when soil excavation was not necessary. A Special Area permit was submitted to the ADF&G on September 1, 2023, to conduct ground disturbing activities within the Refuge (i.e., test holes). The agency determined a permit was unnecessary for data collection to conduct the wetland delineation. MWSGR access points were used to enter the Refuge for field surveys.

At each sampling location, soil pits were excavated to a depth of at least 24 inches, or to the presence of a restrictive digging layer. Soil and hydrology characteristics of texture, color, saturation, and depth to water table were recorded on USACE Routine Wetland Determination forms (Appendix 2). Soil color was recorded using *Munsell Soil-Color Charts* (Munsell Color 2012). In the event soil excavation was not necessary to make a wetland/upland determination, a photographic point was taken. Data collected at test holes are prefixed with ‘SP.’ Photo point locations are prefixed with ‘PP.’ Wetland SPs were used to identify the HTL in the field, and aerial interpretation along with few PP to document tidally influenced wetlands.

A Global Positioning System unit with 30-foot accuracy was used to pinpoint sample locations and photo point locations for GIS mapping reference using ESRI FieldMaps while ArcGIS Pro was used to calculate acreages. Final mapping was based on a combination of professional interpretation of aerial and site photos, topographic data, and field observations.

3.0 RESULTS

3.1 Data Summary

The 695.5-acre study area is comprised of approximately 29.3 acres (4.2 percent of the study area) of potentially jurisdictional wetlands and 346.4 acres of WOTUS (49.8 percent of the study area), and 319.8 acres of non-jurisdictional uplands (46 percent of the study area). Table 2 summarizes the results by Cowardin classification and all data sheets are included in Appendix 2 while the photo log is included in Appendix 3.

The following tables and sections describe vegetation, soils, and hydrology observations.

Table 3: Project Location, Wetlands, Waters of the U.S., and Uplands

Proposed Alignment	Habitat Type	Cowardin Classification	Acres	Data Points
Mendenhall Peninsula	Wetland	Palustrine Scrub-Shrub	1.02	SP-7, 8
		Palustrine Forested	11.14	SP-1
	Waters of the U.S.	Estuarine Subtidal	16.17	PP-16
		Estuarine Intertidal	16.18	PP-17, 18, 52
		Marine	35.28	PP-24
		Riverine	0.28	PP-14, 57, 64
	Uplands	N/A	142.35	SP-2-6, 9-11, PP-22, 23 PP-1-15, 19-21, 53, 54, 56, 58-63
Sunny Point East and West	Wetland	Palustrine Emergent	6.95	PP-42
		Palustrine Scrub-Shrub	5.83	SP-15
		Palustrine Forested	0.54	N/A
	Waters of the U.S.	Estuarine Intertidal	86.46	SP-12 PP-27, 44-46
		Riverine	0.8	PP-33
	Uplands	N/A	78.13	SP-13, 14 PP-28-32, 34-36, 43, 47
Vanderbilt, Twin Lakes, and Salmon Creek	Wetland	Palustrine Emergent	2.0	N/A
		Palustrine Scrub-Shrub	1.26	PP-48
		Palustrine Forested	0.17	N/A
		Palustrine Unconsolidated Bottom	0.04	N/A
	Waters of the U.S.	Estuarine Subtidal	31.14	PP-49-51
		Estuarine Intertidal	126.35	PP-25, 26, 37, 38, 50
		Lacustrine Limnetic	27.11	PP-41
		Lacustrine Littoral	0.67	PP-48
		Riverine	5.91	PP-39
	Uplands	N/A	99.28	PP-40,41, 51

Total Wetlands within Project Locations: 695.5

Notes:
N/A – Not Applicable

Table 4: Summary of Wetland Determination Form Data

ID	Hydrophytic Vegetation Present	Hydric Soils Present	Wetland Hydrology Present	Cowardin Type
SP-1	Yes	Yes	Yes	PFO4/SS1B
SP-2	No	No	Yes	Upland
SP-3	Yes	No	Yes	Upland
SP-4	Yes	No	No	Upland
SP-5	No	No	Yes	Upland
SP-6	No	No	No	Upland
SP-7	Yes	Yes	Yes	PSS1/EM1C
SP-8	Yes	Yes	Yes	PSS4/EM1B
SP-9	No	Yes	No	Upland
SP-10	No	Yes	Yes	Upland
SP-11	No	Yes	No	Upland
SP-12	Yes	Yes	Yes	E2EM1N
SP-13	No	No	No	Upland
SP-14	No	Yes	Yes	Upland
SP-15	Yes	Yes	Yes	PSS4/EM1B

Notes: Antecedent precipitation wetter than normal, so upland areas may observe positive wetland hydrology indicators.
E2EM1N: Estuarine intertidal emergent persistent regularly flooded.
PFO4/SS1B: Palustrine forested needle-leaved evergreen/scrub-shrub broad-leaved deciduous saturated
PSS1/EM1C: Palustrine scrub-shrub broad-leaved/emergent persistent seasonally flooded
PSS4/EM1B: Palustrine scrub-shrub needle-leaved/emergent persistent saturated

3.2 Hydrophytic Vegetation, Hydric Soils, and Hydrology

3.2.1 Vegetation

Hydrophytic vegetation was present in seven of fifteen test hole locations. All identified species and indicator status are shown by dominance test and/or prevalence on each data sheet in Appendix 2. The following dominant species were present (USACE 2020).

Table 5: Dominant Plant Species within the Study Area

Scientific Name	Indicator Status	Common Name
Alnus viridis	FAC	Sitka Alder
Andromeda polifolia	FACW	Bog-Rosemary
Athyrium cyclosorum	FAC	Western Lady Fern
Carex livida	OBL	Livid Sedge
Carex lyngbyei	OBL	Lyngbye's Sedge
Carex pauciflora	OBL	Few-Flower Sedge
Cornus canadensis	FAC	Canadian Bunchberry
Deschampsia caespitosa	FAC	Tufted Hair Grass
Dryopteris expansa	FACU	Spreading Wood Fern
Equisetum pratense	FACW	Meadow Horsetail
Gymnocarpium dryopteris	FACU	Northern Oak Fern
Lysichiton americanus	OBL	Yellow-Skunk-Cabbage
Menziesia ferruginea	FACU	Fool's-Huckleberry
Picea sitchensis	FACU	Sitka Spruce
Pinus contorta	FAC	Lodgepole Pine
Potentilla anserina	FACW	Silverweed
Rhododendron tomentosum	FACW	Marsh Labrador-Tea
Rubus idaeus	FACU	Common Red Raspberry
Rubus pedatus	FAC	Strawberry-Leaf Raspberry
Sambucus racemosa	FACU	Red Elder
Tsuga heterophylla	FAC	Western Hemlock
Tsuga mertensiana	FAC	Mountain Hemlock
Vaccinium ovalifoloim	FAC	Oval-Leaf Blueberry

Notes: FAC = Facultative; FACU = Facultative Upland; FACW = Facultative Wetland; OBL = Obligate

3.2.2 Soils

Soils observed within the study area had anywhere from one to twenty-four inches of organic layer. During the four field days, Juneau Airport reported approximately 4.33 inches of precipitation. Table 5 describes observations made in the field.

Table 6: Soil Observations at Full Sample Point within the Study Area

ID	Organic Mat Thickness (inches)	Mineral Soil below Organic Layer	Saturated Organics	Hydric
SP-1	18	Loamy Clay	Yes	Yes
SP-2	2	Sandy Loam	No	No
SP-3	7	Sandy	No	No
SP-4	3	Loamy Clay	No	No
SP-5	1	Loamy Clay	No	No
SP-6	10	Loamy Clay	Yes	No
SP-7	24	None (Peat)	Yes	Yes
SP-8	25	None (Peat)	Yes	Yes
SP-9	24	None (Peat)	Yes	Yes
SP-10	10	Loamy Clay	No	Yes
SP-11	24	None (Peat)	Yes	Yes
SP-12	5	Sandy Loam	No	Yes
SP-13	9	Sandy Loam	No	No
SP-14	24	None (Peat)	Yes	Yes
SP-15	24	None (Peat)	Yes	Yes

Hydric soils were observed at nine out of the fifteen sample points. Over half of the sample points had Histolsol or a Histic Epipedon. Histolsol were the dominant hydric soil type and were observed at seven out of the fifteen sample points. The other hydric soils had either a histic epipedon or Alaska Redox.

3.2.3 Hydrology

Wetland hydrology was present at ten of the fifteen sample points. Due to the antecedent precipitation being wetter than normal it is anticipated positive wetland hydrologic indicators may be present in non-wetland areas. Of the ten test holes with positive wetland hydrologic indicators present, eight exhibited both primary hydrologic indicators of high-water table and saturation.

Wetter than normal climatic conditions with approximately 4.33 inches of precipitation falling during field survey. High water table was observed at five of the fifteen sample points, with groundwater depths between two to nine inches below the ground surface. Soil saturation was observed at nine of the fifteen sample points, with saturation depths between zero and twelve inches below the surface (See Appendix 2). Four of the nine sample points with saturated soils non-hydrophytic vegetation and/or non-hydric soils, positive hydrology observation at these locations is likely due to wetter than normal antecedent precipitation conditions.

Hydrology within estuarine habitats is influenced by tidal fluctuations, with areas either regularly or irregularly flooded or exposed. MHW and HTL data (USACE 2017) were used to determine water regime modifiers. Tidal areas above the MHW were considered *irregularly flooded* and below either *regularly flooded or irregularly exposed*.

3.3 Wetlands

Wetlands consist of areas meeting hydrophytic vegetation, hydric soils, and positive (i.e., primary and/or secondary indicators) wetland hydrology.

The study area spans Gastineau Channel, connecting Juneau area with Douglas Island. The HTL was used to demarcate the extent of estuarine and palustrine habitats. The study area above HTL (20.6 feet in elevation) typically rises quickly from the tidal flats into steep (i.e., 10 to 30 percent) slopes into upland areas (as high as 375 feet in elevation). Areas with zero to five percent slopes and near the toe of steep slopes contain wetlands or have developed bed and bank (i.e., stream) to convey surface water to Gastineau Channel.

3.3.1 Palustrine Emergent Wetland

Palustrine emergent persistent are depressional wetlands associated with nearly flat low areas located above the HTL within the study area. Palustrine emergent wetlands within the study area have a robust herbaceous layer typically over 30 percent aerial cover dominated by grasses and sedges.

Photo Set 1: Typical Palustrine Emergent Wetlands in the Study Area (SP-41, PP-47)

3.3.2 Palustrine Scrub-Shrub Wetland

Photo Set 2: Typical Scrub-shrub Wetlands in the Study Area (SP-8, SP-11)

Palustrine scrub-shrub habitats typically consist of wetlands with less than 30 percent tree cover with a robust shrub and herbaceous stratum typically over 30 percent. Scrub-shrub habitats within the study area are typically dominated by stunted Sitka Spruce *(Picea sitchensis)*, Western Hemlock *(Tsuga heterophylla)*, Fool's-Huckleberry *(Menziesia ferruginea)*, and Oval-leaf Blueberry *(Vaccinium ovalifoloim)* or by stunted Lodgepole Pine (*Pinus contorta*). Soils in this habitat consisted of Histosols and had persistent soil saturation.

3.3.3 Palustrine Forested Wetland

Palustrine forested needle-leaved evergreen with broad-leaved scrub-shrub understory habitats are located in flat areas at the toe of slope typically within the forested Mendenhall Peninsula and outside of the tidally influenced areas of the Gastineau Channel. Hydrology of these wetlands consist of seasonally saturated soils. Vegetation is dominated by Sitka Spruce *(Picea sitchensis)* and Western Hemlock *(Tsuga heterophylla)*.

Photo Set 3: Typical Forested Wetlands in the Study Area (SP-1)

3.4 Waters of the U.S.

WOTUS were identified by ordinary high-water mark through “physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris…” (33 CFR 328.3). WOTUS located in the Study Area consist of upper perennial and lower perennial streams, and tidally influenced areas below the HTL. WOTUS consist of estuarine, lacustrine, riverine, and marine habitats.

3.4.1 Estuarine

Estuarine habitats are typically deep-water habitats partially enclosed by land with freshwater inputs such as the Mendenhall River and other stream tributaries. Estuarine habitats are mapped as wetlands in areas below the HTL. Ocean water is occasionally diluted with fresh water such as from Mendenhall River and other freshwater streams terminating within the Gastineau Channel. The study area’s water regime which influences the estuarine is dominantly through the varying tidal levels with mean range of tide of 13.74 feet and highest astronomical tide of 20.65 feet (NOAA 2024).

Intertidal estuarine is the dominant subsystem in the study area as the substrate is irregularly flooded by the tide. Much of this habitat above MHW is dominated by herbaceous vegetation and has visible flow patterns (i.e., grasses laying down in direction of surface flow).

Photo Set 4: Typical Estuarine Intertidal Irregularly Flooded Wetlands in the Study Area (SP-12, PP-52)

Intertidal estuarine which are regularly flooded or irregularly exposed during tide cycle typically are unvegetated mudflats or rocky shorelines and are located below MHW.

Photo Set 5: Typical Estuarine Intertidal Irregularly Flooded or Exposed Wetlands in the Study Area (PP-16, PP-37)

Subtidal estuarine are permanently flooded areas at low tide.

Photo Set 6: Typical Estuarine Subtidal Wetlands in the Study Area (PP-37, PP-52)

3.4.2 Lacustrine

Lacustrine habitats are associated with a lake or other body of freshwater greater than 20 acres in size which is permanently flooded. The only lacustrine habitat encountered within the study area are Twin Lakes.

Photo Set 7: Typical Lacustrine Habitat in the Study Area (PP-41)

3.4.3 Riverine

Riverine habitats are associated with flowing water and mapped as waterways. Riverine habitats occur within tidally influenced environments and in localized channels which convey water off slopes. Streams which maintain bed and bank characteristics at low tide but are submerged at high tide are labeled R1. These streams were mapped starting at the HTL and end at subtidal estuarine or marine habitats. Streams with low slope, perennial flow, and

unconsolidated bottoms were labeled R2, extending from the HTL upstream. Intermittent steams consist of areas exhibiting bed and bank but lack perennial flow. These streams are labeled R4 and were identified by culverts, topography, and aerial interpretation.

Photo Set 8: Typical Riverine Habitat in the Study Area (R1: PP-39, R2: PP-34)

3.4.4 Marine

Marine habitats are exposed to the waves and currents of the open ocean. Marine habitats in the study area include subtidal deep-water habitats of Fritz Cove.

Photo Set 9: Typical Marine Habitat in the Study Area (PP-52 and a photo taken near North Douglas Boat Launch)

3.5 Uplands

Upland habitats within the study area are classified as areas lacking hydrophytic vegetation, hydric soils, and/or wetland hydrologic indicators. Upland habitats also consist of disturbed/built environment (i.e., roadways and built infrastructure). Vegetation in upland habitats is dominated by Western Hemlock *(Tsuga heterophylla)* and Sitka Spruce *(Picea sitchensis)* with an understory of Fool's Huckleberry *(Menziesia ferruginea)*, Oval-leaf Blueberry *(Vaccinium ovalifoloim)*, and Western Lady Fern *(Athyrium cyclosorum)*. Upland habitats within roadway embankments are dominated by Bluejoint *(Calamagrostis canadensis)*, Cow Parsnip *(Heracleum maximum)*, Narrow-Leaf Fireweed *(Chamaenerion angustifolium)*, and Sitka Alder *(Alnus viridis)*. Soils consist of an organic layer typically between two and ten inches and are underlain by sandy loam or loamy mineral soil. This habitat typically lacked primary wetland hydrologic indicators. However, due to the heavy amount of precipitation within the week preceding fieldwork some areas were observed with pockets of surface inundation or saturated soils. Areas with primary wetland hydrologic indicators typically lacked hydrophytic vegetation and hydric soils.

Photo Set 10: Typical Upland Habitats in the Study Area, (SP-5, SP-6)

4.0 DISCUSSION

The study area mainly consists of areas influenced by the tide (approximately 360 acres) and extends typically 160 feet above HTL, except for on Mendenhall Peninsula where elevations extend up to 375 feet. Steep slopes typically end near Egan Drive or Douglas Highway, where the land flattens out into the tidal flats.

Palustrine wetland habitats within the study area typically connect into a perennial stream and flow into Gastineau Channel or Fritz Cove. There are two wetlands on Mendenhall Peninsula located south of Engineers Cutoff Road which appear to not be connected to a perennial stream and potentially are isolated, totaling approximately 1.4 acres.

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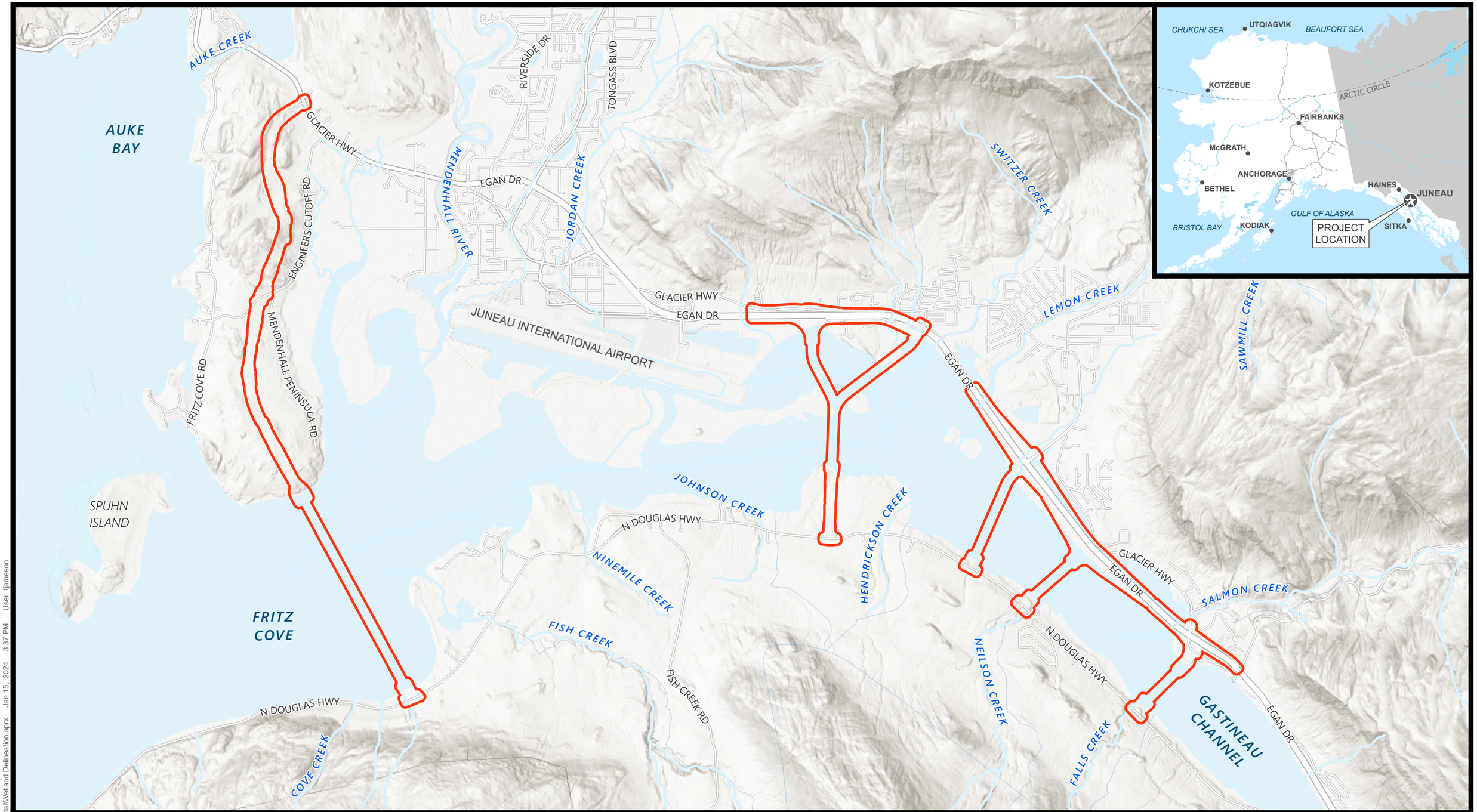
APPENDIX 1:
FIGURES



STUDY AREA

0 1,500 3,000 Feet

PROJECT LOCATION & VICINITY

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

COPPER RIVER MERIDIAN, ALASKA

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 1

J:\38632234-01160GIS\Carto\Environmental\Wetland Delineation.aprx Jan 15, 2024 3:37 PM User: tlameson

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FRITZ COVE RD

MENDENHALL PENINSULA RD

GLACIER HWY

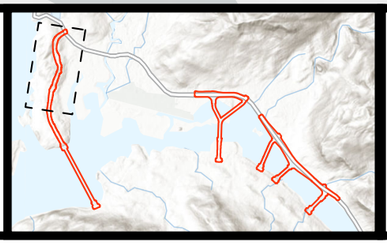
ENGINEERS CUTOFF RD

0 300 600 Feet

STUDY AREA

NRCS SOIL NAME

NO DIGITAL DATA AVAILABLE



EXISTING NRCS SOILS

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 2.1

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FRITZ COVE RD

MENDENHALL PENINSULA RD

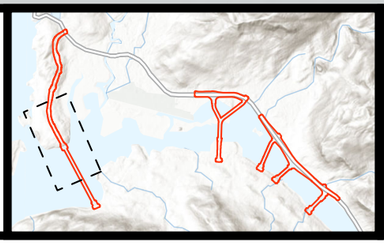
0 300 600 Feet

STUDY AREA

NRCS SOIL NAME

NO DIGITAL DATA AVAILABLE

WATER, SALINE



EXISTING NRCS SOILS

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 2.2

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N DOUGLAS HWY

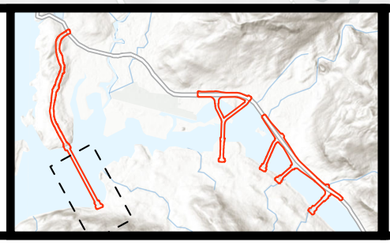
0 300 600 Feet

STUDY AREA

NRCS SOIL NAME

NO DIGITAL DATA AVAILABLE

WATER, SALINE



EXISTING NRCS SOILS

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 2.3

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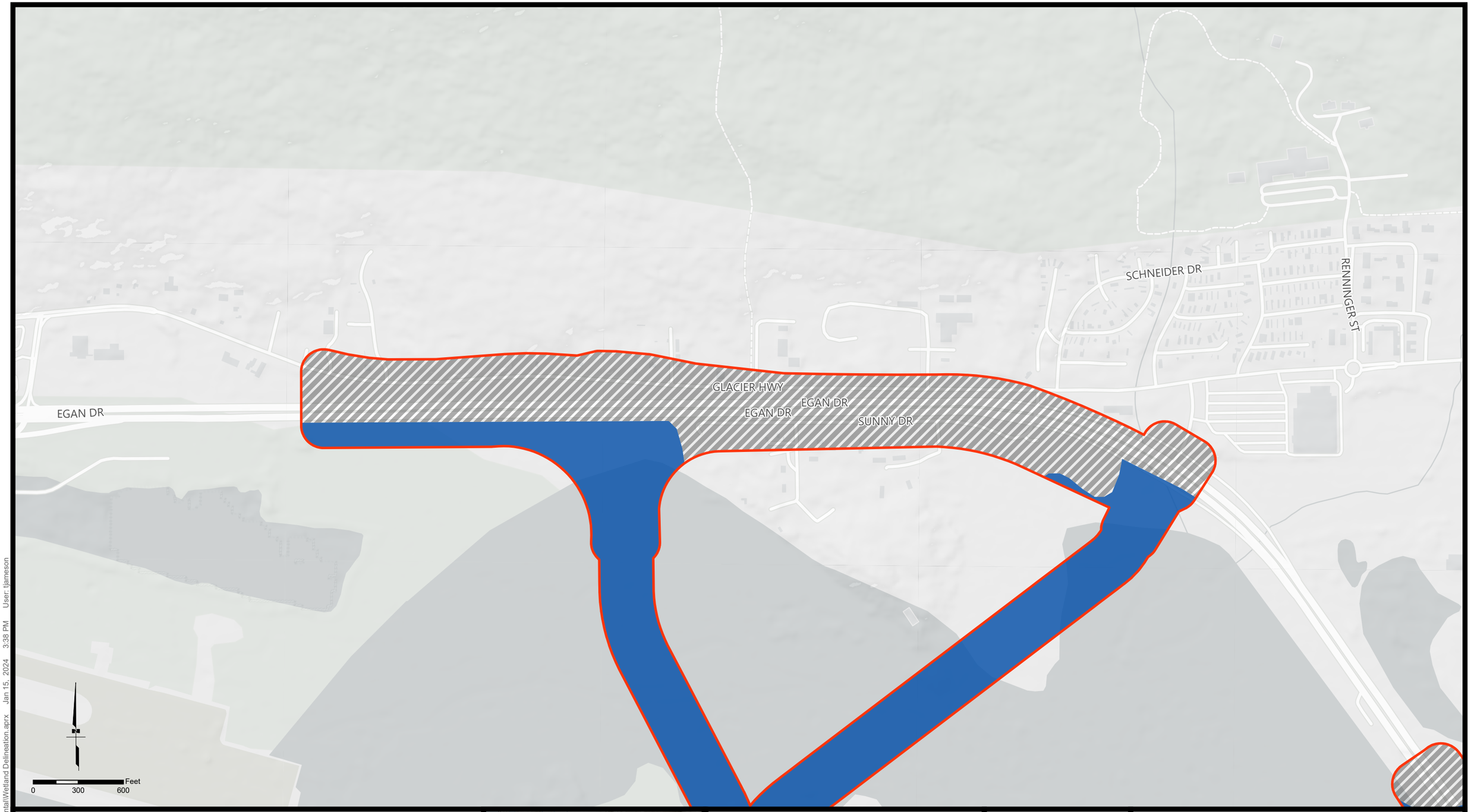
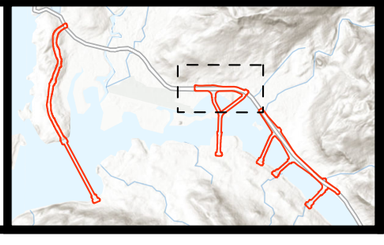


STUDY AREA

NRCS SOIL NAME

NO DIGITAL DATA AVAILABLE

WATER, SALINE



EXISTING NRCS SOILS

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 2.4

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N DOUGLAS HWY

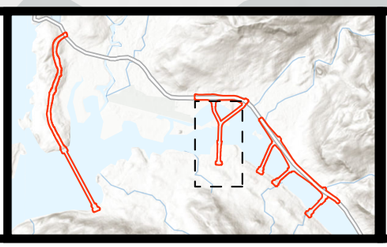
Feet
0 300 600

STUDY AREA

NRCS SOIL NAME

NO DIGITAL DATA AVAILABLE

WATER, SALINE



EXISTING NRCS SOILS

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 2.5

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VANDERBILT HILL RD
ABBY WAY
RIDGE WAY
GLACIER HWY
EGAN DR
EGAN DR
EGAN DR
N DOUGLAS HWY
GRAY ST
BONNIE DOON DR
MARGUERITE ST
SHERRI ST
WEE BURN DR

0 300 600 Feet

STUDY AREA

NRCS SOIL NAME

NO DIGITAL DATA AVAILABLE
WATER
WATER, SALINE

EXISTING NRCS SOILS

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 2.6

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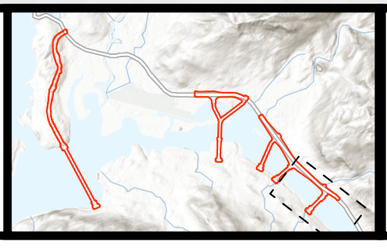
GLACIER HWY
SALMON CREEK LN
HOSPITAL DR
EGAN DR
EGAN DR
CHANNEL VISTA DR
CHANNEL DR
N DOUGLAS HWY
GRAY ST
BONNIE DOON DR
MARGUERITE ST
SHERRI ST

0 300 600 Feet

STUDY AREA

NRCS SOIL NAME

NO DIGITAL DATA AVAILABLE
WATER
WATER, SALINE



EXISTING NRCS SOILS

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 2.7

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FRITZ COVE RD

FRITZ COVE RD

FRITZ COVE RD

FRITZ COVE RD

ENGINEERS CUTOFF RD

MENDENHALL PENINSULA RD

ENGINEERS CUTOFF RD

ENGINEERS CUTOFF RD

GLACIER HWY

GLACIER HWY

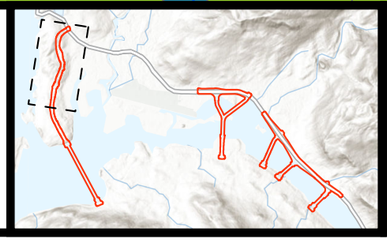
0 300 600 Feet

STUDY AREA

NHD STREAM

NWI MAPPED WETLAND

- ESTUARINE AND MARINE DEEPWATER
- ESTUARINE AND MARINE WETLAND
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED/SHRUB WETLAND
- RIVERINE



EXISTING NWI MAPPING & NHD STREAMS

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 3.1

J:\38\63234-01160\GIS\Carto\EnvironmentalWetland Delineation.aprx Jan 15, 2024 4:00 PM User: tjameson

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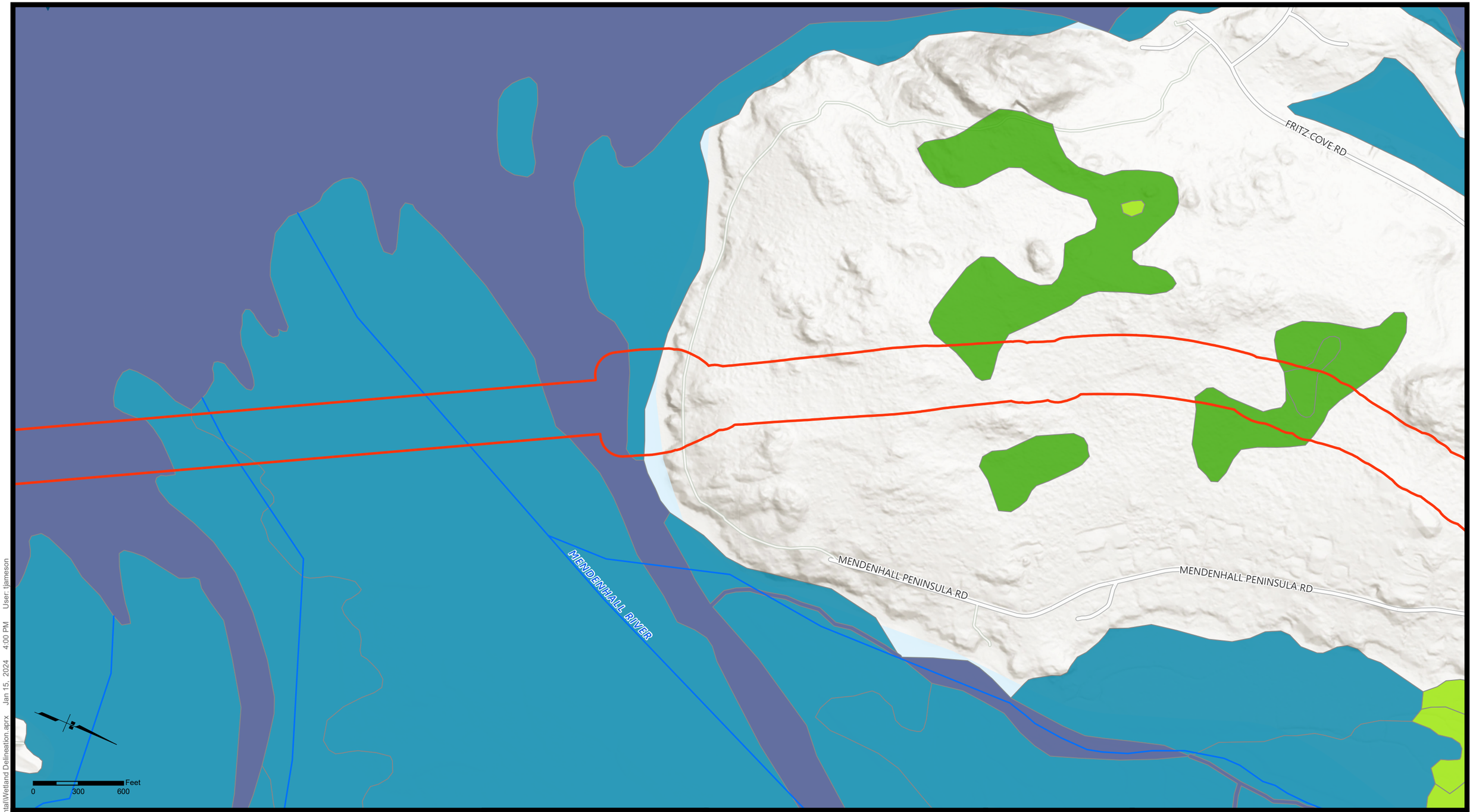
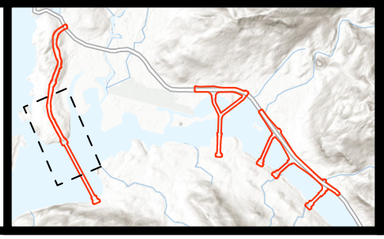


STUDY AREA

NHD STREAM

NWI MAPPED WETLAND

- ESTUARINE AND MARINE DEEPWATER
- ESTUARINE AND MARINE WETLAND
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED/SHRUB WETLAND



EXISTING NWI MAPPING & NHD STREAMS

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

COPPER RIVER MERIDIAN, ALASKA

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 3.2

J:\38\63234-01\60\GIS\Cartol\Environmental\Wetland Delineation.aprx Jan 15, 2024 4:00 PM User: tjameson

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COVE CREEK

N DOUGLAS HWY

MENDENHALL RIVER

N DOUGLAS HWY

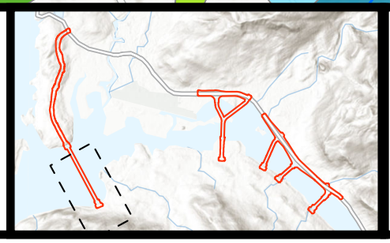
0 300 600 Feet

STUDY AREA

NHD STREAM

NWI MAPPED WETLAND

- ESTUARINE AND MARINE DEEPWATER
- ESTUARINE AND MARINE WETLAND
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED/SHRUB WETLAND
- FRESHWATER POND
- RIVERINE



EXISTING NWI MAPPING & NHD STREAMS

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

COPPER RIVER MERIDIAN, ALASKA

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 3.3

J:\38163234-01160GIS\Carto\Environmental\Wetland Delineation.aprx Jan 15, 2024 4:00 PM User: tjameson

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GLACIER HWY
EGAN DR
SUNNY DR
SCHNEIDER DR
RENNINGER ST
SWITZER CREEK

Feet
0 300 600

STUDY AREA
NHD STREAM

NWI MAPPED WETLAND
- ESTUARINE AND MARINE DEEPWATER
- ESTUARINE AND MARINE WETLAND
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED/SHRUB WETLAND
- FRESHWATER POND
- LAKE
- RIVERINE

EXISTING NWI MAPPING & NHD STREAMS

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

COPPER RIVER MERIDIAN, ALASKA

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 3.4

J:\38163234-01\60GIS\Carto\Environmental\Wetland Delineation.aprx Jan 15, 2024 4:00 PM User: tjameson

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JOHNSON CREEK

N DOUGLAS HWY

N DOUGLAS HWY

HENDRICKSON CREEK

SWITZER CREEK

0 300 600 Feet

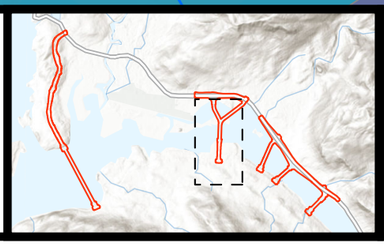
J:\38963234-01160GIS\Cartol\Environmental\Wetland Delineation.aprx Jan 15, 2024 4:00 PM User: tlameson

STUDY AREA

NHD STREAM

NWI MAPPED WETLAND

- ESTUARINE AND MARINE DEEPWATER
- ESTUARINE AND MARINE WETLAND
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED/SHRUB WETLAND
- FRESHWATER POND
- LAKE
- RIVERINE



EXISTING NWI MAPPING & NHD STREAMS

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 3.5

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LEMON CREEK
VANDERBILT HILL RD
ABBY WAY
RIDGE WAY
GLACIER HWY
EGAN DR
NEILSON CREEK
N DOUGLAS HWY
GRAY ST
BONNIE DOON DR
MARGUERITE ST
SHERRI ST
WEE BURN DR
0
300
600
Feet

STUDY AREA
NHD STREAM

NWI MAPPED WETLAND
- ESTUARINE AND MARINE DEEPWATER
- ESTUARINE AND MARINE WETLAND
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED/SHRUB WETLAND
- FRESHWATER POND
- RIVERINE

EXISTING NWI MAPPING & NHD STREAMS

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

COPPER RIVER MERIDIAN, ALASKA

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 3.6

J:\38\63234-01160\GIS\Carto\EnvironmentalWetland Delineation.aprx Jan 15, 2024 4:00 PM User: tjameson

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GLACIER HWY
GLACIER HWY
SALMON CREEK LN
HOSPITAL DR
EGAN DR
EGAN DR
EGAN DR
EGAN DR
CHANNEL DR
CHANNEL VISTA DR
CHANNEL DR
EGAN DR
EGAN DR
SALMON CREEK
GASTINEAU CHANNEL
FALLS CREEK
N DOUGLAS HWY
GRAY ST
BONNIE DOON DR
MARGUERITE ST
SHERRI ST
N DOUGLAS HWY
N DOUGLAS HWY
N DOUGLAS HWY
0
300
600
Feet

STUDY AREA
NHD STREAM

NWI MAPPED WETLAND

- ESTUARINE AND MARINE DEEPWATER
- ESTUARINE AND MARINE WETLAND
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED/SHRUB WETLAND
- LAKE
- RIVERINE

EXISTING NWI MAPPING & NHD STREAMS

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

JANUARY 15, 2024 | FIGURE 3.7

J:\38\63234-01\60\GIS\Carto\Environmental\Wetland Delineation.aprx Jan 15, 2024 4:00 PM User: tjameson

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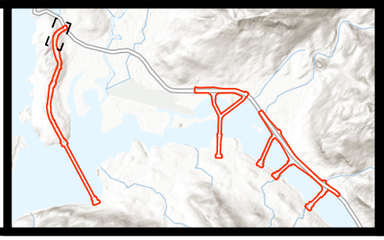
PHOTO POINT
SAMPLE POINT
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)
PFO4/SS1C
UPLAND



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.1

J:\38\63234-01\60\GIS\Cartol\Environmental\Wetland Delineation.aprx Feb 02, 2024 4:41 PM User: tjameson

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ENGINEERS CUTOFF RD

ENGINEERS CUTOFF RD

SP-4

PP-4

PP-3

SP-2

PP-61

SP-1

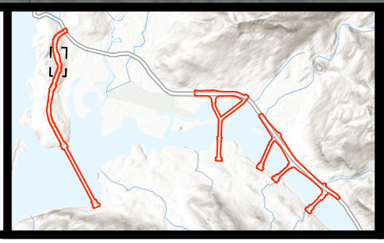
PP-1

PP-2

0 100 200 Feet

PHOTO POINT
SAMPLE POINT
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)
PFO4/SS1C
UPLAND



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.2

J:\38\63234-01160\GIS\Cartp\EnvironmentalWetland Delineation.aprx Feb 02, 2024 4:41 PM User: tjameson

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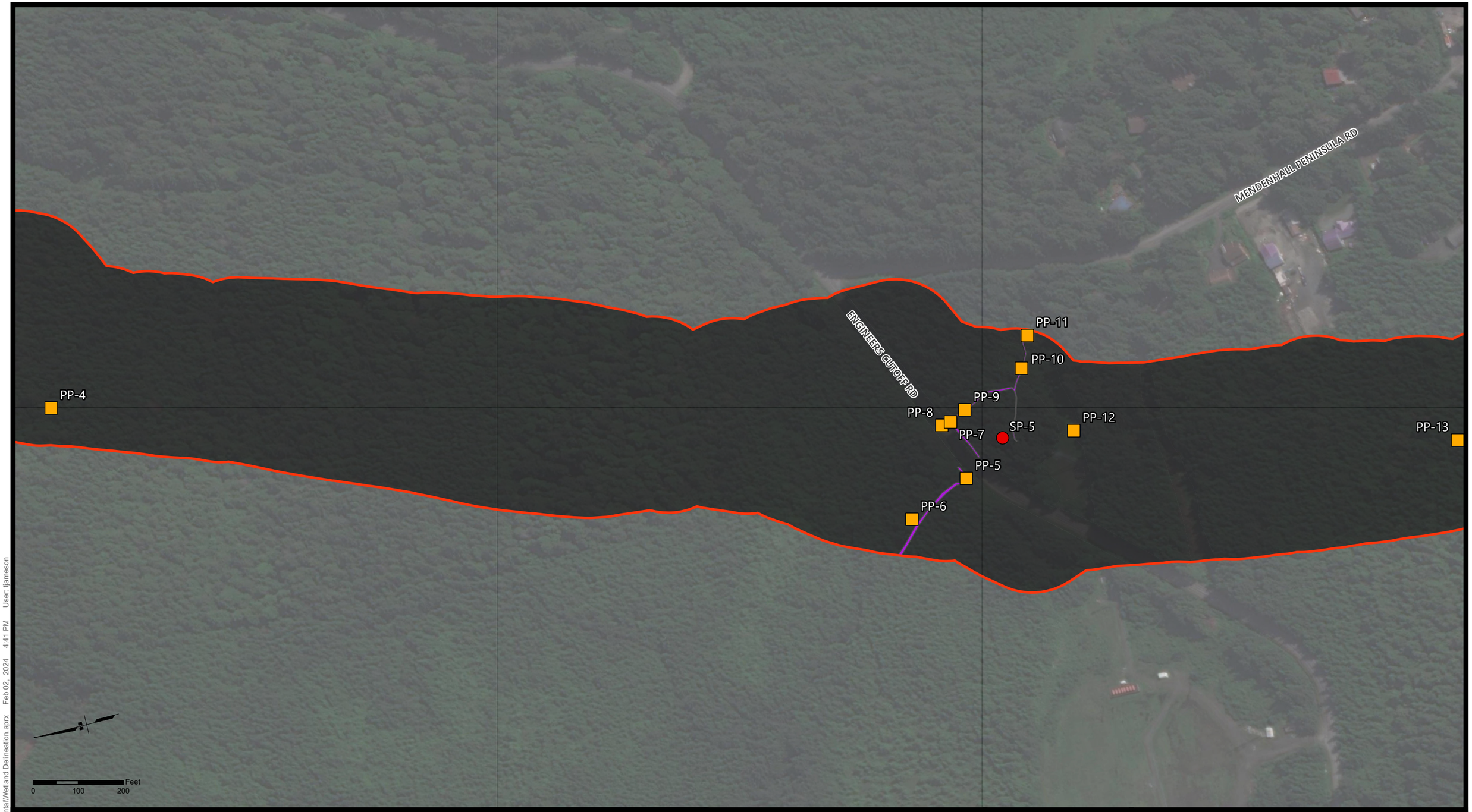
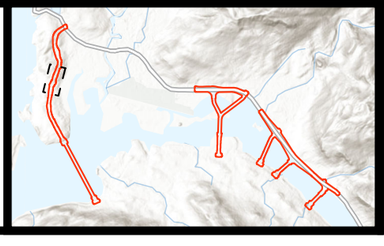


PHOTO POINT
SAMPLE POINT
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)
R3UBH
UPLAND



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.3

J:\38632234-01160\GIS\Carto\Environmental\Wetland Delineation.aprx Feb 02, 2024 4:41 PM User: tjameson

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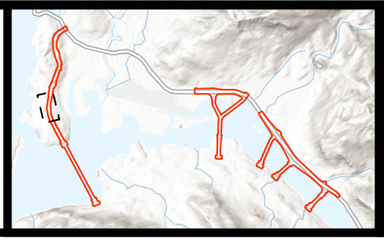
PP-13
PP-14
PP-14
PP-63
PP-64
SP-6
SP-7
SP-8
SP-9
PP-15

0 100 200 Feet

PHOTO POINT
SAMPLE POINT
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)
PSS1/EM1C
PSS4/EM1B
R4UBC
UPLAND



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.4

J:\38163234-01160\GIS\Carto\EnvironmentalWetland Delineation.aprx Feb 02, 2024 4:41 PM User: tjameson

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PP-15

SP-10

PP-21

PP-22

PP-23

PP-20

PP-24

SP-11

Feet
0 100 200

PHOTO POINT
SAMPLE POINT
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)
PEM1B
UPLAND

WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.5

J:\38\63234-01160\GIS\Carto\Environmental\Wetland Delineation.aprx Feb 02, 2024 4:41 PM User: tjameson

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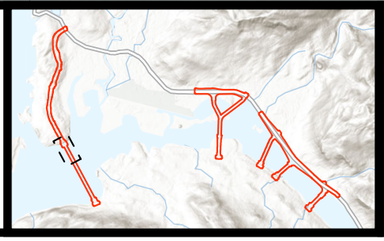
PP-19
PP-18
PP-17
PP-16
PP-23
PP-24

Feet
0
100
200

PHOTO POINT
HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

- E1UBL
- E2EM1N
- E2SSP
- E2USM
- E2USN
- PEM1B
- R1UBH
- R3UBH
- UPLAND



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.6

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STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

- E1UBL
- E2USM
- E2USN
- M2USL

WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.7

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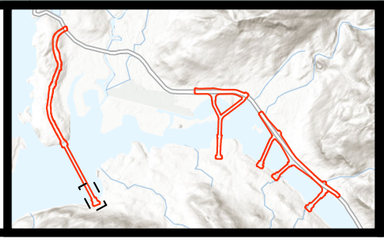
PP-55
PP-59
PP-52
PP-53
PP-54
N DOUGLAS HWY
PP-60
PP-56
PP-58
PP-57

0 100 200 Feet

PHOTO POINT
HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

E2EM1P
E2USM
E2USN
M2USL
R1UBH
R2UBH
UPLAND



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.8

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VISTA DEL SOL DR

GLACIER HWY

EGAN DR

EGAN DR

PP-47

PP-43

PP-42

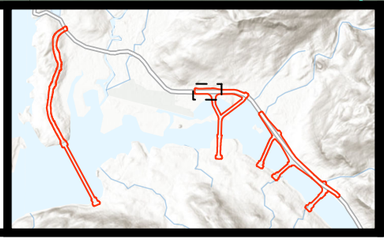
SUNNY DR

Feet
0 100 200

PHOTO POINT
HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

E2EM1M	PSS1/EM1C
E2EM1N	R1UBH
E2EM1P	R2UBH
E2SS1P	R4UBF
PEM1C	R4UBH
PEM1F	UPLAND



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.9

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LUPINE
SCHNEIDER DR
FORGET ME NOT
SCOTT
IRIS
GLACIER HWY
EGAN DR
EGAN DR
SUNNY DR
HENDRICKSON RD
PP-46
PP-45
PP-44
Feet
0
100
200

PHOTO POINT
HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

E2EM1N
E2EM1P
E2SBM
E2SS1P
PEM1C
R1UBH
R2UBH
UPLAND

WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.10

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GLACIER HWY

EGAN DR

EGAN DR

PP-42

PP-43

0 100 200 Feet

PHOTO POINT

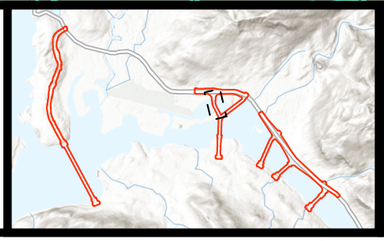
HIGH TIDE LINE (20.6 FT)

MEAN HIGH WATER (15.3 FT)

STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

- E2EM1M
- E2EM1N
- E2EM1P
- E2SBM
- E2USP
- PEM1C
- PSS1/EM1C
- R2UBH
- R4UBF
- UPLAND



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.11

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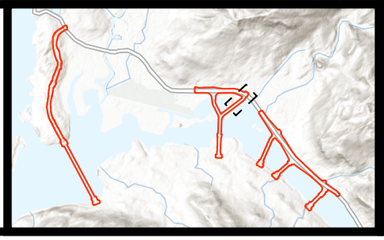
PP-46
PP-44
PP-45
EGAN DR
GLACIER HWY
GLACIER HWY ACCESS RD
EGAN DR
SCOTT
DAISY

0 100 200 Feet

PHOTO POINT
HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

E2EM1M	E2USN
E2EM1N	PEM1C
E2EM1P	PSS1/EM1C
E2SBM	R1UBH
E2SS1P	R2UBH
E2USM	UPLAND



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.12

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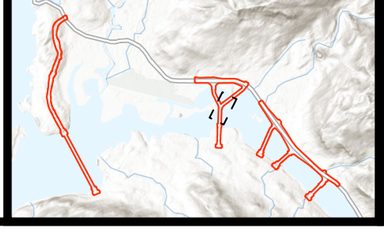
Feet
0 100 200

HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

E2EM1M	E2USM
E2EM1N	E2USN
E2EM1P	E2USP
E2SBL	PEM1C
E2SBM	PSS1/EM1C
E2SBN	UPLAND



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.13

J:\38\63234-01\60GIS\Carto\Environmental\Wetland Delineation.aprx Feb 02, 2024 4:41 PM User: tjameson

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PP-27
SP-12
SP-13
PP-28
PP-29
PP-30
PP-31
SP-14
PP-32
PP-33
PP-34
PP-35
SP-15
PP-36
N DOUGLAS HWY

0 100 200 Feet

PHOTO POINT
SAMPLE POINT
HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

- E2EM1N
- E2EM1P
- E2SBM
- E2USN
- PFO4/SS1B
- PSS4/EM1B
- PSS4/EM1C
- PSS4B
- R1UBH
- R2UBH
- UPLAND

WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

COPPER RIVER MERIDIAN, ALASKA

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.14

J:\38\63234-01160\GIS\Carto\EnvironmentalWetland Delineation.aprx Feb 02, 2024 4:42 PM User: tjameson

Imagery Credits: Maxar, Microsoft, Esri, CGIAR, USGS, State of Alaska, Esri Canada, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, USFWS, NRCan, Parks Canada

EGAN DR

EGAN DR

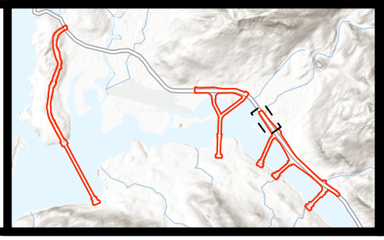
EGAN DR

0 100 200 Feet

HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

- E2EM1M
- E2EM1N
- E2EM1P
- E2SBM
- E2USM
- L2EM1C
- R1UBH
- R2SBF
- UPLAND



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

COPPER RIVER MERIDIAN, ALASKA

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DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.15

J:\38632340160GIS\Carto\Environmental\Wetland Delineation.aprx Feb 02, 2024 4:42 PM User: tjameson

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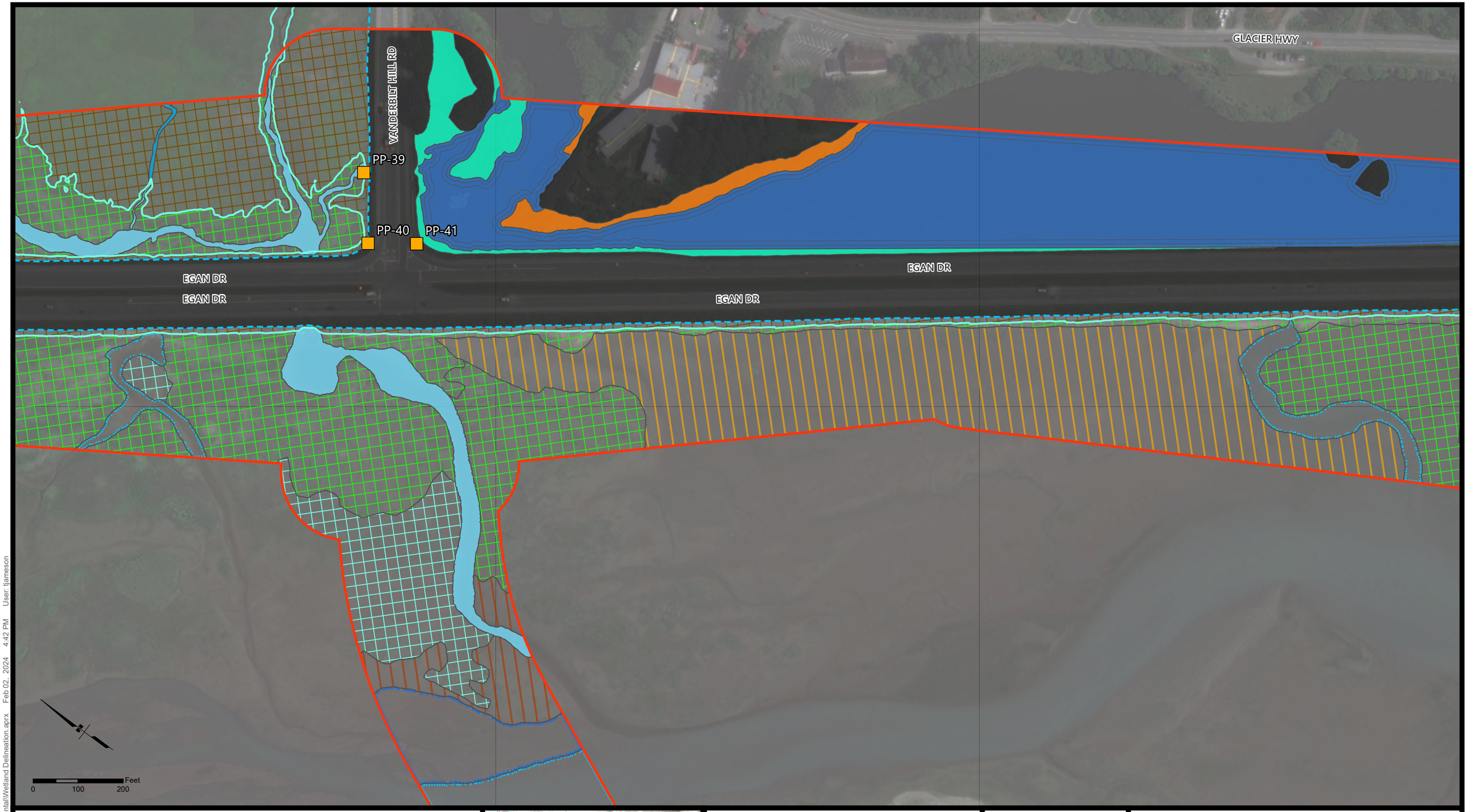
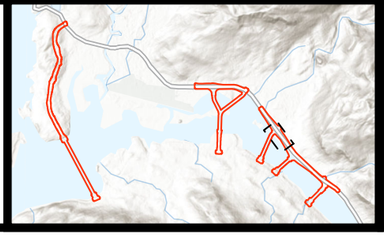


PHOTO POINT
HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

E2EM1M	E2USN	R2UBH
E2EM1N	L1UBH	UPLAND
E2EM1P	PEM1C	
E2SBM	PSS1/EM1C	
E2SBN	R1UBH	
E2USM	R2SBF	



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

COPPER RIVER MERIDIAN, ALASKA

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.16

J:\38163234-01\60GIS\Carto\EnvironmentalWetland Delineation.aprx Feb 02, 2024 4:42 PM User: tjameson

Imagery Credits: Maxar, Microsoft, Esri, CGIAR, USGS, State of Alaska, Esri Canada, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, USFWS, NRCan, Parks Canada

PP-25

PP-26

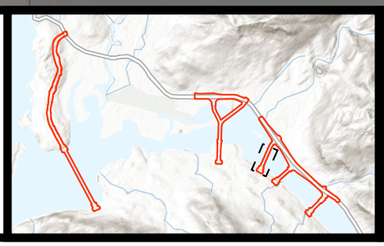
N DOUGLAS HWY

Feet
0 100 200

PHOTO POINT
HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

E1UBL	E2USM
E2EM1N	E2USN
E2EM1P	R1UBH
E2SBM	R2UBH
E2SBN	UPLAND
E2USL	



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

COPPER RIVER MERIDIAN, ALASKA

STATE OF ALASKA
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DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.17

J:\38\63234-01\60\GIS\Cartol\Environmental\Wetland Delineation.aprx Feb 02, 2024 4:42 PM User: tjameson

Imagery Credits: Maxar, Microsoft, Esri, CGIAR, USGS, State of Alaska, Esri Canada, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, USFWS, NRCan, Parks Canada

BLACKERBY ST

GLACIER HWY

PP-48

EGAN DR

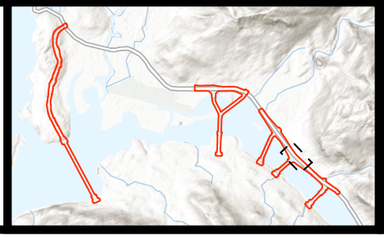
EGAN DR

0 100 200 Feet

PHOTO POINT
HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

E1UBL	E2USN	UPLAND	
E2ABN	E2USP		
E2EM1N	L1UBH		
E2EM1P	L2EM1H		
E2SBM	PEM1C		
E2USM	PSS1/EM1C		



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

COPPER RIVER MERIDIAN, ALASKA

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.18

J:\38\63234-01160\GIS\Carto\Environmental\Wetland Delineation.aprx Feb 02, 2024 4:42 PM User: tjameson

Imagery Credits: Maxar, Microsoft, Esri, CGIAR, USGS, State of Alaska, Esri Canada, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, USFWS, NRCan, Parks Canada

N DOUGLAS HWY

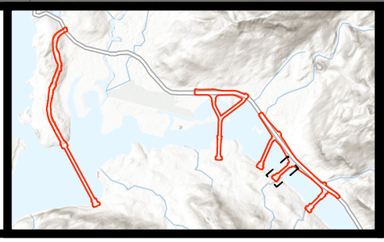
WEE BURN DR

Feet
0 100 200

HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

- E1UBL
- E2EM1N
- E2EM1P
- E2SBM
- E2USM
- E2USN
- R1UBH
- R2UBH
- UPLAND



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

COPPER RIVER MERIDIAN, ALASKA

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.19

J:\38163234-01160\GIS\Carto\EnvironmentalWetland Delineation.aprx Feb 02, 2024 4:42 PM User: tlameson

Imagery Credits: Maxar, Microsoft, Esri, CGIAR, USGS, State of Alaska, Esri Canada, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, USFWS, NRCan, Parks Canada

GLACIER HWY

GLACIER HWY

EGAN DR

EGAN DR

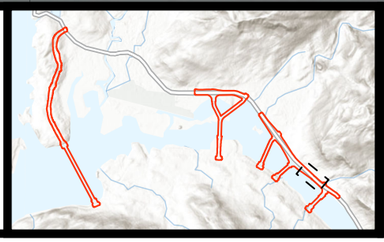
EGAN DR

0 100 200 Feet

HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

E2ABN	E2USP	PSS4/EM1C
E2EM1N	L1UBH	R1UBH
E2EM1P	L1UBHL	R2UBF
E2RSN	PEM1C	R2UBH
E2SBN	PFO4/EM1C	UPLAND
E2USN	PSS1/EM1C	



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

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AND PUBLIC FACILITIES

DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.20

J:\38\63234-01160\GIS\Carto\EnvironmentalWetland Delineation.aprx Feb 02, 2024 4:42 PM User: tjameson

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SALMON CREEK LN
DRIVEWAY HOSPITAL ACCESS
GLACIER HWY
HOSPITAL DR
POWERHOUSE RD
EGAN DR
EGAN DR
EGAN DR
CHANNEL DR
PP-38
PP-37
0
100
200
Feet

PHOTO POINT
HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

E1UBL	PFO4/EM1C	R2UBH
E2EM1P	PSS1/EM1C	UPLAND
E2USN	PSS4/EM1C	
E2USP	PUBH	
L1UBH	R1UBH	
PEM1C	R2UBF	

WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

COPPER RIVER MERIDIAN, ALASKA

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.21

J:\38\63234-01\60\GIS\Carto\Environmental\Wetland Delineation.aprx Feb 02, 2024 4:42 PM User: tjameson

Imagery Credits: Maxar, Microsoft, Esri, CGIAR, USGS, State of Alaska, Esri Canada, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, USFWS, NRCan, Parks Canada

N DOUGLAS HWY

PP-51

PP-50

PP-37

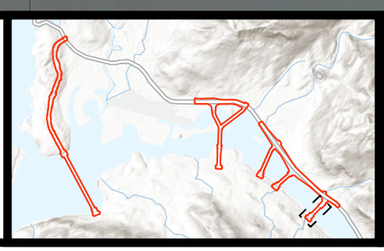
PP-38

0 100 200 Feet

PHOTO POINT
HIGH TIDE LINE (20.6 FT)
MEAN HIGH WATER (15.3 FT)
STUDY AREA

DOWL MAPPED WETLAND (COWARDIN)

E1UBL	E2USN
E2EM1M	E2USP
E2EM1N	PSS1/EM1C
E2EM1P	R1UBH
E2SS1P	R2UBH
E2USM	UPLAND



WETLAND DELINEATION

SEC 26, 35, T 40S, R 65E; SEC 32 - 34, T 40S, R 66E
SEC 1, 4, 9 - 10, T 41S, R 66E; SEC 5 - 9, 16 - 17, T 41S, R 67E

COPPER RIVER MERIDIAN, ALASKA

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES

DOT&PF PROJECT NO. SFHWY00299/0003259
JUNEAU DOUGLAS NORTH CROSSING PEL STUDY

CITY AND BOROUGH OF JUNEAU, ALASKA

FEBRUARY 02, 2024 | FIGURE 4.22

J:\38\63234-01160\GIS\Carto\EnvironmentalWetland Delineation.aprx Feb 02, 2024 4:42 PM User: tjameson

Imagery Credits: Maxar, Microsoft, Esri, CGIAR, USGS, State of Alaska, Esri Canada, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, USFWS, NRCan, Parks Canada

APPENDIX 2: DATASHEETS AND PLANT SPECIES

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study | Borough/City: City and Borough of Juneau | Sampling Date: 9-19-2023

Applicant/Owner: DOT&PF, CBJ | Sampling Point: SP-1

Investigator(s): A. Morrill, E. Anderson | Landform (hillside, terrace, hummocks, etc.): Toe slope

Local relief (concave, convex, none): Concave | Slope (%): 1-2

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) | Lat: 58.37082 | Long: -134.631459 | Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK646) | NWI classification: PFO4B

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea sitchensis*	25	Yes	FACU
2. *Tsuga heterophylla*	40	Yes	FAC
3.			
4.			
	65	=Total Cover	
50% of total cover:	33	20% of total cover:	13
Sapling/Shrub Stratum			
1. *Alnus viridis*	40	Yes	FAC
2. *Viburnum edule*	10	No	FACU
3. *Rubus idaeus*	15	No	FACU
4. *Rubus pedatus*	10	No	FAC
5. *Oplopanax horridus*	5	No	FACU
6. *Vaccinium ovalifolium*	30	Yes	FAC
	110	=Total Cover	
50% of total cover:	55	20% of total cover:	22
Herb Stratum			
1. *Lysichiton americanus*	60	Yes	OBL
2. *Athyrium filix-femina*	20	No	UPL
3. *Streptopus amplexifolius*	2	No	FACU
4. *Cornus canadensis*	10	No	FACU
5. *Viola palustris*	2	No	FACW
6. *Calamagrostis canadensis*	5	No	FAC
7. *Coptis aspleniifolia*	10	No	FAC
8. *Maianthemum dilatatum*	2	No	FAC
9.			
10.			
	111	=Total Cover	
50% of total cover:	56	20% of total cover:	23

Plot Size (radius, or length x width) 1/10 acre | % Bare Ground ____

% Cover of Wetland Bryophytes ____ | Total Cover of Bryophytes ____ (Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	60	x 1 =	60
FACW species	2	x 2 =	4
FAC species	137	x 3 =	411
FACU species	67	x 4 =	268
UPL species	20	x 5 =	100
Column Totals:	286 (A)		843 (B)

Prevalence Index = B/A = 2.95

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: SP-1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18							Peat	
18-19	10YR 2/2	60					Loamy/Clayey	40% gravels, <2" in diameter

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

Hydric Soil Indicators:

- X Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes X	No ___	Depth (inches): 2		
Water Table Present?	Yes X	No ___	Depth (inches): 1		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes** X **No** ___

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

Remarks:

Slow flowing water, pockets of surface water <2" deep.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study | Borough/City: City and Borough of Juneau | Sampling Date: 9-19-2023

Applicant/Owner: DOT&PF, CBJ | Sampling Point: SP-2

Investigator(s): A. Morrill, E. Anderson | Landform (hillside, terrace, hummocks, etc.): Hillside

Local relief (concave, convex, none): Concave | Slope (%): 2

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) | Lat: 58.37265 | Long: -134.63072 | Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK646) | NWI classification: N/A

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	60	Yes	FAC
2. *Picea sitchensis*	1	No	FACU
3.			
4.			
	61	=Total Cover	
50% of total cover: 31	20% of total cover: 13		
Sapling/Shrub Stratum			
1. *Oplopanax horridus*	15	No	FACU
2. *Rubus pedatus*	20	Yes	FAC
3. *Rubus idaeus*	15	No	FACU
4. *Vaccinium caespitosum*	10	No	FACW
5. *Menziesia ferruginea*	40	Yes	FACU
6. *Vaccinium ovalifolium*	10	No	FAC
	112	=Total Cover	
50% of total cover: 56	20% of total cover: 23		
Herb Stratum			
1. *Athyrium filix-femina*	15	Yes	UPL
2. *Cornus canadensis*	20	Yes	FACU
3. *Coptis aspleniifolia*	10	No	FAC
4. *Streptopus amplexifolius*	5	No	FACU
5. *Lysichiton americanus*	5	No	OBL
6.			
7.			
8.			
9.			
10.			
	55	=Total Cover	
50% of total cover: 28	20% of total cover: 11		

Plot Size (radius, or length x width) 1/10 acre | % Bare Ground ____

% Cover of Wetland Bryophytes ____ | Total Cover of Bryophytes ____
(Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	5
FACW species	10	x 2 =	20
FAC species	101	x 3 =	303
FACU species	97	x 4 =	388
UPL species	15	x 5 =	75
Column Totals:	228 (A)		791 (B)

Prevalence Index = B/A = 3.47

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

VEGETATION Continued – Use scientific names of plants. Sampling Point: SP-2

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	61	=Total Cover	
50% of total cover: 31		20% of total cover:	13
Sapling/Shrub Stratum			
7. *Tsuga heterophylla*	1	No	FAC
8. *Sambucus racemosa*	1	No	FACU
9.			
10.			
11.			
12.			
13.			
14.			
	112	=Total Cover	
50% of total cover: 56		20% of total cover:	23
Herb Stratum			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
	55	=Total Cover	
50% of total cover: 28		20% of total cover:	11

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH, regardless of height.

Herb – All herbaceous (non-woody) plants, regardless of size.

Remarks:

SOIL

Sampling Point: SP-2

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-2							Peat	Fibric
2-7	10YR 2/1	100					Sandy	
7-14	10YR 2/2	69					Sandy	30% gravels <3" in diameter, 1% cobbles >6" in diameter
14-16	10YR 2/2	100					Loamy/Clayey	
16-24	5GY 3/1	70	2.5Y 3/3	30	C	PL	Loamy/Clayey	Prominent redox concentrations

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

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Hydrogen Sulfide odor at 18"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes X	No ___	Depth (inches): 14		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 8	**Wetland Hydrology Present?**	**Yes** X **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study | Borough/City: City and Borough of Juneau | Sampling Date: 9-19-23

Applicant/Owner: DOT&PF, CBJ | Sampling Point: SP-3

Investigator(s): A. Morrill, E. Anderson | Landform (hillside, terrace, hummocks, etc.): Hillside

Local relief (concave, convex, none): Concave | Slope (%): 3

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) | Lat: 58.374451 | Long: -134.631566 | Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK646) | NWI classification: N/A

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	60	Yes	FAC
2.			
3.			
4.			
	60	=Total Cover	
50% of total cover: 30		20% of total cover: 12	
Sapling/Shrub Stratum			
1. *Rubus pedatus*	30	Yes	FAC
2. *Tsuga heterophylla*	10	No	FAC
3. *Vaccinium ovalifolium*	50	Yes	FAC
4. *Vaccinium parvifolium*	10	No	FACU
5.			
6.			
	100	=Total Cover	
50% of total cover: 50		20% of total cover: 20	
Herb Stratum			
1. *Cornus canadensis*	30	Yes	FACU
2. *Athyrium filix-femina*	20	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	50	=Total Cover	
50% of total cover: 25		20% of total cover: 10	

Plot Size (radius, or length x width) 1/10 acre | % Bare Ground ____

% Cover of Wetland Bryophytes ____ (Where applicable) | Total Cover of Bryophytes ____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	150	x 3 =	450
FACU species	40	x 4 =	160
UPL species	20	x 5 =	100
Column Totals:	210 (A)		710 (B)

Prevalence Index = B/A = 3.38

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: SP-3

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-2							Peat	Organics, fibric
2-7							Peat	Organics, coarser fibric
7-12	10YR 5/3						Sandy	
12-24	7.5YR 3/4	80					Sandy	20% gravels, <2" in diameter

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

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Problematic soils procedure reviewed and soil does not meet critiera. Point is located in swale on hillside.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study | Borough/City: City and Borough of Juneau | Sampling Date: 9-19-2023

Applicant/Owner: DOT&PF, CBJ | Sampling Point: SP-4

Investigator(s): A. Morrill, E. Anderson | Landform (hillside, terrace, hummocks, etc.): Hillside

Local relief (concave, convex, none): Concave | Slope (%): 3

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) | Lat: 58.368210 | Long: -134.630189 | Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK646) | NWI classification: N/A

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	30	Yes	FAC
2.			
3.			
4.			
	30 =Total Cover		
50% of total cover: 15	20% of total cover: 6		
Sapling/Shrub Stratum			
1. *Menziesia ferruginea*	10	Yes	FACU
2. *Rubus pedatus*	10	Yes	FAC
3. *Tsuga heterophylla*	10	Yes	FAC
4. *Oplopanax horridus*	5	No	FACU
5. *Vaccinium ovalifolium*	25	Yes	FAC
6.			
	60 =Total Cover		
50% of total cover: 30	20% of total cover: 12		
Herb Stratum			
1. *Cornus canadensis*	20	Yes	FACU
2. *Athyrium filix-femina*	50	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	70 =Total Cover		
50% of total cover: 35	20% of total cover: 14		

Plot Size (radius, or length x width) 1/10 acre | % Bare Ground ____

% Cover of Wetland Bryophytes ____ | Total Cover of Bryophytes ____
(Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 57.1% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	75	x 3 =	225
FACU species	35	x 4 =	140
UPL species	50	x 5 =	250
Column Totals:	160 (A)		615 (B)

Prevalence Index = B/A = 3.84

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: SP-4

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3							Peat	Organics, fibric
3-6	10YR 2/2	100					Loamy/Clayey	
6-13	10YR 2/2	80					Loamy/Clayey	20% gravels, <1" in diameter
13-20	10YR 2/2	60					Sandy	40% gravels, <1" in diameter
20-24	10YR 2/2	40					Sandy	60% gravels, <1" in diameter

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

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study | Borough/City: City and Borough of Juneau | Sampling Date: 9-20-2023

Applicant/Owner: DOT&PF, CBJ | Sampling Point: SP-5

Investigator(s): A. Morrill, E. Anderson | Landform (hillside, terrace, hummocks, etc.): Hillside

Local relief (concave, convex, none): Concave | Slope (%): 1-2

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) | Lat: 58.359276 | Long: -134.63051 | Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK646) | NWI classification: N/A

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

Are Vegetation N , Soil N , or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	55	Yes	FAC
2. *Picea sitchensis*	5	No	FACU
3.			
4.			
	60	=Total Cover	
50% of total cover: 30		20% of total cover: 12	

Sapling/Shrub Stratum			
1. *Sambucus racemosa*	10	Yes	FACU
2. *Rubus idaeus*	8	Yes	FACU
3. *Oplopanax horridus*	5	No	FACU
4. *Rubus pedatus*	8	Yes	FAC
5. *Vaccinium ovalifolium*	5	No	FAC
6. *Vaccinium caespitosum*	2	No	FACW
	41	=Total Cover	
50% of total cover: 21		20% of total cover: 9	

Herb Stratum			
1. *Cornus canadensis*	5	No	FACU
2. *Maianthemum dilatatum*	2	No	FAC
3. *Gymnocarpium dryopteris*	10	Yes	FACU
4. *Dryopteris expansa*	20	Yes	FACU
5. *Streptopus amplexifolius*	2	No	FACU
6.			
7.			
8.			
9.			
10.			
	39	=Total Cover	
50% of total cover: 20		20% of total cover: 8	

Plot Size (radius, or length x width) 1/10 acre | % Bare Ground ____

% Cover of Wetland Bryophytes ____ (Where applicable) | Total Cover of Bryophytes ____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	2	x 2 =	4
FAC species	72	x 3 =	216
FACU species	66	x 4 =	264
UPL species	0	x 5 =	0
Column Totals:	140 (A)		484 (B)

Prevalence Index = B/A = 3.46

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Down trees present

VEGETATION Continued – Use scientific names of plants. Sampling Point: SP-5

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	60	=Total Cover	
50% of total cover: 30		20% of total cover:	12
Sapling/Shrub Stratum			
7. *Tsuga heterophylla*	2	No	FAC
8. *Sorbus sitchensis*	1	No	FACU
9.			
10.			
11.			
12.			
13.			
14.			
	41	=Total Cover	
50% of total cover: 21		20% of total cover:	9
Herb Stratum			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
	39	=Total Cover	
50% of total cover: 20		20% of total cover:	8

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH, regardless of height.

Herb – All herbaceous (non-woody) plants, regardless of size.

Remarks:

SOIL

Sampling Point: SP-5

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1							Peat	Organics, fibric
1-5	10YR 2/1	100					Loamy/Clayey	
5-17	10YR 2/2	70					Loamy/Clayey	30% gravels, <3" in diameter
17-24	2.5Y 3/3	100					Sandy	coarse sandy loam

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

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

Hyrdrogen sulfide odor at 17"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 8
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 6

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study | Borough/City: City and Borough of Juneau | Sampling Date: 9-20-2023

Applicant/Owner: DOT&PF, CBJ | Sampling Point: SP-6

Investigator(s): A. Morrill, E. Anderson | Landform (hillside, terrace, hummocks, etc.): Terrace

Local relief (concave, convex, none): None | Slope (%): 3-5

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) | Lat: 58.353959 | Long: -134.634831 | Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK646) | NWI classification: N/A

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

Are Vegetation N , Soil N , or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea sitchensis*	40	Yes	FACU
2. *Tsuga heterophylla*	20	Yes	FAC
3.			
4.			
	60	=Total Cover	
50% of total cover:	30	20% of total cover:	12
Sapling/Shrub Stratum			
1. *Vaccinium ovalifolium*	25	Yes	FAC
2. *Rubus pedatus*	5	No	FAC
3. *Tsuga heterophylla*	5	No	FAC
4. *Menziesia ferruginea*	30	Yes	FACU
5. *Vaccinium caespitosum*	1	No	FACW
6. *Picea sitchensis*	3	No	FACU
	69	=Total Cover	
50% of total cover:	35	20% of total cover:	14
Herb Stratum			
1. *Cornus canadensis*	25	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	25	=Total Cover	
50% of total cover:	13	20% of total cover:	5

Plot Size (radius, or length x width) 1/10 acre | % Bare Ground ____

% Cover of Wetland Bryophytes ____ (Where applicable) | Total Cover of Bryophytes ____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	55	x 3 =	165
FACU species	98	x 4 =	392
UPL species	0	x 5 =	0
Column Totals:	154 (A)		559 (B)

Prevalence Index = B/A = 3.63

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: SP-6

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4							Peat	Organics, fibric
4-10							Mucky Peat	Organics, hemic
10-13	10YR 2/1	100					Loamy/Clayey	
13-16	10YR 2/2	85					Loamy/Clayey	15% gravels, <1" in diameter
16-20	10YR 3/2	80					Loamy/Clayey	20% gravels, <2" in diameter
20-24	2.5Y 4/4	80					Loamy/Clayey	20% gravels, <3" in diameter

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

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes X	No ___	Depth (inches): 21		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 17	**Wetland Hydrology Present?**	**Yes** ___ **No** X

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study | Borough/City: City and Borough of Juneau | Sampling Date: 9-20-2023

Applicant/Owner: DOT&PF, CBJ | Sampling Point: SP-7

Investigator(s): A. Morrill, E. Anderson | Landform (hillside, terrace, hummocks, etc.): Terrace

Local relief (concave, convex, none): None | Slope (%): 0

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) | Lat: 58.352634 | Long: -134.635031 | Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK656) | NWI classification: PFO4B

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

Are Vegetation N , Soil N , or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:
Wet season and APT shows normal conditions.

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	20	Yes	FAC
2. *Picea sitchensis*	10	Yes	FACU
3. *Tsuga mertensiana*	20	Yes	FAC
4.			
	50	=Total Cover	
50% of total cover:	25	20% of total cover:	10
Sapling/Shrub Stratum			
1. *Rubus pedatus*	10	No	FAC
2. *Vaccinium ovalifolium*	40	Yes	FAC
3. *Menziesia ferruginea*	15	No	FACU
4. *Tsuga heterophylla*	10	No	FAC
5. *Rubus idaeus*	2	No	FACU
6.			
	77	=Total Cover	
50% of total cover:	39	20% of total cover:	16
Herb Stratum			
1. *Lysichiton americanus*	45	Yes	OBL
2. *Cornus canadensis*	20	Yes	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	65	=Total Cover	
50% of total cover:	33	20% of total cover:	13

Plot Size (radius, or length x width) 1/10 acre | % Bare Ground ____

% Cover of Wetland Bryophytes ____ | Total Cover of Bryophytes ____

(Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	45	x 1 =	45
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	47	x 4 =	188
UPL species	0	x 5 =	0
Column Totals:	192 (A)		533 (B)

Prevalence Index = B/A = 2.78

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: SP-7

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5							Peat	Organics, fibric
5-17							Mucky Peat	Organics, hemic
17-24							Peat	Organics, fibric

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

Hydric Soil Indicators:

- X Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes X	No ___	Depth (inches): 16		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 11	**Wetland Hydrology Present?**	**Yes** X **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study | Borough/City: City and Borough of Juneau | Sampling Date: 9-20-2023

Applicant/Owner: DOT&PF, CBJ | Sampling Point: SP-8

Investigator(s): A. Morrill, E. Anderson | Landform (hillside, terrace, hummocks, etc.): Hummocks

Local relief (concave, convex, none): None | Slope (%): 0-1

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) | Lat: 58.352314 | Long: -134.635138 | Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK646) | NWI classification: PSS4/1B

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:
Wet season and APT shows normal conditions

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum			
1. *Rhododendron tomentosum*	30	Yes	FACW
2. *Andromeda polifolia*	10	Yes	FACW
3. *Pinus contorta*	10	Yes	FAC
4. *Empetrum nigrum*	5	No	FAC
5. *Tsuga heterophylla*	5	No	FAC
6. *Vaccinium oxycoccos*	2	No	OBL
	62 =Total Cover		
50% of total cover: 31	20% of total cover: 13		
Herb Stratum			
1. *Cornus canadensis*	15	No	FACU
2. *Nephrophyllidium crista-galli*	10	No	OBL
3. *Carex pauciflora*	45	Yes	OBL
4. *Eleocharis palustris*	10	No	OBL
5. *Carex livida*	20	Yes	OBL
6. *Gentiana douglasiana*	3	No	FACW
7. *Lysichiton americanus*	2	No	OBL
8.			
9.			
10.			
	105 =Total Cover		
50% of total cover: 53	20% of total cover: 21		

Plot Size (radius, or length x width) 1/10 acre | % Bare Ground ____

% Cover of Wetland Bryophytes ____ | Total Cover of Bryophytes ____

(Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	89	x 1 =	89
FACW species	43	x 2 =	86
FAC species	20	x 3 =	60
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	167 (A)		295 (B)

Prevalence Index = B/A = 1.77

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: SP-8

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-25							Peat	Organics, fibric

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

Hydric Soil Indicators:

- X Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes X	No ___	Depth (inches): 5
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study | Borough/City: City and Borough of Juneau | Sampling Date: 9-20-2023

Applicant/Owner: DOT&PF, CBJ | Sampling Point: SP-9

Investigator(s): A. Morrill, E. Anderson | Landform (hillside, terrace, hummocks, etc.): Terrace

Local relief (concave, convex, none): None | Slope (%): 1-2

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) | Lat: 58.351952 | Long: -134.634829 | Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK646) | NWI classification: N/A

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:
Wet season and APT shows normal conditions

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Picea sitchensis*	25	Yes	FACU
2. *Tsuga heterophylla*	10	Yes	FAC
3.			
4.			
	35	=Total Cover	
50% of total cover:	18	20% of total cover:	7
Sapling/Shrub Stratum			
1. *Menziesia ferruginea*	40	Yes	FACU
2. *Vaccinium ovalifolium*	15	Yes	FAC
3. *Rubus pedatus*	5	No	FAC
4. *Tsuga heterophylla*	5	No	FAC
5. *Vaccinium caespitosum*	2	No	FACW
6.			
	67	=Total Cover	
50% of total cover:	34	20% of total cover:	14
Herb Stratum			
1. *Cornus canadensis*	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20	=Total Cover	
50% of total cover:	10	20% of total cover:	4

Plot Size (radius, or length x width) 1/10 acre | % Bare Ground ____

% Cover of Wetland Bryophytes ____ | Total Cover of Bryophytes ____
(Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	2	x 2 =	4
FAC species	35	x 3 =	105
FACU species	85	x 4 =	340
UPL species	0	x 5 =	0
Column Totals:	122 (A)		449 (B)

Prevalence Index = B/A = 3.68

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: SP-9

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-18							Peat	Organics, fibric
18-24							Mucky Peat	Organics, hemic

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

Hydric Soil Indicators:

- X Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Hydrogen Sulfide odor at 18"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study | Borough/City: City and Borough of Juneau | Sampling Date: 9-21-2023

Applicant/Owner: DOT&PF, CBJ | Sampling Point: SP-10

Investigator(s): A. Morrill, E. Anderson | Landform (hillside, terrace, hummocks, etc.): Flat

Local relief (concave, convex, none): None | Slope (%): 1-2

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) | Lat: 58.346940 | Long: -134.630871 | Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK646) | NWI classification: N/A

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	20	Yes	FAC
2.			
3.			
4.			
	20 =Total Cover		
50% of total cover: 10	20% of total cover: 4		
Sapling/Shrub Stratum			
1. *Vaccinium ovalifolium*	30	Yes	FAC
2. *Rubus pedatus*	10	No	FAC
3. *Vaccinium caespitosum*	5	No	FACW
4. *Menziesia ferruginea*	20	Yes	FACU
5. *Tsuga heterophylla*	10	No	FAC
6.			
	75 =Total Cover		
50% of total cover: 38	20% of total cover: 15		
Herb Stratum			
1. *Cornus canadensis*	10	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	10 =Total Cover		
50% of total cover: 5	20% of total cover: 2		

Plot Size (radius, or length x width) 1/10 acre | % Bare Ground ____

% Cover of Wetland Bryophytes ____ | Total Cover of Bryophytes ____
(Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	70	x 3 =	210
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	105 (A)		340 (B)

Prevalence Index = B/A = 3.24

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: SP-10

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10							Peat	Organics, fibric
10-22	10YR 2/1	80					Loamy/Clayey	20% gravels, <1" in diameter

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

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- X Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

8-11 inches has large chunks of tree/wood. Large wood chunks and gravel towards the bottom of the test hole.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes X	No ___	Depth (inches): 2		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 0	**Wetland Hydrology Present?**	**Yes** X **No** ___

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

Remarks:

Flat area, near toe of slope.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study | Borough/City: City and Borough of Juneau | Sampling Date: 9-21-2023

Applicant/Owner: DOT&PF, CBJ | Sampling Point: SP-11

Investigator(s): A. Morrill, E. Anderson | Landform (hillside, terrace, hummocks, etc.): Flat

Local relief (concave, convex, none): None | Slope (%): 1-2

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) | Lat: 58.346761 | Long: -134.632111 | Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK646) | NWI classification: PFO4B

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ___

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

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

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

Remarks:
Wet season and APT shows normal conditions

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	5	Yes	FAC
2.			
3.			
4.			
	5 =Total Cover		
50% of total cover: 3	20% of total cover: 1		
Sapling/Shrub Stratum			
1. *Vaccinium ovalifolium*	40	Yes	FAC
2. *Menziesia ferruginea*	30	Yes	FACU
3. *Vaccinium caespitosum*	5	No	FACW
4. *Rubus pedatus*	10	No	FAC
5. *Tsuga heterophylla*	5	No	FAC
6.			
	90 =Total Cover		
50% of total cover: 45	20% of total cover: 18		
Herb Stratum			
1. *Cornus canadensis*	20	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	20 =Total Cover		
50% of total cover: 10	20% of total cover: 4		

Plot Size (radius, or length x width) 1/10 acre | % Bare Ground ___

% Cover of Wetland Bryophytes ___ | Total Cover of Bryophytes ___
(Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	60	x 3 =	180
FACU species	50	x 4 =	200
UPL species	0	x 5 =	0
Column Totals:	115 (A)		390 (B)

Prevalence Index = B/A = 3.39

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ___ No X

Remarks:

SOIL

Sampling Point: SP-11

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11							Peat	Organics, fibric
11-14							Peat	Organics, small amount of silt
14-24							Mucky Peat	Organics, hemic

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

Hydric Soil Indicators:

- X Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Hydrogen sulfide odor at 14"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** ___ **No** X

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

Remarks:

Flat area, soils are moist but not saturated.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study | Borough/City: City and Borough of Juneau | Sampling Date: 9-22-2023

Applicant/Owner: DOT&PF, CBJ | Sampling Point: SP-12

Investigator(s): A. Morrill, E. Anderson | Landform (hillside, terrace, hummocks, etc.): Flat

Local relief (concave, convex, none): None | Slope (%): 0

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) | Lat: 58.344709 | Long: -134.534395 | Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK646) | NWI classification: E2USN

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:
Wet season and APT shows wetter than normal conditions.

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
50% of total cover:	20% of total cover:		
Sapling/Shrub Stratum			
1. *Rubus chamaemorus*	1	No	FACW
2.			
3.			
4.			
5.			
6.			
	1 =Total Cover		
50% of total cover: 1	20% of total cover: 1		
Herb Stratum			
1. *Achillea millefolium*	10	No	FACU
2. *Triglochin maritima*	10	No	OBL
3. *Potentilla anserina*	15	Yes	FACW
4. *Oenanthe sarmentosa*	5	No	OBL
5. *Carex lyngbyei*	20	Yes	OBL
6. *Equisetum pratense*	15	Yes	FACW
7. *Deschampsia caespitosa*	25	Yes	FAC
8. *Angelica genuflexa*	5	No	FACW
9.			
10.			
	105 =Total Cover		
50% of total cover: 53	20% of total cover: 21		

Plot Size (radius, or length x width) 1/10 acre | % Bare Ground ____

% Cover of Wetland Bryophytes ____ | Total Cover of Bryophytes ____
(Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	35	x 1 =	35
FACW species	36	x 2 =	72
FAC species	25	x 3 =	75
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	106 (A)		222 (B)

Prevalence Index = B/A = 2.09

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

SOIL

Sampling Point: SP-12

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3							Peat	Organics, fibric
3-5							Peat	Organics, hemic
5-10	5Y 4/1	85	2.5Y 4/3	15	C	PL	Loamy/Clayey	Distinct redox concentrations
10-17	5Y 4/1	80	10YR 3/6	20	C	PL	Sandy	Prominent redox concentrations
17-24	10BG 2.5/1						Sandy	Sandy clay loam

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

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- X Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: Silty clay loam

Depth (inches): 5

Hydric Soil Present? **Yes** X **No** ___

Remarks:

Hydrogen sulfide odor but unclear at which depth. Silty clay loam at 5".

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches):	___
Water Table Present?	Yes	X	No	___	Depth (inches):	16
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches):	7

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

Tidal influence. Soil pit dug at below high tide line. Water levels rising within test hole, as tide is coming in, low tide at 6:37am

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study | Borough/City: City and Borough of Juneau | Sampling Date: 9-22-2023

Applicant/Owner: DOT&PF, CBJ | Sampling Point: SP-13

Investigator(s): A. Morrill, E. Anderson | Landform (hillside, terrace, hummocks, etc.): Hillside

Local relief (concave, convex, none): Concave | Slope (%): 40

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) | Lat: 58.344308 | Long: -134.534329 | Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK646) | NWI classification: N/A

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:
Wet season and APT shows wetter than normal conditions

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	40	Yes	FAC
2. *Picea sitchensis*	20	Yes	FACU
3. *Tsuga mertensiana*	10	No	FAC
4.			
	70	=Total Cover	
50% of total cover:	35	20% of total cover:	14
Sapling/Shrub Stratum			
1. *Vaccinium ovalifolium*	8	Yes	FAC
2. *Menziesia ferruginea*	15	Yes	FACU
3. *Rubus pedatus*	2	No	FAC
4. *Tsuga heterophylla*	2	No	FAC
5. *Populus balsamifera*	1	No	FACU
6.			
	28	=Total Cover	
50% of total cover:	14	20% of total cover:	6
Herb Stratum			
1. *Cornus canadensis*	15	Yes	FACU
2. *Streptopus amplexifolius*	1	No	FACU
3. *Maianthemum dilatatum*	2	No	FAC
4. *Athyrium filix-femina*	1	No	UPL
5. *Dryopteris expansa*	1	No	FACU
6.			
7.			
8.			
9.			
10.			
	20	=Total Cover	
50% of total cover:	10	20% of total cover:	4

Plot Size (radius, or length x width) 1/10 acre | % Bare Ground ____

% Cover of Wetland Bryophytes ____ | Total Cover of Bryophytes ____
(Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 40.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	64	x 3 =	192
FACU species	53	x 4 =	212
UPL species	1	x 5 =	5
Column Totals:	118 (A)		409 (B)

Prevalence Index = B/A = 3.47

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: SP-13

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6							Peat	Organics, fibric
6-9							Peat	Organics, large roots
9-16	2.5Y 3/2	95	10YR 3/6	5	C	PL	Sandy	Prominent redox concentrations
16-24	5Y 4/1	100					Loamy/Clayey	

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

Hydric Soil Indicators:

- ___ Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes X	No ___	Depth (inches): 20		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 14	**Wetland Hydrology Present?**	**Yes** ___ **No** X

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

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study Borough/City: City and Borough of Juneau Sampling Date: 9-22-2023

Applicant/Owner: DOT&PF, CBJ Sampling Point: SP-14

Investigator(s): A. Morrill, E. Anderson Landform (hillside, terrace, hummocks, etc.): Hummocks

Local relief (concave, convex, none): Concave Slope (%): 1-2

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) Lat: 58.343223 Long: -134.534177 Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK646) NWI classification: PEM1/SS4B

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

Are Vegetation N , Soil N , or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:
Wet season and APT shows wetter than normal conditions.

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Tsuga heterophylla*	10	Yes	FAC
2.			
3.			
4.			
	10 =Total Cover		
50% of total cover: 5	20% of total cover: 2		
Sapling/Shrub Stratum			
1. *Vaccinium ovalifolium*	25	Yes	FAC
2. *Menziesia ferruginea*	40	Yes	FACU
3. *Rhododendron tomentosum*	8	No	FACW
4. *Vaccinium vitis-idaea*	10	No	FAC
5. *Rubus pedatus*	10	No	FAC
6. *Tsuga heterophylla*	5	No	FAC
	98 =Total Cover		
50% of total cover: 49	20% of total cover: 20		
Herb Stratum			
1. *Cornus canadensis*	15	Yes	FACU
2. *Coptis aspleniifolia*	2	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	17 =Total Cover		
50% of total cover: 9	20% of total cover: 4		

Plot Size (radius, or length x width) 1/10 acre % Bare Ground ____

% Cover of Wetland Bryophytes ____ Total Cover of Bryophytes ____
(Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	8	x 2 =	16
FAC species	62	x 3 =	186
FACU species	55	x 4 =	220
UPL species	0	x 5 =	0
Column Totals:	125 (A)		422 (B)

Prevalence Index = B/A = 3.38

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: SP-14

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-17							Peat	Organics, hemic
17-21							Peat	Organics, fibric
21-24							Peat	Organics, fibric

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

Hydric Soil Indicators:

- X Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:

21-24" layer has dense compacted fibric layer.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

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

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

Soils between 12-16" is saturated, from Wednesday and Thuraday precipitation of 3.16". Hummocks are approx. 9-12" tall. Trees and Hemlocks are typically 60' or taller, 20-30' in test hole vicinity.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Alaska Region
See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Juneau Douglas North Crossing PEL Study | Borough/City: City and Borough of Juneau | Sampling Date: 9-22-2023

Applicant/Owner: DOT&PF, CBJ | Sampling Point: SP-15

Investigator(s): A. Morrill, E. Anderson | Landform (hillside, terrace, hummocks, etc.): Hummocks

Local relief (concave, convex, none): None | Slope (%): 0-1

Subregion: LRR W1, MLRA 220 (Alexander Archipelago-Gulf of Alaska Coast) | Lat: 58.340440 | Long: -134.535068 | Datum: WGS84

Soil Map Unit Name: Chatham Area, Alaska (AK646) | NWI classification: PEM1/SS4B

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

Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

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

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

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

Remarks:
Wet season and APT shows wetter than normal conditions

VEGETATION – Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. *Pinus contorta*	2	No	FAC
2.			
3.			
4.			
	2 =Total Cover		
50% of total cover: 1	20% of total cover: 1		
Sapling/Shrub Stratum			
1. *Andromeda polifolia*	5	No	FACW
2. *Rhododendron tomentosum*	30	Yes	FACW
3. *Vaccinium vitis-idaea*	15	Yes	FAC
4. *Empetrum nigrum*	15	Yes	FAC
5. *Pinus contorta*	30	Yes	FAC
6. *Vaccinium uliginosum*	15	Yes	FAC
	128 =Total Cover		
50% of total cover: 64	20% of total cover: 26		
Herb Stratum			
1. *Cornus canadensis*	10	Yes	FACU
2. *Carex aquatilis*	8	Yes	OBL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	18 =Total Cover		
50% of total cover: 9	20% of total cover: 4		

Plot Size (radius, or length x width) 1/10 acre | % Bare Ground ____

% Cover of Wetland Bryophytes ____ | Total Cover of Bryophytes ____
(Where applicable)

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 85.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	8	x 1 =	8
FACW species	43	x 2 =	86
FAC species	87	x 3 =	261
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	148 (A)		395 (B)

Prevalence Index = B/A = 2.67

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:

VEGETATION Continued – Use scientific names of plants. Sampling Point: SP-15

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	2	=Total Cover	
50% of total cover: 1		20% of total cover:	1
Sapling/Shrub Stratum			
7. *Rubus chamaemorus*	8	No	FACW
8. *Tsuga heterophylla*	10	No	FAC
9.			
10.			
11.			
12.			
13.			
14.			
	128	=Total Cover	
50% of total cover: 64		20% of total cover:	26
Herb Stratum			
11.			
12.			
13.			
14.			
15.			
16.			
17.			
18.			
19.			
20.			
21.			
22.			
	18	=Total Cover	
50% of total cover: 9		20% of total cover:	4

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants less than 3 in. DBH, regardless of height.

Herb – All herbaceous (non-woody) plants, regardless of size.

Remarks:

SOIL

Sampling Point: SP-15

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4							Peat	Organics, fibric
4-12							Mucky Peat	Organics, hemic
12-24							Mucky Peat	Organics, hemic

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

Hydric Soil Indicators:

- X Histosol or Histel (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

- ___ Depleted Below Dark Surface (A11)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if observed):

Type: ___

Depth (inches): ___

Hydric Soil Present? **Yes** X **No** ___

Remarks:
Large roots at 13"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes X	No ___	Depth (inches): 22		
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 12	**Wetland Hydrology Present?**	**Yes** X **No** ___

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

Remarks:
Stunted (dwarf) Pinus contorta < 6 feet tall

APPENDIX 3:
PHOTO LOG

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-1	Location Description: 58.37107, -134.63163	Landscape: FACING South

LANDSCAPE: FACING West

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-2	Location Description: 58.37186, -134.63140	Landscape: FACING East

LANDSCAPE: FACING South

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-3	Location Description: 58.37445, -134.63157	Landscape: FACING East

LANDSCAPE: FACING South

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-4	Location Description: 58.36821, -134.63019	Landscape: FACING North

LANDSCAPE: FACING West

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-5	Location Description: 58.35928, -134.63305	Landscape: FACING South

LANDSCAPE: FACING West

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-6	Location Description: 58.35396, -134.63483	Landscape: FACING North

LANDSCAPE: FACING West

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-7	Location Description: 58.35263, -134.63503	Landscape: FACING South

LANDSCAPE: FACING West

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-8	Location Description: 58.535231, -134.63514	Landscape: FACING South

LANDSCAPE: FACING West

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-9	Location Description: 58.35195, -134.63483	Landscape: FACING North

LANDSCAPE: FACING West

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-10	Location Description: 58.34694, -134.63087	Landscape: FACING North

LANDSCAPE: FACING West

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-11	Location Description: 58.34676, -134.63211	Landscape: FACING North

LANDSCAPE: FACING West

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-12	Location Description: 58.34471, -134.53440	Landscape: FACING East

LANDSCAPE: FACING South

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-13	Location Description: 58.34431, -134.53433	Landscape: FACING South

LANDSCAPE: FACING West

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-14	Location Description: 58.34322, -134.53418	Landscape: FACING North

LANDSCAPE: FACING South

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: SP-15	Location Description: 58.34044, -134.53507	Landscape: FACING North

LANDSCAPE: FACING East

SOILS: Soil pit

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-1	Location Description: 58.37160, -134.63226	Landscape: FACING East

LANDSCAPE: FACING South

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-2	Location Description: 58.37120, -134.63289	Landscape: FACING North

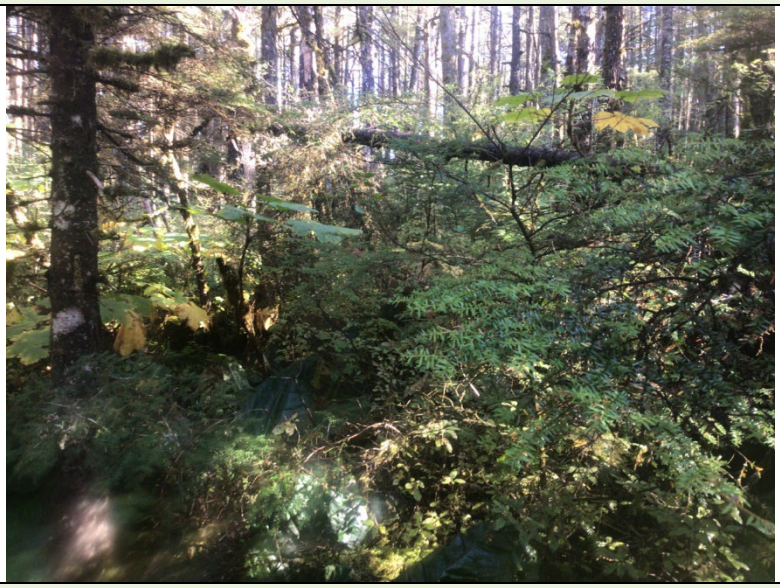
LANDSCAPE: FACING East

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-3	Location Description: 58.36857, -134.63120	Landscape: FACING East

LANDSCAPE: FACING South



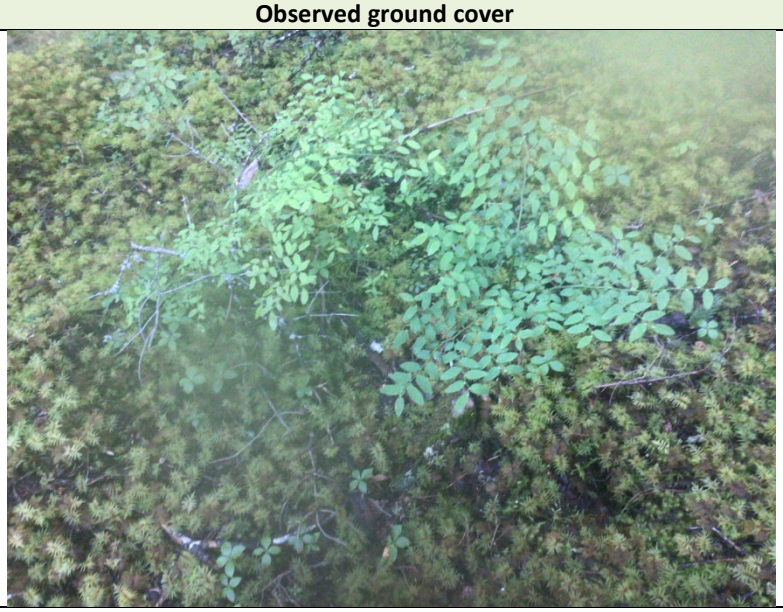
Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-4	Location Description: 58.36486, -134.63022	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover



# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-5	Location Description: 58.35955, -134.63341	Landscape: FACING North

LANDSCAPE: FACING West, flowing water

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-6	Location Description: 58.35992, -134.63373	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-7	Location Description: 58.35956, -134.63274	Landscape: FACING East

LANDSCAPE: FACING South

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-8	Location Description: 58.35962, -134.63275	Landscape: FACING North

LANDSCAPE: FACING West, flowing water

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-9	Location Description: 58.35946, -134.63264	Landscape: FACING East

LANDSCAPE: FACING South

Observed ground cover, stream flow

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-10	Location Description: 58.35907, -134.63232	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-11	Location Description: 58.35899, -134.63196	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover, surface water

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-12	Location Description: 58.35885, -134.63316	Landscape: FACING North

LANDSCAPE: FACING West

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-13	Location Description: 58.35659, -134.63427	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-14	Location Description: 58.35595, -134.63407	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover, flowing water

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-15	Location Description: 58.35027, -134.63440	Landscape: FACING East

LANDSCAPE: FACING South

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-16	Location Description: 58.34177, -134.62572	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-17	Location Description: 58.34182, -134.62587	Landscape: FACING South

LANDSCAPE: FACING East

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-18	Location Description: 58.34202, -134.62554	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover, surface flow

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-19	Location Description: 58.34226, -134.62581	Landscape: FACING South

LANDSCAPE: FACING East

Observed ground cover, flowing water on slope

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-20	Location Description: 58.34416, -134.62899	Landscape: FACING North

LANDSCAPE: FACING West

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-21	Location Description: 58.34849, -134.63343	Landscape: FACING North

LANDSCAPE: FACING West

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-22	Location Description: 58.34379, -134.62786	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover, flowing water

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

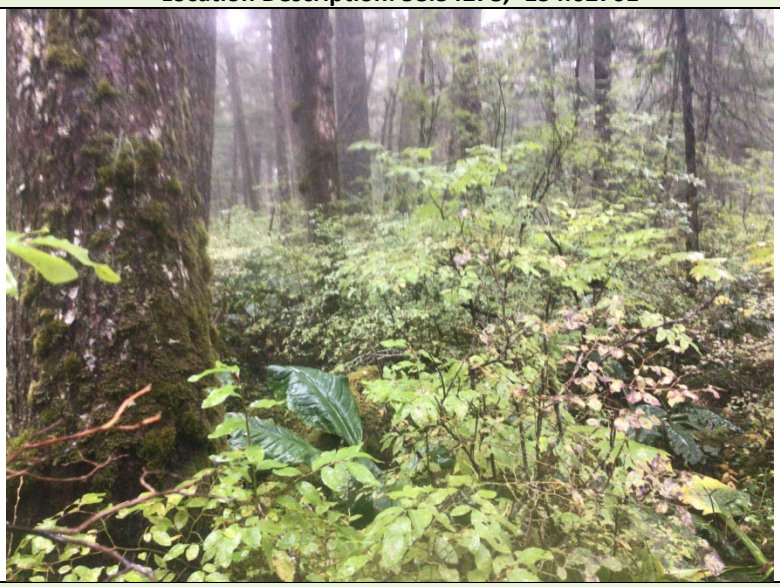
Photo Type: PP-23	Location Description: 58.34331, -134.62767	Landscape: FACING East

LANDSCAPE: FACING South

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-24	Location Description: 58.34278, -134.62761	Landscape: FACING North



LANDSCAPE: FACING West

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-25	Location Description: 58.33633, -134.50951	Landscape: FACING East

LANDSCAPE: FACING South

Observed ground cover, shoreline

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-26	Location Description: 58.33632, -134.51044	Landscape: FACING North

LANDSCAPE: FACING West

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-27	Location Description: 58.34449, -134.53462	Landscape: FACING North

LANDSCAPE: FACING East

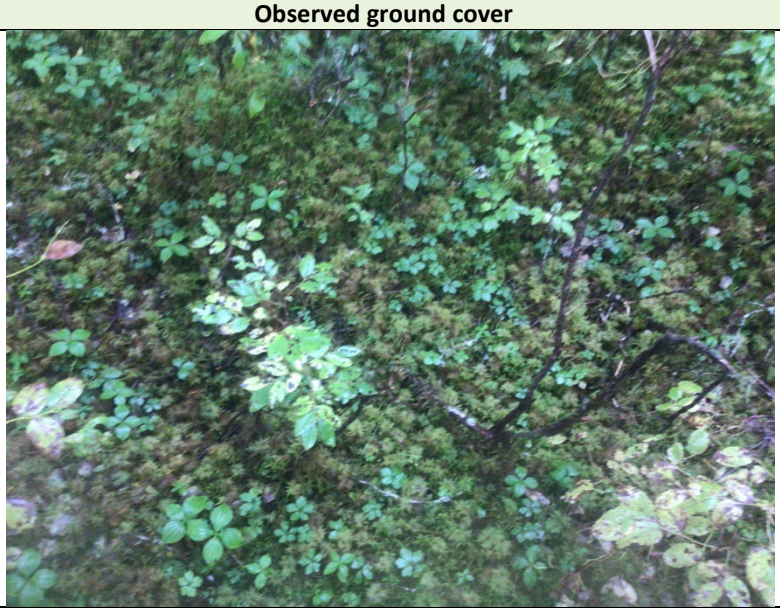
Observed ground cover, shrub and salt marsh boundary

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-28	Location Description: 58.34412, -134.53435	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover

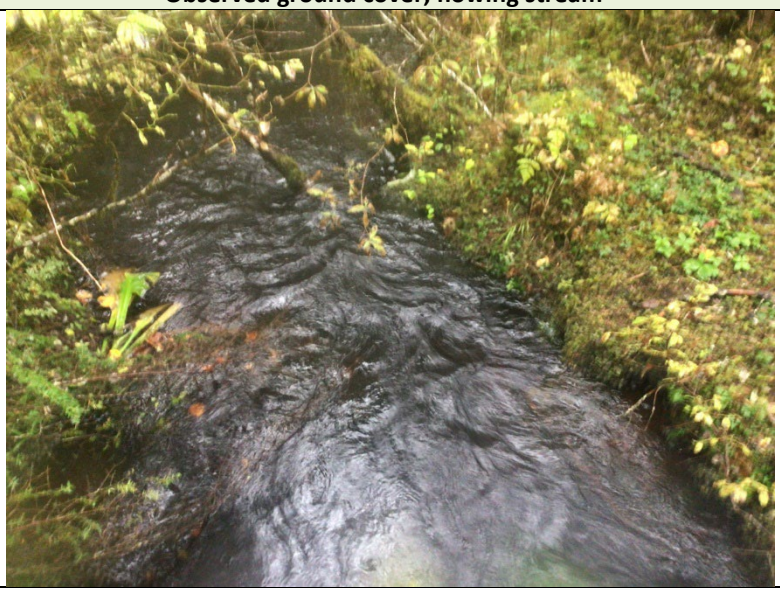


# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-29	Location Description: 58.34391, -134.53407	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover, flowing stream



# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-30	Location Description: 58.34367, -134.53423	Landscape: FACING North

LANDSCAPE: FACING West

Observed ground cover, flowing stream

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-31	Location Description: 58.34335, -134.53441	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover, flowing stream

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-32	Location Description: 58.34287, -134.53513	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover, flowing stream

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-33	Location Description: 58.34242, -134.53493	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover, flowing stream

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-34	Location Description: 58.34153, -134.53471	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover, flowing stream

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-35	Location Description: 58.34088, -134.53455	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover, flowing stream

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-36	Location Description: 58.33857, -134.53453	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover, standing water

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-37	Location Description: 58.32748, -134.47133	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-38	Location Description: 58.32753, -134.47127	Landscape: FACING East

LANDSCAPE: FACING South

Observed ground cover, shoreline with riprap

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-39	Location Description: 58.34582, -134.49969	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover, dual culvert flow

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-40	Location Description: 58.34554, -134.50031	Landscape: FACING North

LANDSCAPE: FACING West

Observed ground cover, salt marsh

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-41	Location Description: 58.34530, -134.49997	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-42	Location Description: 58.35817, -134.53746	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover, surface water

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-43	Location Description: 58.35829, -134.53771	Landscape: FACING East

LANDSCAPE: FACING South

Observed ground cover, adjacent to culvert

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-44	Location Description: 58.35698, -134.51930	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-45	Location Description: 58.35710, -134.51904	Landscape: FACING East

LANDSCAPE: FACING South

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-46	Location Description: 58.35756, -134.52169	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-47	Location Description: 58.35887, -134.53939	Landscape: FACING East

LANDSCAPE: FACING South

Observed ground cover, surface water

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-48	Location Description: 58.33785, -134.48880	Landscape: FACING East

LANDSCAPE: FACING South

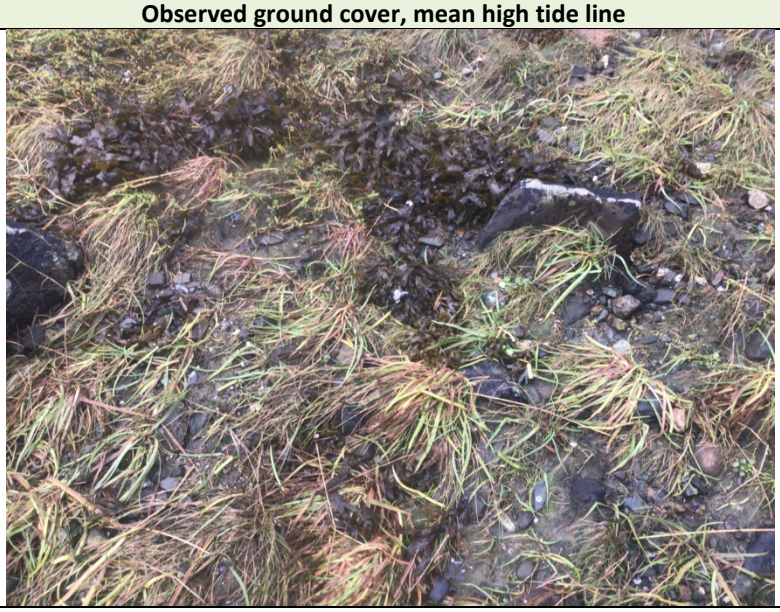
Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-49	Location Description: 58.32347, -134.48013	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover, mean high tide line



# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-50	Location Description: 58.32334, -134.48039	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-51	Location Description: 58.32326, -134.48051	Landscape: FACING East

LANDSCAPE: FACING South

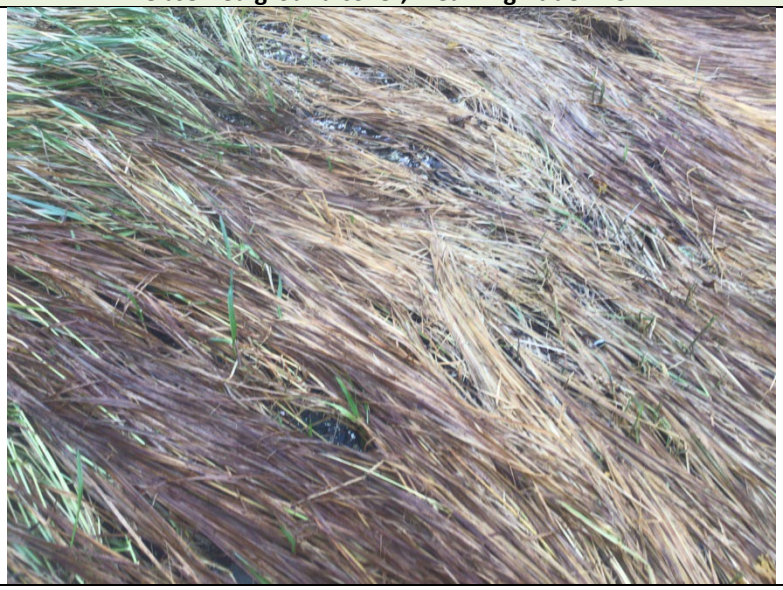
Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-52	Location Description: 58.32397, -134.60751	Landscape: FACING South

LANDSCAPE: FACING West

Observed ground cover, mean high tide line



# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-53	Location Description: 58.32386, -134.60737	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-54	Location Description: 58.32371, -134.60715	Landscape: FACING North

LANDSCAPE: FACING West

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-55	Location Description: 58.32428, -134.60555	Landscape: FACING North

LANDSCAPE: FACING West

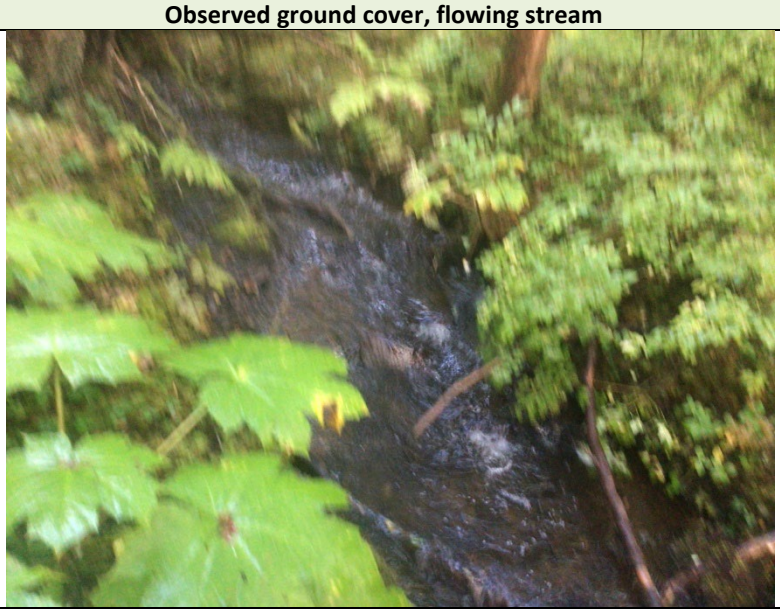
Observed ground cover, flowing stream

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-56	Location Description: 58.32359, -134.60766	Landscape: FACING North

LANDSCAPE: FACING West

Observed ground cover, flowing stream



# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-57	Location Description: 58.32335, -134.60825	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover, flowing stream

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-58	Location Description: 58.32303, -134.60741	Landscape: FACING North

LANDSCAPE: FACING West

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-59	Location Description: 58.32367, -134.60485	Landscape: FACING East

LANDSCAPE: FACING South

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-60	Location Description: 58.32313, -134.60688	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-61	Location Description: 58.37190, -134.63157	Landscape: FACING Upstream

LANDSCAPE: FACING Downstream

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-62	Location Description: 58.35573, -134.63439	Landscape: FACING East

LANDSCAPE: FACING West

Observed ground cover, standing water

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-63	Location Description: 58.35575, -134.63468	Landscape: FACING North

LANDSCAPE: FACING East

Observed ground cover, stream flow

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-64	Location Description: 58.35553, -134.63512	Landscape: FACING East

LANDSCAPE: West

Observed ground cover, stream flow

# 1138.63234.01 Wetland Delineation	**Field Dates** September 18 – September 23, 2023	**Site Photos** SP1 – SP15 PP1 – PP65

Photo Type: PP-65	Location Description: 58.32327, -134.61881	Landscape: FACING East

LANDSCAPE: West

Observed ground cover, boat launch

APPENDIX 4:
PLANT SPECIES

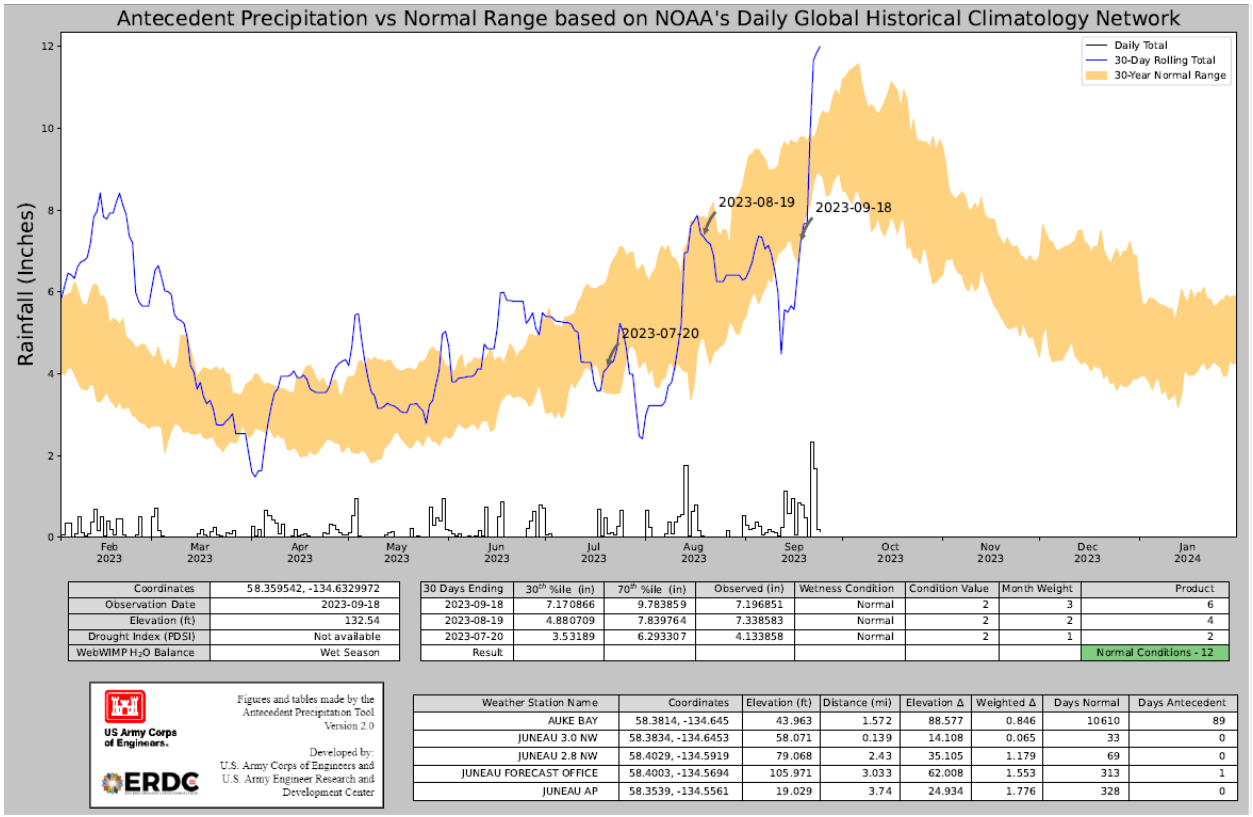
Appendix 5: Plant Species

Scientific Name	Wetland Indicator	Common Name
Achillea millefolium	FACU	Common Yarrow
Alnus viridis	FAC	Sitka Alder
Andromeda polifolia	FACW	Bog-Rosemary
Angelica genuflexa	FACW	Kneeling Angelica
Athyrium cyclosorum	FAC	Western Lady Fern
Calamagrostis canadensis	FAC	Bluejoint
Carex aquatitilis	OBL	Leafy Tussock Sedge
Carex livida	OBL	Livid Sedge
Carex lyngbyei	OBL	Lyngbye's Sedge
Carex pauciflora	OBL	Few-Flower Sedge
Cornus canadensis	FAC	Canadian Bunchberry
Coptis aspleniifolia	FAC	Fern-Leaf Goldthread
Deschampsia caespitosa	FAC	Tufted Hair Grass
Dryopteris expansa	FACU	Spreading Wood Fern
Eleocharis palustris	OBL	Common Spike-Rush
Empetrum nigrum	FAC	Black Crowberry
Equisetum pratense	FACW	Meadow Horsetail
Gentiana douglasiana	FACW	Swamp Gentian
Gymnocarpium dryopteris	FACU	Northern Oak Fern
Lysichiton americanus	OBL	Yellow-Skunk-Cabbage
Maianthemum dilatatum	FAC	Two-Lead False Solomon's-Seal
Menziesia ferruginea	FACU	Fool's-Huckleberry
Nephrophyllidium crista-galli	OBL	Deer-Cabbage
Oenanthe sarmentosa	OBL	Pacific Water-Dropwort
Oplopanax horridus	FACU	Devil's-Club
Picea sitchensis	FACU	Sitka Spruce
Pinus contorta	FAC	Lodgepole Pine
Populus balsamifera	FACU	Balsam Poplar
Potentilla anserina	FACW	Silverweed
Rhododendron tomentosum	FACW	Marsh Labrador-Tea
Rubus chamaemorus	FACW	Cloudberry
Rubus idaeus	FACU	Common Red Raspberry
Rubus pedatus	FAC	Strawberry-Leaf Raspberry
Sambucus racemosa	FACU	Red Elder
Sorbus sitchensis	FACU	Sitka Mountain-Ash
Streptopus amplexifolius	FACU	Clasping Twistedstalk
Triglochin maritima	OBL	Seaside Arrow-Grass
Tsuga heterophylla	FAC	Western Hemlock
Tsuga mertensiana	FAC	Mountain Hemlock
Vaccinium caespitosum	FACW	Dwarf Blueberry

Appendix 5: Plant Species

Vaccinium ovalifoloim	FAC	Oval-Leaf Blueberry
Vaccinium oxycoccos	OBL	Small Cranberry
Vaccinium uliginosum	FAC	Alpine Blueberry
Vaccinium parvifoloim	FACU	Red Blueberry
Vaccinium vitis-idaea	FAC	Northern Mountain-Cranberry
Viola palustris	FACW	Alpine-Marsh Violet
Viburnum edule	FACU	Squashberry

APPENDIX 5:
ANTECEDENT PRECIPITATION FIGURES



Coordinates	58.359542, -134.6329972
Observation Date	2023-09-18
Elevation (ft)	132.54
Drought Index (PDSI)	Not available
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-09-18	7.170866	9.783859	7.196851	Normal	2	3	6
2023-08-19	4.880709	7.839764	7.338583	Normal	2	2	4
2023-07-20	3.53189	6.293307	4.133858	Normal	2	1	2
Result							Normal Conditions - 12

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Figures and tables made by the Antecedent Precipitation Tool Version 2.0

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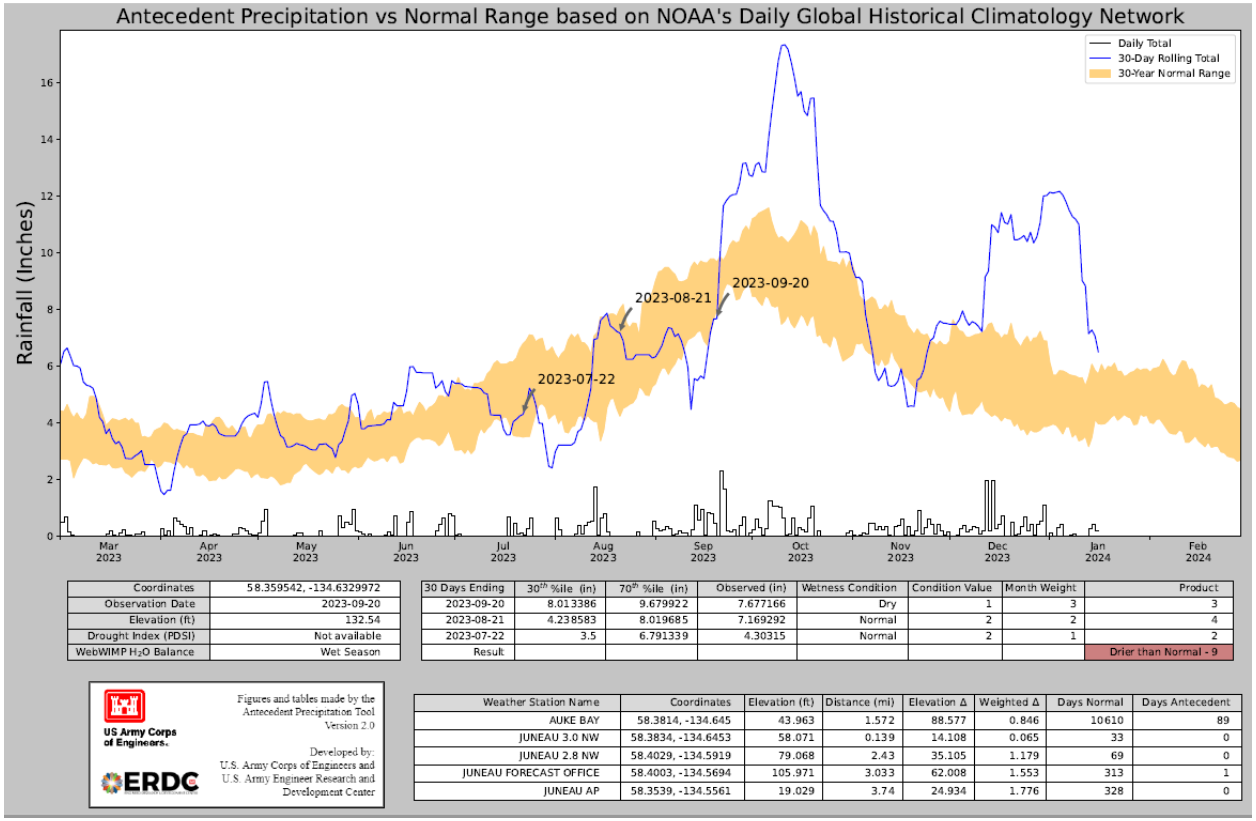
Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
AUKE BAY	58.3814, -134.645	43.963	1.572	88.577	0.846	10610	89
JUNEAU 3.0 NW	58.3834, -134.6453	58.071	0.139	14.108	0.065	33	0
JUNEAU 2.8 NW	58.4029, -134.5919	79.068	2.43	35.105	1.179	69	0
JUNEAU FORECAST OFFICE	58.4003, -134.5694	105.971	3.033	62.008	1.553	313	1
JUNEAU AP	58.3539, -134.5561	19.029	3.74	24.934	1.776	328	0

Figure 1: Antecedent Precipitation for Mendenhall Peninsula with Normal Conditions

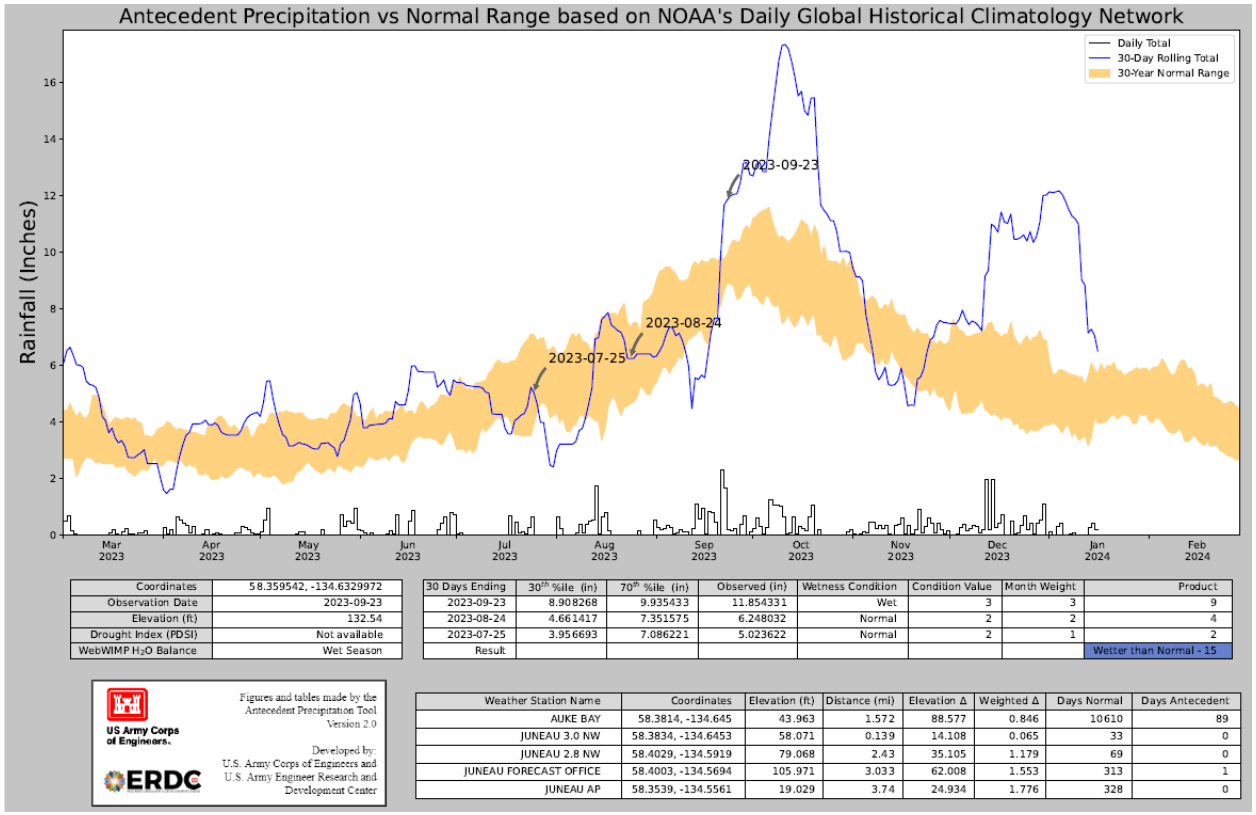


Coordinates	58.359542, -134.6329972
Observation Date	2023-09-20
Elevation (ft)	132.54
Drought Index (PDSI)	Not available
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-09-20	8.013386	9.679922	7.677166	Dry	1	3	3
2023-08-21	4.238583	8.019685	7.169292	Normal	2	2	4
2023-07-22	3.5	6.791339	4.30315	Normal	2	1	2
Result							Drier than Normal - 9

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
AUKE BAY	58.3814, -134.645	43.963	1.572	88.577	0.846	10610	89
JUNEAU 3.0 NW	58.3834, -134.6453	58.071	0.139	14.108	0.065	33	0
JUNEAU 2.8 NW	58.4029, -134.5919	79.068	2.43	35.105	1.179	69	0
JUNEAU FORECAST OFFICE	58.4003, -134.5694	105.971	3.033	62.008	1.553	313	1
JUNEAU AP	58.3539, -134.5561	19.029	3.74	24.934	1.776	328	0

Figure 2: Antecedent Precipitation for Mendenhall Peninsula with Drier than Normal Conditions



Coordinates	58.359542, -134.6329972
Observation Date	2023-09-23
Elevation (ft)	132.54
Drought Index (PDSI)	Not available
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-09-23	8.908268	9.935433	11.854331	Wet	3	3	9
2023-08-24	4.661417	7.351575	6.248032	Normal	2	2	4
2023-07-25	3.956693	7.086221	5.023622	Normal	2	1	2
Result							Wetter than Normal - 15

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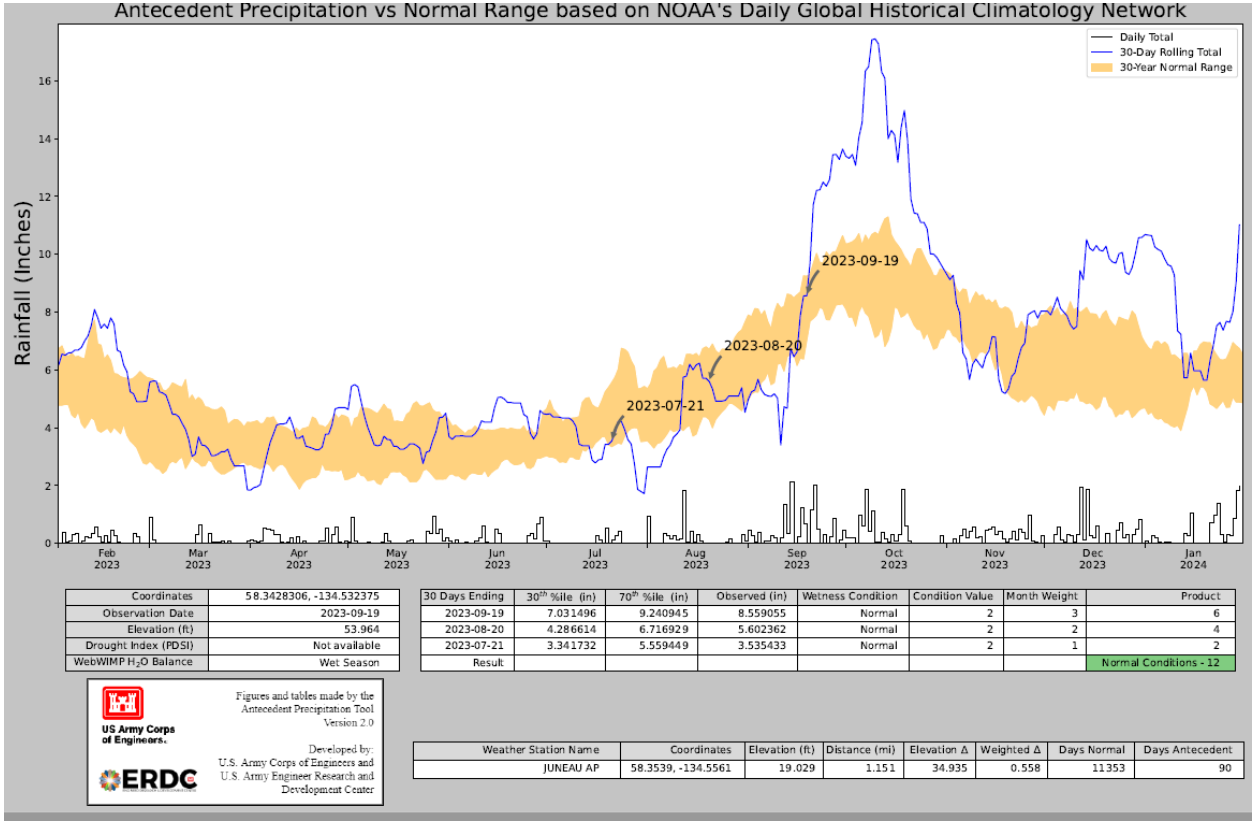
Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
AUKE BAY	58.3814, -134.645	43.963	1.572	88.577	0.846	10610	89
JUNEAU 3.0 NW	58.3834, -134.6453	58.071	0.139	14.108	0.065	33	0
JUNEAU 2.8 NW	58.4029, -134.5919	79.068	2.43	35.105	1.179	69	0
JUNEAU FORECAST OFFICE	58.4003, -134.5694	105.971	3.033	62.008	1.553	313	1
JUNEAU AP	58.3539, -134.5561	19.029	3.74	24.934	1.776	328	0

Figure 3: Antecedent Precipitation for Mendenhall Peninsula with Wetter than Normal Conditions

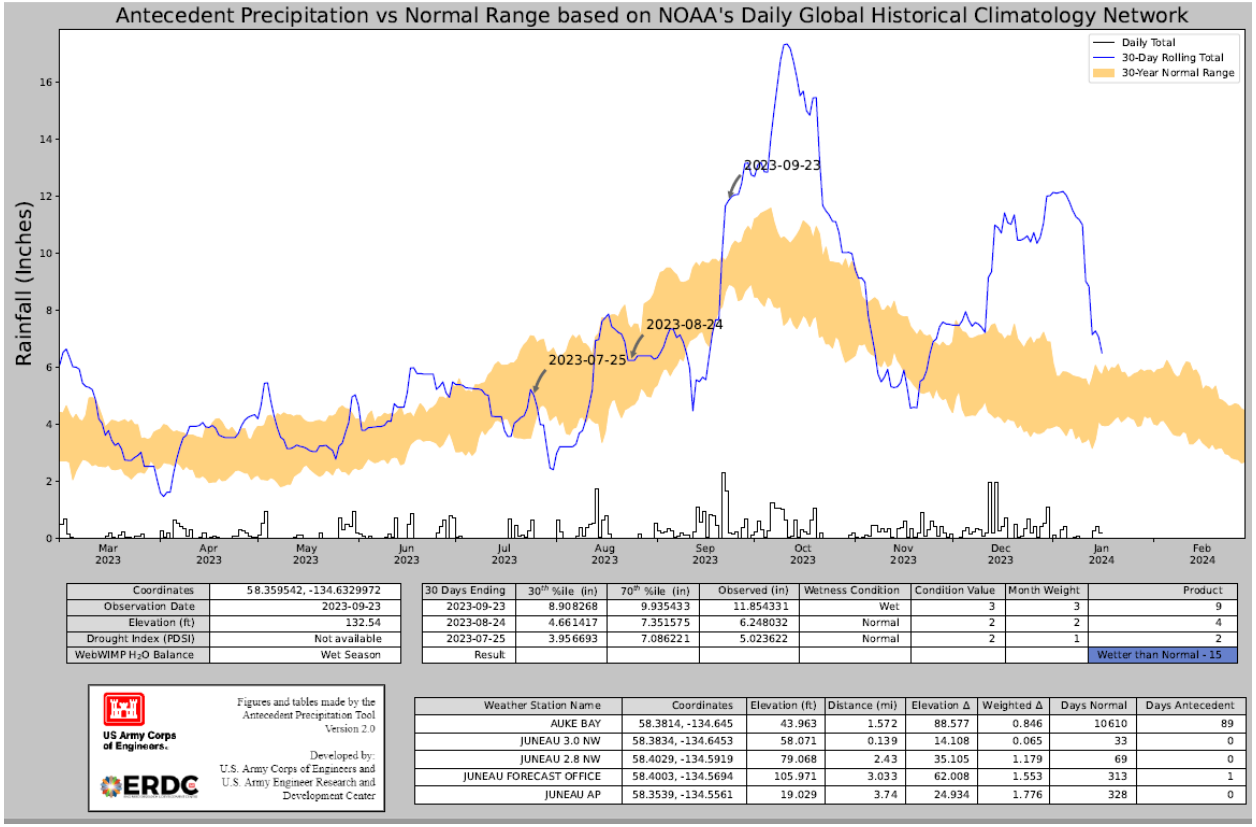


Coordinates	58.3428306, -134.532375
Observation Date	2023-09-19
Elevation (ft)	53.964
Drought Index (PDSI)	Not available
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-09-19	7.031496	9.240945	8.559055	Normal	2	3	6
2023-08-20	4.286614	6.716929	5.602362	Normal	2	2	4
2023-07-21	3.341732	5.559449	3.535433	Normal	2	1	2
Result							Normal Conditions - 12

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
JUNEAU AP	58.3539, -134.5561	19.029	1.151	34.935	0.558	11353	90

Figure 4: Antecedent Precipitation for Douglas Island with Normal Conditions



Coordinates	58.359542, -134.6329972
Observation Date	2023-09-23
Elevation (ft)	132.54
Drought Index (PDSI)	Not available
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-09-23	8.908268	9.935433	11.854331	Wet	3	3	9
2023-08-24	4.661417	7.351575	6.248032	Normal	2	2	4
2023-07-25	3.956693	7.086221	5.023622	Normal	2	1	2
Result							Wetter than Normal - 15

US Army Corps of Engineers.
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Figures and tables made by the Antecedent Precipitation Tool Version 2.0

Developed by: U.S. Army Corps of Engineers and U.S. Army Engineer Research and Development Center

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
AUKE BAY	58.3814, -134.645	43.963	1.572	88.577	0.846	10610	89
JUNEAU 3.0 NW	58.3834, -134.6453	58.071	0.139	14.108	0.065	33	0
JUNEAU 2.8 NW	58.4029, -134.5919	79.068	2.43	35.105	1.179	69	0
JUNEAU FORECAST OFFICE	58.4003, -134.5694	105.971	3.033	62.008	1.553	313	1
JUNEAU AP	58.3539, -134.5561	19.029	3.74	24.934	1.776	328	0

Figure 5: Antecedent Precipitation for Douglas Island with Wetter than Normal Conditions