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OU B-2 Wetland Delineation Report

Former Adak Naval Complex
Adak, Alaska

Department of the Navy
Naval Facilities Engineering Command Northwest
1101 Tautog Circle
Silverdale, WA 98315

FINAL
OU B-2 WETLAND DELINEATION REPORT
FORMER ADAK NAVAL COMPLEX
ADAK ISLAND, ALASKA

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EXECUTIVE SUMMARY

This report details the results of a wetland delineation conducted in September and October 2011 and June 2012 within Operable Unit (OU) B-2 at the former Adak Naval Complex at Adak Island, Alaska. The U.S. Navy proposes to remove munitions and explosives of concern from within 11 sites in OU B-2. The areas where active remedies are planned are designated as remedial action areas (RAAs). Five RAAs were created and the 11 sites have been grouped into these RAAs based on the expected types and depths of munitions and explosives of concern. The five RAAs and the 11 OU B-2 sites are as follows:

- RAA-01: OB/OD-01
- RAA-02: C1-01
- RAA-03 West: MI-01, MI-02, and MI-03
- RAA-03 East: HG-01 and RR-01
- RAA-04: SA93-01 and SA93-03
- RAA-05: ALDA-01 and ALSW-01

Wetlands were delineated on 10 of these sites. ALSW-01 is a rocky shoreline and therefore was not delineated.

Wetland determinations were made on site by wetland biologists using standard methodologies outlined in the 1987 *Corps of Engineers Wetlands Delineation Manual* (USACE 1987). The delineation methodology was further refined using the 2007 *Regional Supplement to Corp of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0)* (USACE 1987 and 2007). Wetlands were mapped using a combination of Global Positioning System and hand notations on field maps. Wetlands were classified under hydrogeomorphic (HGM) and Cowardin classification systems. A qualitative wetland functions assessment was conducted based on a "Best Professional Judgment Characterization" provided by the U.S. Army Corps of Engineers Alaska District Regulatory Branch (USACE 2009), as well as interpretations from the HGM classification.

Eighty-five wetlands were delineated within the study area. These wetlands range in size from less than 0.01 acre to over 40 acres. The number of wetlands per site, as well as total wetland acreage per site, is summarized in Table ES-1. One of the wetlands in the Moffett Creek Valley spans five sites (MI-01, MI-02, MI-03, OB/OD-01, and RR-01) and is included in the count in the number of wetlands per site for each of the sites it crosses. Therefore, the total number of wetlands shown in the table is 89 because of this multiple accounting. The acreages shown in Table ES-1 are the totals within the survey area within each site. A total of 118.18 acres of

wetlands was identified across the surveyed areas within 9 of the 10 OU B-2 sites where wetland delineation was performed. No wetland was identified in SA93-03.

Forty-one wetlands were delineated within the RAA boundaries. These wetlands range in size from 0.01 to over 38 acres. The number of wetlands per RAA, as well as total wetland acreage per RAA, is summarized in Table ES-2. One of the wetlands in the Moffett Creek Valley spans three RAAs (RAA-01, RAA-03 West, and RAA-03 East) and is included in the count in the number of wetlands per RAA for each of the sites it crosses. Therefore, the total number of wetlands shown in the table is 43 because of this multiple accounting. The acreages shown are the totals within the RAAs. A total of 85.58 acres of wetland was identified across the RAAs. Table ES-2 also shows the acreage of wetland that may not be jurisdictional. However, it should be noted that final determination of jurisdictionality is made by the regulatory agencies.

Substantive compliance with federal laws and executive orders protecting wetlands require that impacts on wetlands be minimized to the extent feasible during remedy implementation. U.S. Environmental Protection Agency guidance states that whether impacts are temporary or permanent, lost wetland functions should be fully mitigated or compensated by the conclusion of remediation (USEPA 1994). Mitigation for wetland impacts is not clearly prescribed. However, the types of actions used to address wetland impacts are typically prioritized. Avoidance of the impact is the highest priority, followed by minimization of the impact and then rectification of the impact (restoring the impacted wetland and functions). Finally, compensating for the impact is the least desirable method of addressing impacts to wetlands. Compensation can be performed by restoring a previously degraded or lost wetland, creating a wetland out of an upland, or improving the functions of existing wetland with low functions.

Table ES-1
Wetland Summary for Survey Area

Site	Number of Wetlands[a]	Total Area (Acres)[b]
ALDA-01	2	0.39
C1-01	47	10.39
HG-01	1	0.02
MI-01	1	0.47
MI-02	1[c]	9.14
MI-03	14[c]	33.10
OB/OD-01	1	6.21
RR-01	9	33.73
SA-93	13	24.73
Total	89	118.18

[a]One Moffett Creek Valley wetland is included in the count for each of the five sites (MI-01, MI-02, MI-03, OB/OD-01, and RR-01) it crosses. Without this double counting, there are 85 wetlands.
[b]Acreages shown are the total within the survey area within each site.
[c]Two wetlands cross the boundary between MI-02 and MI-03. Since most of the acreage of these two wetlands is in MI-03, these two wetlands are only included in the counts for MI-03.

Table ES-2
Wetland Summary for Remedial Action Areas

Site	Number of Wetlands Within RAA[a]	Total Area in RAAs (Acres)	Jurisdictional Areas in RAAs[b] (Acres)	Non-Jurisdictional Areas in RAAs[b] (Acres)
RAA-01	1	6.67	6.67	0
RAA-02	9	1.23	0.89	0.34
RAA-03 West	11	22.59	22.59	0
RAA-03 East	10	32.57	32.57	0
RAA-04	10	22.13	22.13	0
RAA-05	2	0.39	0.39	0
Total	43	85.58	85.24	0.34

[a]One Moffett Creek Valley wetland is included in the count for each of three RAAs (RAA-01, RAA-03 West, and RAA-03 East).
[b]These are based on preliminary field jurisdictional recommendations. Final jurisdicational determinations are made by regulatories agencies such as the U.S. Army Corps of Engineers.

Note: RAA - remedial action area

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ABBREVIATIONS AND ACRONYMS

ADEC	Alaska Department of Environmental Conservation
BRAC	Base Realignment and Closure
°C	degree Celsius
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EO	Executive Order
EPA	U.S. Environmental Protection Agency
°F	degree Fahrenheit
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
FFA	Federal Facilities Agreement
FS	Feasibility Study
GPS	Global Positioning System
HGM	hydrogeomorphic
MEC	munitions and explosives of concern
NAD83	North American Datum of 1983
NAF	Naval Air Facility
Navy	U.S. Navy
NRCS	National Resources Conservation Service
NWI	National Wetlands Inventory
OBL	obligate
OP	observation point
OU	operable unit
PEM	palustrine emergent
PFO	palustrine forested
PI	prevalence index
PSS	palustrine scrub-shrub
ppt	parts per thousand
RAA	Remedial Action Area
redox	oxidation reduction
SAERA	State-Adak Environmental Restoration Agreement
SARA	Superfund Amendments and Reauthorization Act
SP	sample plot
TAC	The Aleut Corporation
UPL	upland
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service

GLOSSARY

Absolute cover. In vegetation sampling, the percentage of the ground surface that is covered by the aerial portions (leaves and stems) of a plant species when viewed from above. Because of overlapping plant canopies, the sum of absolute cover values for all species in a community or stratum may exceed 100 percent.

A horizon. A surface horizon defined by accumulation of organic matter closely mixed with mineral soil materials.

Alluvium. Sediment deposited by flowing water, as in a riverbed, floodplain, or delta.

Anaerobic. A situation in which molecular oxygen is absent (or effectively so) from the environment.

Andisol. An order of soil taxonomy that is defined by the single property of having volcanic-ash parent material. Although these soils exist in all climatic regions, they account for less than 0.75 percent of all the nonpolar continental land area on Earth. Approximately reproducing the geographic distribution of volcanoes, they are found along the circum-Pacific "Ring of Fire" (from the Andes to Alaska to Japan to Indonesia to New Zealand), in the Rift Valley of Africa, and in volcanic regions of Mediterranean countries.

Chroma. The relative purity or saturation of a color; intensity of distinctive hue as related to grayness; one of the three variables of color.

Colluvium. A deposit of rock and soil debris accumulated through the action of gravity at the base of a cliff or slope.

Deepwater aquatic habitat. Any open water area that has a mean annual water depth greater than 6.6 feet, lacks soil, and/or is either unvegetated or supports only floating or submersed plants.

Depleted matrix. The volume of a soil horizon or subhorizon from which iron has been removed or transformed by processes of reduction and translocation to create colors of low chroma and high value.

Duration (inundation/soil saturation). The length of time during which water stands at or above the soil surface (inundation), or during which the soil is saturated. As used herein, duration refers to a period during the growing season.

Emergent. A wetland type in the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) to describe areas characterized by erect, rooted, herbaceous plants, excluding mosses and lichens. These wetlands are usually dominated by perennial plants.

Eolian. Borne, deposited, produced, or eroded by the wind.

FAC-neutral test. The FAC-neutral test is performed by compiling a list of dominant plant species across all strata in the community and dropping from the list any species with a Facultative (FAC) indicator status. The FAC-neutral test is met if more than 50 percent of the remaining dominant species are rated facultative wetland (FACW) and/or obligate (OBL). This is "Indicator D5" of wetland hydrology in the 2007 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0)* (USACE 1987 and 2007).

***Facultative* (FAC).** The hydrophytic indicator status, as designated by the U.S. Fish and Wildlife Service for the Alaska Region (Lichvar and Kartesz 2009), for plants that are equally likely to occur in wetlands and nonwetlands.

***Facultative Upland* (FACU).** The hydrophytic indicator status, as designated by the U.S. Fish and Wildlife Service for the Alaska Region (Lichvar and Kartesz 2009), for plants that usually occur in nonwetlands, but are occasionally found in wetlands.

***Facultative Wetland* (FACW).** The hydrophytic indicator status, as designated by the U.S. Fish and Wildlife Service for the Alaska Region (Lichvar and Kartesz 2009), for plants that usually occur in wetlands, but occasionally found in nonwetlands.

Flooded. A condition in which the soil surface is temporarily covered with flowing water from any source, such as streams overflowing their banks, runoff from adjacent or surrounding slopes, inflow from high tides, or any combination of sources.

***Geomorphic position*.** Geomorphic position is "Indicator D2" of wetland hydrology in the 2007 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0)* (USACE 1987 and 2007). This indicator is present if the area in question is in a localized depression or other concave surface, within a minor drainage or on an active floodplain, at the toe of a slope, on the low elevation fringe of a pond or other water body, or in an area where groundwater discharges.

Gleyed. A soil condition resulting from prolonged soil saturation, which is manifested by the presence of bluish or greenish colors through the soil mass or in mottles (spots or streaks) among other colors. Gleying occurs under reducing soil conditions resulting from soil saturation, by which iron is reduced predominantly to the ferrous state.

Groundwater. Water that collects or flows beneath the earth's surface, filling the porous spaces in soil, sediment, and rocks*;* that portion of the water below the ground surface that is under greater pressure than atmospheric pressure.

Growing season. Traditionally defined with reference to agricultural crops as the period when soil temperatures 12 inches below the ground surface are greater than 5°C (41°F) ("biological zero"). This definition is problematic in Alaska, because native plants and soil organisms are adapted to cold soils and likely continue metabolism in soil temperatures colder than 5°C. The 2007 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0)* states that the determination of growing season should take into account careful observations of evidence that active plant growth is occurring (USACE 1987 and 2007). This evidence can include new or recent growth, such as flowers, new shoots, new leaves, or swollen buds on plants.

Herb. A nonwoody plant.

Herbaceous layer. Any vegetative stratum of a plant community that is composed predominantly of herbs.

High water table. This is "Indicator A2" of wetland hydrology in the 2007 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0)* (USACE 1987 and 2007). This indicator consists of the direct, visual observation of the water table 12 inches or less below the surface in a soil pit, auger or probe hole, or shallow monitoring well.

Histic epipedon. An 8- to 16-inch O Horizon layer at or near the surface and above a mineral horizon that is saturated for 30 consecutive days or more during the growing season in most years. Histic epipedons are "Indicator A2" of hydric soils in the 2007 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0)* (USACE 1987 and 2007). Histic epipedons are diagnostic features of mineral soils and the term is not used for organic soils such as histosols.

Histosol. An order of soil taxonomy usually having 16 inches or more of saturated organic material measured from the soil surface. Histosols are "Indicator A1" of hydric soils in the 2007 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0)* (USACE 1987 and 2007).

Hue. A characteristic of color that denotes a color in relation to red, yellow, blue, etc.; one of the three variables of color. Each color chart in the Munsell soil color chart consists of a specific hue.

Hydric soil. A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation.

***Hydrogen sulfide*.** Any time the excavated soil smells of hydrogen sulfide (rotten egg odor), sulfur is currently being reduced and the soil is definitely in an anaerobic state. Hydrogen sulfide odor is "Indicator A4" of hydric soils and "Indicator C1" of wetland hydrology in the 2007 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0)* (USACE 1987 and 2007).

Hydrologic regime. The sum total of water that occurs in an area on average during a given period.

Hydrology. The science dealing with the properties, distribution, and circulation of water.

Hydrophytic vegetation. The sum total of plant life growing in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.

Indicator status. One of the categories (e.g., OBL) that describes the estimated probability of a plant species occurring in wetlands.

Inundation. A condition in which water from any source temporarily or permanently covers a land surface.

Lahar deposits. Material deposited by mudflows and debris flows that originate from the slopes of a volcano.

Mineral soil. A soil consisting predominantly of, and having its properties determined predominantly by, mineral matter usually containing less than 20 percent organic matter.

Muck. Highly decomposed organic material in which the original plant parts are not recognizable.

***Obligate* (OBL).** The hydrophytic indicator status, as designated by the U.S. Fish and Wildlife Service for the Alaska Region (Lichvar and Kartesz 2009), for plants that almost always occur in wetlands under natural conditions.

***O horizon*.** Horizon dominated by organic soil materials. May be at the surface of a mineral organic soil or at any depth, if buried.

Organic soil. A soil is classified as an organic soil when it is (1) saturated for prolonged periods (unless artificially drained) and has more than 30 percent organic matter if the mineral fraction is more than 50 percent clay, or more than 20 percent organic matter if the mineral fraction has no clay; or (2) never saturated with water for more than a few days and having more than 34 percent organic matter.

Oxidized rhizospheres along living roots. Presence of a layer containing 2 percent or more iron-oxide coatings or plaques on the surfaces of living roots and/or iron-oxide coatings or linings on soil pores immediately surrounding living roots within 12 inches of the soil surface. This is "Indicator C3" of wetland hydrology in the 2007 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0)* (USACE 1987 and 2007).

Palustrine Systems. Defined in the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979), these systems include all nontidal wetlands dominated by trees, shrubs, emergent herbaceous plants, mosses, and/or lichens and all such wetlands that occur in tidal areas where the salinity from ocean-derived salts is below 5 ppt. Wetlands included in the palustrine system are those commonly referred to as marshes, swamps, bogs, fens, prairies, seeps, and intermittent ponds.

Parent material. The unconsolidated and more or less weathered mineral or organic matter from which a soil profile develops.

Permeability. A soil characteristic that enables water or air to move through the profile, measured as the number of inches per hour that water moves downward through the saturated soil. The rate at which water moves through the least permeable layer governs soil permeability.

Plant community. All of the plant populations occurring in a shared habitat or environment.

Ponded. A condition in which water stands in a closed depression. Water may be removed only by percolation, evaporation, and/or transpiration.

Poorly drained. Soils that commonly are wet at or near the surface during a sufficient part of the year that field crops cannot be grown under natural conditions. Poorly drained conditions are caused by a saturated zone, a layer with low hydraulic conductivity, seepage, or a combination of these conditions.

Problem soil. Some soils that meet the hydric soil definition may not exhibit any of the typical hydric soil indicators. These problematic hydric soils exist for a number of reasons and require additional information for proper identification, such as landscape position, presence or absence of restrictive soil layers, or information about hydrology.

***Redox feature concentrations*.** Rust-colored spots, blotches or linings in the soil formed by the oxidation of iron compounds via fluctuating water levels.

Reduced matrix. Soil matrix that has a low chroma in situ because of the presence of reduced iron, but whose color changes in hue or chroma when exposed to air as Fe+2 is oxidized to Fe+3.

Rhizosphere. The zone of soil in which interactions between living plant roots and microorganisms occur.

Sample plot. An area of land used for measuring or observing existing conditions.

Saturation. This is "Indicator A3" of wetland hydrology in the 2007 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0)* (USACE 1987 and 2007). Visual observation of saturated soil conditions 12 inches or less from the soil surface, as indicated by water glistening on the surfaces and broken interior faces of soil samples removed from the pit or auger hole.

***Scrub-shrub*.** A wetland type in the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) to describe areas dominated by woody vegetation less than 6 meters (20 feet) tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions.

Soil. Unconsolidated mineral and organic material that supports, or is capable of supporting, plants and which has recognizable properties that are a result of the integrated effect of climate and living matter acting upon parent material, as conditioned by relief over time.

Soil horizon. A layer of soil or soil material approximately parallel to the land surface and differing from adjacent genetically related layers in physical, chemical, and biological properties or characteristics (e.g., color, structure, texture, etc.).

Soil matrix. The portion of a given soil having the dominant color. In most cases, the matrix will be the portion of the soil having more than 50 percent of the same color.

Soil permeability. The ease with which gases, liquids, or plant roots penetrate or pass through a layer of soil.

Soil pore. An area within soil occupied by either air or water, resulting from the arrangement of individual soil particles.

Soil profile. A vertical section of a soil through all its horizons and extending into the parent material.

Soil series. A group of soils having horizons similar in differentiating characteristics and arrangement in the soil profile, except for texture of the surface horizon.

Soil texture. The relative proportions of the various sizes of particles in a soil.

Stratum. In the context of wetland delineation, stratum refers to a layer of vegetation of a plant community, such as trees, shrubs, or herbs.

Transpiration. The process in plants by which water vapor is released into the gaseous environment, primarily through stomata.

Upland. As used herein, any area that does not qualify as a wetland because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils, and/or hydrologic characteristics associated with wetlands. Such areas occurring within floodplains are more appropriately termed nonwetlands. Also, the hydrophytic indicator status, as designated by the U.S. Fish and Wildlife Service for the Alaska Region (Lichvar and Kartesz 2009), for plants that almost always occur in uplands under natural conditions.

Value (soil color). The relative lightness or intensity of color, approximately a function of the square root of the total amount of light reflected from a surface; one of the three variables of color.

Watermark. A line on a tree or other upright structure that represents the maximum static water level reached during an inundation event.

Water-stained leaves. Water-stained leaves are fallen leaves or needles that have turned grayish or blackish in color as a result of inundation for long periods. This is "Indicator B9" of wetland hydrology in the 2007 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0)* (USACE 1987 and 2007).

Water table. The upper surface of ground water or that level below which the soil is saturated with water. It is at least 6 inches thick and persists in the soil for more than a few weeks.

Wetlands. Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Wetland boundary. The point on the ground at which a shift from wetlands to nonwetlands or aquatic habitats occurs.

Wetland hydrology. The sum total of wetness characteristics in areas that are inundated or have saturated soils for a sufficient duration to support hydrophytic vegetation.

1.0 INTRODUCTION

The U.S. Navy (Navy) proposes to remove munitions and explosives of concern (MEC) at Operable Unit (OU) B-2 at the former Adak Naval Complex at Adak Island, Alaska (Figure 1-1). This report presents the results of a wetland delineation conducted at 10 sites in OU B-2. The wetland delineation field work was conducted over an 18-day period from September 19 to October 6, 2011 and an 8-day period from June 10 through 17, 2012. Visits were made to all 10 sites to delineate and map the wetland boundaries using a Global Positioning System (GPS) unit. Plot sampling of uplands and wetlands was completed along with a wetland functions assessment at each site.

1.1 BACKGROUND

The former Adak Naval Complex is located on Adak Island, which is approximately 1,300 air miles southwest of Anchorage, Alaska, in the Aleutian chain (Figure 1-1). The Navy base occupied the northern half of the island and closed operationally on March 31, 1997. The U.S. Fish and Wildlife Service (USFWS) manages the southern portion of the island (117,265 acres), which is a designated wilderness within the Alaska Maritime National Wildlife Refuge System. The developed portion of Adak is limited to the northern portion of the island. The former Adak Naval Complex had two main developed areas: Naval Air Facility (NAF) Adak and Naval Security Group Activity. NAF Adak was located in the downtown area of Adak, and Naval Security Group Activity was located approximately 5 miles north of downtown at the northwestern corner of Clam Lagoon.

Military presence on Adak began in 1942 with its occupation as a staging area to mount a counter-offensive to dislodge the Japanese from Attu and Kiska Islands (U.S. Navy, USEPA, and ADEC 2000). The Navy presence at Adak was officially recognized by Public Land Order 1949, dated August 19, 1959, which withdrew the northern portion of Adak Island, approximately 76,800 acres, for use by the Navy for military purposes. The Navy also used the base to conduct a variety of Cold War-era military activities. NAF Adak was on the list of Department of Defense installations recommended for closure in 1995, and that recommendation became final when Congress did not disapprove the list. The active Navy mission ceased, and the base operationally closed on March 31, 1997, through the Base Realignment and Closure (BRAC) process.

In September 2000, the federal government entered into a land transfer agreement with The Aleut Corporation (TAC), a Native corporation, as documented in the Agreement Concerning the Conveyance of Property at the Adak Naval Complex, Adak, Alaska. This agreement set forth the terms and conditions for the conveyance of approximately 47,000 acres of the former Adak

Naval Complex property to TAC. The actual conveyance or transfer of property occurred on March 17, 2004. The land transfer included all of the downtown area, housing units, and industrial facilities. Excluded from the transfer were any offshore islands, islets, rocks, reefs, and spires; those fixtures and equipment owned by the United States and associated with the airfield; those improvements owned by the United States and managed by the Federal Aviation Administration; and those improvements owned by the United States and managed by the USFWS. The Navy retained control of 5,600 acres of land, known as Parcel 4 (Figure 1-2).

Investigation and cleanup activities at the former Adak Naval Complex have been ongoing since 1986. Adak was initially proposed for placement on the National Priorities List in 1992 and was officially listed in 1994. The Navy, as lead agency, entered into a three-party Federal Facilities Agreement (FFA) with the U.S. Environmental Protection Agency (EPA) and the Alaska Department of Environmental Conservation (ADEC), as well as a two-party State-Adak Environmental Restoration Agreement (SAERA) with ADEC to facilitate investigation and cleanup activities. In 1993, the Navy, EPA, and ADEC signed the FFA, which incorporates EPA's cleanup process under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). The CERCLA exclusion of petroleum as a hazardous substance required that cleanup of petroleum-related chemicals would follow State of Alaska regulations. Therefore, the FFA stated that petroleum-contaminated sites would be evaluated under a separate two-party agreement between the Navy and the State of Alaska. This agreement, the SAERA, was signed in April 1994.

In May 1997, the Navy and ADEC agreed to integrate the cleanup-decision process for petroleum with the cleanup-decision process being conducted for hazardous-substance-release sites under CERCLA. Adak was divided into OU A and OU B in 1998 for technical and administrative purposes through an amendment to the FFA. OU A includes CERCLA and petroleum sites, and OU B includes MEC sites. The final Record of Decision for OU A was signed in April 2000. In 2001, OU B was further divided into OU B-1 and OU B-2 to accommodate land transfer under the BRAC program. The OU B-1 Record of Decision was signed in December 2001. Thirty-nine MEC sites currently comprise OU B-2, and all of the OU B-2 sites are located within the boundaries of Parcel 4. Of the 39 sites, 15 met the requirements for no further action in the preliminary assessment (U.S. Navy 2000) and did not require further evaluation in the Feasibility Study (FS). The remaining 24 sites were evaluated further in the FS (U.S. Navy 2012).

The 24 sites were divided into four distinct categories of sites in the FS. Three categories consist of those OU B-2 sites that require either additional investigation or limited actions only (institutional controls). The fourth category consists of 11 OU B-2 sites that require active remedies to address explosive hazards incompatible with the designated future land use.

Table 1-1 contains a description of the 11 OU B-2 sites, and Figure 1-3 shows the relative locations of these 11 sites.

The Navy is planning removal/remedial actions at these 11 OU B-2 sites in the near future. The areas where active remedies are planned are designated as remedial action areas (RAAs). Five RAAs were created and the 11 sites have been grouped into these RAAs based on the expected types and depths of MEC. The five RAAs and the 11 OU B-2 sites are as follows:

- RAA-01: OB/OD-01
- RAA-02: C1-01
- RAA-03 West: MI-01, MI-02, and MI-03
- RAA-03 East: HG-01 and RR-01
- RAA-04: SA93-01 and SA93-03
- RAA-05: ALDA-01 and ALSW-01

Note that in most cases the entire site is not included within the boundaries of the RAA, because only the areas of a site where active remedies are planned are included within the RAA.

Wetland delineation was performed at all sites except ALSW-01, which is a rocky shoreline and where remedial activities are expected to be limited to annual beach sweeps. Therefore, wetland delineation is not required at this site. The areas surveyed covered approximately 600 acres, and were based on the RAA boundaries as defined at the time of the fall 2011 field work. These boundaries were included in the February 2011 Draft Final FS (U.S. Navy 2011). Following the completion of the fall field work, the boundaries of the remedial action areas were refined, as included in the May 2012 Final FS (U.S. Navy 2012). The summer 2012 field work was focused on survey areas within the refined RAA boundaries.

1.2 ENVIRONMENTAL SETTING

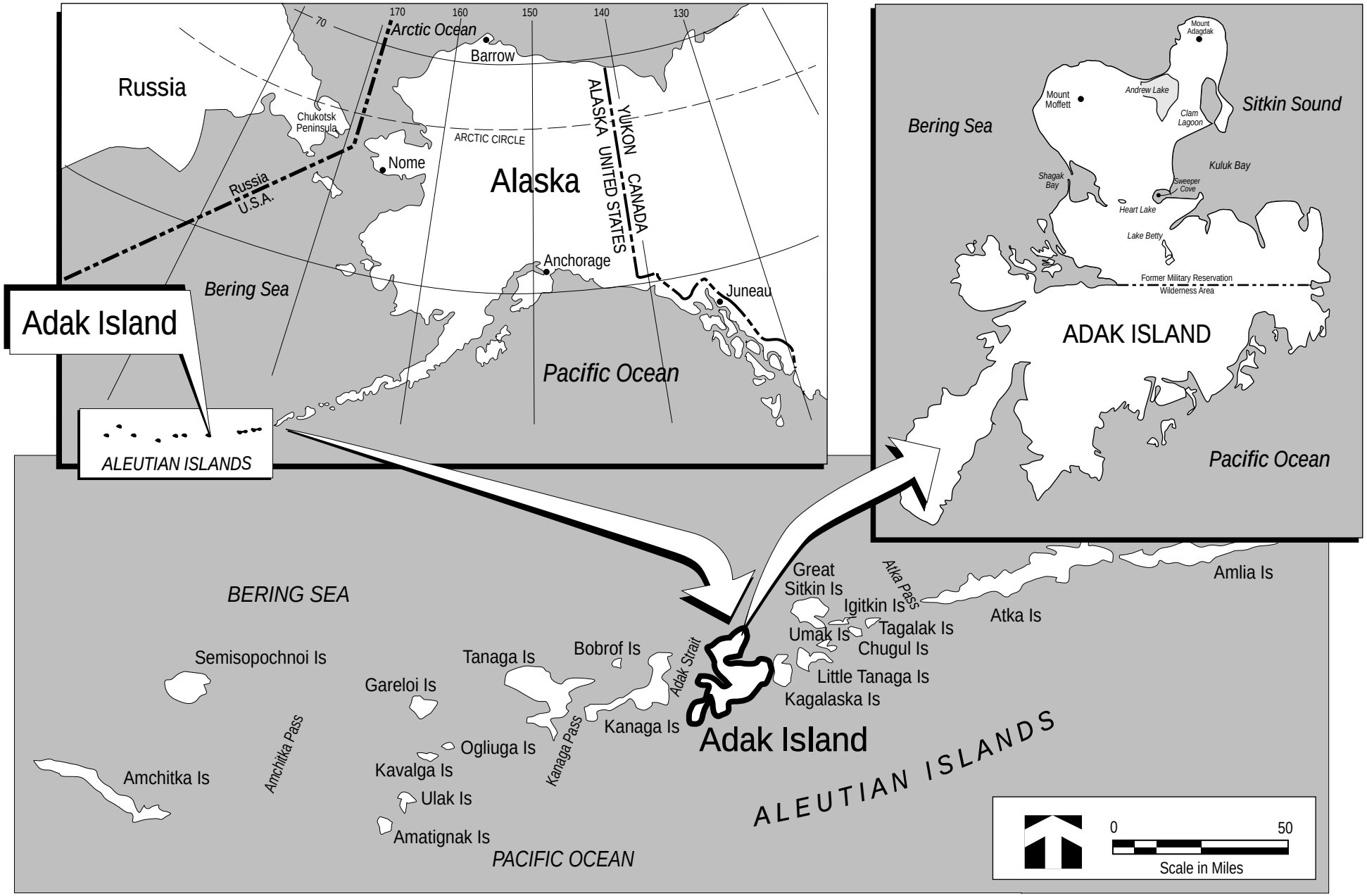
Adak Island experiences a polar maritime climate characterized by persistently overcast skies, high winds, frequent and often violent storms, and a narrow range of temperature fluctuation throughout the year. Monthly temperatures range from a low of 32.9°F in February to a high of 51.3°F in August. Average monthly precipitation varies from a low of about 3 inches during June and July to a high of 7 to 8 inches during November and December. Snowfall averages over 100 inches a year at sea level (U.S. Navy, USEPA, and ADEC 2000).

Adak Island was formed by geologic events that included volcanic eruption and tectonic subduction (movement of the oceanic crust toward and beneath the continental crust). Advancing and receding glaciers, frequent rainfall, and high winds have shaped Adak Island into

dramatic hills, valleys, cliffs, and floodplains. The northern region of Adak is dominated by the remnants of three volcanoes, the highest of which is Mount Moffett (elevation approximately 1,181 meters [3,875 feet]). In addition, some cliffs on the island rise 762 meters (2,500 feet) above sea level. The majority of the island is underlain by a thick (estimated at 2,438 meters [8,000 feet]) sequence of rock, designated the Finger Bay volcanics (Coats 1956).

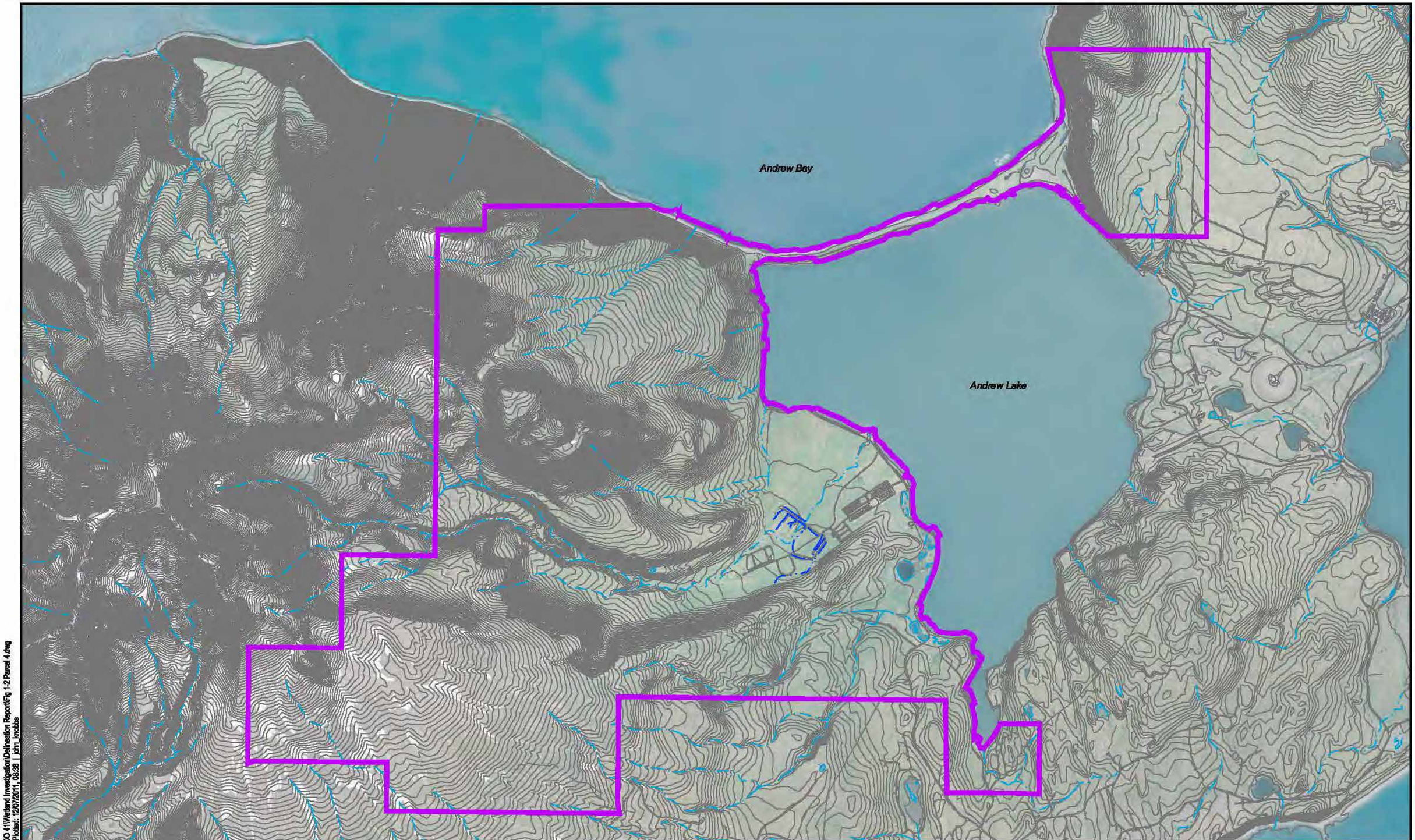
1.3 REGULATORY FRAMEWORK

The U.S. Army Corps of Engineers (USACE) regulates "waters of the U.S.," including wetlands, through section 404 of the Clean Water Act of 1972. CERCLA (or Superfund), as amended by the SARA, gives the EPA broad authority to manage cleanup and enforcement of activities at hazardous waste sites. Superfund considers wetlands throughout the response action process (USEPA 1994). EPA approaches wetlands protection within the framework of Executive Order for Protection of Wetlands (E.O. 11990). The Office of Solid Waste and Emergency Response Directive 9280.0-02 of August 1985, Policy on Floodplain and Wetlands Assessments for CERCLA Actions, states that "under this policy, Superfund actions must meet the substantive requirements of the Floodplain Management Executive Order (E.O. 11988), and the Protection of Wetlands Executive Order (E.O. 11900)." The EPA publication *Considering Wetlands at CERCLA Sites* gives further guidance as to the process and timing for wetland studies and assessments at CERCLA sites (USEPA 1994). In general, a wetland delineation such as the one summarized in this report is undertaken at the remedial investigation/FS stage whenever a response action may adversely impact wetlands.



U.S. NAVY	Figure 1-1 Adak Island Location Map	Delivery Order 0041 Adak Island, AK OUB-2 WETLAND DELINEATION

33762056_03.ai



Legend:

Parcel 4 Boundary

U.S. NAVY

Delivery Order 0041
Adak Island, AK
OU B-2 WETLAND
DELINEATION

0 1000 2000
SCALE IN FEET

Figure 1-2
Parcel 4 Boundary

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Mod: 12/07/2011, 08:35 | Plotted: 12/07/2011, 08:36 | john_knobbs

Legend:

Site Boundary

U.S. NAVY

Delivery Order 0041
Adak Island, AK
OU B-2 WETLAND
DELINEATION

0 1000 2000
SCALE IN FEET

Figure 1-3
Project Sites

T:\ADAK\IDIQ\Sub-Tasks\DO 41\Wetland Investigation\Delineation Report\Fig 1-3 Sites.dwg
Mod: 01/26/2012, 07:25 | Plotted: 01/26/2012, 08:18 | john_knobbe

Table 1-1
Descriptions of OU B-2 Sites Included in the Survey

RAA	Site Designation	Site Name	Site Description
RAA-01	OB/OD-01	Andrew Lake Open Burn/ Open Detonation Disposal Range	OB/OD-01 is a circular area with a radius of 182 meters (600 feet) that covers 18 acres. The boundary encompasses visible historical demolition craters and an ample buffer zone around the craters to account for kick-outs during disposal operations. It is bordered by RR-02 to the northwest; RR-01 to the northeast, east, and southeast; and MI-03 to the south and west. The elevation at this site ranges from about 33 to 40 meters (110 to 130 feet) asl. There is direct access to this site via the gravel range entry road, which branches from the main access road along the west side of Andrew Lake. This main road is gated (locked steel gate) near the south end of the lake to deter general access. A locked cable barrier also deters access to the range entry road. The terrain is relatively flat, but hummocky in some locations and marshy in others. There are several craters in this area resulting from previous disposal events. The site is generally covered in knee-high, grassy tundra; however, there are relatively barren areas surrounding some of the disposal craters. Moffett Creek runs from west to northeast through the northwestern portion of the site. In addition, standing water has been observed in the disposal craters. The valley floor is composed of a silty, gravelly, sandy, alluvial/colluvial, and/or outwash material overlying andesitic basalt bedrock or consolidated ash tuff. The groundwater is shallow, as evidenced by standing water in the disposal craters. Groundwater is in hydraulic communication with the creek (i.e., there is interconnection between the creek and the groundwater aquifer in this area).
RAA-02	C1-01	Combat Range #1 – Mortar Target Area	C1-01 is a target/impact area that covers 387 acres. C1-01 is located north of the former Range Complex at Andrew Lake. It is roughly oval in shape. C1-01 is situated on a sloping plateau above and west of ALDA-01 on the flanks of Mount Moffett. Elevations range from about 152 to 396 meters (500 to 1,300 feet) asl. It is bordered on all sides by C1-03. ALDA-01 and ALDA-02 are located northeast of this site, and Andrew Lake lies to the east. There is indirect access to this site via a moderate hike from the Andrew Lake range area. Access to the range area is via a locked steel gate near the south end of Andrew Lake. The terrain is moderately steep and rocky in most areas, and the site is inaccessible along the northern boundary. Vegetation consists primarily of sparse short grasses, lichens, and small alpine flowers ranging in height from 1 to 4 inches. An ephemeral drainage channel cuts across C1-01, outfalling north over a steep cliff to a rocky shelf beside Andrew Bay. The geology of the site is characterized by shallow soils with rock outcrops. According to observations made during the preparation of the groundwater study report (U.S. Navy 1995), the occurrence

Table 1-1 (Continued)
Descriptions of OU B-2 Sites Included in the Survey

RAA	Site Designation	Site Name	Site Description
			of groundwater outside of the downtown area is limited by the absence of significant accumulations of permeable materials and the presence of a blanket of low-permeability tephra deposits that inhibit infiltration. As a result, most of the precipitation falling in the remote areas discharges as surface water runoff. Therefore, much of the surface of these remote areas is covered by a maze of stream channels, small impoundments, bogs, and lakes perched over the tephra layer.
RAA-03 East	HG-01	Andrew Lake Hand Grenade Range	HG-01 is a target/impact area. It is a small, square area of about 2 acres located within the former Range Complex at Andrew Lake. Remnants of a berm with incorporated throwing pits are located near the east side of the range. The pits are reinforced with heavy timbers and, at one time, offered protection from exploding grenades during training exercises. The elevation in this site is approximately 33.5 meters (110 feet) asl. This site is located wholly within RR-01. There is direct access to this site via the gravel range entry road, which branches from the main access road along the western side of Andrew Lake. This main road is gated (locked steel gate) near the south end of the lake to deter general access. A locked cable barrier also deters access to the range entry road. The terrain is relatively flat. There are steep slopes on the berm protecting the throwing pits. Vegetation consists of tall tundra grasses up to 18 inches tall interspersed with wildflowers. The valley floor is composed of a silty, gravelly, sandy, alluvial/colluvial, and/or outwash material overlying andesitic basalt bedrock or consolidated ash tuff. Groundwater is anticipated to be shallow, and there may be intermittent standing water at certain times of the year.
RAA-03 East	RR-01	Andrew Lake Range Remainder – Hand Grenade/ 40-mm Area	RR-01 is a target/impact area that covers 182 acres. It is located in the south-central portion of the Range Complex at Andrew Lake. RR-01 is bordered by RR-02 to the north; OU B-1 to the south; RR-04 to the east; and OB/OD-01, RG-01, and MI-03 to the west. HG-01 is located wholly within this site. The elevation in this site ranges from about 15 to 152 meters (50 to 500 feet) asl. There is direct access to this site via the range entry road, which branches from the main access road along the west side of Andrew Lake. This main road is gated (locked steel gate) near the south end of the lake to deter general access. A locked cable barrier also deters access to the range entry road. The terrain is generally flat in the northern portion, but can be uneven and marshy. The steep slopes to the south make the southern third of the site largely inaccessible. The vegetation is predominantly dense, lush tundra grass in accessible lowland portions. Moffett Creek flows from west to northeast through the northern portion of this site. Lowland areas bordering this creek are often

Table 1-1 (Continued)
Descriptions of OU B-2 Sites Included in the Survey

RAA	Site Designation	Site Name	Site Description
			saturated with pooled water at certain times of the year. Groundwater is in hydraulic communication with the creek. The valley floor is composed of a silty, gravelly, sandy, alluvial/colluvial, and/or outwash material overlying andesitic basalt bedrock or consolidated ash tuff. The groundwater is anticipated to be shallow in lowland areas.
RAA-03 West	MI-01	Andrew Lake Mortar Impact Area – Rocket Disposal Area	MI-01 is a target/impact area that covers 0.7 acre. It is located along the southern side of the mortar impact valley in the Range Complex at Andrew Lake (west of Andrew Lake). It is bordered by MI-02 immediately to the west and is otherwise surrounded by MI-03. Elevation in the site ranges from 48 to 55 meters (160 to 180 feet) asl. There is indirect access to this site via the gravel range entry road that terminates at OB/OD-01, which branches from the main access road along the western side of Andrew Lake. This main road is gated (locked steel gate) near the south end of the lake to deter general access. A locked cable barrier also deters access to the range entry road. The terrain at the site slopes gently to the north toward the floor of the mortar impact valley. Dominant vegetation is a mixture of grasses and lowland tundra species ranging in height from 12 to 24 inches. The valley floor is composed of a silty, gravelly, sandy, alluvial/colluvial, and/or outwash material overlying andesitic basalt bedrock or consolidated ash tuff. Based on the elevation and proximity to stream channels, groundwater is anticipated to be shallow in lowland areas.
RAA-03 West	MI-02	Andrew Lake Mortar Impact Area – 40-mm Projectile Impact Area	MI-02 is a target/impact area that covers 19 acres. It is located along the southern side of the mortar impact valley in the Range Complex at Andrew Lake (west of Andrew Lake). It is bordered by MI-01 to the east and is otherwise surrounded by MI-03. The elevation at this site ranges from about 49 to 104 meters (160 to 340 feet) asl. There is indirect access to this site via a gravel range entry road that terminates at OB/OD-01, which branches from the main access road along the western side of Andrew Lake. This main road is gated (locked steel gate) near the south end of the lake to deter general access. A locked cable barrier also deters access to the range entry road. The terrain is relatively flat, rising moderately to the west toward Mount Moffett. The area is somewhat flatter in the eastern portion closer to Andrew Lake. The area is bordered on the south by steep terrain that becomes inaccessible near the top of the ridge delineating the southern boundary of MI-02 and the Range Complex at Andrew Lake. Steep terrain also forms the northern boundary of this site to the west. Vegetation is grassy with lowland tundra species ranging in height from 12 to 24 inches. Intermittent standing water in the eastern portion of the site (i.e., lowland area) may possibly be present

Table 1-1 (Continued)
Descriptions of OU B-2 Sites Included in the Survey

RAA	Site Designation	Site Name	Site Description
			because of shallow groundwater. The valley floor is composed of a silty, gravelly, sandy, alluvial/colluvial, and/or outwash material overlying andesitic basalt bedrock or consolidated ash tuff. Based on the elevation and proximity to stream channels, groundwater is anticipated to be shallow in lowland areas.
RAA-03 West	MI-03	Andrew Lake Mortar Impact Area – Mortar Impact Area	MI-03 is a target/impact area that covers 425 acres. It consists of a steep valley draining west to east from the flanks of Mount Moffett toward Andrew Lake. MI-03 is bordered by OU B-1 (MM-11 and various components of MM-10) to the west, south, and north. Three OU B-2 sites border MI-03 to the east: OB/OD-01, RR-01, and RR-02. MI-01and MI-02 are located wholly within this site. The elevation in MI-03 ranges from about 40 meters (130 feet) asl at the eastern edge to about 280 meters (920 feet) asl along the western edge on the flanks of Mount Moffett. There is indirect access to this site via a gravel range entry road that terminates at OB/OD-01, which branches from the main access road along the western side of Andrew Lake. This main road is gated (locked steel gate) near the south end of the lake to deter general access. A locked cable barrier also deters access to the range entry road. The terrain ranges from relatively low and flat in the eastern portion nearest the OB/OD area to steep and inaccessible at the western end and along the southern border. There is a steep ridgeline near the northern side of the site with a relatively flat top. The top of this ridge is shared with RR-02. Vegetation is grassy in the east with lowland tundra species ranging in height from 12 to 24 inches. The vegetation transitions to upland species (mixed grasses, heaths, and mosses) of shorter stature in the west. Runoff channels or streams within the site run easterly toward Moffett Creek, which is partially located within this site. Groundwater is anticipated to be shallow in the lowland areas, which provides the potential for groundwater seeps. Small ponds or lakes are present at two locations. The valley floor is composed of a silty, gravelly, sandy, alluvial/colluvial, and/or outwash material overlying andesitic basalt bedrock or consolidated ash tuff.
RAA-04	SA93-01	Source Area #93 – Multiple Ordnance Impact Area	SA93-01 is a target/impact area that covers 263 acres. It is located to the northeast of Andrew Lake. Most of the site is on a plateau some 91 to 122 meters (300 to 400 feet) above the lake, but a small strip of this site along the southwestern corner abuts the shoreline of the lake. This site is bordered by SA93-02 to the east, areas lying outside Parcel 4 to the north and south, and Andrew Lake to the southwest. It is also bordered by MAG-01 to the west, but the two areas are not physically contiguous because of a steep cliff (i.e., MAG-01 is at the base of the cliff). Elevations in the central portion of this site range from about 67 to 98 meters (220 to

Table 1-1 (Continued)
Descriptions of OU B-2 Sites Included in the Survey

RAA	Site Designation	Site Name	Site Description
			320 feet) asl. Along the western edge of this site, a steep ridge rises to just over 152 meters (500 feet) and then falls very rapidly (cliff) to elevations below 100 feet asl. To the north, a steep ridge rises to over 213 meters (700 feet) on the flanks of a small mountain peak. There is indirect access to this site from the gravel road originating from the east side of Andrew Lake near the Recreation Center. The entire historical impact area in which this site resides is currently fenced (4-strand barbed wire), with posted signage to deter public access. On the west side of this site, a steep ridge forms a cliff above Andrew Lake. To the east of this ridge, the terrain falls gently toward a deep drainage ravine near the east side of this site. Vegetation is generally a mixture of grasses, sedges, mosses, and heaths ranging in height from 18 to 30 inches. A deep ravine at the eastern edge of the site carries runoff southward toward Andrew Lake. Also, there are areas of standing water or streams in the south-central portion of the site. According to observations made during the preparation of the groundwater study report (U.S. Navy 1995), the occurrence of groundwater outside of the downtown area is limited by the absence of significant accumulations of permeable materials and the presence of a blanket of low-permeability tephra deposits that inhibit infiltration. As a result, most of the precipitation falling in the remote areas discharges as surface water runoff. Therefore, much of the surface of these remote areas is covered by a maze of stream channels, small impoundments, bogs, and lakes perched over the tephra layer.
RAA-04	SA93-03	Source Area #93 – Firing Point	SA93-03 is a target/impact area that covers 0.6 acre. This small, rectangular site is located wholly within SA93-02 near the southern boundary of that site. This area was initially believed to be the principal firing point for 2.36-inch rockets found within SA93-01 (located across the ravine to the west). On the basis of items found during the 1999 site inspection, however, this site is now thought to be a rocket impact area. Nevertheless, the original name of this site has been retained to prevent confusion. The elevation of this site is about 29 meters (95 feet) asl, but a deep ravine abuts the site, falling to about 12 meters (40 feet) asl. There is indirect access to this site from the gravel road originating from the east side of Andrew Lake near the Recreation Center. The entire historical impact area in which this site resides is currently fenced (4-strand barbed wire), with posted signage to deter public access. The terrain is generally flat. However, a deep ravine abuts the site on the west. Vegetation consists of low-growing upland tundra species ranging in height from 6 to 12 inches. According to observations made during the preparation of the groundwater study report (U.S. Navy 1995), the occurrence of groundwater outside of the downtown area is limited by the absence of

Table 1-1 (Continued)
Descriptions of OU B-2 Sites Included in the Survey

RAA	Site Designation	Site Name	Site Description
			significant accumulations of permeable materials and the presence of a blanket of low-permeability tephra deposits that inhibit infiltration. As a result, most of the precipitation falling in the remote areas discharges as surface water runoff. Therefore, much of the surface of these remote areas is covered by a maze of stream channels, small impoundments, bogs, and lakes perched over the tephra layer.
RAA-05	ALDA-01	Andrew Lake Disposal Area – Landfill Area	ALDA-01 is a large-scale burial area, with wash-up of DMM from the offshore area of ALSW-01. ALDA-01 is located at the northwest corner of Andrew Lake and covers 6.7 acres. The site boundary is dog-legged and wider at the north end of the site near Andrew Bay. Most of this site lies at elevations ranging from about 6.1 to 12.2 meters (20 to 40 feet) asl; however, a cliff on the west side of this site rises to heights of more than 200 feet asl. There is a distinct elevation break running across the site from northwest to southeast that separates the low-lying portion of the site into higher and lower elevation areas. The elevation difference of this feature is about 8 feet. The lower elevation area is a depositional environment from Andrew Bay, with this portion of the site experiencing wash-up of DMM from offshore (see ALSW-01 description below). This site is bordered by ALDA-02 to the west, Andrew Lake to the east, ALSW-01 to the northeast, and a thin strip of ALSW-01 to the north. Parcel 4 areas outside of OU B-2 border this site to the southwest. There is direct access to this site via the main access road running along the western shore of Andrew Lake. This road is gated with a locking steel gate near the south end of the lake to deter general access. The terrain is generally flat, except for steep slopes along the western edge. A line of craters trends northwest to southeast across the site. Vegetation is predominantly grass ranging in height from 12 to 18 inches, which is sparser toward the beach area, but still thick enough to hide the underlying cobbled surface. The geology of the site is characterized by shallow bedrock with a thin layer of soil. The soil is dominated by cobbles and boulders. There should be no groundwater because of the shallow bedrock.
RAA-05	ALSW-01	SWMU 8, Andrew Lake Seawall	ALSW-01 is a wash-up area for potential disposal at sea or along the shoreline. ALSW-01 consists of the western portion of the seawall located along the north shoreline of Andrew Lake and covers 10 acres. The seawall is narrow and elongated, similar to a dike with a narrow flat top and steep sides. The seawall separates the freshwater lake from Andrew Bay to the north, which is an embayment of the Bering Sea. A munitions dump may be located offshore of the seawall. The location and amount of munitions offshore are unknown. Elevations in the upland portion of the site range from about 3 to 9.1 meters (10 to 30 feet) asl.

Table 1-1 (Continued)
Descriptions of OU B-2 Sites Included in the Survey

RAA	Site Designation	Site Name	Site Description
			This site is bordered by ALDA-01 to the west, Andrew Lake to the south, the Andrew Bay beach area to the north, and non-OU B-2 areas to the east. The Navy periodically performs sweeps on the Andrew Bay beach, within the tidal zone, to remove MEC items that have washed up from offshore dump sites. The area below the mean higher high water mark on the Andrew Bay side of the seawall is owned by other agencies. There is direct access to this site via an unimproved road originating on the east side of Andrew Lake near the Recreation Center. There is a locked steel gate and rock barrier on this roadway just north of the Recreation Center to deter public access. There is also indirect access via a walk from the main access road running along the western shore of Andrew Lake. This road is gated (locked steel gate) near the south end of the lake to deter general access. The terrain transitions from generally flat atop the seawall to very steep along the sides (north and south). Vegetation consists of short, relatively sparse grass atop the wall and tussocks of taller grass along the sides where adequate soil is present. A natural spillway at the northwest corner of Andrew Lake allows some flow of freshwater into Andrew Bay. At times, the spillway is obstructed and discharge is limited to water flowing through the cobble substrate of the seawall to Andrew Bay. The seawall is a man-made feature composed of boulders, cobbles, gravel, large metal debris, and wood.

Notes:
asl - above sea level
DMM - discarded military munitions
MEC - munitions and explosives of concern
mm - millimeter
OU - operable unit
RAA - remedial action area

2.0 WETLAND DELINEATION

2.1 METHODS USED FOR WETLAND DETERMINATIONS

Wetland determinations were made on site by wetland biologists using the 1987 Corps of Engineers Wetlands Delineation Manual in conjunction with the 2007 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0) (USACE 1987 and 2007). This wetland determination may be subject to verification and approval by the USACE.

2.1.1 Wetland Definition and Parameters

For regulatory purposes, wetlands are defined as follows (USACE 1987):

> Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

According to the 1987 USACE manual and 2007 regional supplement, the following three characteristics usually must be present for an area to be identified as a wetland: (1) wetland hydrology, (2) hydric soil, and (3) hydrophytic vegetation. Wetland hydrology includes seasonal, periodic, or permanent inundation or soil saturation that creates anaerobic conditions in the soil for a portion of the growing season sufficient for wetland soil and vegetation to be maintained. Hydric soils are saturated, flooded, or ponded long enough during the growing season to become deoxygenated in the upper soil horizons. Hydrophytic vegetation consists of those plant species growing in water, in soil, or on a substrate that at least periodically lack oxygen.

2.1.2 Growing Season

The growing season has traditionally been defined with reference to agricultural crops as the period when soil temperatures 12 inches below the ground surface are greater than 5°C (41°F) (“biological zero”). This definition is problematic in Alaska, because native plants and soil organisms are adapted to cold soils and likely continue metabolism in soil temperatures colder than 5°C. The USACE 2007 regional supplement states that the determination of growing season should take into account careful observations of evidence that active plant growth is occurring. This evidence can include new or recent growth, such as flowers, new shoots, new leaves, or swollen buds on plants.

General estimates of the growing season may be approximated with 50 percent probability by the beginning and ending dates of 28°F temperatures. This information is given in most National Resources Conservation Service (NRCS) soil surveys. NRCS information was not available for the study area. However, based on general climate information for the Aleutian Islands, the growing season in the vicinity of the project site is approximately from early May to mid-October (165 days) (NRCS 1999 and USACE 2007, Table 5). Site observations confirmed that the site visit did occur within the growing season.

2.1.3 Wetland Hydrology

To determine whether a vegetation community has wetland hydrology, an area is examined for inundation, soil saturation, shallow groundwater tables, or other hydrologic indicators (listed in the USACE 2007 regional supplement). An area in which soils are inundated or saturated to the surface continuously for at least 5 to 12.5 percent of the growing season meets the criterion for wetland hydrology, according to the USACE 1987 manual. The requirement per the USACE 2007 regional supplement is 14 days of continuous saturation or inundation during the growing season.

Based on a growing season of 165 days, saturation is generally required to occur at these sites for at least 9 to 21 consecutive days during the growing season to meet the USACE 1987 manual wetland hydrology criterion. Fourteen consecutive days of saturation in the growing season would meet the USACE 2007 regional supplement criterion. Seasonal changes in water levels and the effect of recent precipitation events must be considered when evaluating an area's hydrology. Wetland hydrology can also be inferred from the presence of any of the following indicators: watermarks on vegetation, drift lines, sediment deposits, water-stained leaves, surface-scoured areas, wetland drainage patterns, and oxidized root channels.

2.1.4 Hydric Soil

Soil observations were made by digging 18-inch-deep soil profiles in each sample plot (SP). Soil color and other characteristics used to indicate hydric soils were documented using the Munsell soil color chart (Munsell Color 2009). No soil survey exists for Adak Island. The USACE 2007 regional supplement uses indicators adopted from the latest version of NRCS's guide for identifying hydric soils (NRCS 2010a). These indicators are listed below. Soil, in which any of the following indicators (USACE 2007 regional supplement) are present, meets the criteria for hydric soil:

- **Gleyed matrix or pores:** Gleyed soils develop when mineral soil is saturated or inundated for periods of time sufficient to result in anaerobic (no oxygen) conditions. Anaerobic conditions cause elements common in soil, such as iron

and manganese, to exist in reduced forms that are usually bluish, greenish, or grayish in color. Soil colors are determined using a Munsell soil color chart (Munsell Color 2009), which has separate pages for gley-colored soils. The gleyed colors can either occur as the soil matrix, or along root channels and other pores.

- **Low Chroma matrix with oxidation reduction (redox):** A low chroma matrix develops when mineral soil is saturated or inundated for substantial periods of time during the growing season (but not long enough to produce gleyed soil) to result in anaerobic or hypoxic (low oxygen) conditions. A soil matrix is the portion of a given soil layer (usually more than 50 percent by volume) that has the predominant color. The Munsell system uses three dimensions to describe soil color: hue, value, and chroma. The Munsell soil color chart uses abbreviations to describe the colors, for example, 10YR 3/2. The first number and letters in the abbreviation indicate the hue (10YR), the next number indicates the value (3), and the last number indicates chroma (2). Soils with a hue of 5Y and a matrix chroma of 3 or less are usually considered hydric when common, distinct redox concentrations are present as pore linings. Redox concentrations are rust-colored spots, blotches or linings in the soil formed by the oxidation of iron compounds via fluctuating water levels.

- **High organic content:** Soil retains high levels of organic matter when saturation prevents decomposition over long periods, thus allowing organic debris to accumulate. Organic content is considered high if the soil is composed of more than 20 to 30 percent (threshold differs depending upon other soil characteristics) organic material by weight in a layer at least 8 inches thick located in the upper 32 inches of the soil profile.

- **Other hydric indicators:** Other positive indicators of hydric soil include hydrogen sulfide, or “rotten egg” odor, and the presence of a thick (greater than 12 inches), dark surface over a gleyed or depleted matrix.

2.1.5 Hydrophytic Vegetation

The dominant plant species in each vegetation community were identified within each SP. Vegetation communities are defined here as a contiguous assortment of plants in a given area sharing similar environmental conditions. In general, dominant species are the most abundant plant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum, plus any other species that, by itself, accounts for at least 20 percent of the total, based on absolute percent cover. The SPs are normally circular and have

a 20-foot radius for shrubs and herbaceous plants, unless otherwise noted on the data sheets. Plots were situated so that they best represent the vegetation present within each community.

The hydrophytic indicator status for each dominant species, as designated for the Alaska Region (Lichvar and Kartesz 2009), was used to determine whether the vegetation in each community is hydrophytic. To meet the Dominance Test indicator, more than 50 percent of the dominant species must have an indicator status of obligate (OBL), facultative wetland (FACW), and/or facultative (FAC). Indicator status categories are defined in Table 2-1.

The FAC status categories are often modified using plus (+) or minus (−) symbols. For example, FAC+ species are considered to have a somewhat greater estimated probability of occurring in wetlands than FAC species, whereas FAC− species are considered to have a somewhat lesser estimated probability of occurring in wetlands than FAC species. The USACE 2007 regional supplement no longer uses the minus and plus modifiers.

If a site does not pass the Dominance Test, the prevalence index (PI) is calculated. The PI is a weighted-average indicator status of *all* species on a plot. Each indicator status is assigned a number between 1 (OBL) and 5 (UPL), and weighting is by abundance. A PI of 3 or less is an indicator of hydrophytic vegetation.

2.1.6 Wetland Boundaries

Wetland boundaries in the study area were delineated using the “Routine” method (level 3) described in the USACE 1987 manual (USACE 1987). This approach included a preliminary office determination of areas where onsite inspection was considered unnecessary. Prior to field work, each site was stratified by major landscape form based on aerial photography and topographic data, including categories such as valley bottom, mountain slope, mountain ridge, plateau, creek drainage, and tidal fringe. Areas dominated by unvegetated surfaces visible in aerial photographs such as rock outcrops and scree were eliminated from wetland delineation field work.

For the remaining areas, vegetation, soils and hydrology were evaluated at SPs and observation points (OPs) established in representative locations in each of the plant communities identified on the site. An SP is a specific location where observations of hydrology, soil, and vegetation are made to determine the presence or absence of wetland characteristics. Data collected at each SP is recorded on a two-page standardized “Wetland Determination Data Form,” which is typically tailored to the geographic region in which the delineation is taking place. OPs are used to supplement SP data in large and/or complex wetland delineations, because they can yield similar information much more quickly. OPs consist of digging a soil pit and collecting limited

field notes on soil, hydrology, and vegetation. However, no wetland determination data form is completed for an OP.

Sixty-one detailed SPs and numerous informal OPs were used to investigate the project area. The SPs are located in places that adequately represent the variation in vegetation, soils, and hydrologic regimes across the site. The presence or absence of hydrophytic vegetation, hydric soil, and wetland hydrology indicators were documented for each SP as a means of justifying the wetland determination. Wetland Determination Data Forms can be found in Appendix A.

Once initial SPs and/or OPs were established in an area, the wetland boundaries were then walked, verified and adjusted based either on additional sampling (spots where key features were evaluated), or by keying into easily observed indicators. In the study area, the most reliable indicators were landscape features, key plant species, and plant community boundaries. Landscape features utilized for this delineation included breaks in slope gradient and/or slope shape, such as at the base or toe of slopes or other areas where groundwater was likely to discharge as seeps. Other landscape features include active flood plains and low stream terraces; flat or very gently sloping areas; and concave slopes and depressions.

Several plant species and/or community types were found to occur dominantly in wetlands or in uplands (see Section 2.2.4). The break between known community types often coincided with topographic breaks and/or changes in soil types, and was indicative of the boundary between wetlands and non-wetlands. Wetland boundaries were sometimes also located in areas lacking easily observable topographic breaks or soil changes. These areas required more frequent sampling, and boundaries were often indicated by subtle changes in plant species composition.

In some areas with complex microtopography, with repeated small changes in elevation over short distances, wetland mosaics were mapped. The USACE 2007 regional supplement defines mosaic as a “landscape where wetland and non-wetland components are too closely associated to be easily delineated or mapped separately” (USACE 2007). When a mosaic was mapped, the percentage wetland versus upland was estimated and recorded.

2.1.7 Wetland Classification

Cowardin Classification

Wetlands are classified according to the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). The USFWS National Wetlands Inventory (NWI) provides information on the characteristics, extent, and status of the nation's wetlands and deepwater habitats. The NWI collects data from aerial photography to produce maps that correspond to the U.S. Geological Survey 7.5 or 15 minute topographic quadrangles. NWI

quadrangles use the Cowardin classification system to characterize wetland features on each map.

Under the Cowardin classification scheme, wetlands and deepwater habitats are grouped into systems based on shared hydrologic conditions. These systems are marine, estuarine, riverine, lacustrine, and palustrine. The wetlands at the study area classify as palustrine systems.

Palustrine Systems. These systems include all nontidal wetlands dominated by trees, shrubs, emergent herbaceous plants, mosses, and/or lichens and all such wetlands that occur in tidal areas where the salinity from ocean-derived salts is below 5 ppt. Wetlands included in the palustrine system are those commonly referred to as marshes, swamps, bogs, fens, prairies, seeps, and intermittent ponds. A palustrine system can exist directly adjacent to or within the lacustrine, riverine, or estuarine systems.

Palustrine wetlands are divided into **classes** by the dominant vegetation. Palustrine forested (PFO) wetlands or forested wetland communities are dominated by trees or arborescent (tree-like) shrubs greater than 20 feet tall (greater than 3 inches diameter at breast height, according to the USACE 2007 regional supplement) having greater than 30 percent cover. Palustrine scrub-shrub (PSS) wetlands or scrub-shrub wetland communities are dominated by woody shrubs less than 20 feet tall (less than 3 inches diameter at breast height, according to the USACE 2007 regional supplement) with at least 30 percent cover. Palustrine emergent (PEM) wetlands or emergent wetland communities are dominated by nonwoody, rooted vascular plants having at least 30 percent cover.

Classes are further divided into **subclasses** using vegetation characteristics: broad-leaved deciduous, needle-leaved evergreen, etc., for scrub-shrub classes and persistent (plants whose stems remain standing through the winter until the beginning of the next growing season) or nonpersistent for emergent classes. Modifiers are applied to the class or subclass. The dominant modifier is **water regime**, which differentiates wetlands based on whether they are saturated or flooded and the duration of flooding.

Hydrogeomorphic Classification

Wetlands were also classified according to the hydrogeomorphic (HGM) classification (Brinson 1993). The HGM classification groups wetlands into categories based on the geomorphic and hydrologic characteristics that control many wetland functions. HGM classes are categorized as tidal fringe (estuarine and freshwater), riverine, lake fringe, slope, and depressional. The dominant HGM classes on the study area are slope, depressional, and riverine.

Slope Wetlands. These wetlands occur on hill or valley slopes where groundwater "daylights" and begins running along the surface, or immediately below the soil surface. Water in these wetlands flows in one direction only (down the slope), and the gradient is steep enough that the water is not impounded. The "downhill" side of the wetland is always the point of lowest elevation in the wetland.

Depressional Wetlands. These wetlands occur in depressions where elevations within the wetland are lower than in the surrounding landscape. The shapes of depressional wetlands vary, but in all cases, the movement of surface water and shallow subsurface water is toward the lowest point in the depression. The depression may have an outlet, but the lowest point in the wetland is somewhere within the boundary, not at the outlet.

Riverine Wetlands. These wetlands occur in valleys associated with stream or river channels. They lie in the active floodplain and have important hydrologic links to the water dynamics of the river or stream. The distinguishing characteristic of riverine wetlands is that they are flooded by overbank flow from the stream or river at least every other year.

2.1.8 Wetland Mapping

Wetland boundaries, SPs, and OPs were mapped in the field with GPS and hand marked on field maps printed on Rite-in-the-Rain paper. These features were not marked with pin flags in the field, because flags are unlikely to remain in place over the winter because of extremely windy conditions. Hand-drawn field maps were consolidated onto larger prints during the evening to track progress. Wetland boundaries were preliminarily located on field maps with 20-foot topographic contours, streams, lakes, roads, and an aerial photograph background (2,000 fly-over AEROMAP). The scale of field maps was 1:2,400, or 1 inch = 200 feet. Biological resources that were hand mapped during field surveys were digitized in the office and combined with GIS data collected with GPS units.

The horizontal location of each SP and wetland boundary was recorded with differential GPS units that are capable of recording submeter data. A Trimble 6000 unit using ArcPad 10 was used. The data were collected using the Alaska State Plane North American Datum of 1983 (NAD83) Zone 10, units U.S. feet. The points recorded with the GPS unit were post-processed to a base station on Adak Island installed and maintained specifically for this project. Results were to submeter accuracy.

2.1.9 Nomenclature

The following naming convention was used for the wetlands, SPs, and OPs described in this report. For each site, wetlands were assigned alphabetic designations, starting with the letter A. (Note that each site has a wetland designated "A," except as noted below.) If there were more

than 26 wetlands at a given site, then the alphabetic designations would continue with double letters (AA, BB, and so forth). However, for the sites in the Moffett Valley (HG-01, MM-01, MM-02, MM-03, OB/OD-01, and RR-01), one wetland crossed multiple site boundaries. Therefore, alphabetic designations were assigned for Moffett Valley sites as a group, again starting with the letter A. SPs and OPs were assigned an alphanumeric identifier starting with the site name where it was located, followed by SP to identify a sample plot or OP for an observation point, and finally a numeric character. For example, the first SP at ALDA-01 is named ALDA-01-SP-1, and the second SP at OB/OD-01 is named OB/OD-01-SP-02.

As a result of two teams of wetland biologists working concurrently in the field over a large geographic area, some identifiers initially assigned in the field were duplicated or skipped. This is especially the case where a wetland spans a large area or was determined to be connected to another wetland later during subsequent field work. Therefore, in some cases identifiers had to be reassigned during the creation of maps for this report. To reconcile field notes, photographs and GPS designations, a table was created for use by the biologists with a side-by-side comparison of field identifiers and final identifiers assigned in this report.

2.2 WETLAND DELINEATION RESULTS

2.2.1 Previous Studies

Previous studies reviewed for this report include the following:

- Final Environmental Baseline Survey – 2003 Update, Former Naval Air Facility, Adak Island, Alaska (Foster Wheeler Environmental 2003)
- Ecological Survey of Potentially Contaminated Sites Identified in the Federal Facility Agreement, Naval Air Facility, Adak Island, Alaska (USFWS 1995)
- Surficial Geologic Map of Northern Adak Island, Alaska (Waythomas 1995)
- Natural Resources Management Plan, Naval Complex, Adak, Alaska (NRCS 1990), including a wetland map and a soils map

Wetland Studies

No NWI map has been published for Adak Island or any of the Aleutian Islands. The USFWS prepared a preliminary wetland map for portions of the study area as part of the 1990 Natural Resources Management Plan for the naval complex on Adak Island (NRCS 1990). The map utilized photo-interpretation of 1987 black and white aerial photography, with limited ground-

truthing. Unfortunately, the quality of the aerial photography is so poor that the map could not be used consistently as a reference for these field studies (long shadows, high contrast, and only a photocopy of the aerial available). The mapping is not available in digital form. The wetland descriptions, based on the ground-truthing, do provide information on the types of wetlands in the vicinity of the study area. All of the mapped wetlands are in the palustrine system. Cowardin classes identified in this study include unconsolidated bottom (ponds), emergent, and scrub-shrub wetlands. Subclasses were not mapped because of the difficulty distinguishing evergreen from deciduous shrubs on the aerial photography. Water regimes ranged from permanently flooded to seasonally saturated. General vegetated wetland types identified in this study included the following:

- Sedge marsh (PEM1H, PEM1F, PEM1C): seasonally to permanently flooded wetlands in depressions dominated by sedges, rushes, and forbs
- Sedge meadow (PEM1B): moist tundra dominated by graminoid tussocks
- Dwarf shrub tundra (PSSB): saturated areas dominated by crowberry (Empetrum nigrum) and dwarf willow (Salix spp.)
- Willow thickets (PSS1C): seasonally flooded wetlands on floodplains and in seepage areas at the base of bluffs

Vegetation Studies

The USFWS (1995) prepared habitat-type maps for portions of the former Adak Naval Complex, but not for the current study area. Terrestrial habitat types mapped included the following:

- Wetland
- Wet meadow
- Sedge/crowberry upland
- Mesic grasses/anemone/cow parsnip upland
- Mesic and xeric grasses/*Elymus* sp./lupine upland

In this study, *wetland* was mapped where near permanent standing water was present, while *wet meadow* was saturated but not flooded.

Twenty-one sites were studied further to classify them using the Alaska Vegetation Classification (Viereck et al. 1992). Seventeen vegetation classes, corresponding to level IV of the Viereck classification, were identified. The classes are listed below as either likely wetland

or upland. Some of the classes, such as hairgrass, can occur in either drier wetlands or moist uplands. The 17 vegetation classes are the following:

- Likely wetland:
  - Ericaceous shrub bog
  - Hairgrass
  - Wet sedge-meadow tundra
  - Subarctic lowland sedge wet meadow
  - Subarctic lowland herb wet meadow
  - Common marestail
  - Aquatic buttercup
  - Burreed
  - Marine algae
- Likely upland:
  - Crowberry tundra (includes crowberry/sedge tundra)
  - Elymus (includes beach and Elymus-mixed graminoid herb)
  - Midgrass-herb
  - Bluejoint-herb
  - Mesic sedge-grass meadow
  - Mixed herbs
  - Large umbel
  - Ferns

Soils Studies

The NRCS prepared a soils map of portions of the Adak Naval Complex for the Natural Resources Management Plan (NRCS 1990). The map covers only a portion of site RR-01, but none of the other sites. The map is not equivalent to a standard NRCS soil survey, as the map units are very generalized soil types, not correlated soil series. Mapping was based largely on photo-interpretation of landforms, with limited field observations. Soils were differentiated by depth to bedrock, drainage, and dominant textures. Eight map units occurred, which are listed below according to drainage class with their map unit numbers in parentheses. The map units are as follows:

- Poorly drained soils:
  - Organic soils in depressions, swales, and drainageway positions in upland landscapes (300)

- Organic soils in low areas adjacent to intertidal zones and lagoons behind beach ridges (310)
- Mineral soils on gently sloping outwash alluvial fans (mapped as an association with well-drained soils – 120)

- Well-drained soils:
  - Sandy soils on steep coastal dunes (100)
  - Level gravelly beach deposits (110)
  - Silty soils greater than 5 feet deep developed in interbedded volcanic ash and decomposing organic matter (200)
  - Mineral soils 2 to 5 feet thick over fractured igneous bedrock (210)
  - Igneous bedrock outcroppings and mineral soils greater than 2 feet thick in mountainous regions (400)

Map units 200 and 300 are the most extensively mapped soil types in the naval complex. Map unit descriptions for these soils are provided below.

Map Unit 200. Well-drained silty soils greater than 5 feet deep dominate this unit. Soils are derived from layered deposits of silty volcanic ash and decomposing organic matter. This unit is found on a variety of upland positions and is often mapped in a complex with poorly drained organic soils (#300), which occupy depressions, drainageways, and toe slope positions. Small seeps and saturated areas are included in this unit, where mapped as a pure type (not mixed with other soil types). Slopes are highly variable and complex; however, gradients typically range between 5 to 30 percent. Steeper grades to 100 percent occur in gullies and along the faces of moraines and eroded escarpments.

A typical soil profile has an organic surface layer 8 inches thick over 5 to 8 feet of stratified silts, loams, and mucky silt loams. Individual strata vary in thickness from a few inches to over 18 inches. Coarse sandy textures, composed of andesitic pumice, commonly occur at depths of about 2 and 5 feet. Former surfaces, buried by successive falls of volcanic ash, can also be seen in most profiles. These layers are typically very high in organic matter. Overall soil permeability is moderate; however the downward percolation of water is impeded by the large textural differences between horizons. Subsurface materials below the ash/organic cap commonly include impermeable deposits of glacial drift or tuffaceous breccia and, in some areas, fractured igneous bedrock.

Map Unit 300. Poorly drained organic soils are the major component in this unit. They occupy large depressions, swales, and drainageway positions in upland landscapes. This unit is commonly mapped in a complex with better drained soils. A few depressions and lake borders with ponded surface conditions are included in this unit. Slopes are generally less than 5 percent, but may range as high as 12 percent in areas receiving seepage from upslope areas.

A typical soil profile has 18 inches of slightly decomposed peat over highly decomposed muck and mucky silts which continues to a depth of at least 8 feet. Silty layers and coarse volcanic pumice are normally stratified as thin layers within the organic materials. Water tables or saturated conditions occur within 18 inches of the soil surface during the summer months. Underlying the peat are relatively impermeable deposits of glacial drift or tuffaceous breccia and igneous bedrock.

Surficial Geology Studies

The U.S. Geological Survey also prepared a surficial geologic map of northern Adak Island (Waythomas 1995) that is helpful in interpreting landforms and soil parent materials. Surficial deposits in the vicinity of the study areas include volcanic (pyroclastic), colluvial, glacial, alluvial, eolian, lacustrine, and beach deposits. Most of these deposits also have a 2- to 3-meter-thick mantle of tephra (mostly fine-grained volcanic ash). Dominant surface deposits by site are the following:

- ALDA-01: Eolian sand, bedrock, and debris-flow deposits
- C1-01: Volcanic/lahar deposits (silt and fine sand with gravel and cobbles)
- HG-01: Lahar deposits and ash deposits over alluvium
- MI-01, MI-02, MI-03, and OB/OD-01: Complex mix of landslide and debris-flow deposits, glacial moraine, and alluvium
- RR-01: Lahar deposits and ash deposits over alluvium
- SA93-01 and SA93-03: Debris-flow deposits (very gravelly or bouldery)

2.2.2 Hydrology

Surface Water

The surface water hydrology in the vicinity of the OU B-2 sites is characterized by several short, steep-gradient streams draining radially from Mount Moffett and Mount Adagdak. One major

stream, Moffett Creek, drains off Mount Moffett into the valley on the western side of Andrew Lake and runs through the valley where many of the OU B-2 sites are located. A smaller unnamed creek is located north of Moffett Creek. On the eastern side of Andrew Lake, a smaller drainage, Mitchell Creek, runs through the sites located in the SA93 area from north to south and drops down a steep ravine to Andrew Lake. Both Moffett and Mitchell Creeks remain active throughout the year, although the flow may fluctuate seasonally based on snowpack and snowmelt, rainfall, and surface or shallow groundwater drainage. Several small ponds or marshy areas are reported to exist seasonally or year-round in the lower elevations (U.S. Navy 2008). Andrew Lake is the largest freshwater body in the vicinity of OU B-2 and borders the majority of the OU B-2 sites. Andrew Lake drains into Andrew Bay, when the level of the lake rises, via a spillway on the northwest corner of the lake. Andrew Bay is a marine environment with a high-energy beach susceptible to heavy surf.

Groundwater

The hydrogeology of northern Adak Island is limited by the low permeability of native surface materials and bedrock, steep slopes, and discontinuity of sporadically located permeable zones. Most undisturbed areas are mantled by tephra (ash) deposits. Combined with steep slopes, these conditions offer little opportunity for infiltration. Additionally, the combination of a thin mantle of unconsolidated material over poorly jointed bedrock results in groundwater that is intermittent and not laterally extensive.

Groundwater does occur in upland areas of coarse-grained volcanic deposits often characterized by fragments of rocks ejected during eruptions. Smaller amounts of groundwater also occur in localized deposits and within fractured bedrock. No aquifer or significant quantity of groundwater exists where deposits of fine-grained volcanic ash overlie bedrock.

Much of the upland area, such as Mount Moffett, is covered by a composite layer of weathered volcanic ash that generally minimizes the amount of rain or snow that permeates deeper than the vegetative mat on its surface. If the layer of soil under the vegetation is thin, precipitation tends to run off as surface water or streamflow. If the soil under the mat of vegetation is thicker, precipitation will penetrate the soil until it reaches the ash layer. At that point, the precipitation becomes shallow groundwater that flows beneath the vegetative mat toward discharge areas such as springs or seeps. Underlying the ash layer may be deposits of volcanic gravel known as lahar. Bedrock underlies the ash layer in some areas.

Wetland Hydrology

Annual precipitation in the study area averages approximately 60 inches. The amount is probably several inches more in the upper elevations of the Moffett Creek watershed. Average

annual evapotranspiration has been estimated at 13.8 inches per year (23 percent of precipitation). Based on previous precipitation and stream flow measurements, very little groundwater recharge occurs within the Moffett Creek drainage basin. Nearly 100 percent of precipitation less evapotranspiration leaves the watershed as overland flow via Moffett Creek. The low-permeability soils and underlying lithology promote direct runoff rather than infiltration (U.S. Navy 2011).

Deep infiltration into an underlying aquifer is also limited by the steep topography of the watersheds, the very high water-holding capacity of volcanic ash-derived soils, and the stratified nature of the soils. All of these features promote the formation of wetlands in the form of seeps and springs on toe slopes, slope breaks, and concave slopes. Depressional wetlands form in valley bottoms as a result of surface runoff and shallow, lateral subsurface flow. A few of the wetlands also receive overbank flooding.

2.2.3 Soils

Over 70 soil pits (approximately 18 inches deep) were excavated and described while conducting the wetland determination. An unexploded ordnance technician was present during all excavations to assess the location for the presence of MEC. None was found during soil excavation activities. The soils are described in the wetland determination data forms (Appendix A).

The predominance of geologically recent volcanic activity on Adak and adjacent islands has strongly influenced soil formation. Dozens of volcanic eruptions have occurred on Adak and other Aleutian Islands since the end of Quaternary glaciation. As a result, soils tend to lack horizons indicative of intense weathering. Stratifications from episodic eruptions and ash fall are still evident in many soils. Although permafrost is not present on Adak, short growing seasons and cold temperatures also have limited soil development. The ash cap in the study area, where not eroded away, is believed to be at least 5 feet deep. Most of the ash is silt-sized and interlayered with coarser pumice-like material within layers high in organic matter (former surface layers). Both upland and wetland mineral soils that formed in volcanic ash classify as Andisols (described below). In exposed areas, there is little surface soil development. In less exposed areas, vegetation is more abundant and leads to greater organic matter input to the soil (organic-rich A horizon). In poorly drained areas, the organic matter does not decompose as rapidly, leading to development of either a histic epipedon or a histosol.

Soils in the study area classify as either Andisols or Histosols.

Andisols

Andisols form through weathering processes that generate minerals with little orderly crystalline structure. These minerals can result in an unusually high water- and nutrient-holding capacity. As a group, Andisols tend to be highly productive soils. They include weakly weathered soils with much volcanic glass, as well as more strongly weathered soils. They are common in cool areas with moderate to high precipitation, especially those areas associated with volcanic materials.

Well-drained Andisols in the study area typically have a thin organic (O) horizon over a thin loamy, dark A horizon over a series of silty or sandy, dark ash-modified layers. Basalt bedrock, glacial till or other volcanic deposits (lahar) are greater than 5 feet below the surface. Andisols with poorer drainage have deeper and/or less decomposed organic surfaces (including histic epipedons) and characteristic redoximorphic features within 12 inches of the mineral surface. Redoximorphic features are features associated with wetness that result from the reduction and oxidation of iron and manganese compounds in the soil after water saturation and desaturation, respectively (SSSA 2001). They are described as depletions (grey colors) or concentrations (bright red or orange colors) and occur either in the soil matrix, or along pore linings. Soils that have been wet for extended periods of time may also produce a characteristic “rotten egg” odor resulting from the reduction of sulfur to hydrogen sulfide.

Not all Andisols that met the definition of a hydric soil (formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part) met a hydric soil indicator. These soils are considered problematic in the USACE 2007 regional manual:

> **Soils with low weatherable-iron content.** A soil may contain little or no weatherable iron-bearing material due to the mineralogy of the parent material in which it formed. Gley colors, iron depletions, redox concentrations, and reaction to alpha, alpha-dipyridyl dye all require the presence of weatherable iron. If sufficient weatherable iron-bearing material is lacking in a saturated soil, these hydric soil indicators will be very weak or absent. Examples include soils formed in some types of *volcanic ash* or from diorite parent materials” (USACE 2007).

The USACE 2007 regional manual provides procedures to follow when a soil is believed to be hydric, but does not meet a hydric soil indicator. Positive indicators of hydrophytic vegetation and wetland hydrology must first be confirmed. A URS biologist also contacted an NRCS soil scientist in Alaska to determine the appropriate methodology for hydric soil determinations in volcanic ash soils (Clark 2011). Based on this guidance, hydric soil determinations on Andisols

relied heavily upon landscape setting. The following landscapes were considered to have hydric soils where indicators of hydrophytic vegetation and wetland hydrology were present:

- Concave surfaces (depressions or swales)
- Floodplains and low terraces
- Level or nearly level areas (0 to 3 percent slopes; up to 12 percent slopes in concave areas)
- Toe slopes and other areas where groundwater discharges (seeps)

Histosols

Histosols have a high content of organic matter and no permafrost. Most are saturated throughout the year, but a few are freely drained. Histosols are commonly called bogs, moors, peats, or mucks. They form when decomposed plant remains accumulate in water or wet soils faster than they decay. If these soils are drained and exposed to air, microbial decomposition is accelerated and the soils may subside (lose structure and volume) dramatically.

These soils were found in depressions and in toe slopes or other positions that receive relatively permanent slope seepage water. The depth of the organic layers is greater than 16 inches over mineral soil. Most of the Histosols were characterized by moderately decomposed organic matter (mucky-peat or hemic material). Wetter areas had slightly decomposed organic matter (peat or fibric material).

2.2.4 Vegetation

Vegetation on Adak Island is classified as maritime tundra. It is typified by low-growing grasses, forbs, and shrubs. Trees and tall shrubs are absent because of strong winds. Ferns are conspicuous, and mosses and lichens are common on the ground surface. The terrestrial vegetation is composed primarily of perennial species that grow close to the ground and form rather continuous monotonous stands. Most species die back to ground level following the brief growing season (early May through mid-October) and overwinter as bulbs, corms, tubers, and rhizomes. However, a few plants, such as crowberry (*Empetrum nigrum)* and alpine azalea (*Loiseleuria procumbens*), are evergreen and provide food for animals throughout the year. All plant species observed during the wetland delineation are listed in Appendix B by both common and scientific names.

Plant species diversity is lower than for other areas at similar latitudes. One hundred and four species were observed in the study areas, including 11 shrubs, 59 herbs, 24 graminoids (grasses,

sedges, and rushes), 3 ferns, 2 horsetails, and 5 clubmosses. Mosses and lichens are common in some settings, but do not factor directly in wetland delineations and were not identified or noted. The vegetation is almost entirely composed of native species. Only two non-native species were observed. Although species diversity is not great, there is a large number of community types within a relatively small area. Part of this can be attributed to the great diversity of landscapes within a short distance, ranging from near-permanent snow fields at the top of Mount Moffett to coastal beaches and dunes. Much of the community-level diversity can also be attributed to wind and its effect on snow accumulation and soil moisture (Golodoff 2003). Exposed areas lack snow cover and receive the full force of freezing and drying winds. Only dwarf shrubs, lichens, and a few hardy herbs persist in these areas. Unexposed areas maintain the shelter of snow cover and benefit from higher soil moisture during the growing season. These areas have a lush covering of grasses, sedges, and herbs. The following descriptions use the Alaska Vegetation Classification (Viereck et al. 1992).

Upland Plant Communities

Crowberry Tundra. Crowberry (*Empetrum nigrum*) is dominant, with lesser amounts of bog blueberry (*Vaccinium uliginosum*), Arctic willow (*Salix arctica*), Aleutian mountain heather (*Phyllodoce aleutica*), and Alaska cassiope (*Cassiope lycopodioides*). The herb layer is variable and may include clubmoss (*Lycopodium* sp.), avens (*Geum calthifolium*), Unalaska arnica (*Arnica unalaschcensis*), mountain harebell (*Campanula lasiocarpa),* large-awned sedge (*Carex macrochaeta*), and many-flowered sedge (*Carex pluriflora*).

Midgrass-Herb. This community is dominated by two or more species of grasses, as well as forbs. Common grasses include red fescue (*Festuca rubra*), Bering's tufted hairgrass (*Deschampsia beringensis*), Pacific reedgrass (*Calamagrostis nutkaensis*), and bluejoint (*Calamagrostis canadensis*). Common herbs include, white anemone (*Anemone narcissiflora*), Nootka lupine (*Lupinus nootkatensis*), northern monkshood (*Aconitum maximum*), wormwood (*Artemisia unalaskensis*), alpine clubmoss (*Lycopodium alpinum*), dwarf dogwood (*Cornus suecica*), wild geranium (*Geranium erianthum*), coastal angelica (*Angelica lucida*), fireweed (*Chamerion angustifolium),* and yarrow (*Achillea borealis*).

Bluejoint-Herb. Pacific reedgrass (*Calamagrostis nutkaensis)* is the dominant species. Bering's tufted hairgrass (*Deschampsia beringensis*), bluejoint (*Calamagrostis canadensis*), and red fescue (*Festuca rubra*) may be present, but are less common. Common herbs include cow parsnip (*Heracleum lanatum*), fireweed (*Chamerion angustifolium*), coastal angelica (*Angelica lucida*), lady fern (*Athyrium filix-femina*), common horsetail (*Equisetum arvense*), and wild geranium (*Geranium erianthum*).

Wetland Plant Communities

Ericaceous Shrub Bog. Common shrubs include bog blueberry and crowberry. The herbaceous layer includes tufted spike rush (*Trichophorum caespitosum*) and many-flowered sedge (*Carex pluriflora*). Peat moss (*Sphagnum* sp.) is present. The depth of organic soils is variable, but usually over 18 inches. This plant community type can appear similar to Crowberry Tundra, but has deeper organic soils and a better developed herb layer.

Hairgrass. Bering's tufted hairgrass (*Deschampsia beringensis*) is the dominant species. Arctic rush (*Juncus arcticus*), bluejoint (*Calamagrostis canadensis*), Pacific reedgrass (*Calamagrostis nutkaensis*), red fescue (*Festuca rubra*), and yarrow (*Achillea borealis*) are common associates. This community type also occurs in moist uplands.

Subarctic Lowland Herb Wet Meadow. This community is dominated by herbs other than grasses or sedges, including common horsetail (*Equisetum arvense*), variegated scouring-rush (*Equisetum variegatum*), marsh marigold (*Caltha palustris*), Arctic rush (*Juncus arcticus*), bog orchid (*Platanthera convallariaefolia*), white bog orchid (*Platanthera dilatata*), and Siberian springbeauty (*Claytonia sibirica*). It is found in seepage areas, pools, pond margins and marsh edges.

Subarctic Lowland Sedge Wet Meadow. This community is dominated by coarse, relatively tall sedges including water sedge (*Carex aquatilis*) and rock sedge (*Carex saxatilis*). Common associates include many-flowered sedge (*Carex pluriflora*), large-awned sedge (*Carex macrochaeta*), tufted spikerush (*Trichophorum caespitosum*), russet cottongrass (*Eriophorum russeolum*), marsh marigold (*Caltha palustris*), common horsetail (*Equisetum arvense*), and variegated scouring-rush (*Equisetum variegatum*). It is found on floodplains, near pond margins, and in upland depressions.

Subarctic Lowland Sedge-Bog Meadow. This community is similar to the Subarctic Lowland Sedge Wet Meadow, but dominated by low, slender sedges, including russet cottongrass (*Eriophorum russeolum*), many-flowered sedge (*Carex pluriflora*), and tufted spikerush (*Trichophorum caespitosum*). It is found on organic soils on slope seepage zones, pond margins, and depressions.

2.2.5 Wetland Descriptions

Eighty-five wetlands were delineated within the study area, with 41 fully or partially contained in the RAAs. They are summarized in Table 2-2. The eighty-five wetlands within the study area include the following:

- ALDA-01: 2 wetlands (labeled A and B)

- C1-01: 47 wetlands (labeled A through Z and AA through UU)
- HG-01: 1 wetland (labeled K)
- MI-03: 13 wetlands (labeled B, C, and L through V)
- OB/OD-01: 1 wetland (labeled A)
- RR-01: 8 wetlands (labeled D through J and W)
- SA93-01: 13 wetlands (labeled A through M)

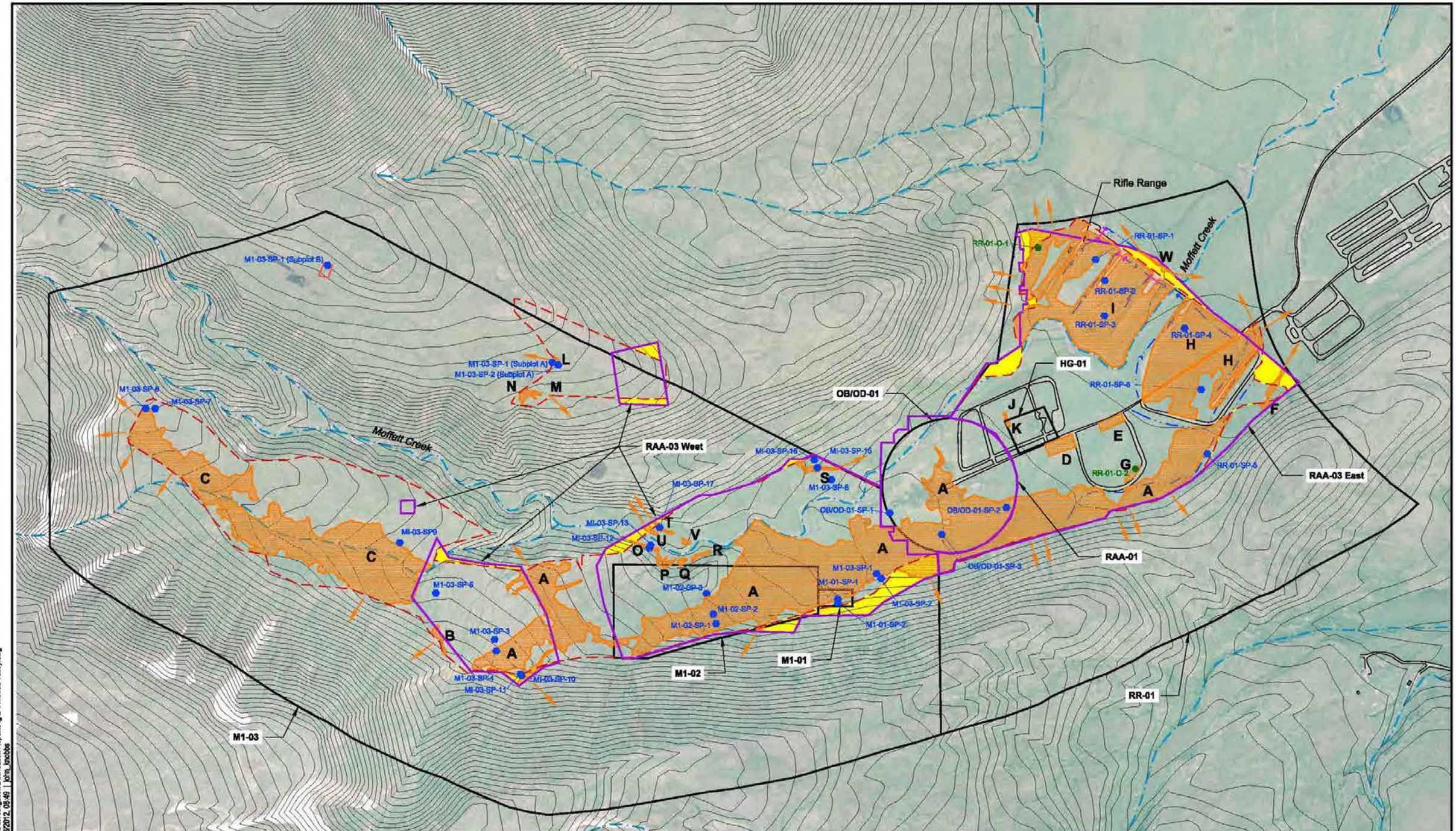
Note that Wetland A in Site OB/OD-01 extends east onto Site RR-01 and west onto Sites MI-01, MI-02 and MI-03. Wetlands in the Moffett Creek Valley (Sites HG-01, MI-01, MI-02, MI-03, OB/OD-01, and RR-01) are shown on Figure 2-1; wetlands on sites ALDA-01 and C1-01 are shown on Figure 2-2; and wetlands on SA93-01 are shown on Figure 2-3.

The wetlands within the RAAs include the following:

- RAA-01: 1 wetland (labeled A)
- RAA-02: 9 wetlands (labeled M through Q and LL through OO)
- RAA-03 East: 9 wetland (labeled D through K and W)
- RAA-03 West: 10 wetlands (labeled B, C, and O through V)
- RAA-04: 10 wetlands (labeled A through C, F, and H through M)
- RAA-05: 2 wetlands (labeled A and B)

Note that Wetland A in RAA-03 East extends west through RAA-01 and RAA-03 West.

Wetland characteristics are summarized in Table 2-2. Hydrology, soils, vegetation, and functions are described in the tables in Appendix C, which also includes representative photographs. Large or unique wetlands are described separately, while smaller, similar wetlands within a given site are grouped together. The wetland descriptions include the Cowardin water regime, primary sources of hydrology, hydrologic connection, and primary and secondary wetland hydrology indicators for each wetland or wetland grouping. They also give the depth of saturation or ponding at the time of observation.



Legend:

- Site Boundary
- 2011 Survey Area
- Remedial Action Area
- Stream (Existing Data)
- Drainage/Ditch (Field Observation)
- Road (Existing Data)
- 2012 Survey Area
- Culvert
- A Wetland
- Wetland Continues Beyond Survey Area
- Sample Plot
- Observation Plot

Note: Contours at 20-foot interval.

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Delivery Order 0041
Adak Island, AK
OU B-2 WETLAND
DELINEATION

0 300 600
SCALE IN FEET

Figure 2-1
Sites M1-01, M1-02, M1-03, OB/OD-01, HG-01, and RR-01

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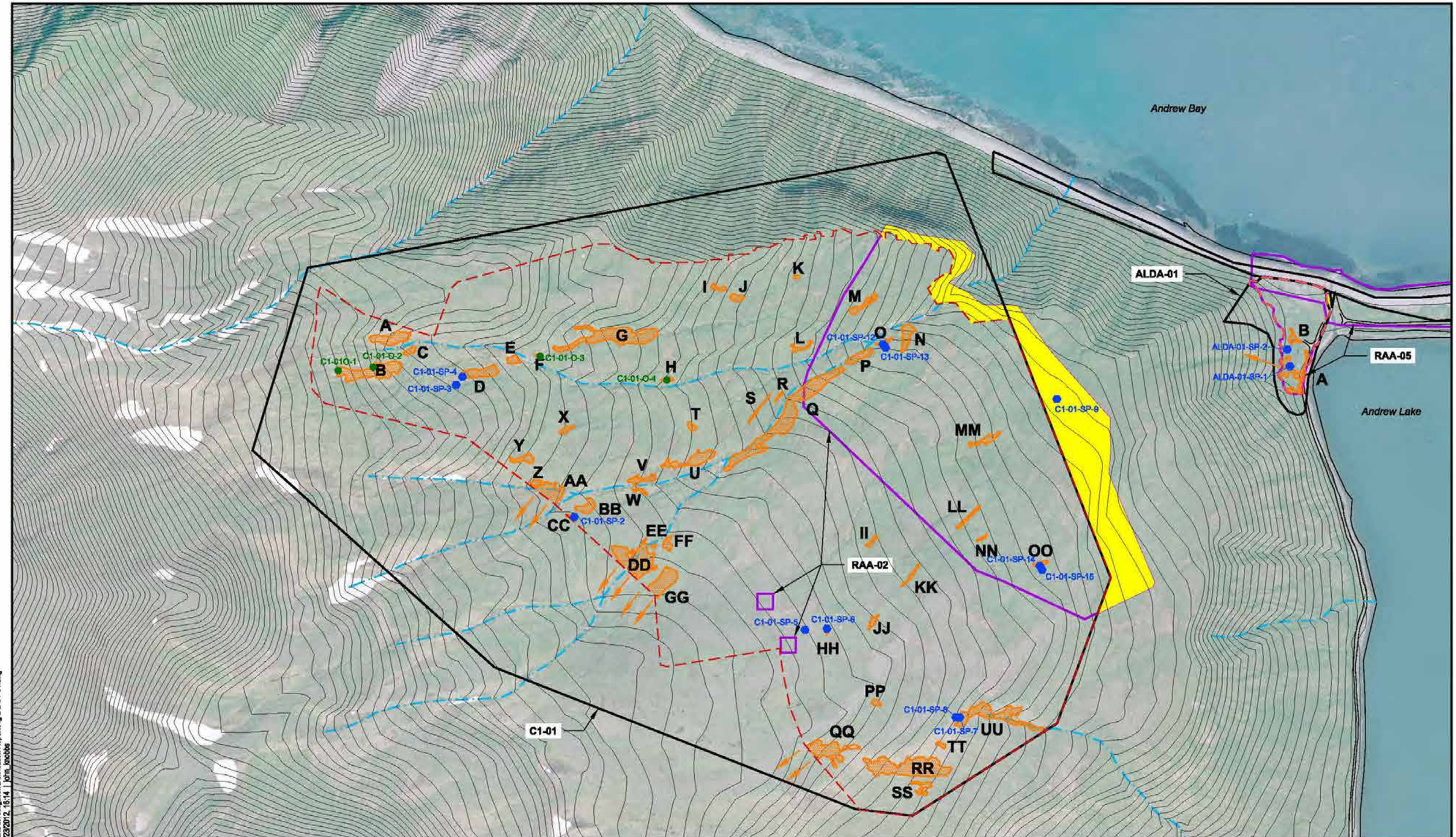
Mod: 07/26/2012, 08:49 | Plotted: 07/26/2012, 08:49 | john_knobbs



Legend:

- Site Boundary
- 2011 Survey Area
- Remedial Action Area
- Stream (Existing Data)
- Drainage/Ditch (Field Observation)
- Road (Existing Data)
- 2012 Survey Area
- Culvert
- Wetland
- Wetland Continues Beyond Survey Area
- Sample Plot
- Observation Plot

Note: Contours at 20-foot interval.

U.S. NAVY

Delivery Order 0041
Adak Island, AK
OU B-2 WETLAND
DELINEATION

0 300 600
SCALE IN FEET

Figure 2-2
Sites C1-01 and ALDA-01

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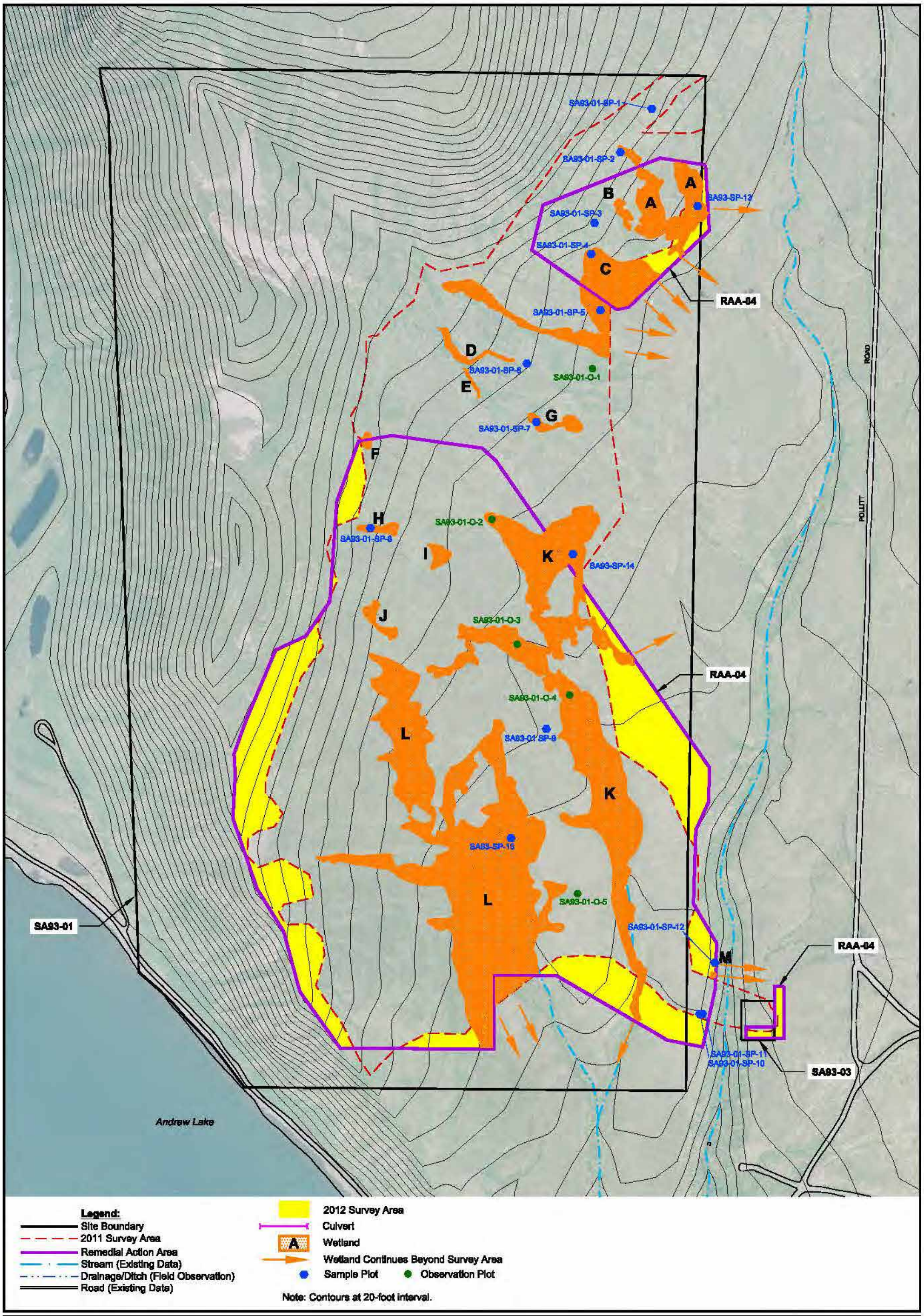
Mod: 07/23/2012, 16:13 | Plotted: 07/23/2012, 16:14 | John_knobbs



U.S. NAVY

0 200 400
SCALE IN FEET

Figure 2-3
Sites SA93-01 and SA93-03

Delivery Order 0041
Adak Island, AK
OU B-2 WETLAND
DELINEATION

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Mod: 07/26/2012, 10:31 | Plotted: 07/26/2012, 15:21 | john_knobbs

Table 2-1
Plant Species Wetland Indicator Categories

Indicator Category	Occurrence	Probability in Wetlands (Estimated)
Obligate (OBL)	Occurs almost always in wetlands under natural conditions	Greater than 99%
Facultative Wetland (FACW)	Usually occurs in wetlands, but occasionally found in nonwetlands	67 to 99%
Facultative (FAC)	Equally likely to occur in wetlands and nonwetlands	34 to 66%
Facultative Upland (FACU)	Usually occurs in nonwetlands, but occasionally found in wetlands	1 to 33%
Upland (UPL)	Occurs almost always under natural conditions in nonwetlands in this region, but may occur in wetlands in another region	Less than 1%

Source: USACE 1987

Table 2-2
Wetlands in the Study Area

Site	RAA[a]	Wetland Name	Size (Acre)	Size Within RAA (Acre)	HGM Class	Cowardin Class[b]
ALDA-01	05	A	0.32 [c]	0.32	Depressional	Emergent Persistent Seasonally Flooded
ALDA-01	05	B	0.07	0.07	Depressional	Emergent Persistent Seasonally Flooded
C1-01	N/A	A	0.33	-	Slope	Emergent Persistent Saturated
C1-01	N/A	B	0.67	-	Slope	Emergent Persistent Saturated
C1-01	N/A	C	0.06	-	Slope	Emergent Persistent Saturated
C1-01	N/A	D	0.29	-	Slope	Scrub-shrub (Deciduous)/Emergent (Persistent) Saturated
C1-01	N/A	E	0.08	-	Slope	Emergent Persistent Saturated
C1-01	N/A	F	0.02	-	Slope	Emergent Persistent Saturated
C1-01	N/A	G	1.02	-	Slope	Emergent Persistent Saturated
C1-01	N/A	H	0.03	-	Slope	Emergent Persistent Saturated
C1-01	N/A	I	0.05	-	Slope	Emergent Persistent Saturated
C1-01	N/A	J	0.08	-	Slope	Scrub-shrub (Deciduous)/Emergent (Persistent) Saturated
C1-01	N/A	K	0.01	-	Slope	Emergent Persistent Saturated
C1-01	N/A	L	0.07	-	Slope	Emergent Persistent Saturated
C1-01	02	M	0.14	0.14	Slope	Emergent Persistent Saturated
C1-01	02	N	0.20	0.2	Slope	Emergent Persistent Saturated
C1-01	02	O	0.03	0.03	Slope	Emergent Persistent Saturated
C1-01	02	P	0.16	0.16	Slope	Emergent Persistent Saturated
C1-01	02	Q	1.46	0.44	Slope	Emergent Persistent Saturated
C1-01	N/A	R	0.02	-	Slope	Emergent Persistent Saturated
C1-01	N/A	S	0.03	-	Slope	Emergent Persistent Saturated
C1-01	N/A	T	0.05	-	Slope	Emergent Persistent Saturated
C1-01	N/A	U	0.34	-	Slope	Emergent Persistent Saturated
C1-01	N/A	V	0.12	-	Slope	Emergent Persistent Saturated
C1-01	N/A	W	0.03	-	Slope	Emergent Persistent Saturated
C1-01	N/A	X	0.06	-	Slope	Emergent Persistent Saturated
C1-01	N/A	Y	0.12	-	Slope	Emergent Persistent Saturated
C1-01	N/A	Z	0.05	-	Slope	Emergent Persistent Saturated
C1-01	N/A	AA	0.35	-	Slope	Emergent Persistent Saturated
C1-01	N/A	BB	0.15	-	Slope	Emergent Persistent Saturated
C1-01	N/A	CC	0.02	-	Slope	Emergent Persistent Saturated
C1-01	N/A	DD	0.84[c]	-	Slope	Emergent Persistent Saturated
C1-01	N/A	EE	0.01	-	Slope	Emergent Persistent Saturated
C1-01	N/A	FF	0.08	-	Slope	Emergent Persistent Saturated
C1-01	N/A	GG	0.46[c]	-	Slope	Emergent Persistent Saturated
C1-01	N/A	HH	0.01	-	Depressional	Scrub-shrub (Evergreen)/Emergent (Persistent) Seasonally Flooded/Saturated

Table 2-2 (Continued)
Wetlands in the Study Area

Site	RAA[a]	Wetland Name	Size (Acre)	Size Within RAA (Acre)	HGM Class	Cowardin Class[b]
C1-01	N/A	II	0.04	-	Depressional	Emergent Persistent Seasonally Flooded/Saturated
C1-01	N/A	JJ	0.05	-	Depressional	Emergent Persistent Seasonally Flooded/Saturated
C1-01	N/A	KK	0.05	-	Depressional	Emergent Persistent Seasonally Flooded/Saturated
C1-01	02	LL	0.07	0.07	Depressional	Emergent Persistent Seasonally Flooded/Saturated
C1-01	02	MM	0.13	0.13	Depressional	Emergent Persistent Seasonally Flooded/Saturated
C1-01	02	NN	0.02	0.02	Depressional	Emergent Persistent Seasonally Flooded/Saturated
C1-01	02	OO	0.05	0.05	Depressional	Emergent Persistent Seasonally Flooded/Saturated
C1-01	N/A	PP	0.04	-	Depressional	Emergent Persistent Seasonally Flooded/Saturated
C1-01	N/A	QQ	0.51[c]	-	Slope	Scrub-shrub (Evergreen)/Emergent (Persistent) Saturated
C1-01	N/A	RR	1.15	-	Slope	Scrub-shrub (Evergreen)/Emergent (Persistent) Saturated
C1-01	N/A	SS	0.11	-	Slope	Scrub-shrub (Evergreen)/Emergent (Persistent) Saturated
C1-01	N/A	TT	0.03	-	Slope	Scrub-shrub (Evergreen)/Emergent (Persistent) Saturated
C1-01	N/A	UU	0.71	-	Slope	Scrub-shrub (Evergreen)/Emergent (Persistent) Saturated
HG-01	03 East	K	0.02	0.02	Depressional	Emergent Persistent Seasonally Flooded/Saturated
MI-03	03 West	B	0.16[c]	0.01	Slope	Emergent Persistent Saturated
MI-03	03 West	C	16.17[c]	0.08	Slope	Emergent Persistent Saturated
MI-03	N/A	L	0.04[c]	-	Depressional	Emergent Persistent Saturated
MI-03	N/A	M	0.00[c]	-	Depressional	Emergent Persistent Saturated
MI-03	N/A	N	0.16	-	Slope	Emergent Persistent Saturated
MI-03	03 West	O	0.07	0.07	Slope	Emergent Persistent Saturated
MI-03	03 West	P	0.13	0.13	Slope	Emergent Persistent Saturated
MI-03	03 West	Q	0.04	0.04	Slope	Emergent Persistent Saturated
MI-03	03 West	R	0.06	0.06	Slope	Emergent Persistent Saturated
MI-03	03 West	S	0.20[c]	0.20	Slope	Emergent Persistent Saturated
MI-03	03 West	T	0.06[c]	0.06	Slope	Emergent Persistent Saturated
MI-03	03 West	U	0.08[c]	0.08	Slope	Emergent Persistent Saturated
MI-03	03 West	V	0.04	0.04	Slope	Emergent Persistent Saturated

Table 2-2 (Continued)
Wetlands in the Study Area

Site	RAA[a]	Wetland Name	Size (Acre)	Size Within RAA (Acre)	HGM Class	Cowardin Class[b]
OB/OD-01	01, 03 East, 03 West	A	41.49[d]	38.16	Slope/ Depressional	Emergent Persistent Seasonally Flooded Emergent Persistent Saturated
RR-01	03 East	D	0.45	0.45	Depressional	Emergent Persistent Seasonally Flooded/Saturated
RR-01	03 East	E	0.26	0.26	Depressional	Emergent Persistent Seasonally Flooded/Saturated
RR-01	03 East	F	0.22[c]	0.22	Depressional	Emergent Persistent Seasonally Flooded/Saturated
RR-01	03 East	G	0.11	0.11	Depressional	Emergent Persistent Seasonally Flooded/Saturated
RR-01	03 East	H	9.24[c]	8.97	Depressional Riverine	Emergent Persistent Seasonally Flooded/Saturated
RR-01	03 East	I	13.59[c]	12.78	Riverine	Emergent Persistent Seasonally Flooded/Saturated
RR-01	03 East	J	0.01	0.01	Depressional	Emergent Persistent Seasonally Flooded/Saturated
RR-01	03 East	W	0.08[c]	0.08	Riverine	Emergent Persistent Saturated
SA93-01	04	A	1.47[c]	1.40	Slope	Emergent Persistent Saturated
SA93-01	04	B	0.08	0.08	Slope	Emergent Persistent Saturated
SA93-01	04	C	2.37[c]	1.31	Slope	Emergent Persistent Saturated
SA93-01	N/A	D	0.12	-	Slope	Emergent Persistent Saturated
SA93-01	N/A	E	0.02	-	Slope	Emergent Persistent Saturated
SA93-01	04	F	0.04	0.03	Slope	Emergent Persistent Saturated
SA93-01	N/A	G	0.18	-	Slope	Emergent Persistent Saturated
SA93-01	04	H	0.10	0.10	Slope	Emergent Persistent Saturated
SA93-01	04	I	0.12	0.12	Slope	Emergent Persistent Saturated
SA93-01	04	J	0.14	0.14	Slope	Emergent Persistent Saturated
SA93-01	04	K	7.98[c]	7.12	Slope/ Depressional	Emergent Persistent Seasonally Flooded Emergent Persistent Saturated
SA93-01	04	L	12.10[c]	11.81	Slope/ Depressional	Emergent Persistent Seasonally Flooded Emergent Persistent Saturated
SA93-01	04	M	0.01[c]	0.01	Slope	Emergent Persistent Saturated

[a]N/A in this column means that the wetland lies outside of the RAA boundary, but still within the site boundary.
[b]All wetlands are within the palustrine system (Cowardin et al. 1979).
[c]Wetland continues outside the survey area.
[d]Wetland extends onto Sites RR-01, MI-01, MI-02, and MI-03 and continues outside the survey area.

Note: HGM - hydrogeomorphic

3.0 FUNCTIONS ASSESSMENT

3.1 METHODS FOR DETERMINING FUNCTION

Wetland functions are the natural processes occurring within a wetland (and between a wetland and adjacent nonwetland areas). Some of the more significant processes are the hydrologic and nutrient cycles that both determine the character and quality of a wetland and provide ecosystem services that are valued by society. Wetland values express the importance that these functions have for society and may be based on economic, cultural, aesthetic, or other considerations.

Since many wetland functions are difficult and time consuming to measure directly, ecosystem structure has traditionally been used as a guide to determine function. Functional assessment methods use measurements of vegetation, soil, hydrology, and landscape variables to make qualitative or quantitative assessment of function. Since landscape position, water source, and hydrodynamics have an overriding influence on many wetland functions, HGM classification is an essential first step to functional assessment.

A standard wetland functional assessment method has not been developed for Alaska (USACE 2011). Those that have been developed for other areas are not readily adaptable for Alaska, especially for the unique conditions that exist on the Aleutian Islands. The present study therefore provides only a very general assessment of functions, without trying to quantify them. The assessment is based on a “Best Professional Judgment Characterization” approach provided by the USACE Alaska District Regulatory Branch (USACE 2009), as well as interpretations from the HGM classification. The wetland functions assessed are described below.

3.1.1 Modification of Groundwater Discharge

This is the capacity of a wetland to influence the amount of water moving from the groundwater to surface water. Most wetlands, at least seasonally, occur in discharge, rather than recharge positions in the landscape. This function occurs most dominantly in slope wetlands, where groundwater seepage is the primary water source. However, the groundwater discharge function is also present in many depressional wetlands and near the upper boundaries of lacustrine and riverine wetlands. Shallow lateral groundwater flow that follows restrictive layers in the soil or bedrock typically causes seepage areas where these layers come close to the ground surface, or at slope breaks. Discharge wetlands have characteristically higher nutrient status, since they receive and retain water that has been in contact with mineral soil layers or bedrock.

3.1.2 Modification of Groundwater Recharge

This is the capacity of a wetland to influence the amount of water moving from surface water to groundwater. In humid climates, or during seasonally wet periods, some wetlands act as sources for groundwater recharge. Precipitation and surface water reaching the wetland passes through the wetland soil to the underlying aquifer. This condition can only occur where there is no impermeable layer between the soil surface and the aquifer. Wetlands with restrictive layers may still influence regional groundwater tables and stream flow through lateral groundwater flow. Based on local hydrology studies, wetlands in the project area are not likely to significantly contribute to recharging regional aquifers.

3.1.3 Storm and Floodwater Storage

This is the storage of inflowing water from storm or flooding events, resulting in detention and retention of water on the wetland surface. Most wetlands, with the exception of slope wetlands, have topographic, soil and vegetation attributes that contribute to their ability to retain and detain storm flows. Their location in the watershed dictates how important this function is to downstream resources. Wetlands with no outlets, or constricted outlets, perform this function the best.

3.1.4 Modification of Stream Flow

This is the modification of inflow hydrology by the wetland to produce the outlet stream's hydrology. The retention of flow in a wetland produces favorable results for downstream hydrographs by reducing peak flows and increasing base flows. Both may be critical for sustaining downstream aquatic ecosystems and species. Wetlands, especially organic wetlands, also provide thermo-regulation of water temperature.

3.1.5 Modification of Water Quality

This is the removal of suspended and dissolved solids from surface water and dissolved solids from groundwater and conversion into other forms, plant or animal biomass, or gases. Wetland soils, plants, and organisms provide complex physical, chemical, and biological mechanisms for improving water quality. Sediments are retained by vegetation and the physical structure of the wetland; nutrients are incorporated into biomass, absorbed by soils, or transformed by chemical and microbial pathways. Wetlands with a low slope angle or located in depressions provide a high level of this function.

3.1.6 Production and Export of Organic Matter

This is the capacity of the wetland to export organic detritus from the wetland to adjacent and downstream aquatic ecosystems. This function occurs where abundant organic detritus is produced and transported to downstream aquatic ecosystems during periods of inundation and flow-through. Export of detritus is commonly greatest in slope wetlands and wetlands adjacent to streams and lakes. It is lowest in depressional wetlands.

3.1.7 Contribution to Native Plant Richness

This is the capacity of a wetland to produce an abundance and diversity of hydrophytic plant species individually or as part of a group of wetlands in a local landscape. This function is largely influenced by the habitat, the structural and water regime diversity of a wetland, its connectivity to other wetland and upland habitats, and its disturbance regime. Vegetation diversity is generally low in the project vicinity and not particularly concentrated in wetlands, as is true for areas where wetlands are scarcer. Particular wetland types, however, are more diverse than others. In the project vicinity, these include wetland complexes that include the full range of water regimes from permanently flooded ponds to seasonally saturated areas.

3.1.8 General Habitat Suitability

This is the capacity of a wetland to support large and/or diverse populations of animal species that spend part or all of their life cycle in wetlands, individually, or as part of a mosaic of wetlands in a local landscape. This function is largely dependent on the water regimes and vegetation that provide feeding, breeding, and hiding habitat and cover. The location of a wetland in the landscape is also critical, as many species require corridors and connections to other habitats, both wetland and upland.

3.2 RESULTS

A general assessment of functions is provided in Table 3-1, which indicates which of the eight wetland functions is expected to occur in the wetlands. Functions for each wetland or wetland grouping are listed in the wetland description tables in Appendix C. Data forms are provided in Appendix D.

3.2.1 Depressional Wetlands

Depressions may be either closed or open, depending on the presence of a surface water outlet. Maximal floodwater storage, stream flow modification, and water quality improvement occurs in closed depressions and in depressions with highly constricted outlets. On the other hand, these

wetlands are poor exporters of detritus and do not support the downstream aquatic food chain. While surface flow is the dominant water source, some depressional wetlands also receive groundwater discharge.

Depressional wetlands may have a wide range of water regimes. The extent and depth of inundation may be highly seasonal where surface flow is the dominant water source. The wide range of water regimes contributes to an abundance and diversity of wetland vegetation and wetland-dependent fauna. Ponds and associated wetlands may seasonally support high densities of aquatic invertebrates and migratory waterfowl.

3.2.2 Slope Wetlands

Slope wetlands often occur on the upper boundaries of other HGM classes, including depressional, lacustrine, and riverine wetlands. Slope wetlands occur throughout the project area. Groundwater discharge is often the sole hydrology-related function that they perform, although some slope wetlands have small depressions that contribute to flow attenuation and water quality improvement. Slope wetlands above streams may provide significant base-flow support.

Slope wetlands tend to have few water regimes other than seasonal or semi-permanent saturation. This tends to limit the diversity of wetland vegetation. Dominant species are often just as well adapted to upland conditions. The same is true for wetland-dependent fauna. Slope wetlands that have a surface water connection to streams provide export of organic matter.

3.2.3 Riverine Wetlands

These wetlands occur where overbank flooding is the dominant hydrology source, though groundwater discharge is also common at their upper boundaries. They can occur anywhere within a watershed, from small, intermittent streams in the upper watershed, to large perennial rivers in the lower watershed. They are not thought to contribute significantly to groundwater recharge. Riverine wetlands vary considerably in their capacity to store floodwaters. Low-gradient floodplains with significant depressions, dense vegetation, and roughness provide for increased residency time and increased flood storage and water quality improvement. Increased storage in the wetland, together with groundwater discharge into the wetland, serve to reduce peak flows and increase base flows in the streams. These wetlands also provide stream-bank stability and erosion control and have a high potential to export organic matter downstream.

Riverine geomorphic and hydrologic processes may result in a very complex array of habitats across the floodplain, which contributes to a high diversity of wetland vegetation. Overbank flooding also serves to transport propagules (plant offshoots that reproduce the plant) from other

areas. Seasonal flooding and habitat diversity in turn contribute to a high diversity of wetland-dependent fauna.

Table 3-1
Wetland Functions Expected by Wetland Group at Former Adak Naval Complex

Wetlands	Functions							
	Modification of Groundwater Discharge	**Modification of Groundwater Recharge**	**Storm and Floodwater Storage**	**Modification of Stream Flow**	**Modification of Water Quality**	**Production and Export of Organic Matter**	**Contribution to Native Plant Richness**	**General Habitat Suitability**
ALDA-01: Wetlands A-B	No	No	Yes	No	Yes	No	Yes	Yes
C1-01: Wetlands A-M, X-Z	Yes	No	No	Yes	Yes	Yes	Yes	Yes
C1-01: Wetlands N-W, AA-GG	Yes	No	No	Yes	Yes	Yes	Yes	Yes
C1-01: Wetlands HH-PP	No	No	Yes	No	Yes	No	Yes	No
C1-01: Wetlands QQ-UU	Yes	No	No	Yes	Yes	Yes	Yes	Yes
MI-03: Wetlands B, L-N	Yes	No	No	Yes	Yes	Yes	Yes	Yes
MI-03: Wetlands O-V	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
MI-03: Wetland C	Yes	No	No	Yes	Yes	Yes	Yes	Yes
OB/OD-01, RR-01, MI-01, MI-02, MI-03: Wetland A	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
RR-01: Wetlands D-H, J HG-01: Wetland K	No	No	Yes	Yes	Yes	Yes	No	No
RR-01: Wetland I and W	No	No	Yes	Yes	Yes	Yes	No	No
SA93-01: Wetlands A-C	Yes	No	Yes	Yes	Yes	Yes	No	Yes
SA93-01: Wetlands D-J	Yes	No	Yes	No	Yes	No	Yes	No
SA93-01: Wetlands K-M	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes

[a]No = function unlikely to occur; Yes = function likely to occur

4.0 CONCLUSIONS AND RECOMMENDATIONS

This wetland delineation study characterized the wetlands in 10 of the 11 OU B-2 sites requiring active remedies. Eighty-five wetlands were delineated within the study area. These wetlands range in size from less than 0.01 acre to over 40 acres. The number of wetlands per site, as well as total wetland acreage per site, is summarized in Table 4-1. One of the wetlands in the Moffett Creek Valley spans five sites (MI-01, MI-02, MI-03, OB/OD-01, and RR-01) and is included in the count in the number of wetlands per site for each of the sites it crosses. Therefore, the total number of wetlands shown in the table is 89 because of this multiple accounting. The acreages shown are the totals within the survey area within each site. A total of 118.18 acres of wetland was identified across the 9 of the 10 surveyed areas. No wetland was identified in SA93-03.

Forty-one wetlands were delineated within the RAA boundaries. These wetlands range in size from 0.01 to over 38 acres. The number of wetlands per RAA, as well as total wetland acreage per RAA, is summarized in Table 4-2. One of the wetlands in the Moffett Creek Valley spans three RAAs (RAA-01, RAA-03 West, and RAA-03 East) and is included in the count in the number of wetlands per RAA for each of the sites it crosses. Therefore, the total number of wetlands shown in the table is 43 because of this multiple accounting. The acreages shown are the totals within the RAAs. A total of 85.58 acres of wetland was identified across the RAAs. Table 4-2 also shows the acreage of wetland that may not be jurisdictional. Final determination of jurisdictionality is made by the regulatory agencies. Impact assessments were not performed. Substantive compliance with federal laws and executive orders protecting wetlands require that impacts on wetlands be minimized to the extent feasible during remedy implementation. The contractor performing the removal actions at the OU B-2 sites will include wetland management and mitigation actions in the work plan for the removal action. In particular, this information will be included in the environmental protection plan.

Not all wetlands are under the jurisdiction of the Clean Water Act. Wetlands that are isolated (not connected to navigable waters) are not subject to the Clean Water Act. The USACE makes final determinations regarding jurisdictional wetlands. However, in general, wetlands that have no surface water or substantial groundwater connection to navigable waters, including via tributaries, are considered isolated (nonjurisdictional). Wetlands in areas distant from streams, such as some located in C1-01 and SA93-01, may be isolated. Table 4-2 shows the acreage of wetland that may not be jurisdictional. As previously stated, final determination of jurisdictionality is made by the regulatory agencies.

EPA guidance states that whether impacts are temporary or permanent, lost wetland functions should be fully mitigated or compensated by the conclusion of remediation (USEPA 1994). Mitigation for wetland impacts is not clearly prescribed. However, the types of actions used to

address wetland impacts are typically prioritized. Avoidance of the impact is the highest priority, followed by minimization of the impact, and then rectification of the impact (restoring the impacted wetland and functions). Finally, compensating for the impact is the least desirable method of addressing impacts to wetlands. Compensation can be performed by restoring a previously degraded or lost wetland, creating a wetland out of an upland, or improving the functions of existing wetland with low functions. The need and potential for compensatory mitigation are driven by two things. One is the importance of the wetland and functions lost as a result of the project impacts. The other is whether there is the opportunity for compensatory mitigation, typically within the watershed where the impact occurs. It is recommended that this sequence of mitigation be further reviewed in a project-specific context.

Table 4-1
Wetland Summary for Study Area

Site	Number of Wetlands[a]	Total Area (Acres)[b]
ALDA-01	2	0.39
C1-01	47	10.39
HG-01	1	0.02
MI-01	1	0.47
MI-02	1[c]	9.14
MI-03	14[c]	33.10
OB/OD-01	1	6.21
RR-01	9	33.73
SA-93	13	24.73
Total	89	118.18

[a]One Moffett Creek Valley wetland is included in the count for each of the five sites (MI-01, MI-02, MI-03, OB/OD-01, and RR-01) it crosses. Without this double counting, there are 85 wetlands.
[b]Acreages shown are the total within the survey area within each site.
[c]Two wetlands cross the boundary between MI-02 and MI-03. Since most of the acreage of these two wetlands is in MI-03, these two wetlands are only included in the counts for MI-03.

Table 4-2
Wetland Summary for Remedial Action Areas

Site	Number of Wetlands Within RAA[a]	Total Area in RAAs (Acres)	Jurisdictional Areas in RAAs[b] (Acres)	Non-Jurisdictional Areas in RAAs[b] (Acres)
RAA-01	1	6.67	6.67	0
RAA-02	9	1.23	0.89	0.34
RAA-03 West	11	22.59	22.59	0
RAA-03 East	10	32.57	32.57	0
RAA-04	10	22.13	22.13	0
RAA-05	2	0.39	0.39	0
Total	43	85.58	85.24	0.34

[a]One Moffett Creek Valley wetland is included in the count for each of three RAAs (RAA-01, RAA-03 West, and RAA-03 East)
[b]These are based on preliminary field jurisdictional recommendations. Final jurisdicational determinations are made by regulatory agencies such as the U.S. Army Corps of Engineers.

Note: RAA - remedial action area

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APPENDIX A

Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 / ALDA Borough/City: Adak Sampling Date: Sept 25, 20
Applicant/Owner: Navy Sampling Point: ALDA01-SP1
Investigator(s): Degutis, Walker, Lillywhite Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): Concave Slope (%): 1
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: PEMC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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 ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: plot w/in localized depression near toe of slope
AFW impact craters in vicinity of SP-1, some wetland, some upland

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Deschampsia beringensis	50	✓	assume FAC
2. Juncus articus	30	✓	OBL
3. Mimulus guttatus	T		OBL
4. Equisetum arvense	5		FACU
5. Ranunculus occidentalis	T		FACW
6. Phleum commutatum	T		FACW
7. Luzula wahlenbergii	T		OBL
8. Anaphalis margaritacea	T		NOL
9. Carex lenticularis	5		OBL
10. Juncus mertensianus	30		OBL
Potentilla frigida			FACW
Total Cover: 150			
50% of total cover: 50 20% of total cover: 20			

Plot size (radius, or length x width) 20' % Bare Ground 0
% Cover of Wetland Bryophytes (Where applicable) 0 Total Cover of Bryophytes 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: ALDA-SP-1

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2								organic - fibric
2-8								organic - sapric
8 +	10YR 3/2						L	very compacted

[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)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

Depth (inches): —

Hydric Soil Present? Yes X No ___

Remarks:

water may be perching on compacted loam @ 8"
H_2S @ 4" (strongly)

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)
- X 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): 6"

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:

* small pockets of inundation w/in plot
* plot near local toe of slope area

H_2S @ 4" (strongly)

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Adak OU 2 Borough/City: Adak Sampling Date: 9/25/11
Applicant/Owner: U.S. Navy Sampling Point: Ada-01-SP-2
Investigator(s): Walker, Degutis, Lillyhite Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): convex Slope (%): 1
Subregion: Aleutian Lat: Long: Datum: WGS 84
Soil Map Unit Name: NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? No Are "Normal Circumstances" present? Yes ✓ No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? No (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	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes	No ✓	
Wetland Hydrology Present?	Yes	No ✓	

Remarks:

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum			
1. N/A			
2.			
3.			
4.			
5.			
6.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum			
1. Equ Arv	20		FACU
2. Athy Felix	15		FAC
3. Cal ~~Nola~~ Nut	80	✓	FAC
4. Ger Eri	8		NOL
5. Cham Ang	5		FACW
6. Lig Sco	3		FAC
7. Lup Noot	2		FAC
8. Ach Gur	1		FACU
9. Ana Marg	1		NOL
10.			
Total Cover: 130			
50% of total cover: 65 20% of total cover: 26			

Plot size (radius or length x width) 20 % Bare Ground 0
% Cover of Wetland Bryophytes 0 Total Cover of Bryophytes 0
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes ✓ No

Remarks:

SOIL

Sampling Point: Akla-01-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 %	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	100					Loam	Gravels and metal debris
9-16	10YR 3/3	100					Sandy Loam	Gravels

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: NA

Depth (inches): –

Hydric Soil Present? Yes ____ No ✓

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 ✓ Depth (inches): –

Water Table Present? Yes ____ No ✓ Depth (inches): –

Saturation Present? (includes capillary fringe) Yes ____ No ✓ Depth (inches): –

Wetland Hydrology Present? Yes ____ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: CUB2/C101 Borough/City: Adak Sampling Date: 9/21/11
Applicant/Owner: NAVY Sampling Point: C101-SP-2
Investigator(s): K Dennis, E Lillywhite Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): Convex Slope (%): 1
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: UPLAND
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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 ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks: Local topographic high point & plateau

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: ____ 20% of total cover: ____			

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. VAC Uli	55	Y	FAC
2. COR Sue	15		FAC
3. SALIX Arctica	8		FAC
4. Emp nigr	30	Y	FAC
5. Linn borea	2		UPL
6.			
Total Cover: 110			
50% of total cover: 55 20% of total cover: 22			

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. GEUM Calth	8	Y	FACW
2. Desc Beauv	25	Y	Assume FAC
3. Calamagrost nut	2		FAC
4. Luz Multi	T		FACU
5. Carex Macro	T		FACW
6.			
7.			
8.			
9.			
10.			
Total Cover: 35			
50% of total cover: 17.5 20% of total cover: 7			

Plot size (radius, or length x width) 20' % Bare Ground 0
% Cover of Wetland Bryophytes 0 Total Cover of Bryophytes 2
(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% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: C101-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 %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic Hemic	
3-14.5	10YR 2/2	100					Silt Loam	
14.5	7.5YR 2.5/2	100					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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: NA

Depth (inches): –

Hydric Soil Present? Yes ___ No ✓

Remarks: Profile highly consistent & clay loam throughout

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 ✓ Depth (inches): –

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

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

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 C1-01 Borough/City: Adak Sampling Date: 9/21/11
Applicant/Owner: U.S. Navy Sampling Point: C1-01-SP-3
Investigator(s): Lillyhik, Deguths Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): convex (slight) Slope (%): 10
Subregion: Aleutian Lat: Long: Datum: WGS 84
Soil Map Unit Name: NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation Nu, Soil Nu, or Hydrology Nu significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks: on hillslope near t.o.s. above adjacent wetland, leads to topo defined drainage

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. None			
2.			
3.			
4.			
Total Cover:			
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum			
1. Cornus Sue	1		FAC
2. Linn Bor	2		UPL
3.			
4.			
5.			
6.			
Total Cover: 3			
50% of total cover: 1.5 20% of total cover: ____			
Herb Stratum			
1. Ang Luc	5		FACU
2. ~~Leu Persica~~ Heracleum lanatum	T		FACU
3. Athy Filix	3		FAC
4. Arn Unala	10		NOL
5. Equ Arv	3		FACU
6. Ger Eri	15	Y	NOL
7. Geum Cal	5		FACW
8. Coptis Tri	2		FAC
9. Ped Cha	T		OBL
10. Des Ber	35	Y	~~Assume~~ FAC
11. Ach Bor			FACU
12. Phl comm			FACW
Total Cover: 81			
50% of total cover: 40.5 20% of total cover: 16.2			

Plot size (radius, or length x width) 20 % Bare Ground 0
% Cover of Wetland Bryophytes 0 (Where applicable) Total Cover of Bryophytes 5

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	–	x 1 =	–
FACW species	5	x 2 =	10
FAC species	41	x 3 =	123
FACU species	11	x 4 =	44
UPL species	2	x 5 =	10
Column Totals:	59 (A)		187 (B)

Prevalence Index = B/A = 3.17

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: C1-01-SP-3

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 %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/3	100					Loam	Dry, consistent

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: NA

Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

Remarks: Few (4) layers of ash observed, too thin to capture in profile description

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 ✓ Depth (inches): —

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

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

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Adak OUB2 Borough/City: Adak Sampling Date: 9/21/11
Applicant/Owner: U.S. Navy Sampling Point: C1-01-SP-4
Investigator(s): Wyhink, Detjens Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): _____ Slope (%): _____
Subregion: Aleutian Lat: _____ Long: _____ Datum: _____
Soil Map Unit Name: _____ NWI classification: PSS1/EM1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation NO, Soil NO, or Hydrology NO significantly disturbed? N Are "Normal Circumstances" present? Yes _____ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (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 _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. NA			
2.			
3.			
4.			
Total Cover:			
50% of total cover: _____	20% of total cover: _____		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Vac uli	40	Y	FAC
2. Cor sue	15	Y	FAC
3. Emp Nig	15	Y	FAC
4. Tri Cont	5		NOL
5.			
6.			
Total Cover:	75		
50% of total cover: 37.5	20% of total cover: 15		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Eri Rus	~~50~~ 5	Y	FACW
2. Bes Ver	5		~~FAC~~ Assume FAC
3. Equ Arv	T		FACU
4. Juncus Castaneus	10		FACW
5. Geum Cal	8		FACW
6. Arn Unalu	3		NOL
7. Ped Chem	T		OBL
8. TRICOPH CAUSPIT.	45	Y	OBL
9.			
10.			
Total Cover:	76		
50% of total cover: 38	20% of total cover: 15.2		

Plot size (radius, or length x width) 2x % Bare Ground 0
% Cover of Wetland Bryophytes 2 (Where applicable) Total Cover of Bryophytes 30

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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = _____

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

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

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks: 20% of Plot is within adjacent pond

SOIL

Sampling Point: C1-U1-SP-4

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic Horiz	
2-5	7.5YR 3/2	95	10YR 5/3	5			Loam	High active root content 5% Sand
5-5.5							Ash Layer	
5.5-18	7.5YR 3/2	100					Silt Loam 5% Sand	High % active roots throughout

[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)
- ✓ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):
Type: N/A
Depth (inches): ---

Hydric Soil Present? Yes ✓ No ___

Remarks: Several small layers of ash through the profile (5+) - not captured due to thin layers

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks: Very faint H_2S odor at 8"
At toe of slope

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: MR2 / C101 Borough/City: ADAK Sampling Date: 9/22/11
Applicant/Owner: NAVY Sampling Point: C101 SP 5
Investigator(s): K. Dennis E. Lilly white Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): None Slope (%): 3-5
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover:			
50% of total cover: ____ 20% of total cover: ____			

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. VAC ULIG	40	Y	FAC
2. EMP NIGR	15	Y	FAC
3. Thelyp camtsch	3		NOL
4. CORN SUEC	T		FAC
5.			
6.			
Total Cover: 58			
50% of total cover: 29 20% of total cover: 11.6			

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Achill borealis	T		FACU
2. Veron stell	1		NOL
3. GERAN ERIAN	3		NOL
4. GEUM CALTH	5	Y	FACW
5. Antenn alocia	T		NOL
6. CAREX CIRCINN	T		NOL
7. Delph ~~CONFUS~~ Berin	2		ISSUE FAC
8. ACONITA UNALAS	2		NOL
9. Lupinus nootk	8	Y	FAC
10. Vicia longpdct	T		FACW
Total Cover: 21			
50% of total cover: 10.5 20% of total cover: 4.2			

Plot size (radius, or length x width) 20 % Bare Ground 3
% Cover of Wetland Bryophytes 0 (Where applicable) Total Cover of Bryophytes 8

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	65	x 3 =	195
FACU species	T	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	70 (A)		205 (B)

Prevalence Index = B/A = 2.92

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: 10% Cobbles / Boulders on Surface

SOIL

Sampling Point: CI-01-SP5

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic Hemic	
2-19	7.5YR 3/2	100					Silt Loam	10% Sand, moist not Sat
19								Refusal due to rock

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: ~~None~~ Yes, Rock

Depth (inches): 19"

Hydric Soil Present? Yes ___ No ✓

Remarks: 2-4" Cobbles in matrix 5%

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 ✓ Depth (inches): ___

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

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

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OB2 / C101 Borough/City: Adak Sampling Date: 9/22/11
Applicant/Owner: NAVY Sampling Point: C101-SP-6
Investigator(s): K Dennis F Lillywhite Landform (hillside, terrace, hummocks, etc.): Local bowl
Local relief (concave, convex, none): Concave Slope (%): Ø
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: PSS4/EM1
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum			
1. Thelypteris cristata	8		NOL
2. EMP NIGRUM	10	Y	FAC
3. Phyllo Aleutica	3		NOL
4. VAC ulig	20	Y	FAC
5. Salix cuneata	10	Y	FAC
6.			
Total Cover: 51			
Lepto Pyrifolia 50% of total cover: 25.5 20% of total cover: 10.2			
Herb Stratum			
1. Angelica	2		FACW
2. Veronica Stellen	2		NOL
3. GEUM CALTH	1		NOL
4. Geran ERIA	12	Y	FACW
5. Achill borealis	8	Y	
6. Dryo beany	1		FACU
7. Viola langsdorf	10	Y	Assume FAC
8. Platanthera convallariaefolia	1		FACW
9. Carex sp	1		
10. Luzula multiflora	1		FACU
Total Cover: 40			
Polyg VIVIP			FAC
GAL mollis			FAC
Juncus mertens			FAC
50% of total cover: 20 20% of total cover: 8			OBL

Plot size (radius, or length x width) 20 % Bare Ground 20
% Cover of Wetland Bryophytes 0 Total Cover of Bryophytes 15
(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: 6 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 83% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: Stained dead mats of moss 8%

SOIL

Sampling Point: C1-01 SP-6

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 %	Type[1]	Loc[2]	Texture	Remarks
0-11	7.5YR 3/1	100					Silt Loam	5% Sand
11-17	7.5YR 4/2	95	7.5YR 3/4	5			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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks: Seasonally ponded depression

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 ✓ Depth (inches): —

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

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks: ≈ 5% standing water puddles in plot
Location is in localized basin

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OU32 / C101 Borough/City: Adak Sampling Date: 9/22/11
Applicant/Owner: Navy Sampling Point: C101-SP-7
Investigator(s): K Degutis, J. Walker Landform (hillside, terrace, hummocks, etc.): slope
Local relief (concave, convex, none): none Slope (%): 10
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: PSS4/EM1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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
Hydric Soil Present?	Yes X	No
Wetland Hydrology Present?	Yes X	No

Is the Sampled Area within a Wetland? Yes X No

Remarks: GW fed wetland area near toe of slope

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Vaccinium uliginosum	35	✓	FAC
2. Empetrum nigrum	70	✓	FAC
3.			
4.			
5.			
6.			
Total Cover: 105			
50% of total cover: 52.5 20% of total cover: 21			

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Carex pluriflora	20	✓	OBL
2. Geum calthifolium	10		FACW
3. Lycopodium clavatum	T		UPL
4. Eriophorum russeolum	5		FACW
5. Polygonum viviparum	20	✓	FAC
6. Athyrium filix-femina	T		FAC
7. Carex anthoxanthea	T		FACW
8. Juncus arcticus	2		OBL
9.			
10.			
Total Cover: 57			
50% of total cover: 28.5 20% of total cover: 11.4			

Plot size (radius, or length x width) 20' R % Bare Ground Ø
% Cover of Wetland Bryophytes 2% (Where applicable) Total Cover of Bryophytes 5

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: C101-SP7

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 %	Type[1]	Loc[2]	Texture	Remarks
0-8								organic - hemic
8-9	10YR5/2	85	7.5YR3/4	15	C	M	SiL	
9-18								buried organic - 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)
- X Histic Epipedon (A2)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:

pockets of ash in profile

H_2S @ 9" strong odor

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)
- X 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 ___ No X Depth (inches): -

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: Near toe of slope for wetland boundary

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 C1-01 Borough/City: Adak Sampling Date: 9/22/11
Applicant/Owner: U.S. Navy Sampling Point: C1-01-SP-8
Investigator(s): Lillyhill, Pretore, Weller, Regutis Landform (hillside, terrace, hummocks, etc.): hillside
Local relief (concave, convex, none): none Slope (%): 15
Subregion: Aleutian Lat: Long: Datum: WGS 84
Soil Map Unit Name: NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation 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 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. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum			
1. —			
2.			
3.			
4.			
5.			
6.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum			
1. Calamagrostis nutkaensis	40	✓	FAC
2. Heracleum lanatum	T		FACU
3. Deschampsia beringensis	60	✓	FAC
4. Hypericum scotianum	T		FAC
5. Geranium erianthum	5		NOL
6. Platanthera convallariaefolia	T		NOL
7. Cornus suecica	T		FAC
8. Cypripedium trifolia	T		FAC
9. Arnica unalaschcensis	5		NOL
10. Lycopodium clavatum	T		UPL
Geum calthifolium	T		FACW
Total Cover: 110			
50% of total cover: 55 20% of total cover: 22			

Plot size (radius, or length x width) 20' R % Bare Ground 0
% Cover of Wetland Bryophytes Ø 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: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: C101-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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR 3/1	100				SL	SIL	
3-4	10YR 4/3	100				L	LOAM	
4-18	7.5YR 3/2	100				L	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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

Depth (inches): –

Hydric Soil Present? Yes ___ No X

Remarks:

Patch is thicker in soil profile - boundary between 0-3 & 3-4 distinct, not wavy

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: DUB2 / C1-01 Borough/City: Adak Sampling Date: 6-12-201
Applicant/Owner: U.S. Navy Sampling Point: C101-SP
Investigator(s): J. Walker, J. Pratar Landform (hillside, terrace, hummocks, etc.): hillside drainage
Local relief (concave, convex, none): concave Slope (%): 15
Subregion: Aleutians Lat: Long: Datum: WGS84
Soil Map Unit Name: — NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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: sample plot in gully on hillside that carries snowmelt and contains very small ponded areas with no vegetation

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

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. —			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover: ____ 20% of total cover: ____			

Herb Stratum			
1. Calamagrostis nutkaensis	80	X	FAC
2. Polygonum viviparum	T		FAC
3. Anemone narcissiflora	T		FACU
4. Geranium erianthum	T		FACU
5. Fritillaria camschatcensis	T		FAC
6. Ligusticum scoticum	5		FAC
7. Deschampsia beringensis	20	X	FAC
8. Athyrium filix-femina	T		FAC
9.			
10.			
Total Cover: 105			
50% of total cover: 52.5 20% of total cover: 21			

Plot size (radius, or length x width) 20' x 15' % Bare Ground 0
% Cover of Wetland Bryophytes ____ (Where applicable) Total Cover of Bryophytes 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	105	x 3 =	315
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		315 (B)

Prevalence Index = B/A = 3.0

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: C1-01-99

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2								organic-fibric
2-18	10YR 2/2	99	10YR 5/2	1	C	M	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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

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:

No indicators present

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2/C1-01 Borough/City: Adak, AK Sampling Date: 12 June 201
Applicant/Owner: U.S Navy Sampling Point: C1-01 SP-17
Investigator(s): J. Walker, J. Pretare Landform (hillside, terrace, hummocks, etc.): hillside
Local relief (concave, convex, none): concave Slope (%): 15
Subregion: Aleutians Lat: Long: Datum: WGS 84
Soil Map Unit Name: — NWI classification: PEMB
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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 ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes + No ____

Remarks:

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

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	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover:	20% of total cover:		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Deschampsia beringensis	40	X	FAC
2. Athyrium filix-femina	20	X	FAC
3. Fritillaria camschatcensis	5		FAC
4. Coptis trifolia	T		FAC
5. Geum calthifolium	T		FACW
6. Polygonum viviparum	10		FAC
7. Carex aphanandra c.f.	20	X	FACW
8. Lycopodium clavatum	5		FACU
9.			
10.			
Total Cover: 100			
50% of total cover: 50	20% of total cover: 20		

Plot size (radius, or length x width) 20' % Bare Ground 0
% Cover of Wetland Bryophytes ____ (Where applicable) Total Cover of Bryophytes 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	75	x 3 =	225
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	100 (A)		285 (B)

Prevalence Index = B/A = 2.85

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: C1.01 SP.12

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2								organic - fibric
2-6	10YR 2/1	100						mucky - hemic
6-7	2.5Y 4/2	90	7.5YR 4/6	10	C	M,PL	clay loam	incomplete ash layer
7-17	10YR 2/2	100			C	PL	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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes X No ___

Remarks: A10 - 2cm muck

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)
- X Drainage Patterns (B10)
- X 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 ___ No X Depth (inches): ___

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 / C101 Borough/City: Adak Sampling Date: 6-12-2013
Applicant/Owner: U.S. Navy Sampling Point: C101 - SP1
Investigator(s): J. Walker, J. Prebara Landform (hillside, terrace, hummocks, etc.): hillside
Local relief (concave, convex, none): concave Slope (%): 20
Subregion: Aleutians Lat: Long: Datum: WGS84
Soil Map Unit Name: — NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

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	Absolute % Cover	Dominant Species?	Indicator Status
1. Linnaea borealis	5	X	FACU
2.			
3.			
4.			
5.			
6.			
Total Cover:	5		
50% of total cover: 2.5	20% of total cover: 1		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Calamagrostis nutkaensis	90	X	FAC
2. Lycopodium clavatum	20	X	FACU
3. Cypripedium fasciculatum	T		FACW
4. Geum calthifolium	T		OBL
5. Fritillaria camschatcensis	T		FAC
6. Anemone narcissiflora	5		FACU
7. Geranium erianthum	T		FACU
8. Ligusticum scoticum	T		FAC
9.			
10.			
Total Cover:	115		
50% of total cover: 57.5	20% of total cover: 23		

Plot size (radius, or length x width) 20' % Bare Ground 0
% Cover of Wetland Bryophytes ____ (Where applicable) Total Cover of Bryophytes 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	T	x 2 =	0
FAC species	90	x 3 =	270
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	120 (A)		390 (B)

Prevalence Index = B/A = 3.25

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

C1.01

SOIL

Sampling Point: SP-13

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2								organic-fibric
2-5	7.5YR 2.5/2	100					silt loam	
5-18	10YR 5/3	100					silt 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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

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: no indicators present

WETLAND DETERMINATION DATA FORM – Alaska Region

C1-01

Project/Site: OU B2 / C1-01 Borough/City: Adak, AK Sampling Date: SP-14

Applicant/Owner: U.S. Navy Sampling Point: 12 June 20

Investigator(s): J. Walker, J. Pretare Landform (hillside, terrace, hummocks, etc.): hillside depression

Local relief (concave, convex, none): Concave Slope (%): 12

Subregion: Aleutian Lat: Long: Datum: WGS 84

Soil Map Unit Name: — NWI classification: PEMB

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

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. —			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover: ____ 20% of total cover: ____			

Herb Stratum			
1. Deschampsia beringensis	50	X	FAC
2. Fritillaria camschatcensis	T		FAC
3. Anemone narcissiflora	5		FACU
4. Calamagrostis nutkaensis	50	X	FAC
5. Gaultheria shallon	T		FACW
6. Coptis trifolia	5		FAC
7. Lycopodium clavatum	T		FACU
8.			
9.			
10.			
Total Cover: 110			
50% of total cover: 55 20% of total cover: 22			

Plot size (radius, or length x width) 20' % Bare Ground 0

% Cover of Wetland Bryophytes ____ (Where applicable) Total Cover of Bryophytes 0

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	T	x 2 = 0
FAC species	105	x 3 = 315
FACU species	5	x 4 = 20
UPL species	0	x 5 = 0
Column Totals:	110 (A)	335 (B)

Prevalence Index = B/A = 3.04

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

C1.01

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)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	~~[illegible]~~							organic - fibric
2-18	10YR 2/1	100%					silt loam	w/ 2 cms. muck-humic inclusion

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks: 2cm muck indicator

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)
- ___ 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 X No ___

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

Remarks: This location was observed to be saturated during Sept.-Oct. 2011

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2/ C1-01 Borough/City: Adak, AK Sampling Date: 12 June 2012
Applicant/Owner: U.S. Navy Sampling Point: C1-01 SP-15
Investigator(s): J. Walker, J. Prater Landform (hillside, terrace, hummocks, etc.): hillside
Local relief (concave, convex, none): _____ Slope (%): 10
Subregion: Aleutians Lat: _____ Long: _____ Datum: WGS 84
Soil Map Unit Name: — NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes _____ No X

Remarks:

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

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	Absolute % Cover	Dominant Species?	Indicator Status
1. Empetrum nigrum	50	X	FAC
2. Leiseleuria procumbens	50	X	FACU
3. Linnaea borealis	5		FACU
4.			
5.			
6.			
Total Cover: 105			
50% of total cover:	20% of total cover:		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Lycopodium alpinum	35	X	NI
2. Lycopodium clavatum	5		FACU
3. Clintonia trifolia	5		FAC
4. Calamagrostis nutkaensis	20	X	FAC
5.			
6.			
7.			
8.			
9.			
10.			
Total Cover: 45			
50% of total cover: 22.5	20% of total cover: 9		

Plot size (radius, or length x width) 20' % Bare Ground 0
% Cover of Wetland Bryophytes _____ (Where applicable) Total Cover of Bryophytes 10

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 (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	60	x 4 =	240
UPL species	0	x 5 =	0
Column Totals:	135 (A)		465 (B)

Prevalence Index = B/A = 3.44

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

CI·01

SOIL

Sampling Point: SP·15

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2								organic - fibric
2-16	7.5YR 2.5/2	100					silt 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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

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: no indicators present

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OOB2 Borough/City: Adak Sampling Date: 9/23/11
Applicant/Owner: U.S. Navy Sampling Point: MI-OB-S-1
Investigator(s): Lillyhide, Degroot Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): none Slope (%): 2
Subregion: Aleutian Lat: Long: Datum: WGS 84
Soil Map Unit Name: NWI classification: PEMC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation Y, Soil ____, or Hydrology ____ naturally problematic? N (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 Y	No ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ✓	No ____	
Wetland Hydrology Present?	Yes ✓	No ____	

Remarks: Equ Arv high percentage skewing #s - Equ Arv. known to grow on abandoned in wetlands throughout Alaska

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Lion Bor	8	Y	UPL
2.			
3.			
4.			
5.			
6.			
Total Cover: 8			
50% of total cover: 4 20% of total cover: [illegible]			

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Equ Arv	25	Y	FACW
2. Arn Unal	20	Y	FAC
3. Lupi Nuk	1		FACU
4. Leym Cin	10		[illegible]
5. Gal En	2		NOL
6. Poto Pa	5		FAC
7. Mi a Pla	2		FAC
8. Lic Glev	3		UPL
9. Dept Pam	2		[illegible]
10. Sam Rac	1		OBL
Pedi Bon			[illegible]
Cal Pal			[illegible]
Total Cover: 82			
50% of total cover: 41 20% of total cover: 16.4			

Plot size (radius, or length x width) 20 % Bare Ground 0
% Cover of Wetland Bryophytes 5 (Where applicable) Total Cover of Bryophytes 25

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	—	x 1 =	—
FACW species	~~35~~ 13	x 2 =	~~70~~ 26
FAC species	19	x 3 =	57
FACU species	25	x 4 =	100
UPL species	~~11~~	x 5 =	~~55~~ 55
Column Totals:	68 (A)		238 (B)

Prevalence Index = B/A = 3.5

Hydrophytic Vegetation Indicators:
__ Dominance Test is >50%
__ Prevalence Index is ≤3.0
__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
X 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 ~~✓~~

Remarks: Equ Arv known to grow in Alaska wetlands & uplands in proliferation - high percentage skews P/I results

SOIL

Sampling Point: [illegible]

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3							Organic Peat	
3-[illegible]							Organic Peat	

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: NA

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

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 ✓ Depth (inches): No

Water Table Present? Yes ✓ No ___ Depth (inches): 9"

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB-2 M1-01 Borough/City: Adak Sampling Date: 23 Sept 2011
Applicant/Owner: US Navy Sampling Point: M1-01 SP-2
Investigator(s): Walker, Pretare Landform (hillside, terrace, hummocks, etc.): hillside
Local relief (concave, convex, none): None Slope (%): 10
Subregion: Aleutians Lat: Long: Datum: WGS84
Soil Map Unit Name: N/A NWI classification: upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, 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. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum			
1. N/A			
2.			
3.			
4.			
5.			
6.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum			
1. Athyrium filix-femina	20		FACW
2. Calamagrostis nootkatensis	80	X	FAC
3. Geranium erianthum	2		NOL
4. Chamerion angustifolium	10		FACU
5. Equisetum arvense	+		FACU
6. Cornus suecica	+		FAC
7.			
8.			
9.			
10.			
Total Cover: 115			
50% of total cover: 57.5 20% of total cover: 23			

Plot size (radius, or length x width) 20' % Bare Ground X
% Cover of Wetland Bryophytes X Total Cover of Bryophytes X
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: M1-01 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 %	Type[1]	Loc[2]	Texture	Remarks
0-2	—		—					organic-fibric
2-5	10YR 3/3		—				loam	
5-17	10YR 3/2		—				silt 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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks: pickets of ash present.

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Adak OUB2 Borough/City: Adak Sampling Date: 9/23/11
Applicant/Owner: U.S. Navy Sampling Point: MI-02-SP-1
Investigator(s): Lillybelle, Pegotti Landform (hillside, terrace, hummocks, etc.): slope
Local relief (concave, convex, none): none Slope (%): 5
Subregion: Aleutian Lat: Long: Datum: NAD 83
Soil Map Unit Name: NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No
Are Vegetation X, Soil ____, or Hydrology ____ naturally problematic? N (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	**Is the Sampled Area within a Wetland?** Yes Y No
Hydric Soil Present?	Yes ✓	No	
Wetland Hydrology Present?	Yes ✓	No	

Remarks: [illegible] High percentage of Cham Ang in plot - plot taken on slightly upslope but H_2S in profile

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
Lin Spot			
Des Bor			
Total Cover: Ø		3	FAC
50% of total cover: ____ 20% of total cover: ____			

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Cham Ang		25	FACW
2. Hog Elx		10	FAC
3. Cal Ant Ang	4	60	FAC
4. Ath Cyn		5	FAC
5. Bec Mag		10	OBL
6. Sme Ang		2	FAC
7. Lup Wah		2	OBL
8. Hab Ste		2	FAC
9. Eqi Arv		10	FACW
10. Lue Mut		1	FACW
Cyc Fem			
Pot Fan			
Total Cover: 147		29	
50% of total cover: 77 20% of total cover: 30.8			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	—	x 2 =	—
FAC species	85	x 3 =	255
FACU species	30	x 4 =	120
UPL species	—	x 5 =	—
Column Totals:	117 (A)		377 (B)

Prevalence Index = B/A = 3.22

Hydrophytic Vegetation Indicators:

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

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

Plot size (radius or length x width) ____ % Bare Ground Ø
% Cover of Wetland Bryophytes Ø (Where applicable) Total Cover of Bryophytes Ø

Hydrophytic Vegetation Present? Yes X No

Remarks: Higher percent cover of Cham Ang. w/in plot skews P/I numbers over 3.0. Cham Ang observed growing vigorously in both wetland & upland communities

SOIL

Sampling Point: NE-02-SP-1

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic muck	
2-4							Organic Peat	
4-7	10YR 4/2		10YR 5/1 7.5YR 4/6	3 5	D C	M M	Clay loam	
7-13							Organic Peat	
13-18	10YR 3/1						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)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: NA

Depth (inches): —

Hydric Soil Present? Yes ✓ No ___

Remarks:

H_2S @ 10"

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)
- X 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 ✓ Depth (inches): ___

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

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks: Toe of mountain slope

H_2S @ 10"

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB-2 M1-02 Borough/City: Adak Sampling Date: 23 Sept 2011
Applicant/Owner: U.S. Navy Sampling Point: M1-02 SP-2
Investigator(s): Walker, Pretare Landform (hillside, terrace, hummocks, etc.): gentle sloping valley
Local relief (concave, convex, none): NONE Slope (%): 3
Subregion: ~~Alaska~~ Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: N/A NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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 ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum			
1. N/A			
2.			
3.			
4.			
5.			
6.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum			
1. Deschampsia beringensis	20	X	FAC
2. Leptarrhena pyrolifolia	25	X	FACW
3. Athyrium filix-femina	5		FAC
4. Geum calthifolium	2		FACW
5. Carex pluriflora	40	X	OBL
6. Equisetum arvense	+		FACU
7. Festuca rubra	+		FAC
8. Juncus arcticus	2		OBL
9. Lupinus nootkatensis	6		FAC
10. Achillea borealis	+		FACU
Total Cover: 100			
50% of total cover: 50 20% of total cover: 20			

Plot size (radius, or length x width) 20' % Bare Ground 0
% Cover of Wetland Bryophytes 0 Total Cover of Bryophytes 0
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: M1-02 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 %	Type[1]	Loc[2]	Texture	Remarks
1-3								organic - fibric
3-20								organic - 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:

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

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

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)
- X 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 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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OVP - M1-02 Borough/City: Adak Sampling Date: Sept 23, 20[illegible]

Applicant/Owner: Navy Sampling Point: M1-02-[illegible]

Investigator(s): [illegible] Landform (hillside, terrace, hummocks, etc.): [illegible]

Local relief (concave, convex, none): [illegible] Slope (%): [illegible]

Subregion: Aleutian Lat: Long: Datum: [illegible]

Soil Map Unit Name: NWI classification: [illegible]

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

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

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

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, 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. List all species in the plot.

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	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover: ____	20% of total cover: ____		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Calamagrostis nutkaensis	90	Y	FAC
2. Leymus mollis	5		NOL
3. Hypochaeris radicata	1		UPL
4. Trifolium repens	1		FAC
5. Achillea millefolium	10		FAC
6. Chamerion angustifolium	1		FACU
7. Lupinus arcticus	1		FAC
8. Angelica lucida	1		OBL
9. Rumex longifolius	1		FACU
10. Carex macrochaeta	1		FACU
Total Cover: 115			
50% of total cover: 55	20% of total cover: 23		

Plot size (radius, or length x width) 30 % Bare Ground 0

% Cover of Wetland Bryophytes 0 (Where applicable) Total Cover of Bryophytes 0

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: [illegible] (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: M1-02-SP3

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3								organic - fibric
3-8	10YR 2/1	100					L	
8-13	7.5YR 4/1	100					SL	10% gravel, 5% cobble
refusal @ 13" (cobbles/rock)								

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: ~~N/A~~ Cobbles/rock

Depth (inches): 13"

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OU32/MI03 Borough/City: Adak Sampling Date: 9/23/11
Applicant/Owner: NAVY Sampling Point: MI03-SP-1
Investigator(s): K DEGUS E Lilly white Landform (hillside, terrace, hummocks, etc.): Terrace
Local relief (concave, convex, none): NONE Slope (%): Ø
Subregion: Aleutian Lat: Long: Datum: USGS
Soil Map Unit Name: NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ✓, Soil ____, or Hydrology ____ naturally problematic? N (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 ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____	
Hydric Soil Present? Yes ✓ No ____		
Wetland Hydrology Present? Yes ✓ No ____		

Remarks: High percentage of Equ Arv in plot - known to grow in abundance in both wetlands & uplands

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum			
1. N/A			
2.			
3.			
4.			
5.			
6.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum			
1. Deschampsia beringensis	[illegible]	Y	Assume FAC
2. Equ arvense	15	Y	FACU
3. Equ VARIG	10		FACW
4. Juncus [illegible]	3		FACW
5. GERAN ERI	10		
6. Lupine NOOT	T		FAC
7. Bromus sp.			
8. Lepi Pyro	2		FACW
9. Aster Fri	5		FACW
10. Arc unala	T		NOL
Lig [illegible]	3		FAC
Total Cover: 53 126%			
50% of total cover: 53 20% of total cover: 21.2			

Plot size (radius, or length x width) 20 % Bare Ground 0
% Cover of Wetland Bryophytes 3 Total Cover of Bryophytes 3
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: [illegible] (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species —	x 1 = —
FACW species 26	x 2 = 52
FAC species 15	x 3 = 45
FACU species 48	x 4 = 192
UPL species —	x 5 = —
Column Totals: 89 (A)	289 (B)

Prevalence Index = B/A = 3.24

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks: High percentage of Equ Arv in plot - Equ Arv is known to grow uniquely in both wetlands & uplands in ALASKA

SOIL

Sampling Point: MI03-SP-1

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 %	Type[1]	Loc[2]	Texture	Remarks
0-14							Erbr Hemic	
14-16	2.5y 5/1	100					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)
- X Histic Epipedon (A2)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

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)
- X 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 X No ___ Depth (inches): 1/4"

Water Table Present? Yes X No ___ Depth (inches): 8"

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

Wetland Hydrology Present? Yes X No ___

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

Remarks: Rills in drainage channels throughout

Iron stained soils may be due to large amount of iron/steel in ground

WETLAND DETERMINATION DATA FORM – Alaska Region

M1-03-SP-2

Project/Site: OU-B2 M1-03 Borough/City: Adak Sampling Date: 23-Sept-2011
Applicant/Owner: U.S. Navy Sampling Point: SP-2
Investigator(s): Walker, Pretare Landform (hillside, terrace, hummocks, etc.): hillside
Local relief (concave, convex, none): _____ Slope (%): 8
Subregion: Alaska Lat: _____ Long: _____ Datum: WGS84
Soil Map Unit Name: N/A NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, 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. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: _____	20% of total cover: _____		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Empetrum nigrum	10		FAC
2. Linnaea borealis	50	✓	UPL
3.			
4.			
5.			
6.			
Total Cover: 60			
50% of total cover: 30	20% of total cover: 12		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Geum calthifolium	10		FACW
2. Lycopodium s. clavatum	20	✓	UPL
3. Carex aquatilis	15		OBL
4. Coptis trifolia	T		FAC
5. Luzula multiflora	5		FACU
6. Gymnocarpium dryopteris	T		FACU
7. Equisetum arvense	T		FACU
8. Deschampsia beringensis	25	✓	FAC
9. Ligusticum scoticum	2		FAC
10. Geranium erianthum	10		NOL
Calamagrostis nutkaensis			FAC
Maianthemum dilatatum			FAC
Total Cover: 87			
50% of total cover: 43.5	20% of total cover: 17		

Plot size (radius, or length x width) 20' % Bare Ground 0
% Cover of Wetland Bryophytes Ø (Where applicable) Total Cover of Bryophytes Ø

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	15	x 1 = 15
FACW species	10	x 2 = 20
FAC species	37	x 3 = 40
FACU species	5	x 4 = 20
UPL species	70	x 5 = 350
Column Totals:	137 (A)	445 (B)

Prevalence Index = B/A = 3.25

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

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

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

SOIL

Sampling Point: M1-03-SP2

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	—		—					organic-hemic
3-6	10YR 3/2	100	—				silt loam	
6-14	10YR 2/2	90	7.5YR 4/4	10	C	M	silt loam	
14-20	10YR 4/2	100	—				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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):
Type: N/A
Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks: At 25" possibly an aquitard course orange material all the way through profile, w/ ash pockets throughout.

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OU32 / M1-03 Borough/City: Adak Sampling Date: Sept. 24, 2011
Applicant/Owner: Navy Sampling Point: M1-03-SP3
Investigator(s): Walker, Dayutis, Prestare, Lilywhite Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): None Slope (%): 15
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover:			
50% of total cover:	20% of total cover:		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Linnaea borealis	15	✓	UPL
2. Empetrum nigrum	5		FAC
3.			
4.			
5.			
6.			
Total Cover:	20		
50% of total cover: 10	20% of total cover: 4		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Deschampsia beringensis	20	✓	assume FAC
2. Polygonum vivaparum	15	✓	FAC
3. Coptis trifolia	T		FAC
4. Geum calthifolium	15	✓	FACW
5. Lycopodium clavatum	20	✓	UPL
6. Geranium erianthum	5		NOL
7. Platanthera convallariaefolia	T		FACU
8. Arnica unalaschensis	T		NOL
9.			
10.			
Total Cover:	75		
50% of total cover: 37.5	20% of total cover: 15		

Plot size (radius, or length x width) 20' % Bare Ground 0
% Cover of Wetland Bryophytes 0 Total Cover of Bryophytes 0
(Where applicable)

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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

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

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

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: W1-03-SP3

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3								organic fibric
3-5	10YR4/1	100					Loam	
5-7.5	10YR2/2	100					SiL	
7.5-12	10YR3/2	100					Loam	
12-18	10YR3/1	100					Loam	10% Sand

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 / M1-03 Borough/City: Aleuts Sampling Date: Sept 24, 2011
Applicant/Owner: Navy Sampling Point: M1-03-SP4
Investigator(s): Degutis, Walker Landform (hillside, terrace, hummocks, etc.): hillside
Local relief (concave, convex, none): NONE Slope (%): 15
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: PEM B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover:	Ø		
50% of total cover: ____	20% of total cover: ____		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Empetrum nigrum	10	✓	FAC
2. Vaccinium uliginosum	5	✓	FAC
3.			
4.			
5.			
6.			
Total Cover:	15		
50% of total cover: 7.5	20% of total cover: ____		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Eriophorum russeolum	5		FACW
2. Pinguicula vulgaris	T		OBL
3. Viola langsdorfii	T		FACW
4. Tofieldia coccinea	5		FAC
5. Polygonum viviparum	15	✓	FAC
6. Equisetum arvense	10		FACU
7. Geum calthifolium	10		FACW
8. Lycopodium selago	10		UPL
9. Carex anthoxanthea	20	✓	FACW
10. Trichophorum caespitosum	T		OBL
Total Cover:	75		
50% of total cover: 37.5	20% of total cover: 15		

Plot size (radius, or length x width) 20' % Bare Ground 0
% Cover of Wetland Bryophytes 10 Total Cover of Bryophytes 10
(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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: M1-03-SP3

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3								organic - fibric
3-20+								organic - 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)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):
Type: N/A
Depth (inches): -

Hydric Soil Present? Yes X No ___

Remarks:
pockets of ash in profile H2S @ 7"

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)
- X 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 ___ No X Depth (inches): -
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:
H2S @ 7"

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OU82 / MF03 Borough/City: Adak Sampling Date: 9/24/11
Applicant/Owner: NAVY Sampling Point: MF03-SP-5
Investigator(s): K Dennis F Lillywhite Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): None Slope (%): 5
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: UPLAND
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			

50% of total cover: ____ 20% of total cover: ____

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Lin Bor	8	Y	UPL
2. Coptis Tri	2	Y	FAC
3. Cornus Sec	T		FAC
4.			
5.			
6.			
Total Cover: 10			

50% of total cover: 5 20% of total cover: 2

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Carex Anth	15		FACW
2. Arn Unala	25	Y	NOL
3. Ach Bor	8		FACU
4. Cal Nut	5		FAC
5. Carex Macro	15		FACW
6. Des Ber	20	Y	ASSUME FAC
7. Geum Cal	10		FACW
8. Ger En	20	Y	NOL
9. Luz Multh	T		FACU
10. Plu Dil	T		FACW
Lupy Scot			FAC
Veron Stel			NOL
Total Cover: 3 136			

50% of total cover: 68 20% of total cover: 27.2

Plot size (radius, or length x width) 20 % Bare Ground 0
% 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% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	55	x 2 =	110
FAC species	3[illegible]	x 3 =	90
FACU species	8	x 4 =	32
UPL species	8	x 5 =	40
Column Totals:	1[illegible] (A)		272 (B)

Prevalence Index = B/A = 2.69

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: * The plot initially appears to meet the prevalence index. However, this is due to the fact that 2 dominant species do not have indicator statuses and not included in the calculations. Both species (especially Geranium erianthum) were seen in uplands in the study area. This fact combined w/ the lack of hydric soil + wetland hydrology lead us to a determination that hydrophytic vegetation is not present.

SOIL

Sampling Point: MT03 SP-5

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 %	Type[1]	Loc[2]	Texture	Remarks
0-4							Organic fabric	
4-5	10YR 4/2	100					clay loam	High % active roots, fine gst Pitting Ash
5-18.5	10YR 3/1	100					Loam	Moist not saturated
~~13.5-18.5~~								Small pyroclastic fragments

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):
Type: N/A
Depth (inches): –

Hydric Soil Present? Yes ___ No ✓

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)
- X 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 ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: [illegible] Borough/City: Adak Sampling Date: 9/24/11
Applicant/Owner: U.S. Navy Sampling Point: MI-W3-SP-6
Investigator(s): Lillyhirk, Reguts Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): none Slope (%): 3
Subregion: Aleutian Lat: Long: Datum: WGS 84
Soil Map Unit Name: NWI classification: PEM3
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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 ____	**Is the Sampled Area within a Wetland?**	**Yes** ✓ **No** ____
Hydric Soil Present? Yes ✓ No ____		
Wetland Hydrology Present? Yes ✓ No ____		

Remarks:

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. NP			
2.			
3.			
4.			
Total Cover:	0		
50% of total cover: ____	20% of total cover: ____		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Cornus Sec	5	Y	FAC
2. Lin Bor	5	Y	UPL
3.			
4.			
5.			
6.			
Total Cover:	10		
50% of total cover: 5	20% of total cover: 2		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Pedi cham	T		OBL
2. Lig Sco	3		FAC
3. Carex Pli	15		OBL
4. Arn Unala	5		NOL
5. Cal Nut	50	Y	FAC
6. Geum Cal	20	Y	FACW
7. Ver Eri	10		NOL
8. Juncus Arc	20	Y	OBL
9. Plan Dil	T		FACW
10. Frit Cam	T		FAC
Lut Multi	T		FACW
Athy Filix	X		FAC
Verb Amer	T		OBL
Lut wah	T		OBL
Total Cover:	131		
50% of total cover: 65.5	20% of total cover: 26.2		

Plot size (radius, or length x width) 20 % Bare Ground Ø
% Cover of Wetland Bryophytes Ø (Where applicable) Total Cover of Bryophytes Ø

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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

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

Remarks:

SOIL

Sampling Point: MI-US-SP-6

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 %	Type[1]	Loc[2]	Texture	Remarks
0-4							Organic Fibric	
4-7							Organic Hemic	
7-8	10YR 4/2	95	7.5YR 4/6	5			Loam	
8-15	10YR 3/1	100					Siltloam	Pockets of Ash High organic content lenses
15+	10YR 4/1	79	2.5YR 2.5/1	1	C	M	Clayloam	Subangular gravel
		80	7.5YR 5/8	20	C	M		20% grit, likely pyroclastic material Heavy H_2S odor

[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)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):
Type: NA
Depth (inches): —

Hydric Soil Present? Yes ✓ No ___

Remarks: H_2S @ 12"

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks: H_2S @ 12"

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB-2 MI-03 Borough/City: Adak Sampling Date: MI-03 SP-7
Applicant/Owner: U.S. Navy Sampling Point: 24 Sept 2011
Investigator(s): Walker, Pretare Landform (hillside, terrace, hummocks, etc.): hillside
Local relief (concave, convex, none): convex Slope (%): 3
Subregion: Aleutians Lat: Long: Datum: WGS84
Soil Map Unit Name: N/A NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

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. Linnea borealis	10	X	UPL
2.			
3.			
4.			
5.			
6.			
Total Cover: 10			
50% of total cover: 5 20% of total cover: 2			
Herb Stratum			
1. Calamagrostis nutkaensis	40	X	FAC
2. Geranium erianthum	5		NOL
3. Geum calthifolium	10		FACW
4. Cornus suecica	5		FAC
5. Lycopodium annotinum	5		FAC
6. Listera cordata	+		FACU
7. Arnica unalaschcensis	+		NI
8. Deschampsia beringensis	20	X	FACW
9. Juncus arcticus	10		OBL
10. Poa turneri	+		FAC
Total Cover: 95			
50% of total cover: 47.5 20% of total cover: 19			

Plot size (radius, or length x width) 20 % 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: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: M1-03 SP-7

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2	—						-	organic-fibric
2-8	10YR 2/2	100	—				loam	
8-18	10YR 3/2	100	—				loam	very cobbly

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: Rock substrate (unit Little.)

Depth (inches): 18"

Hydric Soil Present? Yes ___ No X

Remarks: Rock refusal @ 18".
organic material (coarse) throughout profile

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Adak OU B2 Borough/City: Adak Sampling Date: 9/26/11
Applicant/Owner: U.S. Navy Sampling Point: MI-U3-SP-1
Investigator(s): Lillyquist, Deguhs, Novak Landform (hillside, terrace, hummocks, etc.): Flat Subplot A
Local relief (concave, convex, none): Slope (%): 0
Subregion: Aleutian Lat: Long: Datum: WGS 84
Soil Map Unit Name: n/a NWI classification: PEMB
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Remarks:

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum			
1. EMP NIG	8	Y	FAC
2.			
3.			
4.			
5.			
6.			
Total Cover: 8%			
50% of total cover: 4 20% of total cover: 1.6			
Herb Stratum			
1. Desc Bev	95	Y	Assume FAC
2. ~~EMP NIG~~ Geum ~~GEOTH~~	8		FACW
3. Poly Vivi	2		FACW
4. Viola Long	2		FACW
5. Ger Eri	1		NUL
6. Cophs Tri	2		FAC
7. Carex Anth	3		FACW
8.			
9.			
10.			
Total Cover: 113			
50% of total cover: 56.5 20% of total cover: 22.6			

Plot size (radius or length x width) 20 % Bare Ground 0
% Cover of Wetland Bryophytes 10 Total Cover of Bryophytes 25
(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: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: Subplot A MI-03-SP-1

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/2	100					Organic Hemic	Saturated
2-4	10YR 2/2	100					Loam	High organic matter
4-12	10YR 2/2	93	2.5YR 2.5/4	7	C	PL, M	Loam	Matrix concentrations oxidized pore linings concentrations throughout

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: NA

Depth (inches): ___

Hydric Soil Present? Yes ✓ No ___

Remarks: High organic matter through entire profile
F6 - Redox below dark surface, also qualifies for 2 cm muck.

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 ✓ Depth (inches): –

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

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Subplot A

Project/Site: Adak OUB2 Borough/City: Adak Sampling Date: 9/26/11
Applicant/Owner: U.S. Navy Sampling Point: MI-03-SP-2
Investigator(s): Lillyquist, Novak Landform (hillside, terrace, hummocks, etc.): Flat
Local relief (concave, convex, none): convex Slope (%): 1
Subregion: Aleutian Lat: Long: Datum: WGS 84
Soil Map Unit Name: n/a NWI classification: UPLAND
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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 ✓	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: ____ 20% of total cover: ____			

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Lin Bor	10	Y	UPL
2.			
3.			
4.			
5.			
6.			
Total Cover: 10			
50% of total cover: 5	20% of total cover: 2		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Cal Nut	95	Y	FAC
2. Phleu Comm	2		FACW
3. Ger Eri	3		NOL
4. Ang Luc	3		FACW
5. Geu Cal	5		FACW
6. List Conv	1		FACW
7. Luz Multi	1		FACU
8.			
9.			
10.			
Total Cover: 99			
50% of total cover: 49.5	20% of total cover: 19.8		

Plot size (radius, or length x width) 20 % Bare Ground 0
% Cover of Wetland Bryophytes 2 Total Cover of Bryophytes 2
(Where applicable)

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	7	x 2 = 14
FAC species	95	x 3 = 285
FACU species	4	x 4 = 16
UPL species	10	x 5 = 50
Column Totals:	116 (A)	365 (B)

Prevalence Index = B/A = 3.15

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No ✓

Remarks:

Subplot A

SOIL

Sampling Point: ME-03-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 %	Type[1]	Loc[2]	Texture	Remarks
3-0								Roots/organics not soil
0-2	10YR 2/2	100					Loam	Greasy
2-18	10YR 2/2	99	2.5YR 2.5/2	1	C	M	Loam	Extremely localized

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):
Type: NA
Depth (inches): ___

Hydric Soil Present? Yes ___ No ✓

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 ✓ Depth (inches): —
Water Table Present? Yes ___ No ✓ Depth (inches): —
Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0-2" only

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Sub unit B

Project/Site: Adak ou32 Borough/City: Adak Sampling Date: MC-03-SP-1

Applicant/Owner: U.S. Navy Sampling Point: 9/26/11

Investigator(s): Lillybridge, Deguhs, Peters, Novak Landform (hillside, terrace, hummocks, etc.): hillside

Local relief (concave, convex, none): concave Slope (%): 5

Subregion: Aleutian Lat: Long: Datum: WGS 84

Soil Map Unit Name: n/a NWI classification: UPLAND

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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 ____	**Is the Sampled Area within a Wetland?** Yes ____ No X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks: on hillslope @ elevation, locally flat area near toe of hillslope

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: ____	20% of total cover: ____		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Vac uli	20	Y	FAC
2. Lon Bor	8		UPL
3. Cor Sue	20	Y	FAC
4. Emp Nig	25	Y	FAC
5.			
6.			
Total Cover: 73			
50% of total cover: 36.5	20% of total cover: 14.6		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Cal Nut	15	Y	FAC
2. Car Anth	10	Y	FACW
3. Lyco Calv	5		UPL
4. Geum Cal	10	Y	FACW
5. Arn Unala	8		NOL
6. Ger En	2		NOL
7.			
8.			
9.			
10.			
Total Cover: 50			
50% of total cover: 25	20% of total cover: 10		

Plot size (radius, or length x width) 20 % Bare Ground 5

% Cover of Wetland Bryophytes 0 (Where applicable) Total Cover of Bryophytes 10

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

Subplot B

SOIL

Sampling Point: ML-03-SP-1

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2							Fibric	mucky mineral
2-5	10YR 2/2	100					Loam	SAT.
5-7	2.5Y 4/2	90	2.5Y 3/6	10	C	PL	Loam	
7-15+	10YR 2/2	96	2.5Y 4/6	4	C	PL	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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):
Type: N/A
Depth (inches): –

Hydric Soil Present? Yes ___ No X

Remarks: Note small pockets of ash throughout profile

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 X No ___

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

Remarks: Not saturated / ponded like most surrounding wetland areas

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: CUB2/MIC3 Borough/City: Adak Sampling Date: 9/25/11
Applicant/Owner: NAVY Sampling Point: MIC3 SP-E
Investigator(s): J Novak K Deputis Landform (hillside, terrace, hummocks, etc.): terrace
Local relief (concave, convex, none): None Slope (%): Ø
Subregion: Aleutian Lat: Long: Datum: WGS 84
Soil Map Unit Name: n/a NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, 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: SP on Floodplain terrace. Assoc. w/ Alnus OK mainstem
• Return interval possibly not ≥3 yrs (within "bankfull")

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum			
1. N/A			
2.			
3.			
4.			
5.			
6.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum			
1. ChAm Angust	10		FACW
2. GER ERI	7		NOL
3. EQU ARV	4		FACU
4. LUP nootk	4		FAC
5. Anaph margar	3		NOL
6. Luzula wahlen	2		OBL
7. Carex mano	4		FACW
8. Achill borealis	T		FACU
9. Elymus mollis	T		FAC
10. Cac Aleut	40	Y	FAC
Total Cover: 74			
50% of total cover: 37 20% of total cover: 14.8			

Plot size (radius, or length x width) 6' % Bare Ground 5
% Cover of Wetland Bryophytes Ø (Where applicable) Total Cover of Bryophytes Ø

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: MIOS 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 %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/2						Mucky Mineral loam	
6-13	Cobbles	85						1-4" diam.
	10YR 3/3	15					loam w/ high org. material	

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: Rocks / Cobbles

Depth (inches): 13"

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

MI-03

Project/Site: OUB2 / MI-03 Borough/City: Adak, AK Sampling Date: SP-9

Applicant/Owner: U.S. Navy Sampling Point: 11 June 201

Investigator(s): J. Walker, J. Pretare Landform (hillside, terrace, hummocks, etc.): Valley

Local relief (concave, convex, none): Convex Slope (%): 8

Subregion: Aleutians Lat: Long: Datum: WGS

Soil Map Unit Name: — NWI classification: — Upland

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

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	Absolute % Cover	Dominant Species?	Indicator Status
1. Empetrum nigrum	40	X	FAC
2.			
3.			
4.			
5.			
6.			
Total Cover: 40			
50% of total cover: 20	20% of total cover: 8		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Deschampsia beringensis	30	X	FAC
2. Geum calthifolium	5		FACW
3. Polygonum viviparum	10		FAC
4. Lycopodium clavatum	20	X	FACU
5. Juncus arcticus	T		OBL
6. Carex anthoxanthea	T		FACW
7. Coptis trifolia	T		FAC
8.			
9.			
10.			
Total Cover: 65			
50% of total cover: 32.5	20% of total cover: 13		

Plot size (radius, or length x width) 20' % Bare Ground 0

% Cover of Wetland Bryophytes ____ (Where applicable) Total Cover of Bryophytes 5

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	T	x 1 =	0
FACW species	5	x 2 =	10
FAC species	80	x 3 =	240
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	105 (A)		330 (B)

Prevalence Index = B/A = 3.14

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

MI-03

SOIL

Sampling Point: SP-9

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2	10							organic-fibric
2-6	10YR 2/1	100					silt loam	
6-7	10YR 5/2	100					"	ash present
7-16	10YR 3/2	100					"	

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks: organic matter present in all layers.

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:

no indicators present

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 / MI-03 Borough/City: Adak, AK Sampling Date: 11 June 201:
Applicant/Owner: U.S. Navy Sampling Point: MI-03 SP-1
Investigator(s): J. Walker, J. Pretare Landform (hillside, terrace, hummocks, etc.): valley sideslope
Local relief (concave, convex, none): concave Slope (%): 15
Subregion: Aleutians Lat: Long: Datum: WGS 84
Soil Map Unit Name: — NWI classification: PEMB
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

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	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover:	20% of total cover:		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Leptarrhena pyrolifolia	10		FACW
2. Angelica lucida	5		FACU
3. Fritillaria camschatcensis	T		FAC
4. Ranunculus occidentalis	T		FACW
5. Juncus ensifolius	50	X	FACW
6. Athyrium filix-femina	5		FAC
7. Calamagrostis nutkaensis	20	X	FAC
8.			
9.			
10.			
Total Cover: 90			
50% of total cover: 45	20% of total cover: 18		

Plot size (radius, or length x width) 20 x 10 % Bare Ground 10
% Cover of Wetland Bryophytes ____ (Where applicable) Total Cover of Bryophytes 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	25	x 3 =	75
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	90 (A)		215 (B)

Prevalence Index = B/A = 2.39

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

M1-03

SOIL

Sampling Point: SP-10

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2								organics - fibric
2-7	10YR 3/2	95	7.5YR 4/6	5	C	M	clay loam	
7-18	10YR 4/1	80	5YR 4/6	20	C	M	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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes X No ___

Remarks: "Other" Indicator F6 = Redox dark surface.
Organic matter throughout profile.
9150 A11 - Depleted below dark surface

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

Field Observations:

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

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

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: SP-10 is at the base of the valley wall. There is a snow pocket upslope. Water is running down the slope near the SP.

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OWBZ / M103 Borough/City: Adak, AK Sampling Date: 11 June 2017
Applicant/Owner: U.S. Navy Sampling Point: M1-03 SP-11
Investigator(s): J. Walker, J. Pretare Landform (hillside, terrace, hummocks, etc.): valley sideslope
Local relief (concave, convex, none): convex Slope (%): 20
Subregion: Aleutians Lat: Long: Datum: WGS 84
Soil Map Unit Name: — NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

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	Absolute % Cover	Dominant Species?	Indicator Status
1. Linnaea borealis	5	X	FACU
2.			
3.			
4.			
5.			
6.			
Total Cover:	5		
50% of total cover: 2.5	20% of total cover: 1		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Calamagrostis nutkaensis	80	X	FAC
2. Geum trifolium	5		FACW
3. Coptis trifolia	T		FAC
4. ~~[illegible]~~	~~[illegible]~~		~~[illegible]~~
5. Lycopodium clavatum	5		FACU
6. Listera cordata	T		FACU
7. Fritillaria camschatcensis	T		FAC
8. Geranium erianthum	T		FACU
9.			
10.			
Total Cover:	90		
50% of total cover: 45	20% of total cover: 18		

Plot size (radius, or length x width) 20' % Bare Ground 0
% Cover of Wetland Bryophytes ____ (Where applicable) Total Cover of Bryophytes 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	80	x 3 =	240
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	95 (A)		290 (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: M1-03 SP-11

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3								organic-fibric
3-5	10YR 2/2	100					silt loam	
5-6	2.5YR 4/4	100					"	ash layer?
6-18	10YR 2/2	100					"	

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: —

Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks: organic matter throughout profile

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: no indicators present

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 / M1-03 Borough/City: Adak, AK Sampling Date: 11 June 201

Applicant/Owner: U.S. Navy Sampling Point: M1-03-SP-1

Investigator(s): J. Walker, J. Pretare Landform (hillside, terrace, hummocks, etc.): floodplain

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

Subregion: Aleutians Lat: Long: Datum: WGS 84

Soil Map Unit Name: — NWI classification: PEMB

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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: Plot in swp @ base of slope at the edge of the Moffett Creek floodplain

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

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	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover: ____	20% of total cover: ____		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Juncus ensifolius	30	X	FACW
2. Potentilla frigidus	10		FACW
3. Caltha palustris	30	X	OBL
4. Carex anthoxanthea	20	X	FACW
5. Deschampsia beringensis	5		FAC
6. Mimulus guttatus	T		OBL
7. Equisetum arvense	T		FAC
8.			
9.			
10.			
Total Cover: 95			
50% of total cover: 47.5	20% of total cover: 19		

Plot size (radius, or length x width) 20' % Bare Ground 0

% Cover of Wetland Bryophytes ____ (Where applicable) Total Cover of Bryophytes 70

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	60	x 2 =	120
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	95 (A)		165 (B)

Prevalence Index = B/A = 1.74

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: MI-03 SP-12

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1	100						organic - hemic
2-16	10YR 2/1	100						organic - sapric

[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)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

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)
- X 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)
- X FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes X No ___ Depth (inches): 8 inches

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 / MI-03 Borough/City: Adak, AK Sampling Date: 11 June 2012
Applicant/Owner: U.S. Navy Sampling Point: MI-03-SP-1
Investigator(s): J. Walker, J. Pretare Landform (hillside, terrace, hummocks, etc.): floodplain
Local relief (concave, convex, none): convex Slope (%): 2
Subregion: Aleutians Lat: — Long: — Datum: WGS 84
Soil Map Unit Name: — NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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 ____
Hydric Soil Present?	Yes ____	No X
Wetland Hydrology Present?	Yes ____	No X

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:

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

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. —			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover: ____	20% of total cover: ____		

Herb Stratum			
1. Calamagrostis nutkaensis	40	X	FAC
2. Fritillaria camschatcensis	10		FAC
3. Geranium erianthum	10		FACU
4. Leymus mollis	40	X	FAC
5. Artemisia unalaskensis var. aleutica	T		NI
6. Mimulus guttatus	T		OBL
7.			
8.			
9.			
10.			
Total Cover: 100			
50% of total cover: 50	20% of total cover: 20		

Plot size (radius, or length x width) 20' % Bare Ground 0
% 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: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	T	x 1 = 0
FACW species	0	x 2 = 0
FAC species	90	x 3 = 270
FACU species	10	x 4 = 40
UPL species	0	x 5 = 0
Column Totals:	100 (A)	310 (B)

Prevalence Index = B/A = 3.10

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: M1-03 SP-13

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 %	Type[1]	Loc[2]	Texture	Remarks
0-1		100						organic-fibric
1-9	10YR 3/2	100	—				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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: ___

Depth (inches): ___

Hydric Soil Present? Yes ___ No X

Remarks: Rock refusal @ 9" due to cobble

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:

no indicators present

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 / MI-03 Borough/City: Adak, AK Sampling Date: 13 June 201

Applicant/Owner: US. Navy Sampling Point: MI-03 SP-15

Investigator(s): J. Walker, J. Pretorc Landform (hillside, terrace, hummocks, etc.): floodplain

Local relief (concave, convex, none): hummocky Slope (%): 4

Subregion: Aleutians Lat: Long: Datum: WGS 84

Soil Map Unit Name: — NWI classification: PEMB

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

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. —			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover:	20% of total cover:		

Herb Stratum			
1. Calamagrostis nutkaensis	60	X	FAC
2. Caltha palustris	20	X	OBL
3. Equisetum arvense	5		FAC
4. Veronica americana	T		OBL
5. Carex anthoxanthea	5		FACW
6. Mimulus guttatus	T		OBL
7. *Juncus sp	5		
8. Ranunculus occidentalis	T		FACW
9.			
10.			
Total Cover: 95			
50% of total cover: 47.5	20% of total cover: 19		

Plot size (radius, or length x width) 20' % Bare Ground 5

% Cover of Wetland Bryophytes ____ Total Cover of Bryophytes 5
(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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	5	x 2 =	10
FAC species	65	x 3 =	195
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	90 (A)		225 (B)

Prevalence Index = B/A = 2.5

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
small hummocks in wetland contain Geranium erianthum + Heracleum maximum

SOIL

Sampling Point: M1-03-SP1

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 %	Type[1]	Loc[2]	Texture	Remarks
0-1		100						organic-fibers
1-16		100						organic - humic/hydric

[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)
- X Hydrogen Sulfide (A4)
- __ Thick Dark Surface (A12)
- __ Alaska Gleyed (A13)
- __ Alaska Redox (A14)
- __ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

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)
- X Hydrogen Sulfide Odor (C1)
- __ Dry-Season Water Table (C2)
- __ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- __ 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)
- __ Geomorphic Position (D2)
- __ Shallow Aquitard (D3)
- __ Microtopographic Relief (D4)
- X FAC-Neutral Test (D5)

Field Observations:

*Surface Water Present?	Yes X	No ____	Depth (inches): 0.5
*Water Table Present?	Yes X	No ____	Depth (inches): 0
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:
* surface water present in small channels in wetland; water table @ 0" there as well. Water flows into wetland from hillside drainage/seep

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OU32 / MI-03 Borough/City: Adak, AK Sampling Date: 13 June 20
Applicant/Owner: U.S. Navy Sampling Point: MI-03 SP1
Investigator(s): J. Walker, J. Preston Landform (hillside, terrace, hummocks, etc.): Floodplain
Local relief (concave, convex, none): flat Slope (%): 4
Subregion: Aleutians Lat: Long: Datum: WGS84
Soil Map Unit Name: — NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

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	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover: ____	20% of total cover: ____		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Calamagrostis nutkaensis	100	X	FAC
2. Maianthemum dilatatum	5		FAC
3. Heracleum maximum	5		FACU
4. Equisetum arvense	T		FAC
5. Fritillaria camschatcensis	T		FAC
6.			
7.			
8.			
9.			
10.			
Total Cover: 105			
50% of total cover: 52.5	20% of total cover: 21		

Plot size (radius, or length x width) 20' % Bare Ground 0
% Cover of Wetland Bryophytes ____ (Where applicable) Total Cover of Bryophytes 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	105 (A)		320 (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

M1.03

SOIL

Sampling Point: SP.16

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2								organic - fibric
2-8	10YR 2/2	100					loam	
8-9	10YR 5/4	95	10YR 5/8	5	C	PL	loam	ash present
9-18	10YR 3/2	100					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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

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: moist but not saturated

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 / MI-03 Borough/City: Adak, AK Sampling Date: 13 June 12
Applicant/Owner: U.S. Navy Sampling Point: M1.03 SP.1
Investigator(s): J. Walker, J. Pratera Landform (hillside, terrace, hummocks, etc.): floodplain
Local relief (concave, convex, none): _____ Slope (%): 3
Subregion: Aleutians Lat: _____ Long: _____ Datum: WGS84
Soil Map Unit Name: — NWI classification: PEMB
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (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. List all species in the plot.

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.			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover: _____	20% of total cover: _____		

Herb Stratum			
1. Potentilla fruticosa	10	X	FACW
2. Ranunculus occidentalis	5		FACW
3. Veronica americana	5		OBL
4. Caltha palustris	10	X	OBL
5. Equisetum variegatum	2		FACW
6. Carex lenticularis	10	X	OBL
7.			
8.			
9.			
10.			
Total Cover: 42			
50% of total cover: 21	20% of total cover: 8.4		

Plot size (radius, or length x width) 20' % Bare Ground 5
% Cover of Wetland Bryophytes _____ (Where applicable) Total Cover of Bryophytes 50

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	25	x 1 =	25
FACW species	17	x 2 =	34
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	42 (A)		59 (B)

Prevalence Index = B/A = 1.4

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

SOIL

Sampling Point: ML-03-SP1

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 %	Type[1]	Loc[2]	Texture	Remarks
0-18		100						organic - peat - 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)
- X Hydrogen Sulfide (A4)
- __ Thick Dark Surface (A12)
- __ Alaska Gleyed (A13)
- __ Alaska Redox (A14)
- __ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

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)
- X 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): 0

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:
Water flows into wetland from hillside drainage/seep

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: CUB2 / CBOD 1 Borough/City: ADAK Sampling Date: 9/23/11
Applicant/Owner: NAVY Sampling Point: CBOD-SP2
Investigator(s): K DECKS E Lilly white Landform (hillside, terrace, hummocks, etc.): Flat
Local relief (concave, convex, none): locally convex Slope (%): 0
Subregion: Aleutian Lat: Long: Datum: NAD83
Soil Map Unit Name: NWI classification: UPEM1
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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: SP1 taken on elevated area is vegetatively different community – unclear if natural feature

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: ____	20% of total cover: ____		

Sapling/Shrub Stratum			
1. —			
2.			
3.			
4.			
5.			
6.			
Total Cover: 0			
50% of total cover: ____	20% of total cover: ____		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Calamagrostis nutkaensis	80	Y	FAC
2. Cicuta mackenzieana	T		FACW
3. Ligusticum scoticum	5		FAC
4. Potentilla anserina	15		NOL
5. Heracleum lanatum	10		FACU
6. Bromus sitchensis	T		NOL
7. Angelica genuflexa	1		NOL
8. Claytonia sibirica	T		FACW
9. Chamerion angustifolium	5		FACU
10. Geranium erianthum	T		NOL
Total Cover: 110			
50% of total cover: 55	20% of total cover: 22		

Plot size (radius, or length x width) 7' % Bare Ground 0
% Cover of Wetland Bryophytes 0 (Where applicable) Total Cover of Bryophytes 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: OBSD-SP 1

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 %	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/3	94	10YR 4/2, 10YR 5/3	4	C	M	SiL	
11-17	10YR 2/1	100					gravelly L	10% cobbles
	refusal @ 17"							

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):
Type: Rocks Cobbles
Depth (inches): 17"

Hydric Soil Present? Yes ___ No X

Remarks:
boundary @ 11" is distinct, not wavy

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:
on hillside not in River valley, unclear if natural feature

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: [illegible] Borough/City: Adak Sampling Date: 9/22/11
Applicant/Owner: NAVY Sampling Point: [illegible]
Investigator(s): K. Deeds J. Walker Landform (hillside, terrace, hummocks, etc.): flat
Local relief (concave, convex, none): Ø Slope (%): Ø
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: PEM B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation X, Soil ____, or Hydrology ____ naturally problematic? N (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 ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks: Valley bottom – Higher percentage of Equ. Arvense w/in plot. Equ Arv has been observed growing vigorously in both wetlands & uplands

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			

50% of total cover: ____ 20% of total cover: ____

Sapling/Shrub Stratum			
1. N/A			
2.			
3.			
4.			
5.			
6.			
Total Cover: Ø			

50% of total cover: ____ 20% of total cover: ____

Herb Stratum			
1. Equi Arvense	15		FACW
2. Deschampsia beringensis	65	Y	FACW
3. Elymus glaucus	20	Y	NOL
4. Luzula parviflora	2		OBL
5. Luzula multiflora	1		FACU
6. Calamagrostis nootkensis	5		FAC
7. Fragaria chiloensis	3		FACU
8. Viola langsdorfii	5		FACW
9. Achillea borealis	2		FACU
10. Tanacetum vulgare	T		FACU
Juncus mertensianus			OBL
Total Cover: 142			

50% of total cover: 71 20% of total cover: 28.4

Plot size (radius, or length x width) 20' % Bare Ground Ø

% Cover of Wetland Bryophytes 5 (Where applicable) Total Cover of Bryophytes Ø

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	3	x 1 = 3
FACW species	8	x 2 = 16
FAC species	70	x 3 = 210
FACU species	18	x 4 = 72
UPL species	–	x 5 = –
Column Totals:	99 (A)	301 (B)

Prevalence Index = B/A = 3.04

Hydrophytic Vegetation Indicators:

- ____ Dominance Test is >50%
- ____ Prevalence Index is ≤3.0
- ____ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- X 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: Due to higher percent cover of Equ Arv which is known to occur in both wetlands & uplands skews % of P/I

SOIL

Sampling Point: CBOD-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 %	Type[1]	Loc[2]	Texture	Remarks
0-1							ORG-Fibric	
1-5							ORG-hemic	
5-7	10YR 4/1	100					Silty clay loam	
7-10	10YR 2/1	100					Silt loam	
10-13	10YR 5/2	97	5YR 4/6	3	C	M	Silty clay loam	
13+	10YR 4/1						Loamy SAND	

[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)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

Depth (inches): —

Hydric Soil Present? Yes X No ___

Remarks: High density living roots w/in loamy section of profile

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)
- X 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 X No ___ Depth (inches): Surface

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: APAK OB/OB-01 Borough/City: Adak Sampling Date: 9/23/11
Applicant/Owner: U.S. Navy Sampling Point: OB/OB-SP-3
Investigator(s): Lillyhite, Degroh's, Preture Landform (hillside, terrace, hummocks, etc.): Flat
Local relief (concave, convex, none): none Slope (%): 0
Subregion: Aleutian Lat: Long: Datum: WGS 84
Soil Map Unit Name: NWI classification: PEM C
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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 ____	**Is the Sampled Area within a Wetland?**	Yes ✓ No ____
Hydric Soil Present? Yes ✓ No ____		
Wetland Hydrology Present? Yes ✓ No ____		

Remarks:

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: ____	20% of total cover: ____		

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
5.			
6.			
Total Cover: 0			
50% of total cover: ____	20% of total cover: ____		

Vicia lAng

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Des Ber	10		FAC (assume)
2. Athy ~~Filyth~~ Filix	5		FAC
3. Ranu occ	T		FACW
4. Equ ary	15		FACW
5. ~~Ver tang~~ Stell ~~bor~~	3		FACU
6. Jun ens	5		FACW
7. Mim gutt	8		OBL
8. Ach bor	3		FACU
9. Cal noot	70	Y	FAC
10. ~~Arc fri~~ Pet Fri	3		FACW
Phleu comm	T		FACW
Jun mert			OBL
Total Cover: 134%			
50% of total cover: 67%	20% of total cover: 26.8%		

FACW

Plot size (radius, or length x width) 20 % Bare Ground 0
% Cover of Wetland Bryophytes 0 (Where applicable) Total Cover of Bryophytes 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: OB/CO-1-S.P.3

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 %	Type[1]	Loc[2]	Texture	Remarks
0-12							organic-Hemic	
12-18	10YR 3/1	100					Loamy Sand	F-M grained

[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)
- ✓ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):
Type: NA
Depth (inches): —

Hydric Soil Present? Yes ✓ No ___

Remarks:
H_2S @ 8"

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 ✓	Depth (inches): ___
Water Table Present?	Yes ✓	No ___	Depth (inches): 10"
Saturation Present? (includes capillary fringe)	Yes ✓	No ___	Depth (inches): Surface

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:
H_2S @ 8"

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Adak OUB 2 Borough/City: Adak Sampling Date: 9/26/11
Applicant/Owner: U.S. Navy Sampling Point: RR-01-SP-1
Investigator(s): Lillybridge, Reynolds, Preture, Novak Landform (hillside, terrace, hummocks, etc.): Flat
Local relief (concave, convex, none): none Slope (%): 0
Subregion: Aleutian Lat: Long: Datum: WGS 84
Soil Map Unit Name: NWI classification: ~~PEM1A~~ UPLAND
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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 ____	**Is the Sampled Area within a Wetland?** Yes ✓ No ____
Hydric Soil Present?	Yes ~~NA~~	No ✓	
Wetland Hydrology Present?	Yes ~~✓~~	No ✓	

Remarks: SP with potentially drained field (5' deep trench to SE of Field Area) profile exhibits typical sat. organic layer 0-2" but non-saturated mineral soils throughout

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum			
1. N/A			
2.			
3.			
4.			
5.			
6.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum			
1. Cal Nut	90	Y	FAC
2. Rub Arc	10		FAC
3. Cham Ang	15		FACU
4. Equ Arv	25		FACU
5. Ger Eri	10		NOL
6. Carex Mucro	5		FACW
7. Ach Bov	5		FACU
8.			
9.			
10.			
Total Cover: 160			
50% of total cover: 80 20% of total cover: 32			

Plot size (radius, or length x width) 20 % Bare Ground 0
% Cover of Wetland Bryophytes Ø (Where applicable) Total Cover of Bryophytes Ø

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: RR-01-SP-1

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1						Loam	High organic matter, greasy
2-5	10YR 5/1	10	5YR 4/6	90	C	M	~~Clay~~ Silty Loam	Muddy mineral
5-11	10YR 3/3	90	2.5YR 3/6	10	C	PL	Silty Loam	
12+	10YR 4/2	93	2.5YR 3/6	7	C	PL	Loamy Sand	

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):
Type: Cobbles (Refusal)
Depth (inches): 11+/-

Hydric Soil Present? Yes ~~✓~~ No ✓

Remarks: Area has significant redoximorphic features, which are also found in elevated upland plots (SP-2 and unrecorded test pit nearby). Area also fails all Alaska indicators.

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 ✓ Depth (inches): ___
Water Table Present? Yes ___ No ✓ Depth (inches): ___
Saturation Present? (includes capillary fringe) Yes ~~✓~~ No ✓ Depth (inches): 0-2"

Wetland Hydrology Present? Yes ~~✓~~ No ✓

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

Remarks: Not saturated throughout profile - organic layers only saturated - Note ~1/4" rainfall w/in last 12 hrs prior to delineation

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: SUB2 / RR-1 Borough/City: Adak Sampling Date: 9/27/11
Applicant/Owner: NAVY Sampling Point: RR01-SP 2
Investigator(s): J Novak K Degutis Landform (hillside, terrace, hummocks, etc.): FLAT
Local relief (concave, convex, none): Convex berm Slope (%): Ø
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: UPLAND
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil X, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil X, or Hydrology ____ 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: SP taken on non-native berm site lacking, compacted non-native soils in berm
OVERCAST * AK Gleyed w/out 5Y Hue on 0-3% slope, non-native berm area

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			

50% of total cover: ____ 20% of total cover: ____

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix arctica	10		FAC
2. Empetrum nigrum	25	Y	FAC
3. Thelypt camtsch	15	Y	NOL
4. Vac uliginosum	25	Y	FAC
5.			
6.			
Total Cover: 75			

50% of total cover: 37.5 20% of total cover: 15

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Juncus arct.	2		OBL
2. Carex circinn	1		NOL
3. Luzula multi	T		FACU
4. Luzula wahlen	T		OBL
5. Lycopod clava	15	Y	UPL
6. CAL NUT	40	Y	FAC
7. Achillea borealis	5		FACU
8. Equi arv	15	Y	FACU
9. Junc mertens	2		FACW
10. GEUM calth	2		FACW
Arnica chamissonis	T		NOL
Total Cover: 85			

50% of total cover: 42.5 20% of total cover: 17

Plot size (radius, or length x width) ____ % 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: 3 (A)
Total Number of Dominant Species Across All Strata: 6 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	2	x 1 =	2
FACW species	4	x 2 =	8
FAC species	103	x 3 =	309
FACU species	20	x 4 =	80
UPL species	15	x 5 =	75
Column Totals:	144 (A)		474 (B)

Prevalence Index = B/A = 3.29

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: RR01 · 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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/1	100					Mucky loam	
3-6	6Bg 5/1	80	5YR 5/8 ~~6Bg 5/1~~	20	C	M	SAND	
6-12	–		–				Saturated	Sand · no matrix - diverse sand colors
								>50% cobbles

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: Rock / cobbles

Depth (inches): 12"

Hydric Soil Present? Yes X No ___

Remarks:

• Satisfies AK Gleyed w/out 5Y Hue due to landscape 0-3% slope.

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): 0"

Wetland Hydrology Present? Yes X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: DUBZ / RR01 Borough/City: KODIAK Sampling Date: 9/27/11
Applicant/Owner: NAVY Sampling Point: RR01-SP3
Investigator(s): J NOVAK K DECOUTIS Landform (hillside, terrace, hummocks, etc.): TERRACE
Local relief (concave, convex, none): NONE Slope (%): 0
Subregion: KODIAK Lat: Long: Datum: NAD83
Soil Map Unit Name: NWI classification: PEM B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes Y No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes Y No ____
Are Vegetation ____, Soil Y, or Hydrology ____ 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 Y No ____	**Is the Sampled Area within a Wetland?** Yes Y No ____	
Hydric Soil Present? Yes Y No ____		
Wetland Hydrology Present? Yes Y No ____		

Remarks: Inlet, tide influenced area, well drained soils (Alluvial deposits from Moffett Ck flood?) *Low carbon soils

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: ____ 20% of total cover: ____			

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
Total Cover: 0			
50% of total cover: ____ 20% of total cover: ____			

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Deschampsia beringensis	45	Y	Assume FAC
2. Carex nudata	45	Y	FACW
3. Chamerion angustifolium	15		FACU
4. Achillea borealis	2		FACU
5. Equisetum arvense	10		FACU
6. Lupinus nootkatensis	2		FAC
7. Calamagrostis canadensis	1		FACW
8. Potentilla egedii	2		FAC
9. Geum calthifolium	T		FACW
10. Lonicera caerulea	T		OBL
Total Cover: 122			OBL
50% of total cover: 61 20% of total cover: 24.4			

Plot size (radius, or length x width) 20' % Bare Ground 0
% Cover of Wetland Bryophytes 0 Total Cover of Bryophytes 0
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 7 (A)
Total Number of Dominant Species Across All Strata: 7 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: FR01-SP-3

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 %	Type[1]	Loc[2]	Texture	Remarks
3-0							Root Mates	
0-2							ORG - Fibric · Muck ·	
2-12"	Gravel / Rock / cobble							Rock / cobbles 80%

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: Rock / cobble

Depth (inches): 12"

Hydric Soil Present? Yes X No ___

Remarks: Floodplain soils - likely Moffett Ck Alluvium
Soils without organic carbon content - Problematic
satisfies 2 cm muck

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)
- 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)
- ___ 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): 10"

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: within 100yr floodplain for Moffett Creek

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 / RR01 Borough/City: Adak Sampling Date: 9/27/11
Applicant/Owner: NAVY Sampling Point: RR01-SP-4
Investigator(s): K DEGUTIS J NOVAK Landform (hillside, terrace, hummocks, etc.): terrace
Local relief (concave, convex, none): NONE Slope (%): 0
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: PEM1E
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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: Within depressed area, stream terrace influenced by Mollett Ck main stem. Area appears to drain to N & NE towards Creek & Andrew Lake

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum			
1. N/A			
2.			
3.			
4.			
5.			
6.			
Total Cover: 0			
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum			
1. Juncus arcif	5		FACW
2. Epilob. sect	2		FACW
3. Achille borealis	2		FACU
4. Lupinus nootk	T		FACU
5. Deschamp beringi	95	Y	Assume FAC
6. Cal Nut	10		FAC
7. GER ERI	3		NOL
8. Rubus Arc	T		FAC
9. Carex macro	5		FACW
10.			
Total Cover: n.a.			
50% of total cover: 61 20% of total cover: 24.4			

Plot size (radius, or length x width) 20 % Bare Ground 0
% Cover of Wetland Bryophytes 0 (Where applicable) Total Cover of Bryophytes 0

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: Rail-SP-4

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR 2/1						ORG - Fibric	(Peat)
2-2.5"	2.5YR 4/8						CLAY	25% Sand throughout
								*Note Completely oxidized!
2.5-18"	10YR 2/1						ORG - Fibric	(Peat)

[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)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):
Type: N/A
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)
- X 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)
- ___ 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): 6.5"
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: w/in lower elev. strm terrace area - Area appears directly influenced by Moffet Creek GW & 3-yr return int. floods

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Adak OUB2 Borough/City: Adak Sampling Date: 9/27/11

Applicant/Owner: U.S. Navy Sampling Point: ER01-SP-5

Investigator(s): Wright, Preble, Regehr, Novak Landform (hillside, terrace, hummocks, etc.): terrace

Local relief (concave, convex, none): NONE Slope (%): Ø

Subregion: Aleutian Lat: Long: Datum: WGS84

Soil Map Unit Name: NWI classification: UPLAND

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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: overcast skies Near toe of slope of S wall; on elevated stream terrace area

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum			
1. N/A			
2.			
3.			
4.			
5.			
6.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum			
1. CAL nut	75	Y	FAC
2. CHAM ang	10		FACW
3. GERAN sib	5		UPL
4. Pub arc	5		FAC
5. Alum Filix	2		FAC
6. CAREX MARIC	T		FACW
7.			
8.			
9.			
10.			
Total Cover: 117			
50% of total cover: 57.5 20% of total cover: 23.4			

Plot size (radius, or length x width) 20 % Bare Ground Ø

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

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: DR01-SP-5

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 %	Type[1]	Loc[2]	Texture	Remarks
2-0							Fibric mats	
0-1	10YR 2/1	100					Loam	Mucky mineral
1-2.5	10YR 3/2	100					Silt Loam	
2.5-3.5	10YR 4/6	95	2.5YR 2.5/1	5	C	M	Silt loam	(mucky mineral)
3.5-6	10YR 3/2	100					Loam	possible organic inclusion
6-18	10YR 3/3	100					Fine 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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

Depth (inches): —

Hydric Soil Present? Yes ____ No ✓

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 ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 / RR01 Borough/City: Adak Sampling Date: 9/27/11
Applicant/Owner: NAVY Sampling Point: PR01-SP-6
Investigator(s): K DEGUTIS J NOVAK Landform (hillside, terrace, hummocks, etc.): FLAT
Local relief (concave, convex, none): NONE Slope (%): Ø
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: UPLAND
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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: UPL plot Area to NE corner of site - defined by veg & slight change in topo. Possible non-mode texture, entire study known to be drained. partly cloudy

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Sapling/Shrub Stratum			
1. N/A			
2.			
3.			
4.			
5.			
6.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			
Herb Stratum			
1. CAL NUT	40	Y	FAC
2. Claim Angust	15		FACU
3. HERA IAN	5		FACU
4. Equ Arvense	15		FACU
5. Achilla borealis	5		FACU
6. GER ERI	5		Non
7. Athyr Filix	2		FAC
8. Deach basing	5		Assume FAC
9.			
10.			
Total Cover: 142			
50% of total cover: 71 20% of total cover: 28.4			

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

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: RR01-SP-6

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 %	Type[1]	Loc[2]	Texture	Remarks
3.5-0 ~~3.5~~								organic matter - roots
0-1	10YR 3/3						~~organic~~ mucky loam	Mucky mineral
1-4	10YR 4/2						Silty CLAY loam	mucky mineral
4-6	10YR 2/1						Mucky loam	organic inclusion
6-18	2.5Y 4/3		5YR 5/8	4	C	PL	Loamy sand	
				15	C	M		

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks:

↓ does not meet AK Redox w/ 2.5Y Hue - C, PL does not meet 10% requirement

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)
- X 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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OU B-2 / SA 93-01 Borough/City: Adak Sampling Date: Sept. 20, 2011
Applicant/Owner: Navy Sampling Point: SA93-01-SP
Investigator(s): K. Deguto, J. Walker Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): Concave Slope (%): 3-5%
Subregion: Aleutian Lat: Long: Datum: WGS 84
Soil Map Unit Name: NWI classification: UPLAND
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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: DES BER assumed FAC based on Alaska DOT PJD report (2006). Also obs. growth in same habitat as DES corrugs.

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover:			
50% of total cover: ____ 20% of total cover: ____			

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Linn borealis	2		UPL
2. Corn ~~Can~~ Sub	2		FAC
3. Emp nigr	5	✓	FAC
4.			
5.			
H 6. Elymus mollis	T		FAC
Total Cover:	9		
50% of total cover: 4.5	20% of total cover: ____		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Cal nut	90	✓	FAC
2. Ger ert	5		NOL
3. Frit cam	T		FAC
4. ~~Dest~~ Accantum maximum	T		NOL
5. DES BERIN	20	✓	~~FAC~~ FACW
6. Athy Felix-fem	T		FAC
7. Poa furnari	T		FAC
8. Phle commun	T		FACU
9. Chryl Sibirica	T		FACW
10. Rubus arcticus	T		FAC
Calex macro			FACW
Eqv arv			FAC
Achille borealis			FACU
Total Cover:	115		
50% of total cover: 57.5	20% of total cover: 23		

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ~~66~~ 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Plot size (radius, or length x width) 20 % Bare Ground Ø
% Cover of Wetland Bryophytes Ø (Where applicable) Total Cover of Bryophytes 10%

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: SA-23-01-SP-1

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 %	Type[1]	Loc[2]	Texture	Remarks
0-1							ORG- Hemic	
1-4	10YR 4/2	95	2.5Y 3/2	5	C	M	SiL	
4-7.5"	10YR 2/2	100					SiL	
7.5-9.5"	7.5YR 3/2	100					SiL	
9.5-18"	7.5YR 3/2	95	7.5YR 2.5/1	5	C	M	~~Sandy loam~~ Clay loam	5% fine sand

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: CUB2 / SA93 01 Borough/City: ADAK Sampling Date: 9/20/11
Applicant/Owner: NAVY Sampling Point: SA93-01-S2
Investigator(s): JW, KD Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): CONCAVE Slope (%): 3
Subregion: ALEUTIAN Lat: Long: Datum: WGS 84
Soil Map Unit Name: NWI classification: PEM B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No
Are Vegetation X, Soil X, or Hydrology ____ 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: on hillslope w/ Ak gleyed w/ 5Y Hue. Problematic veg due to DES BER indicator of N1 & having high % of non-

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: 0			

50% of total cover: ____ 20% of total cover: ____

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Cornus suecica	2		FAC
2. Linn borealis	1		UPL
3.			
4.			
5.			
6.			
Total Cover: 3			

50% of total cover: ____ 20% of total cover: ____

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Deschampsia beringensis	50	Y	Assume FAC
2. Geum camtschaticum	3		FACU
3. Phleum commutatum	T		FACW
4. Platanthera convallariifolia	T		NOL
5. Luzula multiflora	T		FACU
6. Geranium erianthum	T		NOL
7. Heuchera unalaschcensis	T		NOL
8. Cal nutkatensis	20		FAC
9. Fritill camschatcensis	T		FAC
10. Pedic chamissonis	T		OBL
Total Cover: 103			

50% of total cover: 51.5 20% of total cover: 20.6

Plot size (radius, or length x width) 20 ft % Bare Ground —
% Cover of Wetland Bryophytes — (Where applicable) Total Cover of Bryophytes 5%

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	—	x 1 =	—
FACW species	3	x 2 =	6
FAC species	20	x 3 =	60
FACU species	2	x 4 =	8
UPL species	1	x 5 =	5
Column Totals:	26 (A)		79 (B)

Prevalence Index = B/A = 3.03

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

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

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: DA13-C1-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 %	Type[1]	Loc[2]	Texture	Remarks
0-1							ORG Fib	
1-6							ORG Hemi	→ Sapric (< 17% roots)
6-8	10YR 5/1	75	5YR 4/6	~~75~~	C	M	Clay loam	
8-~~125~~ 14.5	7.5YR 3/1		10YR 3/4	10			Loam	w/high organics & multi ash layer throughout
~~125~~								
~~125~~-~~175~~								
14.5-20							ORG-Hemic	w/ multiple ash throughout

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):
Type: N/A
Depth (inches): ___

Hydric Soil Present? Yes X No ___

Remarks:
Meets indicator F6 (Redox Dark Surface)
May also meet Histosol if organic layer continues below 20"

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 ___ No X Depth (inches): ___
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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: SUBZ-SA93-01 Borough/City: ADAK Sampling Date: 9/20/11
Applicant/Owner: NAVY Sampling Point: SA93-01-SP-3
Investigator(s): J WALKER K DEGUTIS Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): None Slope (%): 1
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: ____ 20% of total cover: ____			

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
5.			
6.			
Total Cover: 0			
50% of total cover: ____ 20% of total cover: ____			

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Dactylis glomerata	~~40~~ 50	Y	~~FACU~~ FAC
2. Phleum commutatum	T		FACW
3. Cer erianthum	~~8~~ 10		NOL
4. Achill borealis	1		FACU
5. Elymus mollis	5		FAC
6. Calamagrostis nutk	40	Y	FAC
7. Fritill camschatcensis	1		FAC
8. Heracl lanatum	T		FACU
9. ~~Polypodium~~ Aconitum maximum	T		NOL
10.			
Total Cover: 107			
50% of total cover: 53.5 20% of total cover: 21.4			

Plot size (radius, or length x width) 20' % Bare Ground 0
% 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: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ~~50~~ 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: [illegible]

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2							CRG-Fibric	
2-17	10YR 2/2						SiL	texture looks slightly gyssy w/some fibric organics throughout

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

Depth (inches): —

Hydric Soil Present? Yes ___ No X

Remarks: Some gyssy texture throughout profile but no redox in LORCS obs.

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB 2 / SA93-01 Borough/City: Adak Sampling Date: 9/20/11
Applicant/Owner: NAVY Sampling Point: SA93-01-SP-4
Investigator(s): J Walker K Deguts Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): None Slope (%): 3
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: PEM B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			

50% of total cover: ____ 20% of total cover: ____

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Linn borealis	T		UPL
2. Cain [illegible]	2		FAC
3.			
4.			
5.			
6.			
Total Cover: 2			

50% of total cover: ____ 20% of total cover: ____

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Deschamp beesing	70	✓	FAC
2. Cal nitk	40	✓	FAC
3. Carex macro	T		FACW
4. Geran erian	5		NOL
5. Luzula wahlen	T		OBL
6. Luzula multi	T		FACU
7. Lupi arcensis	T		FACU
8. Fritill cam	T		FAC
9. Arnica unalas	T		NOL
10. Achill borealis	T		FACU
Poa turneri			FAC
Total Cover: 123			

50% of total cover: 61.5 20% of total cover: 24.6

Plot size (radius, or length x width) 20' % Bare Ground Ø
% Cover of Wetland Bryophytes Ø (Where applicable) Total Cover of Bryophytes Ø

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: ~~50~~ 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: SA93 C1-SP-1

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2							ORG - Fibric	
2-4							ORG - Hemic	
4-7	10YR 4/3	70	7.5YR 4/6	30	C	M	SiL	
7-24	10YR 5/2						SiL	
24"+	10YR 4/4	50	7.5YR 3/4	50	C	M	SiL	w/ indistinct

[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)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

Depth (inches): –

Hydric Soil Present? Yes X No ___

Remarks:

Some rich layers obs 7-24", also obs some organics throughout

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)
- X 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 X No ___

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

Remarks:

SAT 0-2" but not throughout profile

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: SUB2/SA93-01 Borough/City: ADAK Sampling Date: 9/20/11
Applicant/Owner: NAVY Sampling Point: SA93-01-SP
Investigator(s): J Walker K DeGuzis Landform (hillslope, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): NONE Slope (%): 2
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: PEMB
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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 ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: 0			
50% of total cover: ____ 20% of total cover: ____			

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Empetrum nigrum	50	✓	FAC
2. Linnaea borealis	5		UPL
3.			
4.			
5.			
6.			
Total Cover: 55			
50% of total cover: 27.5 20% of total cover: ____				

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Carex macrochaeta	25	✓	FACU
2. Calamagrostis lividum	T		FACU
3. Cicuta bolanderi	5		FAC
4. Geum calthifolium	20	✓	FACW
5. Deschampsia beringensis	30	✓	FAC
6. Calamagrostis aleutensis	20	✓	FAC
7. Geranium erianthum	T		NOL
8. Lycopodium annotinum	T		FAC
9. Tofieldia coccinea	T		FAC
10. Poa trivialis	T		FAC
Total Cover: 100			
50% of total cover: 50 20% of total cover: 20			

Plot size (radius, or length x width) 20 % Bare Ground 0
% Cover of Wetland Bryophytes 0 (Where applicable) Total Cover of Bryophytes 0

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 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: SAG3-6(-5 P.S)

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	organic							organic - fibric
3-6	7.5YR 3/2						SiL	high organics
6-	7.5YR 3/1						SiL	some organics

[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)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):
Type: N/A
Depth (inches): —

Hydric Soil Present? Yes X No ___

Remarks:
H_2S @ 9"; minor amounts of ash streaking through profile

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)
- X 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 X No ___

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 / SA 93-01 Borough/City: Adak Sampling Date: 9/20/11
Applicant/Owner: NAVY Sampling Point: SA93-01-SP-1
Investigator(s): J Walker K DeCutis Landform (hillside, terrace, hummocks, etc.): terrace
Local relief (concave, convex, none): Concave Slope (%): 2
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: UPLAND
Are climatic / hydrologic conditions on the site typical for this time of year? Yes Y No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes Y No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____	20% of total cover: ____		

Sapling/Shrub Stratum			
1. N/A			
2.			
3.			
4.			
5.			
6.			
Total Cover: Ø			
50% of total cover: ____	20% of total cover: ____		

Herb Stratum			
1. Fritill cam	T		FAC
2. Hera lanatum	25	✓	FACU
3. Clay sibirica	T		FACW
4. GERANium erianthum	5		NOL
5. Galium trifidum	T		FACW
6. Angelica lucida	10		FACU
7. Cham Angust	30	✓	FACU
8. ~~Delphinium~~ Aconitum maximum	10		NOL
9. Calamagrostis canadensis	40	✓	FAC
10.			
Total Cover: 170			
50% of total cover: 60%	20% of total cover: 24		

Plot size (radius, or length x width) 20' x 5' % Bare Ground Ø
% Cover of Wetland Bryophytes Ø Total Cover of Bryophytes Ø
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	T	x 2 = 0
FAC species	40	x 3 = 120
FACU species	65	x 4 = 260
UPL species	0	x 5 = 0
Column Totals:	105 (A)	380 (B)

Prevalence Index = B/A = 3.6

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

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:
Veg plot narrow - in drainage swale

SOIL

Sampling Point: SA9301-SP-6

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3							ORG - Fibric	
3-9	7.5YR 3/2	100					Loam	
9-18	10YR 3/2	100					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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

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)
- X 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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Adak ANS C Borough/City: Adak Sampling Date: 9/30/11
Applicant/Owner: U.S. Navy Sampling Point: SA93 01-SP-7
Investigator(s): Lillyhite, Degutis Landform (hillside, terrace, hummocks, etc.): ~flat
Local relief (concave, convex, none): none Slope (%): Ø
Subregion: Aleutian Lat: ____ Long: ____ Datum: NAD83 84
Soil Map Unit Name: ____ NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes ✓ No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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 ____
Hydric Soil Present?	Yes ✓	No ____
Wetland Hydrology Present?	Yes ✓	No ____

Is the Sampled Area within a Wetland? Yes ✓ No ____

Remarks:

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/			
2.			
3.			
4.			
Total Cover:	Ø		
50% of total cover:	/	20% of total cover:	

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Emp Nig	30	Y	FAC
2. Cor Sue	T		FAC
3.			
4.			
5.			
6.			
Total Cover:	30		
50% of total cover:	15	20% of total cover:	6

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Desc Bor	60	Y	Assume FAC
2. Phleum Com	T		FACW
3. Jun Arc	5		OBL
4. Tri Euro	1		FAC
5. Ach Bor	3		FACW
6. Plan Maru	2		FACW
7. ~~Carex Pellaeo~~ Carex Macro	2		FACW
8. Geum Cal	3		FAC
9. Rubus Arc	T		FAC
10. Cal Nut	15		FAC
Equ Arv	T		FACW
Total Cover:	91		
50% of total cover:	45.5	20% of total cover:	18.2

Plot size (radius, or length x width) 15 % Bare Ground Ø
% Cover of Wetland Bryophytes (Where applicable) Ø Total Cover of Bryophytes Ø

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
Total Number of Dominant Species Across All Strata: 2 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: SA93-01-SP-7

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2							Organic / Hemic	
2-5							Organic sapric	
5-7.0	10YR 3/2	80	5YR 3/3	20	C	M	Fine Sandy loam	
7-8	5Y 3.5/2	95	2.5YR 2.5/3	5	C	PL	Fine Sandy loam	
8-9	2.5Y 4/4	95	2.5YR 2.5/4	5	C	PL	Fine Sandy loam	
9-14	10YR 2/1	90	2.5YR 3/6	10	C	PL	Mucky Mineral	
14-18	10YR 3/3	100					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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: NA

Depth (inches): –

Hydric Soil Present? Yes ✓ No ___

Remarks: Problem Soil: meets indicator F6 - Redox Dark Surface

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 ✓ Depth (inches): –

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

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

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks: Within topographic area of ponding, driest part of season

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: US Navy OUB-2 Sites Borough/City: Adak Sampling Date: 30 Sept 11
Applicant/Owner: US Navy Sampling Point: SA93 SP-8
Investigator(s): Degutis, Pretare Landform (hillside, terrace, hummocks, etc.): hillslope
Local relief (concave, convex, none): Concave Slope (%): 7
Subregion: Aleutians Lat: Long: Datum: WGS84
Soil Map Unit Name: N/A NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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
Hydric Soil Present?	Yes X	No
Wetland Hydrology Present?	Yes X	No

Is the Sampled Area within a Wetland? Yes X No

Remarks:

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			

50% of total cover: ____ 20% of total cover: ____

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. EMP NIGR	15	X	FAC
2. LINN BOR	8		UPL
3.			
4.			
5.			
6.			
Total Cover: 23			

50% of total cover: 11.5 20% of total cover: 4.6

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Geum cal	8		FACW
2. Arni unala	10		NOL
3. Cept trif	8		FAC
4. Desc beri	35	X	assume FAC
5. Poa turn	2		FAC
6. Calt pal	3		OBL
7. Poly vivi	T		FAC
8. Pedi cham	T		OBL
9.			
10.			
Total Cover: 66			

50% of total cover: 33 20% of total cover: 13.2

Plot size (radius, or length x width) 20' % Bare Ground Ø
% Cover of Wetland Bryophytes Ø (Where applicable) Total Cover of Bryophytes Ø

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No

Remarks:

SOIL

Sampling Point: SA93 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 %	Type[1]	Loc[2]	Texture	Remarks
0-5								organic-~~hemic~~ fibric
5-7½								organic-hemic
7½-9½	10YR 4/2		2.5YR 3/6	5	C	M	silt loam	
~~9½-18~~	continued...		2.5Y 4/1	7	C	M	silt loam	
9½-18	10YR 2/2						silt loam	high organic content due to living roots

[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)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: none

Depth (inches): –

Hydric Soil Present? Yes X No ___

Remarks: H2S @ 9 inches.

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)
- X 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)
- X 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 ✓ Depth (inches): ___

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

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: H2S at 9 inches.
Within concave depression on slope

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: Adak OUB2 Borough/City: Adak Sampling Date: 10/2/11
Applicant/Owner: U.S. Navy Sampling Point: SA93-01-SP01
Investigator(s): Lillybite, Mark Landform (hillside, terrace, hummocks, etc.): Hillside
Local relief (concave, convex, none): none Slope (%): 2
Subregion: Aleutian Lat: Long: Datum: WGS 84
Soil Map Unit Name: NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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 ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✓
Hydric Soil Present?	Yes ____	No ✓	
Wetland Hydrology Present?	Yes ____	No ✓	

Remarks:

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

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			
50% of total cover: ____ 20% of total cover: ____			

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Emp Nig	70	Y	FAC
2. Cor Sse	2		FAC
3.			
4.			
5.			
6.			
Total Cover: 72			
50% of total cover: 36	20% of total cover: 14.4		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Cal Nut	15	Y	FAC
2. Desc Ber	20	Y	Assume FAC
3. Tri Euro	T		FAC
4. Peda Fri	2		FACW
5. Carex Mic	1		FACU
6.			
7.			
8.			
9.			
10.			
Total Cover: 38			
50% of total cover: 19	20% of total cover: 7.6		

Plot size (radius, or length x width) 20 % Bare Ground 0
% Cover of Wetland Bryophytes 40 Total Cover of Bryophytes 4
(Where applicable)

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes ✓ No ____

Remarks:

SOIL

Sampling Point: SH 93-01-SP-9

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 %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2/1	100					Mucky Mineral	Very Fibric Some grit, likely volcanic
4-12	10YR 2/2	100					Fine Silty Loam	Volcanic ash

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: NA

Depth (inches): —

Hydric Soil Present? Yes ___ No ✓

Remarks: Mucky mineral horizon is gritter and more rust colored than hydric soils

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 ✓ Depth (inches): —

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

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

Wetland Hydrology Present? Yes ___ No ✓

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

Remarks:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 / SA9301 Borough/City: Adak Sampling Date: 10-2-11
Applicant/Owner: NAVY Sampling Point: SA9301 SP10
Investigator(s): J Novak J Pastar Landform (hillside, terrace, hummocks, etc.): Slope
Local relief (concave, convex, none): None Slope (%): 2
Subregion: Aleutian Lat: Long: Datum: WGS84
Soil Map Unit Name: NWI classification: Upland
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
Total Cover: Ø			

50% of total cover: ____ 20% of total cover: ____

Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Emp nig	50	Y	FAC
2. Cornus sec	3		FAC
3.			
4.			
5.			
6.			
Total Cover: 53			

50% of total cover: 26.5 20% of total cover: 10.6

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Lycopodium sp	15		
2. Coptis tri	4		FAC
3. Desch beria	35	Y	Assign FAC
4. Carex mich	20	Y	FACW
5. Trientalis europa	T		
6. Acnie unalas	T		NOL
7. Plantago mar	2		
8. Geum calth	T		FACW
9. Viola langsd	T		
10.			
Total Cover: ~~64~~ 76			15.2

50% of total cover: ~~32.5~~ 38 20% of total cover: ~~13.0~~

Plot size (radius, or length x width) 20' % Bare Ground 3
% Cover of Wetland Bryophytes Ø Total Cover of Bryophytes 5
(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: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = ____

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
20% reindeer moss throughout

SOIL

Sampling Point: SA93-SP-10

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 %	Type[1]	Loc[2]	Texture	Remarks
3-0							ORGANIC MATER	
0-1.5							ORGANIC	
1.5-12	10YR 2/1						LOAM	insignificant in horizon
12-18	10YR 3/3		2.5YR 3/4	30	C	M	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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present? Yes ___ No X

Remarks: In topographically drained area

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2/SA93 Borough/City: Adak, AK Sampling Date: 14 June 12
Applicant/Owner: U.S. Navy Sampling Point: SA93 SP.12
Investigator(s): J. Walker, J. Pretare Landform (hillside, terrace, hummocks, etc.): Valley bottom
Local relief (concave, convex, none): ____ Slope (%): 20
Subregion: Aleutians Lat: ____ Long: ____ Datum: WGS 84
Soil Map Unit Name: — NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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: Seep on sideslope of Mitchell Creek

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

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	Absolute % Cover	Dominant Species?	Indicator Status
1. —			
2.			
3.			
4.			
5.			
6.			
Total Cover:			
50% of total cover: ____ 20% of total cover: ____			

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Juncus arcticus	20	X	OBL
2. Ranunculus occidentalis	20	X	FACW
3. Potasites frigidus	5		FACW
4. Carex macrochaeta	15		FACW
5. Equisetum arvense	5		FAC
6. Luzula wahlenbergii	T		OBL
7. Carex anthoxanthea	10		FACW
8. Calamagrostis nutkaensis	30	X	FAC
9.			
10.			
Total Cover: 100			
50% of total cover: 50 20% of total cover: 20			

Plot size (radius, or length x width) 20' % Bare Ground 0
% Cover of Wetland Bryophytes ____ (Where applicable) Total Cover of Bryophytes 10

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)
Total Number of Dominant Species Across All Strata: 3 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	45	x 2 =	90
FAC species	35	x 3 =	105
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		215 (B)

Prevalence Index = B/A = 2.15

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SA93.~~4~~01

SOIL

Sampling Point: SP-12

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 %	Type[1]	Loc[2]	Texture	Remarks
0-9		100						organic [50% fibric 50% hemic]
9-18	10YR 3/2	90	10YR 4/4	10	C	M	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)
- X Histic Epipedon (A2)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

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)
- X Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ 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)
- ___ 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 ___ No X Depth (inches): ___

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUD2 / SA-93 Borough/City: Adak, AK Sampling Date: 15 June 201

Applicant/Owner: U.S. Navy Sampling Point: SA-93 SP. 1

Investigator(s): J. Walker, J. Pretzer Landform (hillside, terrace, hummocks, etc.): terrace

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

Subregion: Aleutians Lat: Long: Datum: WGS84

Soil Map Unit Name: — NWI classification: PEMB

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

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

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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. List all species in the plot.

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	Absolute % Cover	Dominant Species?	Indicator Status
1. Empetrum nigrum	10	X	FAC
2. Linnaea borealis	T		FACU
3.			
4.			
5.			
6.			
Total Cover:	10		
50% of total cover: 5	20% of total cover: 2		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Geum calthifolium	5		FACW
2. Calamagrostis nutkaensis	60	X	FAC
3. Coptis trifolia	T		FAC
4. Equisetum arvense	T		FAC
5. Deschampsia beringensis	40	X	FAC
6. Anemone narcissiflora	T		FACU
7.			
8.			
9.			
10.			
Total Cover:	105		
50% of total cover: 52.5	20% of total cover: 21		

Plot size (radius, or length x width) 26' % Bare Ground 0

% 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: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	110	x 3 =	330
FACU species	T	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	115 (A)		340 (B)

Prevalence Index = B/A = 2.96

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0

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

__ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SOIL

Sampling Point: SA.93 SP.113

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 %	Type[1]	Loc[2]	Texture	Remarks
0-4	–							organic - fibric
4-6	10YR 2/2	100%					[redacted]	mucky - hemic
6-7 [redacted]	10YR 4/3						loam	ash inclusion - inconsistent
7-18	10YR 2/2	100%					loam	[redacted]

[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)
- ___ Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

[3]One indicator of hydrophytic vegetation, one primary indicator of wetland hydrology, and an appropriate landscape position must be present unless disturbed or problematic.
[4]Give details of color change in Remarks.

Restrictive Layer (if present):

Type: –

Depth (inches): –

Hydric Soil Present? Yes X No ___

Remarks: 2 cm muck

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)
- 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 ___ No X Depth (inches): ___

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

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: UUB2 / SA-93 Borough/City: Adak, AK Sampling Date: 15 June 12
Applicant/Owner: U.S. Navy Sampling Point: SA-93 SP-9
Investigator(s): J. Naker, J. Pretare Landform (hillside, terrace, hummocks, etc.): Volcanic bottom terrace
Local relief (concave, convex, none): Slope (%): 2
Subregion: Aleutians Lat: Long: Datum: WGS84
Soil Map Unit Name: — NWI classification: PEMB
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No ____
Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? N (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 ____
Hydric Soil Present?	Yes X	No ____
Wetland Hydrology Present?	Yes X	No ____

Is the Sampled Area within a Wetland? Yes X No ____

Remarks:

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

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	Absolute % Cover	Dominant Species?	Indicator Status
1. Empetrum nigrum	10	X	FAC
2. Linnaea borealis	T		FACU
3.			
4.			
5.			
6.			
Total Cover:	10		
50% of total cover: 5	20% of total cover: 2		

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Carex aquatilis	15	X	FACW
2. Carex pensylvanica	10	X	FACW
3. Geum calthifolium	10	X	FACW
4. Tofieldia coccinea	10	X	FAC
5. Polygonum viviparum	T		FAC
6. Equisetum arvense	T		FAC
7.			
8.			
9.			
10.			
Total Cover:	45		
50% of total cover: 22.5	20% of total cover: 9		

Plot size (radius, or length x width) 20 % Bare Ground 0
% Cover of Wetland Bryophytes ____ (Where applicable) Total Cover of Bryophytes 45

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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	35	x 2 = 70
FAC species	20	x 3 = 60
FACU species	T	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	55 (A)	130 (B)

Prevalence Index = B/A = 2.36

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:

SA-93

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)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	-							organic - fibric
6-12	-							organic - hemic
12-18	10YR 2/2	100					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)
- X Histic Epipedon (A2)
- __ Hydrogen Sulfide (A4)
- __ Thick Dark Surface (A12)
- __ Alaska Gleyed (A13)
- __ Alaska Redox (A14)
- __ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

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)
- 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 ____ No X Depth (inches): _____

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:

WETLAND DETERMINATION DATA FORM – Alaska Region

Project/Site: OUB2 / SA-93 Borough/City: Adak, AK Sampling Date: 15 June 12
Applicant/Owner: U.S. Navy Sampling Point: SA-93 SP.15
Investigator(s): J. Walker, J. Ketare Landform (hillside, terrace, hummocks, etc.): terrace
Local relief (concave, convex, none): _____ Slope (%): 2
Subregion: Aleutians Lat: _____ Long: _____ Datum: WGS84
Soil Map Unit Name: — NWI classification: PSS1B
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

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

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

Is the Sampled Area within a Wetland? Yes X No _____

Remarks:

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

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	Absolute % Cover	Dominant Species?	Indicator Status
1. Empetrum nigrum	20	X	FAC
2. Salix kondoi	T		FACW
3. Loiseleuria procumbens	T		FACU
4.			
5.			
6.			
Total Cover:	20		
50% of total cover:	10	20% of total cover:	4

Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status
1. Phyllogonum virginianum	10	X	FAC
2. Geum calthifolium	5		FACW
3. Tofieldia coccinea	T		FAC
4. Lycopodium clavatum	T		FACU
5. Carex anthoxanthea	5		FACW
6. # Carex sp.	15	X	(assume FAC or wetter)
7. Cypripedium fasciculatum	T		FAC
8. Cornus suecica	T		FAC
9. Deschampsia beringensis	15	X	FAC
10.			
Total Cover:	50		
50% of total cover:	25	20% of total cover:	10

Plot size (radius, or length x width) 20' % Bare Ground 0
% Cover of Wetland Bryophytes _____ Total Cover of Bryophytes 40
(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 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	10	x 2 = 20
FAC species	60	x 3 = 180
FACU species	T	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	70 (A)	200 (B)

Prevalence Index = B/A = 2.85

Hydrophytic Vegetation Indicators:

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

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

Hydrophytic Vegetation Present? Yes X No _____

Remarks: # assume Carex is FAC or wetter. Very early in season, but looks like the plant might be C. pluriflora which is obligate. All sedge observed in this area in Sept. 2011 were FAC w/or wetter.

SA-93

SOIL

Sampling Point: SP-15

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	-							organic - fibric
3-8	-							organic - hemic
8-16	10YR 2/2	100					loam	ash inclusion in this layer

[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)
- X Hydrogen Sulfide (A4)
- ___ Thick Dark Surface (A12)
- ___ Alaska Gleyed (A13)
- ___ Alaska Redox (A14)
- ___ Alaska Gleyed Pores (A15)

Indicators for Problematic Hydric Soils[3]:

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

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

[4]Give details of color change in Remarks.

Restrictive Layer (if present):

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)
- X 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 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:

APPENDIX B

Plant Species Observed in the Study Area

Family	Species	Common Name	Hulten Synonym	N/I	Status
SHRUBS					
Ericaceae	*Cassiope lycopodioides*	Alaska cassiope		n	
Empetraceae	*Empetrum nigrum* ssp. *nigrum*	crowberry		n	
Caprifoliaceae	*Linnaea borealis* ssp. *borealis*	twinflower		n	
Ericaceae	*Loiseleuria procumbens*	alpine azalea		n	
Ericaceae	*Phyllodoce aleutica* ssp. *aleutica*	Aleutian mountain heather		n	
Rosaceae	*Rubus arcticus*	northern blackberry			
Rosaceae	*Rubus chamaemorus*	cloudberry			
Salicaceae	*Salix arctica*	Arctic willow		n	
Salicaceae	*Salix rotundifolia*	least willow		n	
Ericaceae	*Therorhodion camtschaticum*	Kamchatka rosebay		n	
Ericaceae	*Vaccinium uliginosum* ssp. *microphyllum*	bog blueberry		n	
HERBS					
Asteraceae	*Achillea borealis*	yarrow		n	
Ranunculuaceae	*Aconitum maximum*	northern monkshood		n	
Asteraceae	*Anaphalis margaritacea*	pearly everlasting		n	
Ranunculuaceae	*Anemone narcissiflora* ssp. *villosissima*	white anemone		n	
Apiaceae	*Angelica lucida*	coastal angelica		n	
Asteraceae	***Antennaria dioica***	**stoloniferous pussytoes**		**n**	**G5/S2S3**
Asteraceae	*Arnica unalaschcensis*	Unalaska arnica		n	
Asteraceae	*Artemisia unalaskensis* var. *aleutica*	wormwood		n	
Ranunculuaceae	*Caltha palustris* ssp. *asarifolia*	marsh marigold		n	
Brassicaceae	*Cardamine umbellata*	umbel bittercress		n	
Campanulaceae	*Campanula lasiocarpa* ssp. *lasiocarpa*	mountain harebell		n	
Caryophyllaceae	*Cerastium fontanum* ssp. *triviale*	mouse-ear chickweed		i	
Onagraceae	*Chamerion angustifolium*	fireweed	*Epilobium angustifolium*	n	
Portulacaceae	*Claytonia sibirica*	Siberian springbeauty		n	
Apiaceae	*Conioselinum chinense*	western hemlock parsley		n	
Ranunculuaceae	*Coptis trifolia*	goldthread		n	
Cornaceae	*Cornus suecica*	dwarf dogwood		n	
Onagraceae	*Epilobium sertulatum*	--		n	
Asteraceae	*Erigeron peregrinus* ssp. *peregrinus*	coastal fleabane		n	
Scrophulariaceae	*Euphrasia mollis*	eyebright		n	

Family	Species	Common Name	Hulten Synonym	N/I	Status
Rosaceae	*Fragaria chiloensis* ssp. *pacifica*	beach strawberry		n	
Liliaceae	*Fritillaria camschatcensis*	Kamchatka lily		n	
Rubiaceae	*Galium trifidum* ssp. *columbianum*	small bedstraw		n	
Geraniaceae	*Geranium erianthum*	wild geranium		n	
Rosaceae	*Geum calthifolium*	avens		n	
Apiaceae	*Heracleum lanatum*	cow parsnip		n	
Haloragaceae	*Hippuris vulgaris*	mare's tail		n	
Caryophyllaceae	*Honckenya peploides* ssp. *major*	seabeach sandwort		n	
Saxifragaceae	*Leptarrhena pyrolifolia*	leatherleaf saxifrage		n	
Apiaceae	*Ligusticum scoticum* ssp. *hultenii*	beach lovage		n	
Orchidaceae	*Listera convallarioides*	broad-leaved twayblade		n	
Orchidaceae	*Listera cordata*	heart-leaved twayblade		n	
Fabaceae	*Lupinus nootkatensis*	Nootka lupine		n	
Liliaceae	*Maianthemum dilatatum*	false lily-of-the-valley		n	
Scrophulariaceae	*Mimulus guttatus*	yellow monkeyflower		n	
Scrophulariaceae	*Pedicularis chammisonis*	Chamisso lousewort		n	
Asteraceae	*Petasites frigidus*	sweet coltsfoot		n	
Lentibulariaceae	*Pinguicula vulgaris*	butterwort		n	
Plantaginaceae	*Plantago macrocarpa*	seashore plantain		n	
Orchidaceae	*Platanthera convallariaefolia* var. *dilatatoides*	bog orchid		n	
Orchidaceae	*Platanthera dilatata*	white bog orchid		n	
Polygonaceae	*Polygonum viviparum*	alpine bistort		n	
Primulaceae	*Primula cuneifolia* ssp. *cuneifolia*	wedgeleaf primrose		n	
Ranunculuaceae	*Ranunculus confervoides*	threadleaf crowfoot		n	
Ranunculuaceae	*Ranunculus occidentalis*	western buttercup		n	
Ranunculuaceae	*Ranunculus reptans*	creeping spearwort		n	
Polygonaceae	*Rumex acetosella*	sheep sorrel		i	
Caryophyllaceae	*Sagina crassicaulis*	stickystem pearlwort		n	
Saxifragaceae	*Saxifraga nelsoniana*	heartleaf saxifrage	*Saxifraga punctata*	n	
Asteraceae	*Senecio pseudo-arnica*	seabeach senecio		n	
Rosaceae	*Sibbaldia procumbens*	sibbaldia		n	
Rosaceae	***Sieversia pentapetala***	**Aleutian avens**	***Geum pentapetalum***	**n**	**G3G4/S2S3**

Family	Species	Common Name	Hulten Synonym	N/I	Status
Caryophyllaceae	*Stellaria calycantha*	starwort		n	
Liliaceae	*Streptopus amplexifolius*	watermelon berry		n	
Liliaceae	*Tofieldia coccinea*	northern asphodel		n	
Primulaceae	*Trientalis europaea* ssp. *arctica*	Arctic starflower		n	
Scrophulariaceae	*Veronica americana*	American brooklime		n	
Scrophulariaceae	*Veronica stelleri*	Steller speedwell		n	
Violaceae	*Viola langsdorffii*	Alaska violet		n	
GRASSES, SEDGES, and RUSHES*					
Poaceae	*Bromus sitchensis*	Alaska brome		n	
Poaceae	*Calamagrostis canadensis* ssp. *langsdorffii*	bluejoint		n	
Poaceae	*Calamagrostis nutkaensis*	Pacific reedgrass		n	
Cyperaceae	*Carex anthoxanthea*	grassyslope arctic sedge		n	
Cyperaceae	*Carex aquatilis*	water sedge		n	
Cyperaceae	*Carex circinata*	coiled sedge		n	
Cyperaceae	*Carex lenticularis*	lakeshore sedge		n	
Cyperaceae	*Carex macrochaeta*	large-awned sedge		n	
Cyperaceae	*Carex pluriflora*	many-flowered sedge		n	
Cyperaceae	*Carex saxatilis* ssp. *laxa*	rock sedge		n	
Cyperaceae	*Carex lyngbyei*	Lyngbye's sedge		n	
Poaceae	*Deschampsia beringensis*	Bering's tufted hairgrass		n	
Cyperaceae	*Eriophorum russeolum* ssp. *rufescens*	russet cottongrass		n	
Poaceae	*Festuca rubra* ssp. *aucta*	red fescue		n	
Juncaceae	*Juncus arcticus* ssp. *sitchensis*	Arctic rush		n	
Juncaceae	*Juncus castaneus* ssp. *castaneus*	chestnut rush		n	
Juncaceae	*Juncus ensifolius*	daggerleaf rush		n	
Juncaceae	*Juncus mertensianus*	Merten's rush		n	
Poaceae	*Leymus mollis*	American dunegrass	*E. arenarius* ssp. *mollis*	n	
Juncaceae	*Luzula multiflora* ssp. *kobayashii*	common woodrush		n	
Juncaceae	*Luzula wahlenbergii* ssp. *piperi*	Wahlenberg's woodrush		n	
Poaceae	*Phleum commutatum* var. *americanum*	alpine timothy		n	
Poaceae	*Poa turneri*	bluegrass		n	
Cyperaceae	*Trichophorum caespitosum*	tufted bulrush		n	
FERNS, HORSETAILS, and CLUBMOSSES*					

Family	Species	Common Name	Hulten Synonym	N/I	Status
Athyriaceae	*Athyrium filix-femina* ssp. *cyclosorum*	common lady fern		n	
Equisetaceae	*Equisetum arvense*	common horsetail		n	
Equisetaceae	*Equisetum variegatum* ssp. *alaskanum*	variegated scoring-rush		n	
Aspidiaceae	*Gymnocarpium dryopteris*	oak fern		n	
Lycopdiaceae	*Lycopodium alpinum*	alpine clubmoss		n	
Lycopdiaceae	*Lycopodium annotinum* ssp. *annotinum*	stiff clubmoss		n	
Lycopdiaceae	*Lycopodium clavatum* ssp. *clavatum*	running clubmoss		n	
Lycopdiaceae	*Lycopodium sabinaefolium* var. *sitchense*	Sitka clubmoss		n	
Lycopdiaceae	*Lycopodium selago* ssp. *selago*	fir clubmoss		n	
Polypodiaceae	*Polypodium glycyrrhiza*	licorice fern	*P. vulgare*	n	
N/I = Native or Introduced (introduced species in red)					
Rare Plants in Bold					
Status: G5 = globally secure, S2 = imperiled in state (6 - 20 occurrences), S3 = vulnerable to extirpation in state (21-100 occurrences)					
*Also considered "herbs" because they are nonwoody, but have been separated out on this list to provide more detail					

APPENDIX C

Wetland Descriptions

Site ALDA-01: Wetlands A, B

Description			
Location:	ALDA-01, south side		
Map:	Figure 2-2	**Size:**	**Wetland A**: 0.32 acre (extends outside of the survey area) **Wetland B**: 0.07 acre
Mosaic:	No	**Percent Wetland:**	100
Landscape:	Terrace above Andrew Lake and Andrew Bay at base of steep slope Parent material is volcanic ash over debris-flow deposits.		
Sample Points:	**Wetland**: ALDA-01-SP-1 **Upland**: ALDA-01-SP-2		

Classification		
Cowardin	**Class:**	Palustrine Emergent
	Subclass:	Persistent
	Water Regime:	Seasonally Flooded
Hydrogeomorphic Class:		Depressional

Typical Hydrology	
Depth of Saturation:	Saturated to surface, water table at 6” Localized areas of ponding

Site ALDA-01: Wetlands A, B

Primary Sources:	Seeps at toe of slope, surface runoff from adjacent steep slope, high groundwater connected to Andrew Lake
Connectivity:	Wetlands are adjacent to Andrew Lake (separated by a road berm).
Primary Indicators:	High Water Table, Saturation, Hydrogen Sulfide
Secondary Indicators:	Geomorphic Position, FAC-Neutral Test
Common Vegetation	
Shrubs:	Uncommon
Herbs:	Bering's tufted hairgrass (FAC), Arctic rush (OBL), Merten's rush (OBL), lakeshore sedge (OBL), common horsetail (FACU)

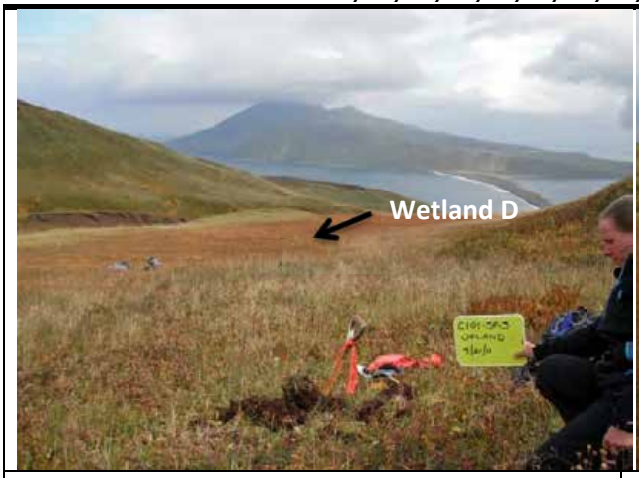
Typical Soils

Horizon (in.)	Matrix Color	Texture	Features
0-2	-	Peat	
2-8	-	Muck	
8-12+	10YR 3/2	Loam	Very compacted

Hydric Soil Indicators: Histic Epipedon (A2), Hydrogen Sulfide (A4)

Common Function(s) Provided	
Water Quality:	Sediment removal; nutrient/toxicant removal
Hydrology:	Flood flow alteration
Habitat:	Native plant richness, general habitat suitability

Site C1-01: Wetlands A, B, C, D, E, F, G, H, I, J, K, L, M, X, Y, Z



Description			
Location:	C1-01, northern portion		
Map:	Figure 2-2	**Size:**	0.01 to 1.02 acres
Mosaic:	No	**Percent Wetland:**	100
Landscape:	Linear swales on east-facing slope, 5 to 15% slopes Parent material is volcanic ash over volcanic mud flow deposits.		
Sample Points:	**Wetland:** C1-01-SP-4, C1-01-O-2, C1-01-O-3, C1-01-O-4 **Upland:** C1-01-SP-3, C1-01-O-1		

Classification		
Cowardin	**Class:**	Palustrine Scrub-Shrub/Emergent or Emergent
	Subclass:	Broad-Leaved Deciduous/Persistent
	Water Regime:	Saturated
Hydrogeomorphic Class:		Slope (with or without small depressions)

Typical Hydrology	
Depth of Saturation:	Not saturated at time of inspection
Primary Sources:	Seeps, shallow subsurface flow, surface runoff
Connectivity:	Drain east into an intermittent tributary of Andrew Bay
Primary Indicators:	Hydrogen Sulfide Odor

Site C1-01: Wetlands A, B, C, D, E, F, G, H, I, J, K, L, M, X, Y, Z

Secondary Indicators: Geomorphic Position, FAC-Neutral Test

Common Vegetation

Shrubs: Bog blueberry (FAC), crowberry (FAC), dwarf dogwood (FAC)

Herbs: Tufted spikerush (OBL), chestnut rush (FACW), caltha-leaf avens (FACW), russet cottongrass (FACW), large-awned sedge (FACW), rush sp.

Typical Soils

Horizon (in.)	Matrix Color	Texture	Features
0-2	-	Mucky peat	
2-5	7.5YR 3/2	Loam	10YR 5/3 redox concentrations 5%
5-18	7.5YR 3/2	Silt Loam	Several thin ash layers present

Hydric Soil Indicators: Hydrogen Sulfide (A4), Histic Epipedon (A2)

Common Function(s) Provided

Water Quality: Sediment removal

Hydrology: Modification of stream flow

Habitat: Organic matter production/export; general habitat suitability; native plant richness

Site C1-01: Wetlands N, O, P, Q, R, S, T, U, V, W, AA, BB, CC, DD, EE, FF, GG

Description

Location:	C1-01, central portion		
Map:	Figure 2-2	**Size:**	Range from 0.01 to 1.46 acres
Mosaic:	Yes	**Percent Wetland:**	80
Landscape:	Hillslope, 5 to 12% slopes, east-facing, concave Parent material is volcanic ash over volcanic mudflow deposits.		
Sample Points:	**Wetland**: C1-01-SP-12 **Upland:** C1-01-SP-2, C1-01-SP-13		

Classification

Cowardin	**Class:**	Palustrine Emergent
	Subclass:	Persistent
	Water Regime:	Saturated
Hydrogeomorphic Class:	Slope	

Typical Hydrology

Depth of Saturation:	Saturated to surface
Primary Sources:	Seeps, Shallow subsurface flow
Connectivity:	Drains into an intermittent tributary of Andrew Bay
Primary Indicators:	Saturation, Hydrogen Sulfide Odor
Secondary Indicators:	Geomorphic Position, FAC-Neutral Test, Oxidized Rhizospheres Along Living Roots, Drainage Patterns

Common Vegetation

Shrubs:	Crowberry (FAC)
Herbs:	Bering's tufted hairgrass (FAC), large-awned sedge (FACW), Arctic rush (OBL), tufted spikerush (OBL), caltha-leaf avens (FACW), russet cottongrass (FACW), Alaska violet (FACW), common lady fern (FAC), grassyslope arctic sedge (FACW), Kamchatka lily (FAC)

Typical Soils

Horizon (in.)	Matrix Color	Texture	Features
0-2	-	-	Organic – fibric
2-6	10YR 2/1	Muck	Hemic
6-7	2.5Y 4/2	Clay loam	7.5YR 4/6 redox concentrations 10%
7-17	10YR 2/2	Loam	

Site C1-01: Wetlands N, O, P, Q, R, S, T, U, V, W, AA, BB, CC, DD, EE, FF, GG

Hydric Soil Indicators: Hydrogen Sulfide (A4), 2cm Muck (A10)

Common Function(s) Provided	
Water Quality:	Sediment removal
Hydrology:	Modification of stream flow
Habitat:	Organic matter production/export; general habitat suitability; native plant richness

Site C1-01: Wetlands HH, II, JJ, KK, LL, MM, NN, OO, PP

Description			
Location:	C1-01, southeast portion		
Map:	Figure 2-2	**Size:**	Range from 0.01 to 0.13 acre
Mosaic:	No	**Percent Wetland:**	100
Landscape:	Hillslope depressions Parent material is volcanic ash over volcanic mudflow deposits.		
Sample Points:	**Wetland:** C1-01-SP-6, C1-01-SP-14 **Upland:** C1-01-SP-5, C1-01-SP-9, C1-01-SP-15		

Classification		
Cowardin	**Class:**	Palustrine Scrub-Shrub/Emergent or Emergent
	Subclass:	Needle-Leaved Evergreen/Persistent
	Water Regime:	Seasonally Flooded/Saturated
Hydrogeomorphic Class:		Depressional

Typical Hydrology	
Depth of Saturation:	No saturation at time of inspection; some ponded areas
Primary Sources:	Surface runoff, shallow subsurface flow
Connectivity:	Isolated depressions, no surface water connection downslope
Primary Indicators:	None

Site C1-01: Wetlands HH, II, JJ, KK, LL, MM, NN, OO, PP

Secondary Indicators:	Water-Stained Leaves, Oxidized Rhizospheres Along Living Roots, Geomorphic Position, FAC-Neutral Test

Common Vegetation

Shrubs:	Crowberry (FAC), bog blueberry (FAC), Arctic willow (FAC), Kamchatka rosebay (NOL)
Herbs:	Bering's tufted hairgrass (FAC), caltha-leaf avens (FACW), wild geranium (NOL), Pacific reedgrass (FAC), goldthread (FAC)

Typical Soils

Horizon (in.)	Matrix Color	Texture	Features
0-11	7.5YR 3/1	Silt loam	
11-17	7.5YR 4/2	Sandy loam	7.5YR 3/4 redox concentrations 5%
	-		

Hydric Soil Indicators:	Problem soil: Seasonal shallow ponding. Meets Hydric Soil Criteria for ponding. 2cm Muck (A10) found in plot C1-01-SP-14 during June 2012 field visit.

Common Function(s) Provided

Water Quality:	Sediment removal
Hydrology:	Stormwater storage
Habitat:	Native plant richness

Site C1-01: Wetlands QQ, RR, SS, TT, UU

Description			
Location:	C1-01, southeast corner		
Map:	Figure 2-2	**Size:**	Range from 0.03 to 1.15 acres
Mosaic:	No	**Percent Wetland:**	100
Landscape:	Hillslope, 10% slopes east-facing, concave Parent material is volcanic ash over volcanic mudflow deposits.		
Sample Points:	**Wetland:** C1-01-SP-7 **Upland:** C1-01-SP-8		

Classification		
Cowardin	**Class:**	Palustrine Scrub-Shrub/Emergent
	Subclass:	Needle-Leaved Evergreen/Persistent
	Water Regime:	Saturated
Hydrogeomorphic Class:		Slope

Typical Hydrology	
Depth of Saturation:	Surface
Primary Sources:	Seeps, shallow subsurface flow
Connectivity:	Drains east into an ephemeral tributary of Andrew Lake
Primary Indicators:	Saturation, Hydrogen Sulfide

Site C1-01: Wetlands QQ, RR, SS, TT, UU

Secondary Indicators: Geomorphic Position, FAC-Neutral Test

Common Vegetation

Shrubs: Crowberry (FAC), bog blueberry (FAC)

Herbs: Many-flowered sedge (OBL), alpine bistort (FAC), caltha-leaf avens (FACW), russet cottongrass (FACW), Arctic rush (OBL)

Typical Soils

Horizon (in.)	Matrix Color	Texture	Features
0-8	-	Mucky peat	
8-9	10YR 5/2	Silt loam	7.5YR 3/4 redox concentrations
9-18	-	Mucky peat	

Hydric Soil Indicators: Histosol, Hydrogen Sulfide

Common Function(s) Provided

Water Quality: Nutrient/toxicant removal

Hydrology: Modification of stream flow; erosion control

Habitat: Organic matter production/export; general habitat suitability; native plant richness

Site OB/OD-01, RR-01, MI-01, MI-02, MI-03: Wetland A

Description			
Location:	OB/OD-01, RR-01, M1-01, M1-02, M1-03; south side of Moffett Creek		
Map:	Figure 2-1	**Size:**	41.49 acres (extends outside of the survey area)
Mosaic:	No	**Percent Wetland:**	100
Landscape:	Alluvial fan/toe slope, east facing, 3 to 5% slopes in lower part, 10 to 20% slopes in upper part. Parent material is volcanic ash over colluvium and alluvium.		
Sample Points:	**Wetland**: OB/OD-01-SP-2, OB/OD-01-SP-3, MI-01-SP-1, MI-02-SP-1, MI-02-SP-2, MI-03-SP-1, MI-03-SP-4, MI-03-SP-10 **Upland**: OB/OD-01-SP-1, MI-01-SP-2, MI-02-SP-3, MI-03-SP-2, MI-03-SP-3, RR-01-SP-5, MI-03-SP-11		

Classification		
Cowardin	**Class:**	Palustrine Emergent
	Subclass:	Persistent
	Water Regime:	Seasonally Flooded (depressions; flat and gently sloping areas); Saturated (moderately sloping areas)
Hydrogeomorphic Class:		Slope wetland with some Depressional wetlands in the eastern half

Typical Hydrology	
Depth of Saturation:	Saturated to surface, with ponding in small depressions and ruts

Site OB/OD-01, RR-01, MI-01, MI-02, MI-03: Wetland A

Primary Sources:	Seeps at major slope break along the southern boundary of the wetland, surface runoff from steep gullies above the southern edge of the wetland, wetland elevated above Moffett Creek channel and infrequently flooded by the creek
Connectivity:	Drains east into an unnamed tributary of Moffett Creek, which flows into Andrew Lake approximately 2,000' downstream.
Primary Indicators:	Surface Water, High Water Table, Saturation, Hydrogen Sulfide
Secondary Indicators:	Geomorphic Position, FAC-Neutral Test
Common Vegetation	
Shrubs:	Uncommon
Herbs:	Common horsetail (FACU), Unalaska arnica (NI), caltha-leaf avens (FACW), Pacific reedgrass (FAC), Bering's tufted hairgrass (FAC), leatherleaf saxifrage (FACW), many-flowered sedge (OBL), grassyslope arctic sedge (FACW), alpine bistort (FAC), russet cottongrass (FACW), wild geranium (NI), Arctic rush (OBL), large-awned sedge (FACW)

Typical Soils

Horizon (in.)	Matrix Color	Texture	Features
0-14	-	Mucky peat	Ash strata are common
14-18	5Y 5/1	Clay loam	Ranges from clay loam to loamy sand
	-		

Hydric Soil Indicators:	Histosol, Histic Epipedon, Hydrogen Sulfide, Redox Dark Surface (F6)
Common Function(s) Provided	
Water Quality:	Sediment removal; nutrient/toxicant removal
Hydrology:	Flood flow alteration; erosion control
Habitat:	Organic matter production/export; general habitat suitability; general fish habitat; native plant richness

Site MI-03: Wetland C

Description			
Location:	MI-03; east end of site, south side of Moffett Creek		
Map:	Figure 2-1	**Size:**	16.17 acres (extends outside of the survey area)
Mosaic:	No	**Percent Wetland:**	100
Landscape:	Hillslope/toeslope, concave, east facing, 3 to 10% slopes Parent material is volcanic ash over colluvium/debris flow.		
Sample Points:	**Wetland**: MI-03-SP-6 **Upland**: MI-03-SP-5, MI-03-SP-7, MI-03-SP-9		

Classification		
Cowardin	**Class:**	Palustrine Emergent
	Subclass:	Persistent
	Water Regime:	Saturated
Hydrogeomorphic Class:		Slope

Typical Hydrology	
Depth of Saturation:	Not saturated at time of inspection

Site MI-03: Wetland C

Primary Sources:	Seeps at major slope break along the southern boundary of the wetland, surface runoff from steep gullies above the southern edge of the wetland, channel flow from unnamed tributary of Moffett Creek
Connectivity:	An unnamed, intermittent tributary of Moffett Creek flows east through the center of the wetland.
Primary Indicators:	Hydrogen Sulfide
Secondary Indicators:	Geomorphic Position, FAC-Neutral Test

Common Vegetation

Shrubs:	Uncommon
Herbs:	Pacific reedgrass (FAC), caltha-leaf avens (FACW), wild geranium (NI), Arctic rush (OBL), many-flowered sedge (OBL), dwarf dogwood (FAC), Unalaska arnica (NI), lady fern (FAC)

Typical Soils

Horizon (in.)	Matrix Color	Texture	Features
0-7	-	Peat & Mucky peat	Ash strata are common
7-8	10YR 4/2	loam	7.5YR 4/6 redox concentrations 5%
8-15	10YR 3/1	Silt loam	Ash strata
15-18	10YR 4/1	Gravelly Clay loam	7.5YR 5/8 redox concentrations 20%

Hydric Soil Indicators: Hydrogen Sulfide

Common Function(s) Provided

Water Quality:	Sediment removal; nutrient/toxicant removal
Hydrology:	Erosion control
Habitat:	Organic matter production/export; general habitat suitability; general fish habitat; native plant richness

Site RR-01: Wetland I and W

Description			
Location:	RR-01, northeast corner, on north side of mainstem Moffett Creek.		
Map:	Figure 2-1	**Size:**	**Wetland I:** 13.59 acres (extends outside of the survey area) **Wetland W:** 0.08 acres (extends outside of the survey area)
Mosaic:	No	**Percent Wetland:**	100
Landscape:	Floodplain and low terrace of Moffett Creek, 1% slope; Wetland W is in a drainage ditch that empties into Moffett Creek Parent material is volcanic ash over alluvium.		
Sample Points:	**Wetland**: RR-01-SP-3, RR-01-O-1 **Upland**: RR-01-SP-1, RR-01-SP-2		

Classification		
Cowardin	**Class:**	Palustrine Emergent
	Subclass:	Persistent
	Water Regime:	Seasonally Flooded/Saturated
Hydrogeomorphic Class:		Riverine

Typical Hydrology

Site RR-01: Wetland I and W

Depth of Saturation:	Wetland I saturated at 6”, water table at 10”; Wetland W is inundated
Primary Sources:	Seasonal flooding from Moffett Creek, high groundwater connected to Moffett Creek, slope seepage along east side of Wetland I
Connectivity:	Adjacent to Moffett Creek. Wetland I has berms/roads and drainage ditches within or adjacent to it. Wetland W empties into Moffett Creek.
Primary Indicators:	High Water Table, Saturation
Secondary Indicators:	Geomorphic Position

Common Vegetation

Shrubs:	Uncommon
Herbs:	Bering’s tufted hairgrass (FAC), Pacific reedgrass (FAC), fireweed (FACU), common horsetail (FACU), mare’s tail (OBL), marsh marigold (OBL)

Typical Soils

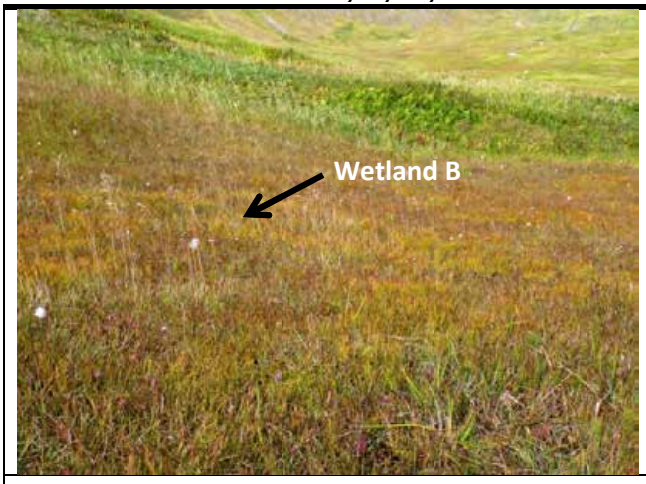
Horizon (in.)	Matrix Color	Texture	Features
3-0	-	-	Root Mat
0-2	-	Peat	
2-12	-	Extremely cobbly sand	80% gravels

Hydric Soil Indicators:	Problem soil: Low Organic Carbon content. Redox concentrations present in sands. Meets Hydric Soil Criteria for long duration flooding.

Common Function(s) Provided

Water Quality:	Sediment removal; nutrient/toxicant removal
Hydrology:	Erosion control
Habitat:	Organic matter production/export; general fish habitat

Site MI-03: Wetlands B, L, M, N



Description

Location:	MI-03; Wetland B is south of Moffett Creek, Wetlands L, M, N are north of Moffett Creek.		
Map:	Figure 2-1	**Size:**	0.01 to 0.16 acre (extend outside of the survey area)
Mosaic:	No	**Percent Wetland:**	100
Landscape:	Hillslope/toe slope, concave, east facing 3 to 10% slopes Parent material is volcanic ash over colluvium/debris flow.		
Sample Points:	**Wetland**: M1-03-SP-1 **Upland**: M1-03-SP-2		

Classification

Cowardin	**Class:**	Palustrine Emergent
	Subclass:	Persistent
	Water Regime:	Saturated
Hydrogeomorphic Class:		Slope: B and N Depressional: L and M

Typical Hydrology

Depth of Saturation:	Surface

Site MI-03: Wetlands B, L, M, N

Primary Sources:	Seeps at slope breaks, surface and shallow subsurface flow
Connectivity:	Surface runoff into steep gullies that drain into Moffett Creek
Primary Indicators:	Saturation
Secondary Indicators:	Oxidized Rhizospheres along Living Roots, Geomorphic Position, FAC-Neutral Test

Common Vegetation

Shrubs:	Crowberry (FAC)
Herbs:	Bering's tufted hairgrass (FAC), caltha-leaf avens (FACW), daggerleaf rush (FACW), russet cottongrass (FACW), tufted spikerush (OBL), northern asphodel (FAC)

Typical Soils

Horizon (in.)	Matrix Color	Texture	Features
0-2	-	Mucky peat	
2-4	10YR 2/2	loam	High organic matter content
4-12	10YR 2/2	loam	2.5YR 2.5/4 redox concentrations 7%

Hydric Soil Indicators: Redox Dark Surface (F6), Hydrogen Sulfide (A4)

Common Function(s) Provided

Water Quality:	Sediment removal; nutrient/toxicant removal
Hydrology:	Modifications of stream flow
Habitat:	Organic matter production/export; general habitat suitability; native plant richness

Site RR-01: Wetlands D, E, F, G, H, J; Site HG-01: Wetland K

Description			
Location:	RR-01 and HG-01, south of Moffett Creek		
Map:	Figure 2-1	**Size:**	**Wetland H**: 9.24 acres (extends outside of the survey area) **Wetlands D-G, J-K**: range in size from 0.01 to 0.45 acre
Mosaic:	No	**Percent Wetland:**	100
Landscape:	Low terrace of Moffett Creek, 1% slope Parent material is volcanic ash over alluvium.		
Sample Points:	**Wetland**: RR-01-SP-4, RR-01-O-2 **Upland**: RR-01-SP-6		

Classification		
Cowardin	**Class:**	Palustrine Emergent
	Subclass:	Persistent
	Water Regime:	Seasonally Flooded/Saturated
Hydrogeomorphic Class:		Depressional Riverine (portion of Wetland H that is frequently flooded)

Site RR-01: Wetlands D, E, F, G, H, J; Site HG-01: Wetland K

Typical Hydrology	
Depth of Saturation:	Saturated to surface, water table within 12” Smaller wetlands, and ponded depressions in Wetland H, may be due to compaction and/or “shot holes” from rifle range activities
Primary Sources:	High groundwater connected to Moffett Creek, seasonal flooding from Moffett Creek
Connectivity:	Wetland H has berms/roads and drainage ditches within or adjacent to it. Ditches convey water to Moffett Creek. The remaining small, depressional wetlands lack a surface water connection to Moffett Creek, but may be infrequently flooded by the creek.
Primary Indicators:	High Water Table, Saturation, Hydrogen Sulfide
Secondary Indicators:	Geomorphic Position
Common Vegetation	
Shrubs:	Uncommon
Herbs:	Bering’s tufted hairgrass (FAC), Pacific reedgrass (FAC), daggerleaf rush (FACW), large-awned sedge (FACW)

Typical Soils

Horizon (in.)	Matrix Color	Texture	Features
0-2	10YR 2/1	Peat	
2-2.5	2.5YR 4/8	Clay	
2.5-18	10YR 2/1	Peat	

Hydric Soil Indicators: Histosol (A1), Hydrogen Sulfide (A4)

Common Function(s) Provided	
Water Quality:	Sediment removal; nutrient/toxicant removal
Hydrology:	Flood flow alteration
Habitat:	Organic matter production/export

Site MI-03: Wetlands O, P, Q, R, S, T, U, V

Description			
Location:	MI-03 in floodplain of mainstem Moffett Creek.		
Map:	Figure 2-1	**Size:**	range in size from 0.04 to 0.20 acre
Mosaic:	No	**Percent Wetland:**	100
Landscape:	Floodplain and low terrace of Moffett Creek, 1% slope Parent material is volcanic ash over alluvium.		
Sample Points:	**Wetland**: MI-03-SP-12, MI-03-SP-15, MI-03-SP-17 **Upland**: MI-03-SP-13, MI-03-SP-16		

Classification		
Cowardin	**Class:**	Palustrine Emergent
	Subclass:	Persistent
	Water Regime:	Seasonally Flooded/Saturated
Hydrogeomorphic Class:		Riverine

Typical Hydrology	
Depth of Saturation:	Saturated to surface, water table from 0 to 8 inches
Primary Sources:	Seasonal flooding from Moffett Creek, high groundwater connected to Moffett Creek, slope seepage
Connectivity:	Adjacent to Moffett Creek

Site MI-03: Wetlands O, P, Q, R, S, T, U, V

Primary Indicators:	High Water Table, Saturation, Hydrogen Sulfide
Secondary Indicators:	Geomorphic Position, Drainage Patterns, FAC-Neutral Test

Common Vegetation

Shrubs:	None
Herbs:	Pacific reedgrass (FAC), marsh marigold (OBL), sweet coltsfoot (FACW), grassyslope arctic sedge (FACW), daggerleaf rush (FACW)

Typical Soils

Horizon (in.)	Matrix Color	Texture	Features
0-2	10YR 2/1	Peat	Organic – hemic
2-16	10YR 2/1	Peat	Organic - sapric

Hydric Soil Indicators: Histosol (A1), Hydrogen Sulfide (A4)

Common Function(s) Provided

Water Quality:	Sediment removal; nutrient/toxicant removal
Hydrology:	Erosion control
Habitat:	Organic matter production/export

Site SA93-01: Wetlands A, B, C

Description			
Location:	SA93-01, northern portion		
Map:	Figure 4	**Size:**	Wetland A: 1.47 acres (extends outside survey area) Wetland B: 0.08 acre Wetland C: 2.37 acres (extends outside survey area)
Mosaic:	No	**Percent Wetland:**	100
Landscape:	Hillslope, southeast facing, 3 to 10% concave slopes Parent material is volcanic ash over debris-flow deposit.		
Sample Points:	**Wetland**: SA93-01-SP-2, SA93-01-SP-4, SA93-01-SP-5, SA93-01-SP-13 **Upland**: SA93-01-SP-1, SA93-01-SP-3		

Classification		
Cowardin	**Class:**	Palustrine Emergent
	Subclass:	Persistent
	Water Regime:	Saturated
Hydrogeomorphic Class:	Slope wetland with some Depressional wetlands in the lower elevations	

Typical Hydrology	
Depth of Saturation:	Saturated to the surface (Wetlands A and C)
Primary Sources:	Slope seepage, surface runoff from steep slopes above the western edge of the wetland
Connectivity:	Drains east into a tributary of Andrew Lake
Primary Indicators:	Saturation, Hydrogen Sulfide
Secondary Indicators:	Geomorphic Position, FAC-Neutral Test

Common Vegetation	
Shrubs:	Crowberry (FAC)

Site SA93-01: Wetlands A, B, C

Herbs: Bering's tufted hairgrass (FAC), Pacific reedgrass (FAC), caltha-leaf avens (FACW), wild geranium (NI), large-awned sedge (FACW), Turner's bluegrass (FAC)

Typical Soils

Horizon (in.)	Matrix Color	Texture	Features
0-7	-	Peat over Muck	
6-8	10YR 5/1	Clay loam	5YR 4/6 redox concentrations 25%
8-14.5	7.5YR 3/1	Loam	10YR 3/4 redox concentrations 10%; multiple ash layers
14.5-20	-	Mucky peat	Multiple ash layers

Hydric Soil Indicators: Hydrogen Sulfide (A4), Histosol (A1), Redox Dark Surface (F6), 2cm Muck (A10)

Common Function(s) Provided

Water Quality: Sediment removal; nutrient/toxicant removal

Hydrology: Flood flow alteration

Habitat: Organic matter production/export; general habitat suitability

Site SA93-01: Wetlands D, E, F, G, H, I, J

Description			
Location:	SA93-01, central portion		
Map:	Figure 2-3	**Size:**	Range from 0.02 to 0.18 acre
Mosaic:	No	**Percent Wetland:**	100
Landscape:	Gentle (5%) concave slope with small depressions Parent material is volcanic ash over debris-flow deposit.		
Sample Points:	**Wetland**: SA93-01-SP-7, SA93-01-SP-8 **Upland**: SA93-01-SP-6, SA93-01-O-1		

Classification		
Cowardin	**Class:**	Palustrine Emergent
	Subclass:	Persistent
	Water Regime:	Saturated
Hydrogeomorphic Class:	Slope	

Typical Hydrology	
Depth of Saturation:	Saturated to surface
Primary Sources:	Slope seepage, surface runoff from steep slopes above the western edge of the wetlands
Connectivity:	Generally isolated with no discernible surface water connection to other waters

Site SA93-01: Wetlands D, E, F, G, H, I, J

Primary Indicators:	Saturation, Hydrogen Sulfide
Secondary Indicators:	Oxidized Rhizospheres Along Living Roots, Geomorphic Position, FAC-Neutral Test

Common Vegetation

Shrubs:	Crowberry (FAC) and twinflower (UPL) in some areas
Herbs:	Bering's tufted hairgrass (FAC), Pacific reedgrass (FAC), caltha-leaf avens (FACW), wild geranium (NI), Arctic rush (OBL), alpine timothy (NOL), Unalaska arnica (NOL), goldthread (FAC), seashore plantain (FACW)

Typical Soils

Horizon (in.)	Matrix Color	Texture	Features
0-7.5	-	Peat over Mucky peat	
7.5-9.5	10YR 4/2	Silt loam	2.5YR 3/6 redox concentrations 5%; 2.5Y 4/1 depletions
9.5-18	10YR 2/2	Silt loam	High organic content

Hydric Soil Indicators:	Hydrogen Sulfide (A4), Histic Epipedon (A2)

Common Function(s) Provided

Water Quality:	Sediment removal; nutrient/toxicant removal
Hydrology:	Flood flow alteration
Habitat:	Organic matter production/export; native plant richness

Site SA93-01: Wetlands K, L, M

Description

Location:	SA93-01, southern half		
Map:	Figure 2-3	**Size:**	Wetland K: 7.98 acres (extends outside survey area) Wetland L: 12.10 acres (extends outside survey area) Wetland M: 0.01 acre (extends outside survey area)
Mosaic:	Yes	**Percent Wetland:**	80
Landscape:	Gentle slope (5%) with depressions becoming steeper adjacent to drainages Parent material is volcanic ash over debris-flow deposit.		
Sample Points:	**Wetland**: SA93-01-SP-12, SA93-01-SP-14, SA93-01-SP-15, SA93-01-O-2, SA93-01-O-3, SA93-01-O-4 **Upland**: SA93-01-SP-9, SA93-01-SP-10, SA93-01-O-5		

Classification

Cowardin	**Class:**	Palustrine Scrub-Shrub/Emergent or Emergent
	Subclass:	Persistent
	Water Regime:	Saturated and Seasonally Flooded
Hydrogeomorphic Class:		Slope and Depressional

Typical Hydrology

Depth of Saturation:	Saturated within 12”, with ponding in some areas

Site SA93-01: Wetlands K, L, M

Primary Sources:	Slope seepage, surface runoff from steep slopes above the western edge of the wetland.
Connectivity:	Drains south into tributaries of Andrew Lake. Wetland M drains to Mitchell Creek.
Primary Indicators:	Saturation, Hydrogen Sulfide
Secondary Indicators:	Geomorphic Position, FAC-Neutral Test, Drainage Patterns
Common Vegetation	
Shrubs:	Crowberry (FAC) in some areas
Herbs:	Bering's tufted hairgrass (FAC), Pacific reedgrass (FAC), caltha-leaf avens (FACW), wild geranium (NI), large-awned sedge (FACW), Alaska violet (FACW), alpine bistort (FAC), bog orchid, Chamisso lousewort (OBL), goldthread (FAC)

Typical Soils

Horizon (in.)	Matrix Color	Texture	Features
0-9	-	Peat over Muck	
9-18+	-	Stratified Fine sandy loam and loam	

Hydric Soil Indicators:	Hydrogen Sulfide (A4), Histic Epipedon (A2)
Common Function(s) Provided	
Water Quality:	Sediment removal; nutrient/toxicant removal
Hydrology:	Flood flow alteration
Habitat:	Organic matter production/export; general habitat suitability, native plant richness

APPENDIX D

Wetland Assessment Forms

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

File #: US Navy, Adak, AK OUB-2 Sites Date: 25 Sept. 2011

Wetland Name: ALDA-01 Wetland A + B PM/RS: Walker, Degutis, Pretare & Lillywhite

A. Flood Flow Alteration (Storage and Desynchronization)	Likely or not likely to Provide (Y or N)
1. Wetland occurs in the upper portion of its watershed. 2. Wetland is relatively flat area and is capable of retaining higher volumes of water during storm events, than under normal rainfall conditions. 3. Wetland is a closed (depressional) system. 4. If flowthrough, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense woody vegetation 6. Wetland receives floodwater from an adjacent water course 7. Floodwaters come as sheet flow rather than channel flow.	1. N 2. Y 3. Y-Wetland A, N-Wetland B 4. N 5. N 6. Y-Wetland A, N-Wetland B 7. N 5 – 7 (Y) – High Function 1 – 4 (Y) – Moderate Function None - Low Function
B. Sediment Removal	Likely or not likely to Provide (Y or N)
1. Sources of excess sediment (from tillage, mining or construction) are present upgradient of the wetland. 2. Slow-moving water and/or a deepwater habitat are present in the wetland. 3. Dense herbaceous vegetation is present. 4. Interspersion of vegetation and water is high in wetland. 5. Ponding of water occurs in the wetland. 6. Sediment deposits are present in wetland (observation or noted in application materials).	1. N 2. Y- Wetland A, N- Wetland B 3. Y 4. N 5. Y 6. N 4 – 6 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function

Note: e.g., for Flood Flow Alteration, answering yes to at least 3 out of 7 attributes would rate the wetlands as high functioning; answering yes to 1, 2, 3, or 4 out of the 7 attributes would rate the wetland as moderate; and not answering yes to any of the 7 attributes would rate the wetland low for Flood Flow Alteration function.

C. Nutrient and Toxicant Removal (important with high adjacent land use/industrial areas) 1. Sources of excess nutrients (fertilizers) and toxicants (pesticides and heavy metals) are present upgradient of the wetland. 2. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 3. Wetland provides long duration for water detention. 4. Wetland has at least 30% aerial cover of live dense herbaceous vegetation. 5. Fine grained mineral or organic materials are present for the wetland (in wetland report).	Likely or not likely to Provide (Y or N) 1. N 2. Y 3. Y 4. Y 5. Y 3 – 5 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
D. Erosion Control and Shoreline Stabilization *If associated with watercourse or shoreline* 1. Wetland has dense, energy absorbing vegetation bordering the water course and no evidence of erosion. 2. A herbaceous layer is part of this dense vegetation. 3. Trees and shrubs able to withstand erosive flood events are also part of this dense vegetation.	Likely or not likely to Provide (Y or N) 1. Y - Wetland A, N - Wetland B 2. Y - Wetland A, N - Wetland B 3. N 1-3 (Y) – High Function None – Low Function
E. Production of Organic Matter and its Export 1. Wetland has at least 30% aerial cover of dense herbaceous vegetation. 2. Woody plants in wetland are mostly deciduous. 3. High degree of plant community structure, vegetation density, and species richness present. 4. interspersion of vegetation and water is high in wetland. 5. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 6. Wetland has outlet from which organic matter is flushed.**	Likely or not likely to Provide (Y or N) 1. Y 2. N 3. N 4. N 5. Y 6. Y - Wetland A, N - Wetland B 4 – 6 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function **If 6 is N, then automatically low function
F. General Habitat Suitability 1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undeveloped. 3. Wetland has connectivity with other habitat types. 4. Diversity of plant species is high. 5. Wetland has more than one Cowardin Class (i.e., PFO, PSS, PEM, POW, etc.) 6. Has high degree of Cowardin Class interspersion. 7. Evidence of wildlife use, e.g., tracks, scat, gnawed stumps, etc., is present.	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. Y 4. N 5. N 6. N 7. Y 5 – 7 (Y) – High Function 1 – 4 (Y) – Moderate Function None - Low Function

G. General Fish Habitat *Must be associated with a fish-bearing water* 1. Wetland has perennial or intermittent surface-water connection to a fish-bearing water body. 2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 3. Observation of fish. 4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 5. Spawning areas are present (aquatic vegetation and/or gravel beds.) 6. Juvenile rest areas	Likely or not likely to Provide (Y or N) 1. 2. N/A 3. 4. 5. 6. 4 – 5 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function
H. Native Plant Richness 1. Dominant and codominant plants are native. 2. Wetland contains two or more Cowardin Classes. 3. Wetland has three or more strata of vegetation. 4. Wetland has mature trees.	Likely or not likely to Provide (Y or N) 1. Y 2. N 3. N 4. N 3 - 4 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
I. Educational or Scientific Value 1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails available.	Likely or not likely to Provide (Y or N) 1. N 2. N (Restricted Access) 3. N 2 - 3 (Y) – High Function 1 (Y) – Moderate Function None – Low Function
J. Uniqueness and Heritage 1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined rare 4. Wetland has been determined significant because it provides functions scarce for the area. 5. Wetland is part of: an estuary, bog, or a mature forest.	Likely or not likely to Provide (Y or N) 1. N 2. N 3. N 4. N 5. N 3 – 5 (Y) – High Function 1 – 2 (Y) – Moderate Function None – Low Function

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

File #: US Navy OUB-2 Adak, AK Date: 4 Oct 2011

Wetland Name: C101 Wetland Complex PM/RS: Deguts

A. Flood Flow Alteration (Storage and Desynchronization)	Likely or not likely to Provide (Y or N)
1. Wetland occurs in the upper portion of its watershed.	1. Y
2. Wetland is relatively flat area and is capable of retaining higher volumes of water during storm events, than under normal rainfall conditions.	2. N
3. Wetland is a closed (depressional) system.	3. Y for 50%, N for 50%
4. If flowthrough, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris.	4. N
5. Wetland has dense woody vegetation	5. N
6. Wetland receives floodwater from an adjacent water course	6. N
7. Floodwaters come as sheet flow rather than channel flow.	7. N
	5 – 7 (Y) – High Function
	1 – 4 (Y) – Moderate Function
	None - Low Function

B. Sediment Removal	Likely or not likely to Provide (Y or N)
1. Sources of excess sediment (from tillage, mining or construction) are present upgradient of the wetland.	1. N
2. Slow-moving water and/or a deepwater habitat are present in the wetland.	2. N
3. Dense herbaceous vegetation is present.	3. Y
4. Interspersion of vegetation and water is high in wetland.	4. N
5. Ponding of water occurs in the wetland.	5. Y for 30%, N for 70%
6. Sediment deposits are present in wetland (observation or noted in application materials).	6. N
	4 – 6 (Y) – High Function
	1 - 3 (Y) – Moderate Function
	None – Low Function

Note: e.g., for Flood Flow Alteration, answering yes to at least 3 out of 7 attributes would rate the wetlands as high functioning; answering yes to 1, 2, 3, or 4 out of the 7 attributes would rate the wetland as moderate; and not answering yes to any of the 7 attributes would rate the wetland low for Flood Flow Alteration function.

C. Nutrient and Toxicant Removal (important with high adjacent land use/industrial areas) 1. Sources of excess nutrients (fertilizers) and toxicants (pesticides and heavy metals) are present upgradient of the wetland. 2. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 3. Wetland provides long duration for water detention. 4. Wetland has at least 30% aerial cover of live dense herbaceous vegetation. 5. Fine grained mineral or organic materials are present for the wetland (in wetland report).	Likely or not likely to Provide (Y or N) 1. N 2. Y for 30%, N for 70% 3. Y for 30%, N for 70% 4. Y 5. Y 3 – 5 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
D. Erosion Control and Shoreline Stabilization *If associated with watercourse or shoreline* 1. Wetland has dense, energy absorbing vegetation bordering the water course and no evidence of erosion. 2. A herbaceous layer is part of this dense vegetation. 3. Trees and shrubs able to withstand erosive flood events are also part of this dense vegetation.	Likely or not likely to Provide (Y or N) 1. N 2. Y 3. N 1-3 (Y) – High Function For drainage associated conditions None – Low Function
E. Production of Organic Matter and its Export 1. Wetland has at least 30% aerial cover of dense herbaceous vegetation. 2. Woody plants in wetland are mostly deciduous. 3. High degree of plant community structure, vegetation density, and species richness present. 4. Interspersion of vegetation and water is high in wetland. 5. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 6. Wetland has outlet from which organic matter is flushed.**	Likely or not likely to Provide (Y or N) 1. Y 2. N 3. N 4. N 5. Y for 30%, N for 70% 6. N 4 – 6 (Y) – High Function 1 - 3 (Y) – Moderate Function – ok None – Low Function **If 6 is N, then automatically low function
F. General Habitat Suitability 1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undeveloped. 3. Wetland has connectivity with other habitat types. 4. Diversity of plant species is high. 5. Wetland has more than one Cowardin Class (i.e., PFO, PSS, PEM, POW, etc.) 6. Has high degree of Cowardin Class interspersion. 7. Evidence of wildlife use, e.g., tracks, scat, gnawed stumps, etc., is present.	Likely or not likely to Provide (Y or N) 1. N 2. Y 3. Y 4. N 5. N 6. N 7. N 5 – 7 (Y) – High Function 1 – 4 (Y) – Moderate Function None - Low Function

G. General Fish Habitat *Must be associated with a fish-bearing water* 1. Wetland has perennial or intermittent surface-water connection to a fish-bearing water body. 2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 3. Observation of fish. 4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 5. Spawning areas are present (aquatic vegetation and/or gravel beds.) 6. Juvenile rest areas	Likely or not likely to Provide (Y or N) 1. 2. N/A 3. 4. 5. 6. 4 – 5 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function
H. Native Plant Richness 1. Dominant and codominant plants are native. 2. Wetland contains two or more Cowardin Classes. 3. Wetland has three or more strata of vegetation. 4. Wetland has mature trees.	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. Y 4. Y 3 - 4 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
I. Educational or Scientific Value 1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails available.	Likely or not likely to Provide (Y or N) 1. N 2. N 3. N 2 - 3 (Y) – High Function 1 (Y) – Moderate Function None – Low Function
J. Uniqueness and Heritage 1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined rare 4. Wetland has been determined significant because it provides functions scarce for the area. 5. Wetland is part of: an estuary, bog, or a mature forest.	Likely or not likely to Provide (Y or N) 1. N 2. N 3. N 4. N 5. N 3 – 5 (Y) – High Function 1 – 2 (Y) – Moderate Function None – Low Function

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

File #: U.S. Navy OUB-2 Sites

Date: 28 Sept. 2011

Wetland Name: Moffett Creek Valley, lower segment

PM/RS: Pretare / Lillywhite

A. Flood Flow Alteration (Storage and Desynchronization)	Likely or not likely to Provide (Y or N)
1. Wetland occurs in the upper portion of its watershed. 2. Wetland is relatively flat area and is capable of retaining higher volumes of water during storm events, than under normal rainfall conditions. 3. Wetland is a closed (depressional) system. 4. If flowthrough, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense woody vegetation 6. Wetland receives floodwater from an adjacent water course 7. Floodwaters come as sheet flow rather than channel flow.	1. N 2. N - much of area has been manipulated to improve drainage 3. N 4. N 5. N 6. Y - Moffett Creek floods lower areas periodically 7. Y 5 – 7 (Y) – High Function 1 – 4 (Y) – Moderate Function None - Low Function
B. Sediment Removal	Likely or not likely to Provide (Y or N)
1. Sources of excess sediment (from tillage, mining or construction) are present upgradient of the wetland. 2. Slow-moving water and/or a deepwater habitat are present in the wetland. 3. Dense herbaceous vegetation is present. 4. Interspersion of vegetation and water is high in wetland. 5. Ponding of water occurs in the wetland. 6. Sediment deposits are present in wetland (observation or noted in application materials).	1. N 2. N 3. Y 4. N 5. Y - except in areas of artificially drained wetlands. 6. Y - but minimal 4 – 6 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function

Note: e.g., for Flood Flow Alteration, answering yes to at least 3 out of 7 attributes would rate the wetlands as high functioning; answering yes to 1, 2, 3, or 4 out of the 7 attributes would rate the wetland as moderate; and not answering yes to any of the 7 attributes would rate the wetland low for Flood Flow Alteration function.

C. Nutrient and Toxicant Removal (important with high adjacent land use/industrial areas) 1. Sources of excess nutrients (fertilizers) and toxicants (pesticides and heavy metals) are present upgradient of the wetland. 2. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 3. Wetland provides long duration for water detention. 4. Wetland has at least 30% aerial cover of live dense herbaceous vegetation. 5. Fine grained mineral or organic materials are present for the wetland (in wetland report).	Likely or not likely to Provide (Y or N) 1. Y- MEC + metal fragments 2. Y 3. Y- less so in artificial drained areas. 4. Y 5. Y 3 – 5 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
D. Erosion Control and Shoreline Stabilization *If associated with watercourse or shoreline* 1. Wetland has dense, energy absorbing vegetation bordering the water course and no evidence of erosion. 2. A herbaceous layer is part of this dense vegetation. 3. Trees and shrubs able to withstand erosive flood events are also part of this dense vegetation.	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. N/A 1-3 (Y) – High Function None – Low Function
E. Production of Organic Matter and its Export 1. Wetland has at least 30% aerial cover of dense herbaceous vegetation. 2. Woody plants in wetland are mostly deciduous. 3. High degree of plant community structure, vegetation density, and species richness present. 4. Interspersion of vegetation and water is high in wetland. 5. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 6. Wetland has outlet from which organic matter is flushed.**	Likely or not likely to Provide (Y or N) 1. Y 2. N/A 3. N 4. N 5. Y 6. Y 4 – 6 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function **If 6 is N, then automatically low function
F. General Habitat Suitability 1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undeveloped. 3. Wetland has connectivity with other habitat types. 4. Diversity of plant species is high. 5. Wetland has more than one Cowardin Class (i.e., PFO, PSS, PEM, POW, etc.) 6. Has high degree of Cowardin Class interspersion. 7. Evidence of wildlife use, e.g., tracks, scat, gnawed stumps, etc., is present.	Likely or not likely to Provide (Y or N) 1. N- wetland is developed with roads, culverts, drainage ditchs. 2. Y — side slopes of valley are undeveloped. 3. Y 4. N 5. N 6. N 7. Y 5 – 7 (Y) – High Function 1 – 4 (Y) – Moderate Function None - Low Function

G. General Fish Habitat *Must be associated with a fish-bearing water* 1. Wetland has perennial or intermittent surface-water connection to a fish-bearing water body. 2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 3. Observation of fish. 4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 5. Spawning areas are present (aquatic vegetation and/or gravel beds.) 6. Juvenile rest areas	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. Y - noted just upstream of segment 4. Y 5. unknown 6. Y 4 – 5 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function
H. Native Plant Richness 1. Dominant and codominant plants are native. 2. Wetland contains two or more Cowardin Classes. 3. Wetland has three or more strata of vegetation. 4. Wetland has mature trees.	Likely or not likely to Provide (Y or N) 1. Y 2. N 3. N 4. N 3 - 4 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
I. Educational or Scientific Value 1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails available.	Likely or not likely to Provide (Y or N) 1. N 2. N 3. N 2 - 3 (Y) – High Function 1 (Y) – Moderate Function None – Low Function
J. Uniqueness and Heritage 1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined rare 4. Wetland has been determined significant because it provides functions scarce for the area. 5. Wetland is part of: an estuary, bog, or a mature forest.	Likely or not likely to Provide (Y or N) 1. N 2. N 3. N 4. N 5. N 3 – 5 (Y) – High Function 1 – 2 (Y) – Moderate Function None – Low Function

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

File #: U.S. Navy OUB-2 Sites Date: 28 Sept. 2011

Wetland Name: Moffett Creek Valley, middle segment ~~PMRS~~: Pretare / Lillywhite

A. Flood Flow Alteration (Storage and Desynchronization)	Likely or not likely to Provide (Y or N)
1. Wetland occurs in the upper portion of its watershed. 2. Wetland is relatively flat area and is capable of retaining higher volumes of water during storm events, than under normal rainfall conditions. 3. Wetland is a closed (depressional) system. 4. If flowthrough, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense woody vegetation 6. Wetland receives floodwater from an adjacent water course 7. Floodwaters come as sheet flow rather than channel flow.	1. N 2. N - approx. 300 ft. elevation change in this segment. 3. N 4. N 5. N 6. Y - not Moffett Cr. but from multiple unnamed tribs. 7. N 5 – 7 (Y) – High Function (1 – 4 (Y) – Moderate Function) None - Low Function
B. Sediment Removal	Likely or not likely to Provide (Y or N)
1. Sources of excess sediment (from tillage, mining or construction) are present upgradient of the wetland. 2. Slow-moving water and/or a deepwater habitat are present in the wetland. 3. Dense herbaceous vegetation is present. 4. Interspersion of vegetation and water is high in wetland. 5. Ponding of water occurs in the wetland. 6. Sediment deposits are present in wetland (observation or noted in application materials).	1. N 2. N 3. Y 4. N 5. N 6. N 4 – 6 (Y) – High Function (1 - 3 (Y) – Moderate Function) None – Low Function

Note: e.g., for Flood Flow Alteration, answering yes to at least 3 out of 7 attributes would rate the wetlands as high functioning; answering yes to 1, 2, 3, or 4 out of the 7 attributes would rate the wetland as moderate; and not answering yes to any of the 7 attributes would rate the wetland low for Flood Flow Alteration function.

C. Nutrient and Toxicant Removal (important with high adjacent land use/industrial areas) 1. Sources of excess nutrients (fertilizers) and toxicants (pesticides and heavy metals) are present upgradient of the wetland. 2. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 3. Wetland provides long duration for water detention. 4. Wetland has at least 30% aerial cover of live dense herbaceous vegetation. 5. Fine grained mineral or organic materials are present for the wetland (in wetland report).	Likely or not likely to Provide (Y or N) 1. ~~#~~ Y – MEC + metal fragments 2. Y 3. N 4. Y 5. N 3 – 5 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
D. Erosion Control and Shoreline Stabilization *If associated with watercourse or shoreline* 1. Wetland has dense, energy absorbing vegetation bordering the water course and no evidence of erosion. 2. A herbaceous layer is part of this dense vegetation. 3. Trees and shrubs able to withstand erosive flood events are also part of this dense vegetation.	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. N/A 1-3 (Y) – High Function None – Low Function
E. Production of Organic Matter and its Export 1. Wetland has at least 30% aerial cover of dense herbaceous vegetation. 2. Woody plants in wetland are mostly deciduous. 3. High degree of plant community structure, vegetation density, and species richness present. 4. Interspersion of vegetation and water is high in wetland. 5. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 6. Wetland has outlet from which organic matter is flushed.**	Likely or not likely to Provide (Y or N) 1. Y 2. N/A 3. N 4. N 5. Y 6. Y 4 – 6 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function **If 6 is N, then automatically low function
F. General Habitat Suitability 1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undeveloped. 3. Wetland has connectivity with other habitat types. 4. Diversity of plant species is high. 5. Wetland has more than one Cowardin Class (i.e., PFO, PSS, PEM, POW, etc.) 6. Has high degree of Cowardin Class interspersion. 7. Evidence of wildlife use, e.g., tracks, scat, gnawed stumps, etc., is present.	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. Y 4. N 5. N 6. N 7. Y 5 – 7 (Y) – High Function 1 – 4 (Y) – Moderate Function None - Low Function

G. General Fish Habitat *Must be associated with a fish-bearing water* 1. Wetland has perennial or intermittent surface-water connection to a fish-bearing water body. 2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 3. Observation of fish. 4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 5. Spawning areas are present (aquatic vegetation and/or gravel beds.) 6. Juvenile rest areas	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. Y-fish observed in Moffett Creek 4. Y 5. unknown 6. Y 4 – 5 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function
H. Native Plant Richness 1. Dominant and codominant plants are native. 2. Wetland contains two or more Cowardin Classes. 3. Wetland has three or more strata of vegetation. 4. Wetland has mature trees.	Likely or not likely to Provide (Y or N) 1. Y 2. N 3. N 4. N 3 - 4 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
I. Educational or Scientific Value 1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails available.	Likely or not likely to Provide (Y or N) 1. N 2. N 3. N 2 - 3 (Y) – High Function 1 (Y) – Moderate Function None – Low Function
J. Uniqueness and Heritage 1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined rare 4. Wetland has been determined significant because it provides functions scarce for the area. 5. Wetland is part of: an estuary, bog, or a mature forest.	Likely or not likely to Provide (Y or N) 1. N 2. N 3. N 4. N 5. N 3 – 5 (Y) – High Function 1 – 2 (Y) – Moderate Function None – Low Function

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

File #: U.S. Navy OUB-2 Sites Date: 28 Sept. 2011

Wetland Name: Moffett Creek Valley, upper segment ~~PM/RS~~: Pretare / Lillywhite

A. Flood Flow Alteration (Storage and Desynchronization)	Likely or not likely to Provide (Y or N)
1. Wetland occurs in the upper portion of its watershed. 2. Wetland is relatively flat area and is capable of retaining higher volumes of water during storm events, than under normal rainfall conditions. 3. Wetland is a closed (depressional) system. 4. If flowthrough, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense woody vegetation 6. Wetland receives floodwater from an adjacent water course 7. Floodwaters come as sheet flow rather than channel flow.	1. Y 2. N- 200 ft. min. elevation change 3. N 4. N 5. N 6. Y- not from Moffett Creek but from multiple unnamed perpendicular tributaries. 7. N 5 – 7 (Y) – High Function 1 – 4 (Y) – Moderate Function None - Low Function
B. Sediment Removal	Likely or not likely to Provide (Y or N)
1. Sources of excess sediment (from tillage, mining or construction) are present upgradient of the wetland. 2. Slow-moving water and/or a deepwater habitat are present in the wetland. 3. Dense herbaceous vegetation is present. 4. Interspersion of vegetation and water is high in wetland. 5. Ponding of water occurs in the wetland. 6. Sediment deposits are present in wetland (observation or noted in application materials).	1. N 2. N 3. Y 4. N 5. N 6. N 4 – 6 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function

Note: e.g., for Flood Flow Alteration, answering yes to at least 3 out of 7 attributes would rate the wetlands as high functioning; answering yes to 1, 2, 3, or 4 out of the 7 attributes would rate the wetland as moderate; and not answering yes to any of the 7 attributes would rate the wetland low for Flood Flow Alteration function.

C. Nutrient and Toxicant Removal (important with high adjacent land use/industrial areas) 1. Sources of excess nutrients (fertilizers) and toxicants (pesticides and heavy metals) are present upgradient of the wetland. 2. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 3. Wetland provides long duration for water detention. 4. Wetland has at least 30% aerial cover of live dense herbaceous vegetation. 5. Fine grained mineral or organic materials are present for the wetland (in wetland report).	Likely or not likely to Provide (Y or N) 1. N – minor MEC + metal fragments possible 2. Y 3. N 4. Y 5. N 3 – 5 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
D. Erosion Control and Shoreline Stabilization *If associated with watercourse or shoreline* 1. Wetland has dense, energy absorbing vegetation bordering the water course and no evidence of erosion. 2. A herbaceous layer is part of this dense vegetation. 3. Trees and shrubs able to withstand erosive flood events are also part of this dense vegetation.	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. N/A 1-3 (Y) – High Function None – Low Function
E. Production of Organic Matter and its Export 1. Wetland has at least 30% aerial cover of dense herbaceous vegetation. 2. Woody plants in wetland are mostly deciduous. 3. High degree of plant community structure, vegetation density, and species richness present. 4. Interspersion of vegetation and water is high in wetland. 5. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 6. Wetland has outlet from which organic matter is flushed.**	Likely or not likely to Provide (Y or N) 1. Y 2. N/A 3. N 4. N 5. Y 6. Y 4 – 6 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function **If 6 is N, then automatically low function
F. General Habitat Suitability 1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undeveloped. 3. Wetland has connectivity with other habitat types. 4. Diversity of plant species is high. 5. Wetland has more than one Cowardin Class (i.e., PFO, PSS, PEM, POW, etc.) 6. Has high degree of Cowardin Class interspersion. 7. Evidence of wildlife use, e.g., tracks, scat, gnawed stumps, etc., is present.	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. Y 4. N 5. N 6. N 7. Y 5 – 7 (Y) – High Function 1 – 4 (Y) – Moderate Function None - Low Function

G. General Fish Habitat *Must be associated with a fish-bearing water* 1. Wetland has perennial or intermittent surface-water connection to a fish-bearing water body. 2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 3. Observation of fish. 4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 5. Spawning areas are present (aquatic vegetation and/or gravel beds.) 6. Juvenile rest areas	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. N 4. N/A 5. N - not in this segment 6. N - not in this segment 4 – 5 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function
H. Native Plant Richness 1. Dominant and codominant plants are native. 2. Wetland contains two or more Cowardin Classes. 3. Wetland has three or more strata of vegetation. 4. Wetland has mature trees.	Likely or not likely to Provide (Y or N) 1. Y 2. N 3. N 4. N 3 - 4 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
I. Educational or Scientific Value 1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails available.	Likely or not likely to Provide (Y or N) 1. N 2. N 3. N 2 - 3 (Y) – High Function 1 (Y) – Moderate Function None – Low Function
J. Uniqueness and Heritage 1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined rare 4. Wetland has been determined significant because it provides functions scarce for the area. 5. Wetland is part of: an estuary, bog, or a mature forest.	Likely or not likely to Provide (Y or N) 1. N 2. N 3. N 4. N 5. N 3 – 5 (Y) – High Function 1 – 2 (Y) – Moderate Function None – Low Function

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

File #: U.S. Navy OUB-2 Sites Date: 26 Sept 2011

Wetland Name: M1-03 Subunit A ~~PM/RS~~: Pretare / Lillywhite

A. Flood Flow Alteration (Storage and Desynchronization)	Likely or not likely to Provide (Y or N)
1. Wetland occurs in the upper portion of its watershed. 2. Wetland is relatively flat area and is capable of retaining higher volumes of water during storm events, than under normal rainfall conditions. 3. Wetland is a closed (depressional) system. 4. If flowthrough, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense woody vegetation 6. Wetland receives floodwater from an adjacent water course 7. Floodwaters come as sheet flow rather than channel flow.	1. Y 2. Y 3. Y 4. Y 5. Y 6. Y 7. Y 5 – 7 (Y) – High Function 1 – 4 (Y) – Moderate Function None - Low Function
B. Sediment Removal	Likely or not likely to Provide (Y or N)
1. Sources of excess sediment (from tillage, mining or construction) are present upgradient of the wetland. 2. Slow-moving water and/or a deepwater habitat are present in the wetland. 3. Dense herbaceous vegetation is present. 4. Interspersion of vegetation and water is high in wetland. 5. Ponding of water occurs in the wetland. 6. Sediment deposits are present in wetland (observation or noted in application materials).	1. Y 2. Y 3. Y 4. Y 5. Y 6. Y 4 – 6 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function

Note: e.g., for Flood Flow Alteration, answering yes to at least 3 out of 7 attributes would rate the wetlands as high functioning; answering yes to 1, 2, 3, or 4 out of the 7 attributes would rate the wetland as moderate; and not answering yes to any of the 7 attributes would rate the wetland low for Flood Flow Alteration function.

C. Nutrient and Toxicant Removal (important with high adjacent land use/industrial areas) 1. Sources of excess nutrients (fertilizers) and toxicants (pesticides and heavy metals) are present upgradient of the wetland. 2. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 3. Wetland provides long duration for water detention. 4. Wetland has at least 30% aerial cover of live dense herbaceous vegetation. 5. Fine grained mineral or organic materials are present for the wetland (in wetland report).	Likely or not likely to Provide (Y or N) 1. N 2. N 3. N 4. Y 5. 3 – 5 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
D. Erosion Control and Shoreline Stabilization *If associated with watercourse or shoreline* 1. Wetland has dense, energy absorbing vegetation bordering the water course and no evidence of erosion. 2. A herbaceous layer is part of this dense vegetation. 3. Trees and shrubs able to withstand erosive flood events are also part of this dense vegetation.	Likely or not likely to Provide (Y or N) 1. N/A 2. Y 3. N 1-3 (Y) – High Function None – Low Function
E. Production of Organic Matter and its Export 1. Wetland has at least 30% aerial cover of dense herbaceous vegetation. 2. Woody plants in wetland are mostly deciduous. 3. High degree of plant community structure, vegetation density, and species richness present. 4. Interspersion of vegetation and water is high in wetland. 5. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 6. Wetland has outlet from which organic matter is flushed.**	Likely or not likely to Provide (Y or N) 1. Y 2. N 3. N 4. N 5. N 6. N 4 – 6 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function **If 6 is N, then automatically low function
F. General Habitat Suitability 1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undeveloped. 3. Wetland has connectivity with other habitat types. 4. Diversity of plant species is high. 5. Wetland has more than one Cowardin Class (i.e., PFO, PSS, PEM, POW, etc.) 6. Has high degree of Cowardin Class interspersion. 7. Evidence of wildlife use, e.g., tracks, scat, gnawed stumps, etc., is present.	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. Y 4. N 5. N 6. N 7. N 5 – 7 (Y) – High Function 1 – 4 (Y) – Moderate Function None - Low Function

G. General Fish Habitat *Must be associated with a fish-bearing water* 1. Wetland has perennial or intermittent surface-water connection to a fish-bearing water body. 2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 3. Observation of fish. 4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 5. Spawning areas are present (aquatic vegetation and/or gravel beds.) 6. Juvenile rest areas	Likely or not likely to Provide (Y or N) 1. 2. 3. 4. 5. 6. N/A 4 – 5 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function
H. Native Plant Richness 1. Dominant and codominant plants are native. 2. Wetland contains two or more Cowardin Classes. 3. Wetland has three or more strata of vegetation. 4. Wetland has mature trees.	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. Y 4. Y 3 - 4 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
I. Educational or Scientific Value 1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails available.	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. Y 2 - 3 (Y) – High Function 1 (Y) – Moderate Function None – Low Function
J. Uniqueness and Heritage 1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined rare 4. Wetland has been determined significant because it provides functions scarce for the area. 5. Wetland is part of: an estuary, bog, or a mature forest.	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. Y 4. Y 5. Y 3 – 5 (Y) – High Function 1 – 2 (Y) – Moderate Function None – Low Function

Wetland Functions Data Form-Alaska Regulatory Best Professional Judgment Characterization

File #: US Navy OUB-2 Adak, AK Date: 3 Oct 2011

Wetland Name: SA93 Wetland Complex PWRS: Degutis

A. Flood Flow Alteration (Storage and Desynchronization)	Likely or not likely to Provide (Y or N)
1. Wetland occurs in the upper portion of its watershed. 2. Wetland is relatively flat area and is capable of retaining higher volumes of water during storm events, than under normal rainfall conditions. 3. Wetland is a closed (depressional) system. 4. If flowthrough, wetland has constricted outlet with signs of fluctuating water levels, algal mats, and/or lodged debris. 5. Wetland has dense woody vegetation 6. Wetland receives floodwater from an adjacent water course 7. Floodwaters come as sheet flow rather than channel flow.	1. Y 2. Y for 50%, N for 50% 3. Y for 20%, N for 80% 4. N 5. N 6. N 7. Y 5 – 7 (Y) – High Function 1 – 4 (Y) – Moderate Function None - Low Function
B. Sediment Removal	Likely or not likely to Provide (Y or N)
1. Sources of excess sediment (from tillage, mining or construction) are present upgradient of the wetland. 2. Slow-moving water and/or a deepwater habitat are present in the wetland. 3. Dense herbaceous vegetation is present. 4. Interspersion of vegetation and water is high in wetland. 5. Ponding of water occurs in the wetland. 6. Sediment deposits are present in wetland (observation or noted in application materials).	1. N 2. N 3. Y 4. N 5. Y 6. N 4 – 6 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function

Note: e.g., for Flood Flow Alteration, answering yes to at least 3 out of 7 attributes would rate the wetlands as high functioning; answering yes to 1, 2, 3, or 4 out of the 7 attributes would rate the wetland as moderate; and not answering yes to any of the 7 attributes would rate the wetland low for Flood Flow Alteration function.

C. Nutrient and Toxicant Removal (important with high adjacent land use/industrial areas) 1. Sources of excess nutrients (fertilizers) and toxicants (pesticides and heavy metals) are present upgradient of the wetland. 2. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 3. Wetland provides long duration for water detention. 4. Wetland has at least 30% aerial cover of live dense herbaceous vegetation. 5. Fine grained mineral or organic materials are present for the wetland (in wetland report).	Likely or not likely to Provide (Y or N) 1. N 2. Y for 40%, N for 60% 3. Y for 50%, N for 50% 4. Y 5. Y 3 – 5 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
D. Erosion Control and Shoreline Stabilization *If associated with watercourse or shoreline* 1. Wetland has dense, energy absorbing vegetation bordering the water course and no evidence of erosion. 2. A herbaceous layer is part of this dense vegetation. 3. Trees and shrubs able to withstand erosive flood events are also part of this dense vegetation.	Likely or not likely to Provide (Y or N) 1. N 2. Y 3. N 1-3 (Y) – High Function None – Low Function
E. Production of Organic Matter and its Export 1. Wetland has at least 30% aerial cover of dense herbaceous vegetation. 2. Woody plants in wetland are mostly deciduous. 3. High degree of plant community structure, vegetation density, and species richness present. 4. Interspersion of vegetation and water is high in wetland. 5. Wetland is inundated or has indicators that flooding is a seasonal event during the growing season. 6. Wetland has outlet from which organic matter is flushed.**	Likely or not likely to Provide (Y or N) 1. Y 2. N 3. N 4. N 5. Y for 40%, N for 60% 6. Y for 10%, N for 90% 4 – 6 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function **If 6 is N, then automatically low function
F. General Habitat Suitability 1. Wetland is not fragmented by development. 2. Upland surrounding wetland is undeveloped. 3. Wetland has connectivity with other habitat types. 4. Diversity of plant species is high. 5. Wetland has more than one Cowardin Class (i.e., PFO, PSS, PEM, POW, etc.) 6. Has high degree of Cowardin Class interspersion. 7. Evidence of wildlife use, e.g., tracks, scat, gnawed stumps, etc., is present.	Likely or not likely to Provide (Y or N) 1. N 2. Y 3. Y 4. N 5. N 6. N 7. N 5 – 7 (Y) – High Function 1 – 4 (Y) – Moderate Function None - Low Function

G. General Fish Habitat *Must be associated with a fish-bearing water* 1. Wetland has perennial or intermittent surface-water connection to a fish-bearing water body. 2. Wetland has sufficient size and depth of open water so as not to freeze completely during winter. 3. Observation of fish. 4. Herbaceous and/or woody vegetation is present in wetland and/or buffer to provide cover, shade, and/or detrital matter. 5. Spawning areas are present (aquatic vegetation and/or gravel beds.) 6. Juvenile rest areas	Likely or not likely to Provide (Y or N) 1. 2. 3. 4. 5. 6. N/A 4 – 5 (Y) – High Function 1 - 3 (Y) – Moderate Function None – Low Function
H. Native Plant Richness 1. Dominant and codominant plants are native. 2. Wetland contains two or more Cowardin Classes. 3. Wetland has three or more strata of vegetation. 4. Wetland has mature trees.	Likely or not likely to Provide (Y or N) 1. Y 2. Y 3. Y 4. Y 3 - 4 (Y) – High Function 1 - 2 (Y) – Moderate Function None – Low Function
I. Educational or Scientific Value 1. Site has documented scientific or educational use. 2. Wetland is in public ownership. 3. Accessible trails available.	Likely or not likely to Provide (Y or N) 1. N 2. Y 3. Y 2 - 3 (Y) – High Function 1 (Y) – Moderate Function None – Low Function
J. Uniqueness and Heritage 1. Wetland contains documented occurrence of a state or federally listed threatened or endangered species. 2. Wetland contains documented critical habitat, high quality ecosystems, or priority species respectively designated by the U.S. Fish and Wildlife Service 3. Wetland has biological, geological, or other features that are determined rare 4. Wetland has been determined significant because it provides functions scarce for the area. 5. Wetland is part of: an estuary, bog, or a mature forest.	Likely or not likely to Provide (Y or N) 1. N 2. N 3. N 4. N 5. N 3 – 5 (Y) – High Function 1 – 2 (Y) – Moderate Function None – Low Function