

# PROSPECTUS

for the

***James Toman Mary Redmond Reserve***

## **Umbrella Wetland Mitigation Bank**

Upper Kenai Peninsula Watershed (HUC 19020302)  
Turnagain Arm, Cook Inlet  
Municipality of Anchorage, Alaska

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Cover Photo: Coastal Grasslands of the James Toman Mary Redmond Reserve and nearby Coastal Forests Dwarfed by the Kenai Mountains.

## 1 INTRODUCTION

This prospectus describes the proposed *James Toman Mary Redmond Reserve* Umbrella Wetland Mitigation Bank (“Bank”) to be established within the Upper Kenai Peninsula Watershed (HUC 19020302) and the Municipality of Anchorage, Alaska (Figure 1). The Bank would function according to an Umbrella Bank Agreement for eventual inclusion of multiple parcels into the Bank. The initial Bank parcel proposed is located in the Twentymile River watershed at the head of Turnagain Arm, at Portage, Alaska.

A total of 28.87 wetland preservation credits would be produced by the Bank establishment as calculated by the Anchorage Debit Credit Method (ADCM). A summary of the ADCM credits is presented in Table 1.

**Table 1. Anchorage Debit-Credit Summary<sup>1</sup> for the Initial Bank Parcel.**

Landform	REV	Polygon Description	Regulatory Constraints Factor	Accessibility Factor	Threat (Col RxCol S)	Credit Ratio	Aggregate Post-project Indirect Impacts Factor	Polygon	Size (ac)	Credits [(Col Y/Col U) x Col W]
Intertidal Zone	1	vegetated	3	1	3	1.5	1.00	1	31.60	21.07
	1	vegetated	3	1	3	1.5	0.90	2	13.00	7.80
<b>REV 1 Sub-totals</b>									<b>44.60</b>	<b>28.87</b>

<sup>1</sup> See Attachment 2 for the complete ADCM spreadsheet printout.

In general, a mitigation bank is a site, or group of sites, where resources (e.g., wetlands, streams, riparian areas) are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by Department of the Army, Corps of Engineers (Corps) permits. A mitigation bank sells compensatory mitigation credits to permittees whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor.

The establishment and operation of mitigation banks is governed by regulation promulgated in the Final Mitigation Rule (Corps, 2008), the body of administrative rule that establishes standards and criteria for compensatory mitigation.

The establishment, use, operation and maintenance of the Bank is carried out in accordance with the following authorities:

- Federal:
  - Clean Water Act (33 USC 1251 et seq.);
  - Rivers and Harbors Act (33 USC 403);
  - Fish and Wildlife Coordination Act (16 USC 661 et seq.);
  - Regulatory Programs of the Corps of Engineers (33 CFR Parts 320-330);



- Guidelines for Specification of Disposal Sites for Dredged and Fill Material (40 CFR Part 230);
- Memorandum of Agreement between the Environmental Protection Agency and the Department of the Army concerning the Determination of Mitigation Under Clean Water Act, Section 404 (b)(1) Guidelines (February 6, 1990);
- Compensatory Mitigation for Losses of Aquatic Resources (33 CFR Part 332)
- Regulatory Guidance Letter 08-03 - Minimum Monitoring Requirements for Compensatory Mitigation Projects Involving the Restoration, Establishment, and/or Enhancement of Aquatic Resources.
- State:
  - Alaska Land Act, Alaska Stat. Sec. 38.05.070-075
- Municipal:
  - Anchorage Municipal Code, Chapter 21 Land Use Planning
  - Anchorage Municipal Code 21.05.115 Implementation-Anchorage Wetlands Management Plan.
  - Municipality of Anchorage (MOA). 1996. Anchorage Wetlands Management Plan (AWMP). Department of Community Planning and Development.

## **2 ORGANIZATION**

The Bank would be managed by the Sponsor, Mr. Bill Redmond and his business entity Redmond Development, LLC. The Sponsor would enter into an agreement with the Corps to manage Umbrella Bank and the initial Bank parcel in Portage. Establishment and operation of the Bank requires specific authorization from the Corps, as well as oversight by an Interagency Review Team (IRT) composed of representatives from local, state, and federal agencies and other parties with overlapping interests, concerns, or jurisdictions to those of the Corps. Management of the Bank would be the responsibility of the Sponsor.

An Umbrella Wetland Mitigation Bank Instrument would be prepared to serve as the formal legal agreement between the Corps and the Sponsor for the Bank. The Instrument would be prepared by the Sponsor and presented to the Corps and IRT for review and comment. When the Instrument is approved, the Sponsor would then be required to satisfy specific criteria identified in the Instrument before Bank credits would be released to the Sponsor.

## **3 PURPOSE**

The purpose of the Bank would be to provide a compensatory mitigation mechanism to offset unavoidable impacts to waters of the United States authorized through the issuance of Department of the Army (DA) permits pursuant to section 404 of the Clean Water Act (33 U.S.C. 1344) and/or sections 9 or 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 401, 403). The Bank would accomplish this through preservation of ecosystem functions that are provided by the wetlands and other aquatic resources in the Bank property.

The Sponsor's business entity, Redmond Development, LLC would operate the Bank for the purpose of producing wetland credits for sale in exchange for debits as mitigation for projects

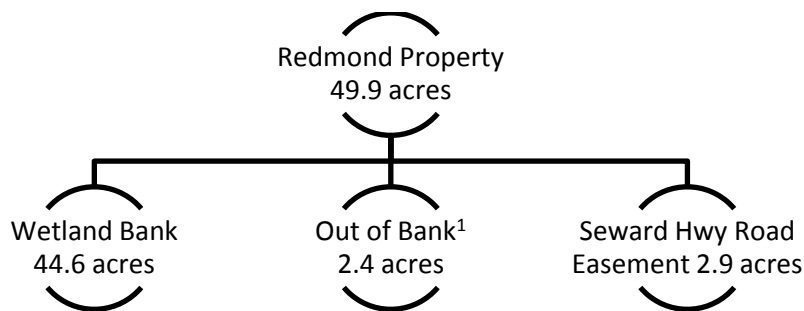
authorized by the Corps within the approved Service Area. Potential bank users may include individuals, commercial developers, construction companies, government agencies, or other entities needing wetland mitigation credits for permitted activities.

#### 4 BANK PARCELS

The initial Bank Parcel to be included is in the Twentymile River Watershed, HUC 1902030202, consisting of 44.6 acres of vegetated intertidal (estuarine) wetlands located at the head of Turnagain Arm in Cook Inlet.

The Bank will be established with a single property located at Portage, Alaska within the Upper Kenai Peninsula Hydrologic Unit and the Municipality of Anchorage (Figure 1). The Redmond property in which the Bank will be established is a 50-acre parcel located at Portage, Alaska.

The following graphic illustrates the property configuration:



<sup>1</sup> The out of bank area of the property will be managed in a manner consistent with Bank objectives and protective measures, and would be considered for inclusion into the Bank in the future.

The proposed Bank will be located within a property of a single parcel of 49.9 acres, in which 44.6 acres will be placed into the Bank. The remaining 5.3 acres in the property include 2.9 acres occupied by a 50-ft Roadway Easement extending into the property that includes the Seward Highway fill prism; the Bank is excluded from this Easement. The balance of the property includes 2.4 acres to be set aside for consideration of inclusion into the Bank in the future and managed in a manner compatible with the objectives and restrictions of the Bank. The entire property will remain under ownership of the Sponsor.

The proposed wetland bank property is described as US Survey 12192; Municipality of Anchorage No. 09023102000; Township 9N Range 3E Section 30 Seward Meridian; USGS Topographic Map Seward D-6. Directions to the property from Anchorage: Take the Seward Highway southbound 45 miles to the Twentymile River bridge, the property is located across the bridge on the west (right) side. Much of the property can be safely viewed from the boat launch parking area on the west side of the highway before crossing the bridge.

The property was initially occupied in 1948 by James Toman, an Alaska pioneer and entrepreneur of early Anchorage who had a bar at the property consisting of a Quonset hut structure. James Toman's niece, Mary Redmond, came to Portage and acquired the property in

1959. The Redmond family resided on the property until the 1964 Earthquake that devastated the area with structural damage and subsidence that caused tidal flooding.

The Portage area where the Redmond property is located has undergone significant changes since the 1964 earthquake and the initial earth subsidence that reconfigured the coastline of the area. The coastal flooding into the newly-formed lowlands resulted in establishment of tidal wetlands in the river delta complex where the Twenty mile and Placer Rivers meet the outlet of Portage Creek into the estuarine waters of Turnagain Arm.

Additional parcels may be added to the Bank as approved by the Corps and IRT.

#### **4.1 Ownership**

The Bank Sponsor, Mr. Bill Redmond of Indian, Alaska plans to organize the ownership of the Bank property under a single business entity, Redmond Development, LLC. All the Bank property into simple fee ownership under this entity prior to establishment of the Bank and signing of the Bank Instrument.

The property proposed for establishing the Bank is currently owned by the Sponsor, Mr. Bill Redmond.

## **5 WATERSHED APPROACH**

A watershed approach, as defined by the Final Rule (Corps, 2008) is “the analytical process for making compensatory mitigation decisions that support the sustainability or improvement of aquatic resources in a watershed. It involves consideration of watershed needs, and how locations and types of compensatory mitigation projects address those needs. A landscape perspective is used to identify the types and locations of compensatory mitigation projects that will benefit the watershed and offset losses of aquatic resource functions and services caused by activities authorized by DA permits. The watershed approach may involve consideration of landscape scale, historic and potential aquatic resource conditions, past and projected aquatic resource impacts in the watershed, and terrestrial connections between aquatic resources when determining compensatory mitigation requirements for DA permits.”

Establishment of the Bank with the initial Bank parcel in Portage is in alignment with the watershed approach by considering the historic and projected land use changes in the Service Area and the aquatic resource functions that may become scarce in the future. In addition, the Bank will incorporate the terrestrial connections between aquatic resources by including closely-associated upland riparian habitat into the Bank property where appropriate.

The U.S. Environmental Protection Agency (USEPA, 2010) defines watershed approach similarly as “a coordinating framework for environmental management that focuses public and private sector efforts to address the highest priority problems within hydrologic-defined geographic areas, taking into consideration both ground and surface water flow”. The guiding principles of the watershed approach are identified as (1) partnerships, (2) geographic focus, and (3) sound management based on strong science and data. The Bank would adhere to the EPA’s principles of a watershed approach by: 1) creating a public-private partnership between the Sponsor, the Corps and the IRT; 2) preserving wetland resources at strategic locations in the Municipality of

Anchorage watersheds, an area with historically high rates of land development and residential growth among abundant wetland and other aquatic resources; and 3) using field data and established scientific principles to manage the Bank for preservation of ecosystem functions.

### **5.1 Regional Watershed**

The initial Bank parcel in Portage is located within the Upper Kenai Peninsula watershed, identified by the U.S. Geological Survey as Hydrologic Unit Code (HUC) No. 19020302 (Figure 1). Within this greater watershed area there are local watersheds including the local Twentymile River watershed at the head of Turnagain Arm.

The geographic region of the Bank property is generally identified as the Portage Valley district and includes a small population of local residents and commercial facilities associated with Portage Lake and Glacier, Portage Valley, and the Seward Highway Corridor. The area is a major tourist attraction during the summer months, with the nearby Alaska Wildlife Conservation Center attracting large numbers of visitors, as does the Portage Glacier Visitor Center at Portage Lake a few miles away. Portage Valley is a major tourist attraction in southcentral Alaska. The Alaska Railroad is adjacent to the property and the Seward Highway Scenic Byway corridor passes through it; both are important tourist attractions in Alaska.

### **5.2 Local Watersheds**

The proposed Bank is, according to the USGS watershed mapping, located within the local Twentymile River watershed, although it resides on a massive delta between the Twentymile and Portage Creek, where these drainages meet at the head of Turnagain Arm. Functionally, the Bank's ecology would likely service both watersheds. The area is unique in that it serves as a conduit for freshwater flow to drain into Turnagain Arm, while at the same time becomes inundated by tidal flooding, which forces the water the opposite direction. This mixing of freshwater from the overland flow and drainage with estuarine brackish water provides a rich source of nutrients and diversity in the site ecology. The wetlands at the site support the ecological linkages between the estuarine waters of Turnagain Arm and inland freshwater wetlands of the large, glacial river valleys of the Twentymile, Placer, and Portage Creek.

The Bank property occupies local watersheds that have been altered by infrastructure and commercial development. Most of the Bank property occupies the Portage Creek watershed with the Alaska Railroad lines, Seward Highway, Portage Valley Road, Whittier Tunnel, and commercial development along the Seward Highway including the Alaska Wildlife Conservation Center, and Chugach National Forest campground and access roads. The Twentymile River Valley includes Alaska Railroad alignment and facilities, as well as the Seward Highway including the bridge crossing the River adjacent to the Bank property.

## **6 BASELINE INFORMATION**

Information about the initial Bank property was obtained by direct inspections of the property and research conducted during the wetland delineation performed in 2011. Prior to establishment of the Bank, additional baseline information may be obtained through research and included in the Bank Instrument document.

The wetlands and other habitats in the Bank are described and mapped using the Cowardin classification (1979) used by the National Wetland Inventory. The habitats are also described by the Anchorage Debit-Credit System (ADCM) and Anchorage Wetlands Management Plan classifications that will be used to calculate credits in the Bank.

A description of the site setting, the ecological habitats, and the hydrology of the Bank environs is provided in the following sections.

### 6.1 Site Setting

The site is situated at the convergence of two major watersheds in Upper Cook Inlet, the Placer and Twentymile Rivers, which empty into Turnagain Arm. A broad, flat delta of sand and sandy silt, cut with active and relic tidal guts forms the land where the initial Bank parcel is situated.

The extreme climate is one of the distinguishing characteristics of the Portage Valley (Table 1). With more than ten feet of annual snowfall during the winter and 25 inches of rainfall during the summer months, there is an abundance of precipitation to maintain wetland hydrology where drainage is limited. The area is famous for high winds and the horizontal rainfall.

The large amount of precipitation and resulting surface water maintains saturated conditions in the area throughout the year, except on artificial fill surfaces that allow drainage. The natural flow of surface water sheet flow is altered by the fill prism of the Seward Highway, reducing the natural mixing of estuarine brackish water with freshwater from Twentymile River Valley wetlands.

Precipitation in the Portage area averages about 78-inches per year, which is highly seasonal, with the majority of the moisture coming as snowfall during November through March.

**Table 2. Monthly Climate Summary for Portage, Alaska**

*Period of Record : 1/ 1/1973 to 2/28/1995*

Parameter (averages)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Max. Temperature (F)	29.5	27.1	36.4	42.4	53.5	59.4	64.8	61.5	54.4	42.5	28.3	32.3	44.3
Min. Temperature (F)	15.0	10.5	19.1	26.9	37.1	42.8	45.8	43.6	37.8	29.2	13.9	18.2	28.3
Total Precipitation (in.)	8.82	6.26	4.06	5.08	3.87	4.02	2.95	6.12	10.50	9.75	5.11	11.6 9	78.26
Total Snowfall (in.)	23.3	24.6	30.1	7.8	0.0	0.0	0.0	0.0	0.0	4.4	22.0	35.8	147.9
Snow Depth (in.)	12	13	7	5	0	0	0	0	0	1	4	13	4

Notes: Percent of possible observations for period of record - Max. Temp.: 41.2% Min. Temp.: 41% Precipitation: 42.5% Snowfall: 41.9% Snow Depth: 42.9%. Data from: Western Regional Climate Center, wrcc@dri.ed.

## 6.2 Ecological Habitats

A summary of the habitat types and corresponding acreage of each type presented in Table 2.

The hydrologic balance in the wetlands of the Bank is maintained by tidal flooding and surface water sheet flow from upgradient (south) in the Portage Creek watershed. The wetland habitats at the Bank property are shown in Figure 9.

**Table 3. Estuarine Habitats of the Initial Bank Parcel.**

Vegetation Type	Cowardin Classification	ADCM REV	Acres
Graminoid	E2EM1P	REV 1	23.1
Shrub-Scrub	E2SS1/EM1P	REV 1	20.5
Tidal Gut	E2US3N	REV 1	0.9
Trees	E2FO1/4P	REV 1	0.1
<b>Total</b>			<b>44.6</b>

## 6.3 Water Regime and Water Quality

Stream flow in the Twentymile River and Portage Creek are reported from USGS gaging stations in Attachment 4.

These records indicate there is highly seasonal streamflow in the Twentymile River and Portage Creek, with annual high flows occurring during glacial and high-country snowmelt in June and July.

Recent trends in climate change science have raised concerns about potential sea level rise and impacts to coastal wetlands such as found in the proposed Bank. A study by the National Wildlife Federation on this subject in the Cook Inlet basin was reported in 2010 and concluded with the following remarks:

*“Overall, the simulated study area is not predicted to be particularly vulnerable to the effects of sea-level rise, primarily due to estimated land uplift over the next century. Coastal uplift is predicted to range from approximately 0.7 meters to 1.1 meters by 2100 based on long term GPS measurements for these sites. When this uplift is combined with a predicted eustatic rate of sea-level rise from 0.4 meters to 2 meters, the resulting predicted local sea-level rise ranges from negative 0.7 meters to positive 1.3 meters by 2100. In addition to this reduced range, we estimate that marsh lands will capture sediment and therefore vertically accrete at a rate roughly equivalent to an additional 0.4 meters per century. This further reduces predicted increases in water heights relative to marshes across the study area.”<sup>1</sup>*

<sup>1</sup> National Wildlife Federation. 2010. *Assessing the Vulnerability of Alaska’s Coastal Habitats to Accelerating Sea-level Rise Using the SLAMM Model: A Case Study for Cook Inlet.*



## 7 JUSTIFICATION FOR A PRESERVATION MITIGATION BANK

Land preservation may be used to provide compensatory mitigation when five specific criteria are met (Corps, 2008). The proposed Bank would satisfy these criteria as discussed in the following paragraphs.

1. The property must provide important physical, chemical, and biological functions for the watershed.

The Bank property is a rare and unique aquatic resource. Located at the interface of estuarine waters and two large, glacial-fed salmon-bearing rivers, this site provides a diverse array of intertidal wetland habitats that provide a range of ecological functions. These are: mud (tidal gut), emergent sedges on the fringe of tidal guts, graminoid-herb meadows, shrub-scrub willow thickets, and a small area of white spruce and poplar trees.

The dense vegetation occurring with these habitats is associated with filtration and biochemical transformation of water chemistry in runoff. This water quality protection function is important for receiving waters of Twentymile River, an anadromous water, and the waters of Turnagain Arm, also anadromous but also habitat of the Beluga whale, an federal-listed Endangered Species that occurs in Turnagain Arm.

The Bank property is situated between infrastructure and commercial development located upgradient and the Twentymile River and Turnagain Arm on the downgradient side. This configuration brings attention to the importance of protecting the property as a biofilter to remove excess nutrients, oil and grease, detergents, and other pollutants that may occur in low levels but could accumulate in sensitive aquatic organisms. Wetland vegetation has been shown to remove pollutants such as these and biofiltration swales are commonly used in modern civil works designs to capture runoff-borne pollutants.

The physical structure of the dense vegetation on the Bank property provides erosion control and captures drift deposits brought into the shore by tidal action, where these become habitat and/or food to the resident invertebrates and small mammals, linking the marine and terrestrial food chains.

The dense vegetative cover of high willow shrubs on the Bank property provides high value habitat for birds of prey and the thick graminoid cover in the understory supports a large population of small mammals as indicated by the numerous pathways that were observed throughout the property.

2. Preservation of the property must contribute to the sustainability of the watershed.

Watershed sustainability as discussed here is the maintenance of ecological processes, functions, biodiversity and productivity into the future. The ecological functions of the Bank property would be self-sustaining and not rely upon active structures, such as water pumps for maintaining water supply, or other human interventions to be sustainable.

Size is an important factor in maintaining ecological sustainability. Preservation of the Bank property would contribute to sustainability by protecting more than 44 acres of diverse coastal habitat in an area where development and growth have slowly consumed significant portions of

land in the Portage area. Preservation of key areas such as river deltas and intertidal zones contributes to maintaining the integrity of the estuarine ecosystem where the marine, freshwater, and terrestrial environments interface.

3. Preservation must be determined by the Corps to be appropriate and practicable.

The preservation of the Bank property is appropriate and practicable for several reasons.

First, the local government, the Municipality of Anchorage, has goals and policies embodied within its Wetlands Management Plan and charter that clearly support the preservation of natural wetland areas such as the Bank property.

Second, considering the types of aquatic resources found within the proposed Bank property, preservation offers a more reliable method for replacement for functions than other forms of compensatory mitigation, such as creation or restoration. In particular, the established mosaic of ponds, small streams, emergent wetlands, forested wetlands, and adjacent upland forest within the Bank property would be very difficult to replicate due to technically unfeasible and cost prohibitive to construct. In addition, it would take several decades for a similar, fully functional ecosystem to become established, that would also require intensive maintenance. Thus, preservation is appropriate based on local planning preferences, Federal guidance and physical characteristics of the wetlands.

Third, preservation is practicable based on availability of a Conservation Easement that binds the landowner(s), present and future, with the land preservation conditions placed on the Bank.

4. The land available in the proposed bank must be under threat.

The natural ecosystems and especially the aquatic resources in the local watershed are potentially threatened by the continued growth in the area. There has been substantial development in the Portage area over the past 20-year period that were likely to involve wetlands and waters, including bridges, roads, gravel pads, driveways, highway realignment and widening, commercial developments, the Alaska Railroad, and other infrastructure development. Plans for safety improvements on the Seward Highway may involve development in wetlands.

One factor unique to Alaska is the availability of land at this time for preservation within urbanizing areas. As the availability of land in an area shrinks over time, the properties with wetland resources become more attractive for conversion. Compared to other areas of the country, there is an opportunity for selective land preservation of high value and unique sites before the threat level becomes imminent. The proposed Bank property is an example of an opportunity to preserve an important component of the unique coastal ecology of Turnagain Arm.

5. The site must be permanently protected with a legal instrument.

The *land protection instrument (e.g., conservation easement, deed restriction, or other)* will protect the land in perpetuity. The Sponsor is in the process of identifying an appropriate land protection mechanism for the initial Bank parcel.

## 8 BANK MITIGATION PLAN

The Bank would be managed under a Bank Mitigation Plan that incorporates site-specific objectives and criteria as appropriate. The provisions of the Bank Mitigation Plan are described in the following sections.

### 8.1 Management

Management of the Bank property would be the responsibility of the Bank Sponsor. The Great Land Trust would manage the Conservation Easement on the Bank property, including inspections to evaluate compliance with the conservation easement.

### 8.2 Goals and Objectives

The primary goal of Bank establishment is to permanently preserve the aquatic resources and associated ecological functions at the Bank property.

Bank establishment would result in preservation of aquatic ecosystem functions that otherwise could be threatened by the direct or indirect impacts of land development. The Sponsor would be required to demonstrate tangible actions and meet specific criteria before Bank credits could be awarded to the Bank by the Corps and IRT.

The operational objectives for all proposed Bank property are based on the primary purpose of the Bank, to preserve the Bank property and associated ecosystem functions:

**Objective 1.** Permanently protect aquatic ecosystem functions at the Bank by (a) instituting the Instrument, (b) implementing a land protection instrument, such as a conservation easement, deed restriction, or other mechanism approved by the IRT, with permanent funding for site stewardship, and (c) establishing and fully funding the Bank Contingency Fund. Each of the milestones associated with this objective must be met before any Bank credits may be awarded.

**Objective 2.** Prevent unauthorized access to the Bank by installing signage along the Bank boundary and if necessary bollards at trails intersecting the Bank boundary. Install barriers including wildlife-compatible fencing (e.g., split-rail), vehicle-excluding soil mounds, balusters, or natural woody debris (e.g., logs and brush piles) will be placed at potential access points along the Bank to prevent unauthorized vehicle and ATV access.

**Objective 3.** Develop a Long-Term Management and Maintenance Plan.

Associated with each of these objectives are specific milestones that would be met prior to release of credits as approved by the Corps and IRT. The proposed milestones associated with the Bank establishment objectives for all Bank property are summarized below along with the documentation for each:

**Table 4. Bank Establishment Milestones and Documentation**

<b>Milestone</b>	<b>Documentation</b>
Complete an agreement with the Corps to operate under an approved Umbrella Wetland Mitigation Bank Instrument.	Umbrella Wetland Mitigation Bank Instrument has been signed by the Sponsor and the Corps. An original signed Instrument must be provided to each of the signatories.
Protect the aquatic ecosystem by placing a land protection instrument (i.e., conservation easement, deed restriction, or other approved) on the property.	Provide the IRT a copy of the signed Conservation Easement and evidence that it has been recorded with State Recorder's Office and placed on the property title.
Establish and fund the Bank Contingency Fund.	A copy of the account information indicating the agreed-upon amount will be provided to the Corps.
Install signs with notifications "No Trespassing" and "Wetland Bank" placed at 100-foot intervals or less along the Bank boundaries on the south, west, and east side of the Bank Parcel.	The signage and other installations will be documented with digital camera images and GPS locations provided in a report to the IRT.
Remove the 0.04 acre driveway on the east side of the Bank property and rehabilitate the site in following with a plan approved by the IRT.	A brief plan will be submitted to the IRT for removal and rehabilitation of the area. Results will be documented with digital camera images and GPS locations provided in a report to the IRT.
Establish the Long-Term Management and Maintenance Plan.	Long-Term Management and Maintenance Plan document submitted to IRT.
Activity in wetlands or waters associated with Bank establishment.	A Work Plan would be submitted to the IRT for review prior to implementation. Direct inspection and digital camera images documenting before/after conditions provided in a letter report to the IRT.

A secondary objective of the Bank would be to evaluate opportunities and potentially implement future aquatic restoration, creation, or enhancement projects to augment the existing aquatic ecosystem functions at Bank property. Any modifications planned for the Bank property to conduct future restoration, creation, or enhancement would not be implemented until approval by the IRT and the Corps.

## 9 SERVICE AREA

The Service Area proposed for the Bank will be established according to the Corps' special public notice for standardizing service areas (SPN-2013-599; October 31, 2013) and as approved by the IRT. Figure 3b presents the proposed Primary, Secondary, and Umbrella Service Areas for the Bank, which correspond to the SPN-2013-599 descriptions:

1. *Primary Service Areas. The primary service area is the designated geographic area, as described above, wherein a mitigation bank or in-lieu fee program can reasonably be expected to provide appropriate compensation for impacts to aquatic resources. For purposes of addressing Corps mitigation requirements, a mitigation bank's or in-lieu fee program's primary service area will have priority over any other approved mitigation bank's or in-lieu fee program's secondary or tertiary service areas, where appropriate credits are available.*

*In the Municipality of Anchorage, the primary service areas shall be established using a 10-digit HUC (watershed). In all other regions, the primary service areas shall be established using an 8-digit HUC (sub-basin) (see attached Service Area Guidance Example).*

2. *Secondary Service Areas. The secondary service area is the designated geographic area wherein a mitigation bank or in-lieu fee program can reasonably be expected to provide appropriate compensation for impacts to aquatic resources.*

*The secondary service area may be utilized for compensatory mitigation for any DA permit if: there are no available credits at any primary service area mitigation banks or in-lieu fee programs; and the applicant can demonstrate with supporting documentation that the credits in the secondary service area will compensate for the lost aquatic functions at the impact site.*

*In the Municipality of Anchorage, the secondary service areas shall be established using an 8-digit HUC (sub-basin). In all other regions, the secondary service areas shall be established using a 6-digit HUC (basin).*

3. *Umbrella Service Areas. For the purpose of this document, the umbrella service area is the maximum designated geographic area wherein an umbrella mitigation bank or in-lieu fee program can reasonably be expected to provide compensation for impacts to wetlands, streams, stream corridors, and/or other aquatic resources.*

*The umbrella service area shall be established using a 4-digit HUC, eco-region, or similar approach determined to be more appropriate through consultation with the IRT and approval by the Corps. Advanced credits not associated with an in-lieu fee project site may be utilized for compensatory mitigation for any DA permit if there are not available credits of the type and/or amount in the primary or secondary service area of a mitigation bank or in-lieu fee program.*

The local watersheds, delineated by the 10-digit HUC boundaries are shown in Figure 3. The local watersheds, including Twentymile River, Placer River, Sixmile Creek, Glacier Creek-Frontal Turnagain Arm, and Bird Creek Watersheds, are all within the Upper Kenai Peninsula Sub-Basin, HUC 8-digit code no. 19020302.

The types of wetland credits the proposed Bank will generate are similar to wetland resources located throughout the Service Area that are under development threat. In particular, the Seward Highway upgrades proposed for much of the Turnagain Arm area may involve freshwater and estuarine areas that require compensatory mitigation. Much of the remaining vacant land areas in the Twentymile River and Portage Creek Valleys have substantial wetland resources similar to those found in the proposed Bank.

## **10 OTHER MITIGATION BANKS IN THE VICINITY**

There is one operating wetland mitigation bank in the vicinity, the Harmany Ranch wetland bank. The proposed Service Area for the James Toman Mary Redmond Reserve Wetland Bank would not overlap with Harmany Ranch's service area. The Sponsor has estimated there is sufficient development activity in the future within the service areas to justify the investment in establishment of the Bank.

The James Toman Mary Redmond Reserve Wetland Bank would operate independently of Harmany Ranch bank and would offer credits for sale to permittees on a competitive market basis. Permittees may, at the Corps' discretion, be allowed to acquire mitigation credits from either of the approved wetland banks if the permitted project is within the service area of those wetland banks.

## **11 SITE PROTECTION INSTRUMENT**

The Bank property will be preserved in perpetuity by a Conservation Easement. The Sponsor has begun preliminary discussions with Great Land Trust of Anchorage, Alaska. Great Land Trust is a private, non-profit land conservation organization founded in 1995 that is qualified to hold such easements under the Corps wetland banking program in Alaska.

The Conservation Easement is a voluntary legal agreement between the Bank Sponsor and Great Land Trust that permanently limits uses of the land to protect its conservation values. The land would remain in private ownership and the Great Land Trust would monitor the property to verify that the land use restrictions are honored over time. The Conservation Easement is perpetual and remains in effect through any subsequent changes in property ownership.

## **12 CREDITING AND DEBITING PROCEDURES**

The proposed Bank is established for general use to produce mitigation credits that are exchanged for mitigation debits resulting from wetland development projects within the proposed Service Area. Potential bank users may include individuals, developers, construction companies, State and Federal government agencies, or any other entities seeking mitigation credits within the authorized service area.

## **13 PRODUCTION OF CREDITS**

The Bank would establish credits through implementation of the Bank Mitigation Plan, which includes preservation of existing, natural aquatic habitats on Bank property.



Credits are established and awarded to the Bank upon the Sponsor's demonstration that the milestones have been met.

### **13.1 Credit and Debit Determination**

The calculation of Bank credits and development debits incurred by potential Bank customers for their projects are determined using the Anchorage Debit-Credit Method (ADCM). The ADCM is an ecological-value accounting system used in Anchorage to quantify and compare adverse ecological impacts resulting from development or construction in aquatic areas, such as wetlands, against proposed compensatory mitigation actions, such as preservation, restoration and enhancement.

Preservation credit calculations for the Bank are presented in Attachment 2. The Bank property is divided into two polygons to reflect the indirect impact zone of the Seward Highway located on the east side of the property. A 50-ft dedicated road easement is required for the highway and is the east boundary of the Bank property. A 300-ft buffer from this easement is established as an indirect impact zone and assigned Indirect Impacts Factor of 0.9 per the ADCM instructions.

### **13.2 Credit Calculations**

Credit calculations are summarized in Table 1. Debit-credit spreadsheets are provided in Attachment 2.

## **14 CREDIT CERTIFICATION**

Credit certification is made by the IRT. The Bank Sponsor will submit as-built conditions for establishing credits for review and approval by the IRT. A Credit Summary would be provided to the Corps and IRT for review prior to approval of the Bank Instrument.

## **15 MAINTENANCE OF CREDITS**

Credits will be maintained through implementation of the Mitigation Plan to establish the Bank maintained on a regular basis, which includes the site protection measures such as signage. Regular monitoring and reporting to the IRT by the Sponsor would ensure that credits are maintained in the Bank and any degradation or impacts will be identified early and remedial actions implemented.

The Sponsor would be held responsible In the Bank Instrument agreement with the Corps to perform the necessary work to monitor the Bank to demonstrate achievement of the milestones established in Mitigation Plan for each Bank property.

## **16 CREDIT LEDGER AND RECEIPTS**

The sponsor would maintain a Bank Credit Ledger up to date and provide copies to the Corps as requested, and in the annual report. The Credit Ledger would include detailed information about the transactions, including the Permittee, Address, Phone Regulatory Agency and Permit

No., Project Location, Description, Permitted Acreage & Debits, and a current balance of Bank Credits.

The Sponsor would also produce a Credit Receipt for every sale or transfer of credits, and immediately provide a copy of each receipt to the Corps, regardless of jurisdiction. The Credit Receipt would include the following information: Transaction Date, Permittee Name, Address, Phone, Regulatory Agency and Permit No. Project Location and Description, Permitted Acreage & Debits, and Bank Credits Sold.

## **17 MONITORING REQUIREMENTS**

The Bank Sponsor will perform annual monitoring in order to assure that Bank is operated in accordance with the specifications in the Banking Instrument and to validate the availability of credits.

Monitoring results will be submitted to the Corps and distributed to the IRT for review. Monitoring will provide sufficient written and photographic documentation of bank conditions to enable the IRT and other agencies to evaluate the effectiveness of wetland management and to verify the availability of credits.

Annual monitoring reports will be submitted to the IRT, in accordance with the terms specified in the Bank Instrument.

## **18 LONG-TERM MANAGEMENT PLAN**

Prior to bank closure the Sponsor would develop a Long-term Management Plan for review and approval by the Corps, in consultation with the IRT. The Long-Term Management Plan would address five areas:

- 1) Identification of long term management needs and annual cost estimates for these needs;
- 2) A long term funding mechanism to meet these needs, such as a non-wasting endowment fund;
- 3) A site protection instrument such as transfer of title or a conservation easement conveyed to an appropriate long-term steward; and
- 4) Identification of the party(s) responsible for ownership and all long-term management of the bank site.
- 5) Procedures for future amendment of the Plan to allow for adaptive management, defining situations in which review and approval of regulatory agencies would be necessary.

Responsibility of the Bank property would remain with the bank sponsor until transfer to a land stewardship entity is approved by the Corps. The site protection instrument would prohibit uses that are not compatible with the mitigation objectives, and would include a provision requiring 60-day advance notification to the co-chairs before any action is taken to void or modify the site protection instrument, or establish any other legal claims over the bank site.

## 19 FINANCIAL ASSURANCES

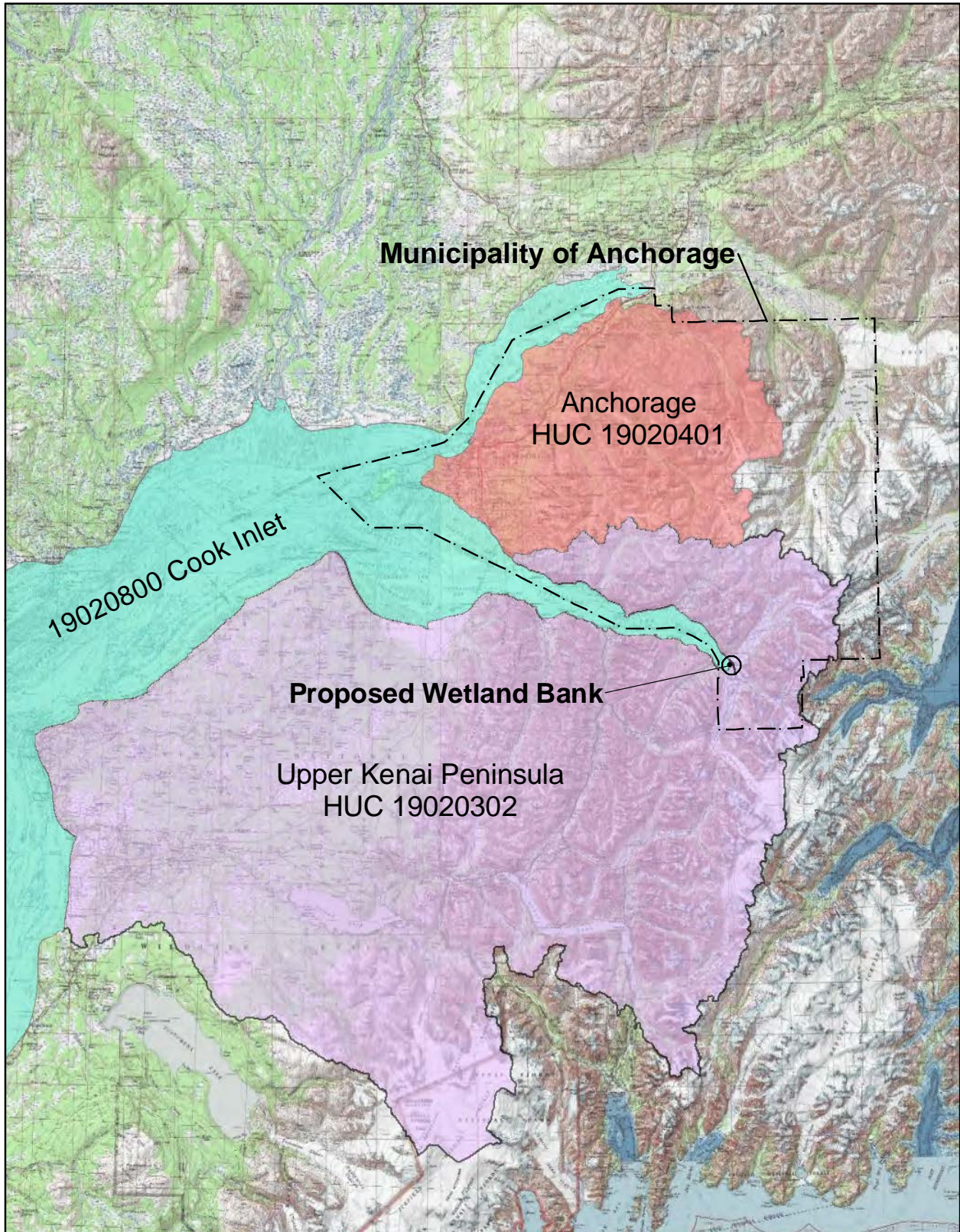
The Bank would establish and maintain a Bank Contingency Fund (Fund) to pay for future corrective actions that may be required to maintain wetland credits within the Bank. The Fund is the responsibility of the Bank Sponsor and would be initially funded at a level appropriate for the initial Bank property established by the Umbrella Bank Instrument.

## 20 BIBLIOGRAPHY AND REFERECES CITED

- Alaska Department of Fish and Game (ADFG). 2009. Anadromous Waters Catalog (website). <<http://www.sf.adfg.state.ak.us/SARR/AWC/index.cfm/FA/main.overview>>.
- Alaska Department of Fish and Game (ADFG). 2009. Special Publication No. 09-03 Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes – Southcentral Region, Effective June 1, 2009. J. Johnson and Kimberly Klein, March 2009, Divisions of Sport Fish and Habitat.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C., pp. 103.
- Department of the Army, Corps of Engineers (Corps). 2008. 40 CFR Part 230, Compensatory Mitigation for Losses of Aquatic Resources; Final Rule. Published in Federal Register Thursday, April 10, 2008 (Vol. 73, No. 70).
- Gallant et al., 1995. Ecoregions of Alaska. U.S. Geological Survey Professional Paper 1567. Prepared in cooperation with Colorado State University and the Environmental Protection Agency.
- Hulten, E. 1968. Flora of Alaska and Neighboring Territories: A Manual of the Vascular Plant. Stanford University Press, Stanford, CA.
- Municipality of Anchorage (MOA). 2012. Anchorage Wetlands Management Plan (AWMP). Department of Community Planning and Development.
- Restoration Science and Engineering, LLC. 2011. Wetland Delineation Portage Property US Survey 12192, MOA#09023102000. Prepared for Bill Redmond. April 21.
- U.S. Army Corps of Engineers. 2013. Service area guidance for mitigation banks and in-lieu fee programs operating in the U.S. Army Corps of Engineers, Alaska District Special Public Notice SPN-2013-599; October 31, 2013.
- U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and Municipality of Anchorage. 2011. The Anchorage Debit-Credit Method A Procedure for Determining Development Debits and Compensatory Mitigation Credits For Aquatic Areas in Anchorage, Alaska Developed by Representatives of the 12/12/2000; Revised and Updated 04/28/2011.
- U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS). 2001. Soil Survey of Anchorage Area, Alaska.

U.S. Environmental Protection Agency. 2010. A Watershed Approach. (website).  
<<http://www.epa.gov/owow/watershed/approach.html>> Accessed 20130930.





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 Coordinate System: NAD\_1983  
 StatePlane\_Alaska Zone 4  
 January 22, 2014

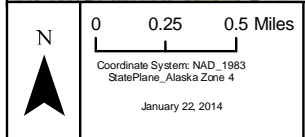
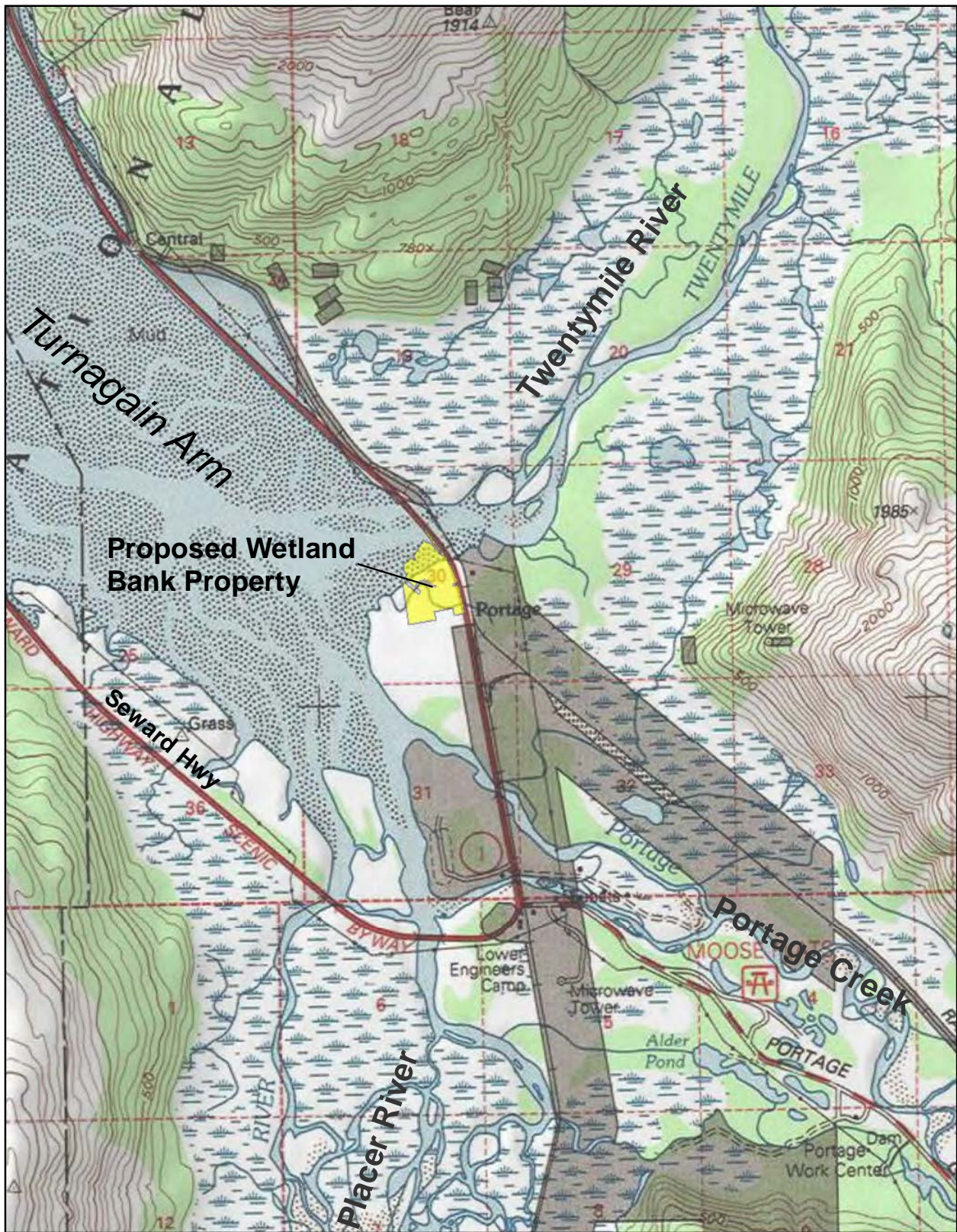
*The James Toman Mary Redmond Reserve*  
 Wetland Bank Prospectus  
**Figure 1. Location of Proposed Wetland Bank**

**Redmond Development LLC**  
 270 Old Johns Rd  
 Indian, AK 99540  


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**Hemlock Scientific, LLC**  
 199 Comfort Ln  
 Indian, AK 99540





*The James Toman Mary Redmond Reserve*  
 Wetland Bank Prospectus  
**Figure 2. Bank Property and Vicinity**

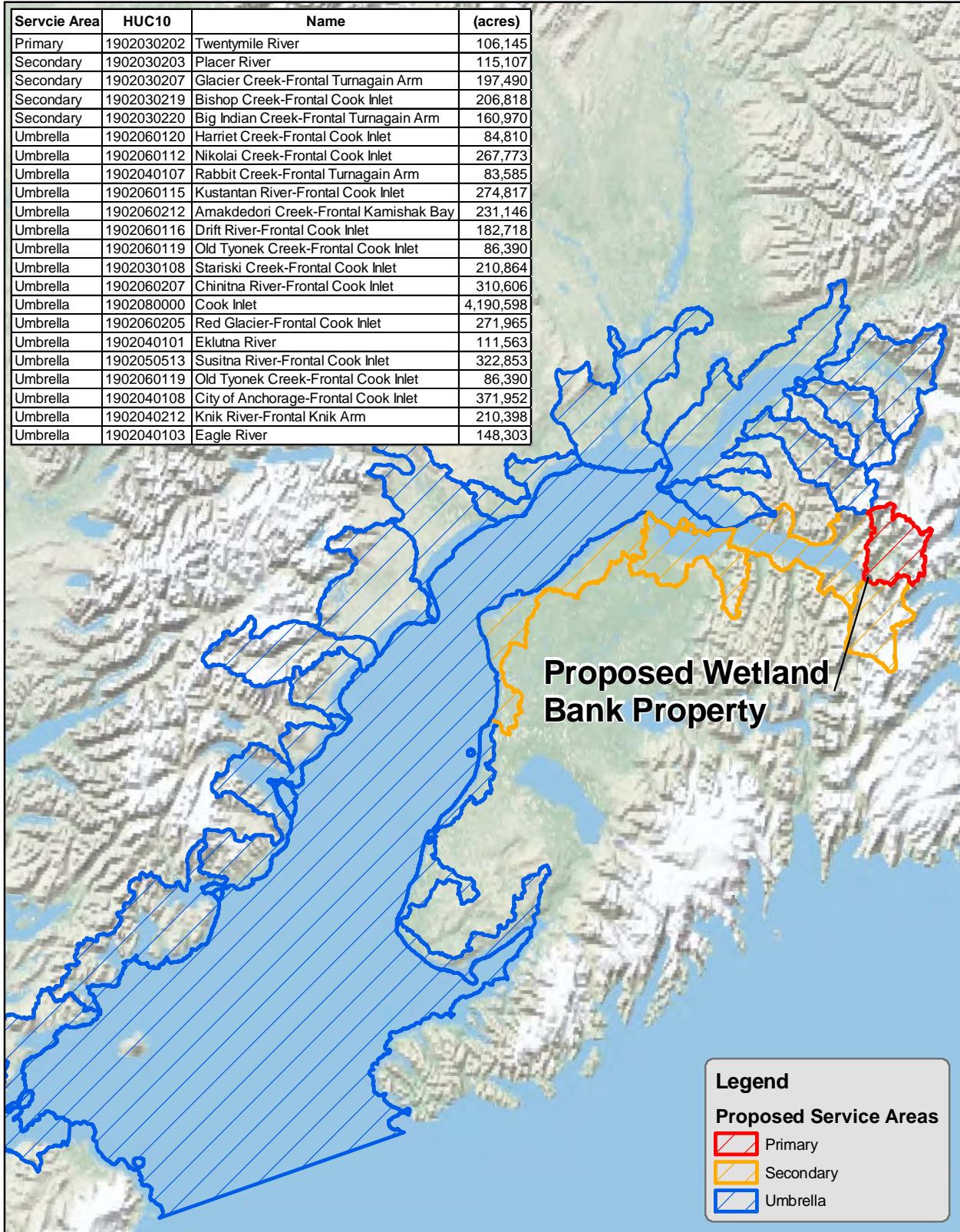
**Redmond Development LLC**  
 270 Old Johns Rd  
 Indian, AK 99540

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**Hemlock Scientific, LLC**  
 199 Comfort Ln  
 Indian, AK 99540



Service Area	HUC10	Name	(acres)
Primary	1902030202	Twentymile River	106,145
Secondary	1902030203	Placer River	115,107
Secondary	1902030207	Glacier Creek-Frontal Turnagain Arm	197,490
Secondary	1902030219	Bishop Creek-Frontal Cook Inlet	206,818
Secondary	1902030220	Big Indian Creek-Frontal Turnagain Arm	160,970
Umbrella	1902060120	Harriet Creek-Frontal Cook Inlet	84,810
Umbrella	1902060112	Nikolai Creek-Frontal Cook Inlet	267,773
Umbrella	1902040107	Rabbit Creek-Frontal Turnagain Arm	83,585
Umbrella	1902060115	Kustantan River-Frontal Cook Inlet	274,817
Umbrella	1902060212	Amakdedori Creek-Frontal Kamishak Bay	231,146
Umbrella	1902060116	Drift River-Frontal Cook Inlet	182,718
Umbrella	1902060119	Old Tyonek Creek-Frontal Cook Inlet	86,390
Umbrella	1902030108	Stariski Creek-Frontal Cook Inlet	210,864
Umbrella	1902060207	Chinitna River-Frontal Cook Inlet	310,606
Umbrella	1902080000	Cook Inlet	4,190,598
Umbrella	1902060205	Red Glacier-Frontal Cook Inlet	271,965
Umbrella	1902040101	Eklutna River	111,563
Umbrella	1902050513	Susitna River-Frontal Cook Inlet	322,853
Umbrella	1902060119	Old Tyonek Creek-Frontal Cook Inlet	86,390
Umbrella	1902040108	City of Anchorage-Frontal Cook Inlet	371,952
Umbrella	1902040212	Knik River-Frontal Knik Arm	210,398
Umbrella	1902040103	Eagle River	148,303



**Proposed Wetland Bank Property**

**Legend**

**Proposed Service Areas**

- Primary
- Secondary
- Umbrella

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Coordinate System: NAD\_1983  
StatePlane\_Alaska Zone 4

January 29, 2014

*The James Toman Mary Redmond Reserve*

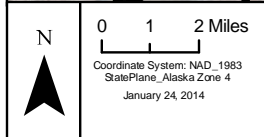
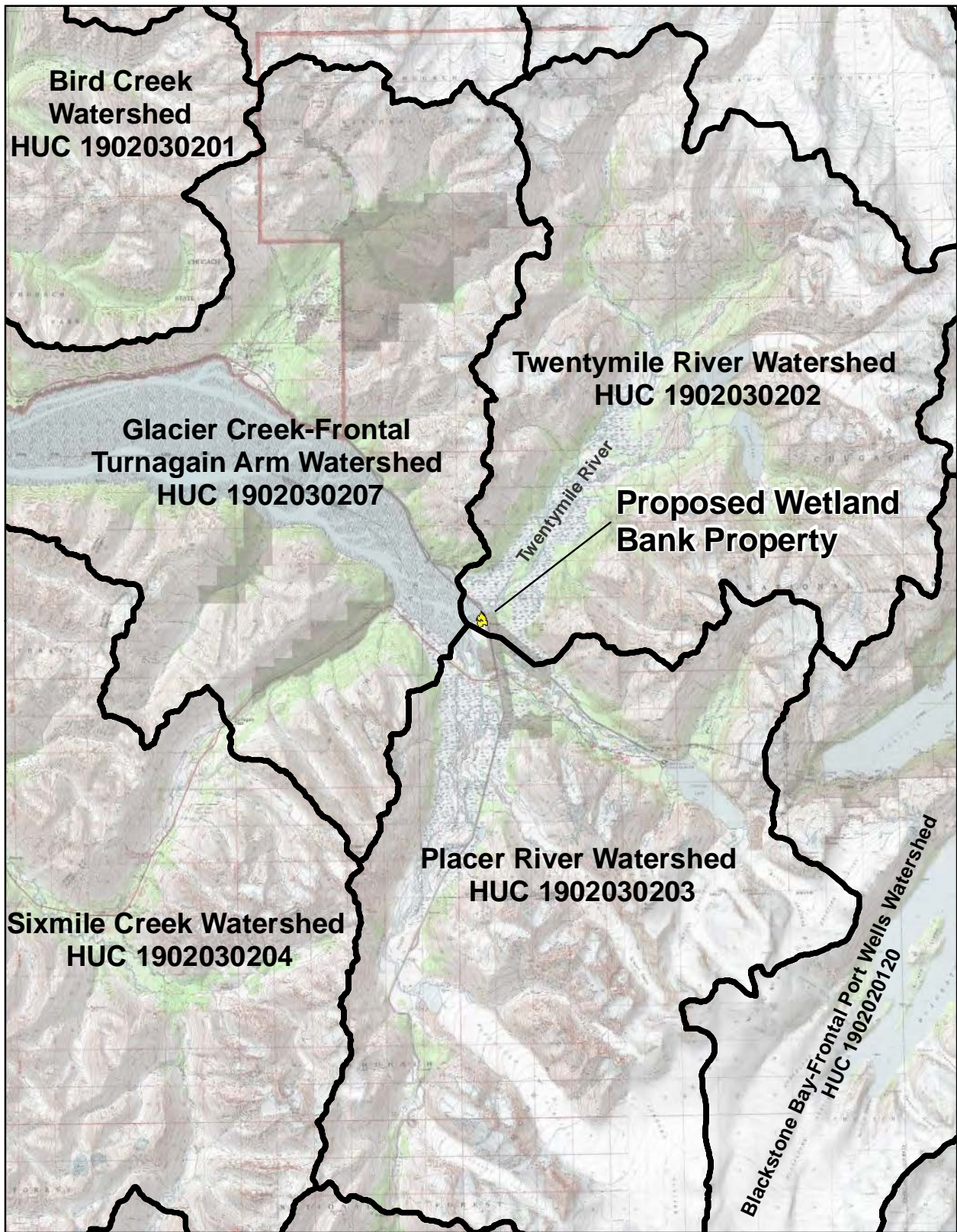
Wetland Bank Prospectus

**Figure 3a. Proposed Service Areas (HUC 10-Digit)**

**Redmond Development LLC**  
270 Old Johns Rd  
Indian, AK 99540

**Hemlock Scientific, LLC**  
199 Comfort Ln  
Indian, AK 99540





*The James Toman Mary Redmond Reserve*  
Wetland Bank Prospectus

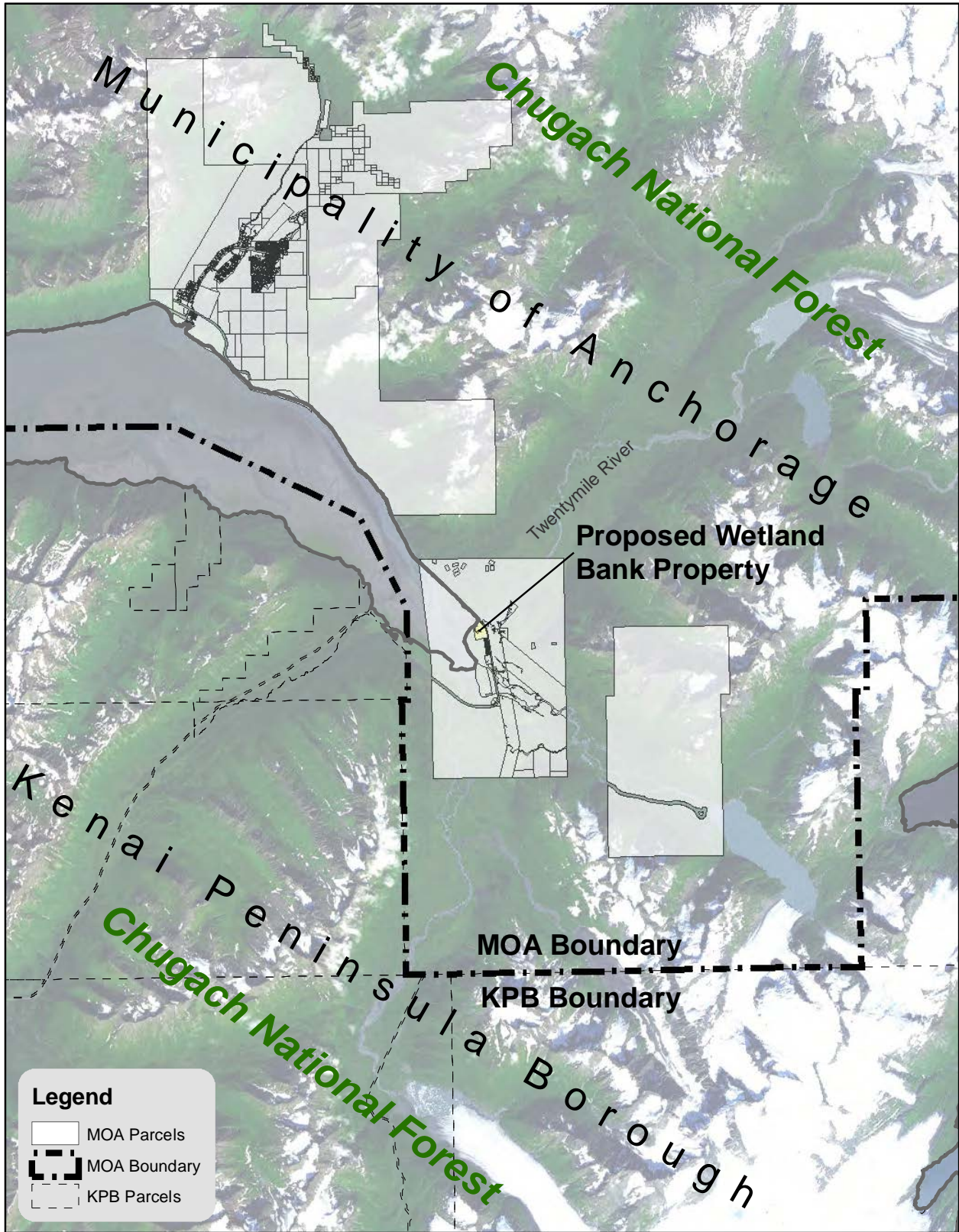
**Figure 3b. Local Watersheds (HUC 10-Digit)**

**Redmond Development LLC**  
270 Old Johns Rd  
Indian, AK 99540

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**Hemlock Scientific, LLC**  
199 Comfort Ln  
Indian, AK 99540





**Legend**

- MOA Parcels
- MOA Boundary
- KPB Parcels



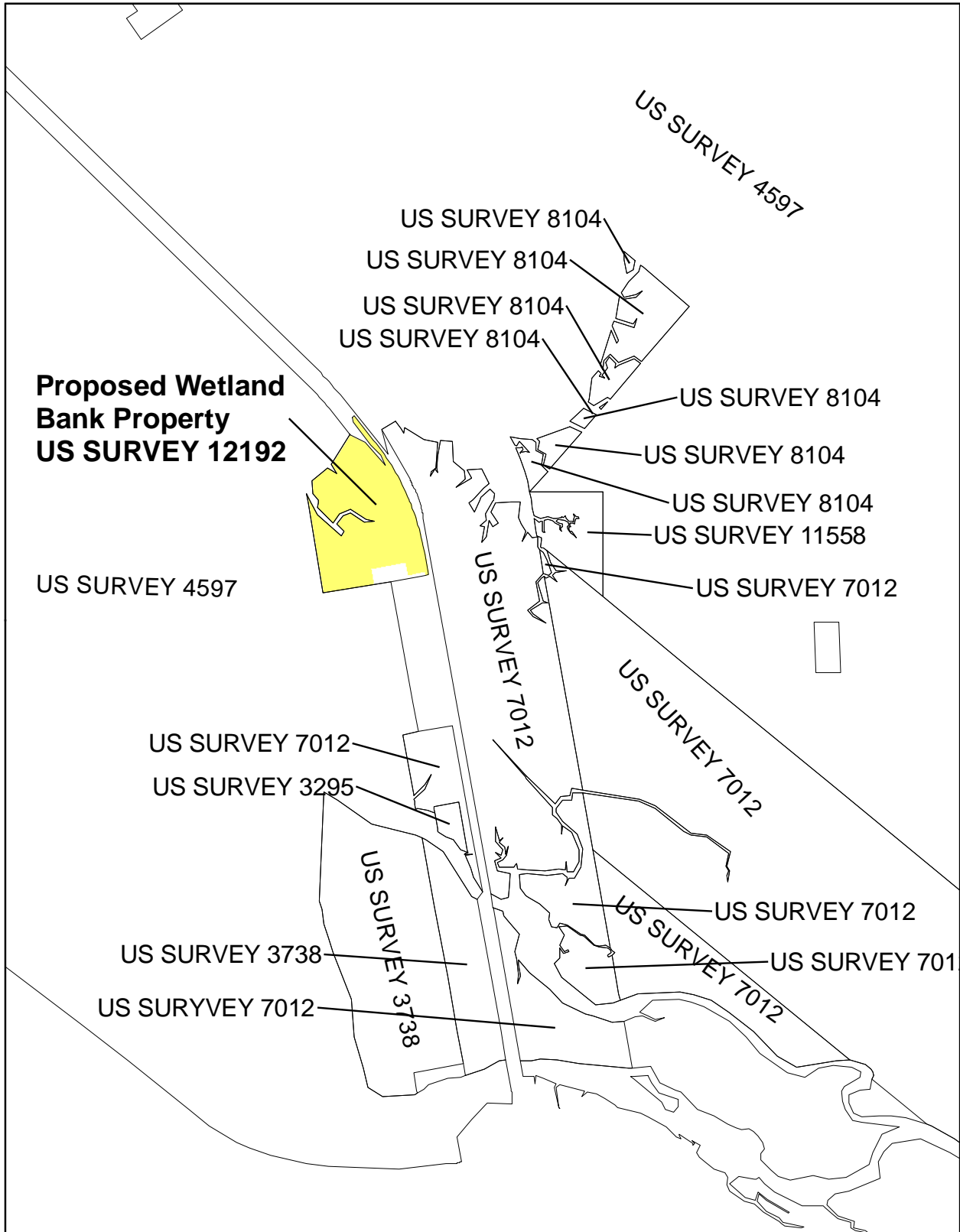
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 January 22, 2014

*The James Toman Mary Redmond Reserve*  
 Wetland Bank Prospectus

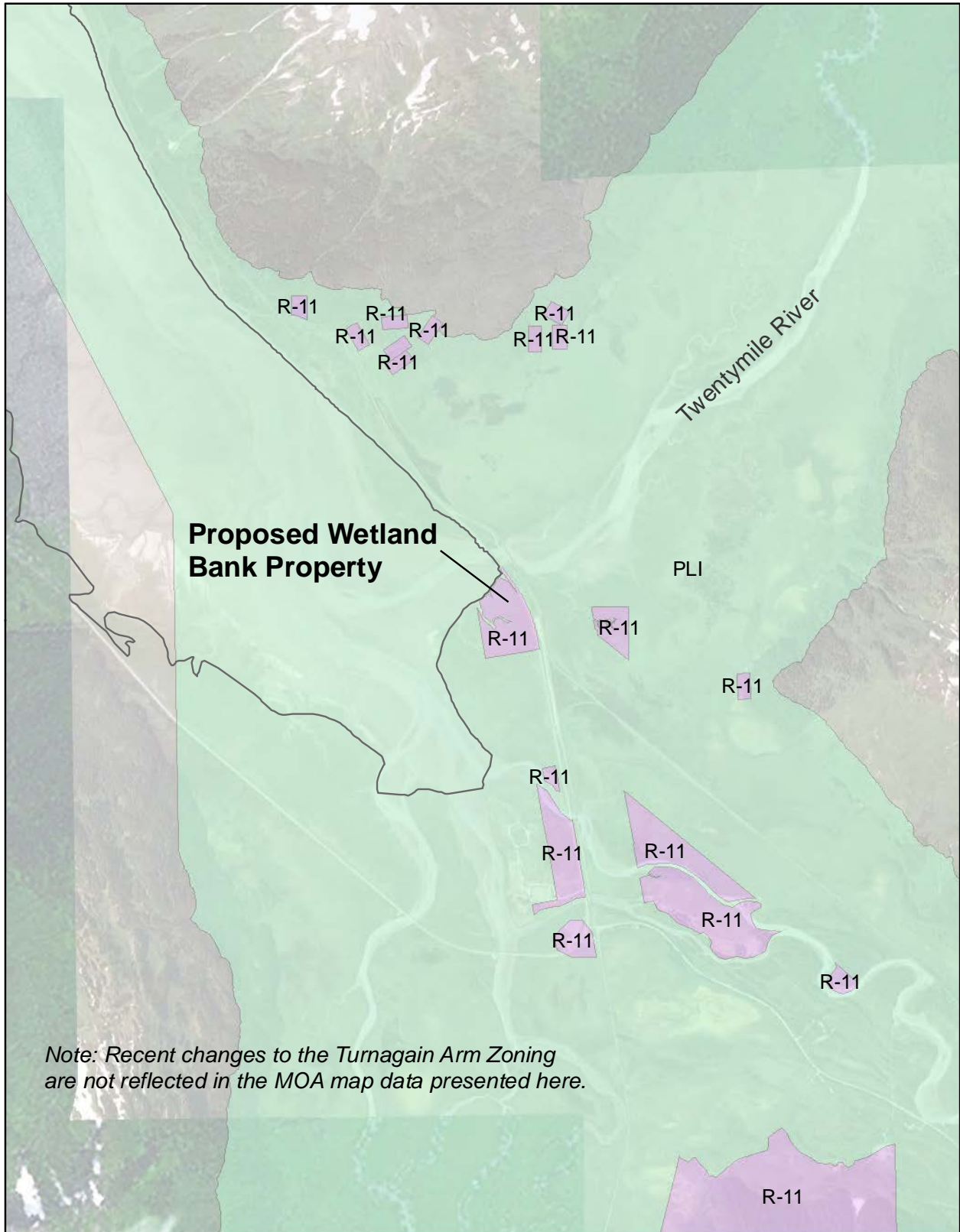
**Figure 4. Political Boundaries**

**Redmond Development LLC**  
 270 Old Johns Rd  
 Indian, AK 99540

**Hemlock Scientific, LLC**  
 199 Comfort Ln  
 Indian, AK 99540



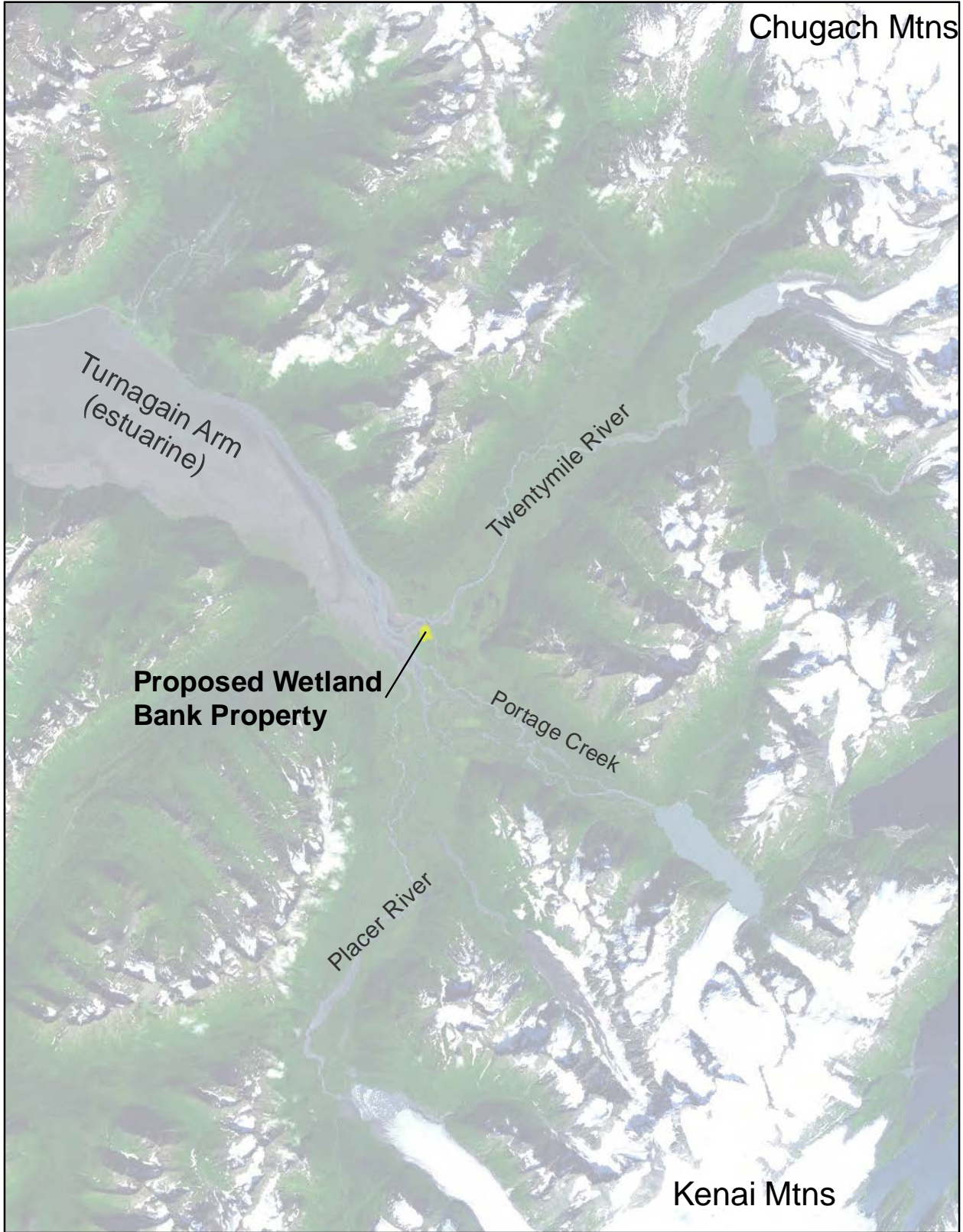
<p>N</p>	<p>0 500 1,000 Feet</p> <p>Coordinate System: NAD_1983 StatePlane_Alaska Zone 4 January 22, 2014</p>	<p><i>The James Toman Mary Redmond Reserve</i></p> <p>Wetland Bank Prospectus</p> <p><b>Figure 5. Land Parcels Adjacent to Bank Property</b></p>	<p><b>Redmond Development LLC</b> 270 Old Johns Rd Indian, AK 99540</p> <hr/> <p><b>Hemlock Scientific, LLC</b> 199 Comfort Ln Indian, AK 99540</p>
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*Note: Recent changes to the Turnagain Arm Zoning are not reflected in the MOA map data presented here.*

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Coordinate System: NAD\_1983  
StatePlane\_Alaska Zone 4  
January 22, 2014

*The James Toman Mary Redmond Reserve*

Wetland Bank Prospectus

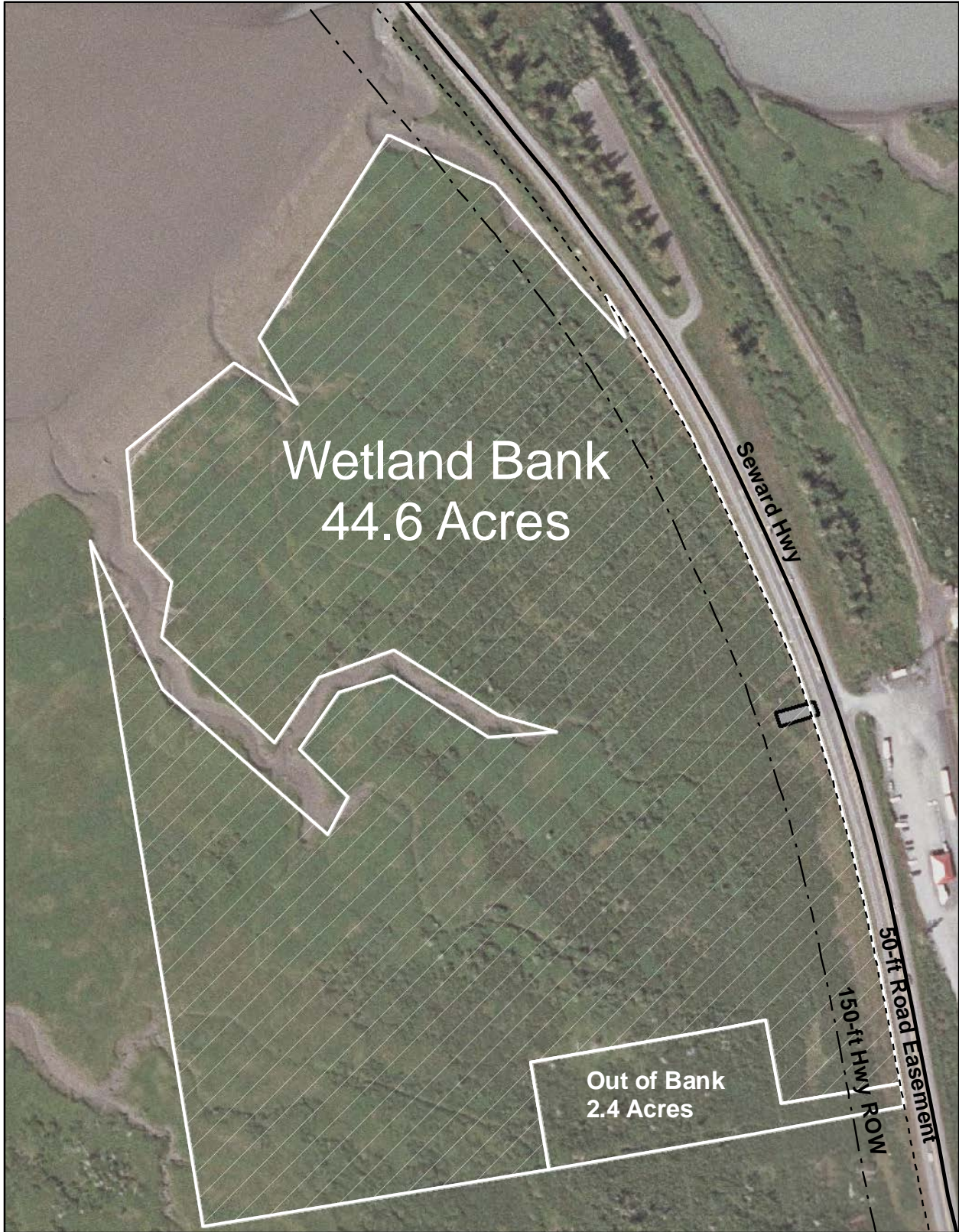
**Figure 7. Hydrologic Setting**

**Redmond Development LLC**  
270 Old Johns Rd  
Indian, AK 99540

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**Hemlock Scientific, LLC**  
199 Comfort Ln  
Indian, AK 99540





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Coordinate System: NAD\_1983  
StatePlane\_Alaska Zone 4  
January 22, 2014

*The James Toman Mary Redmond Reserve*

Wetland Bank Prospectus

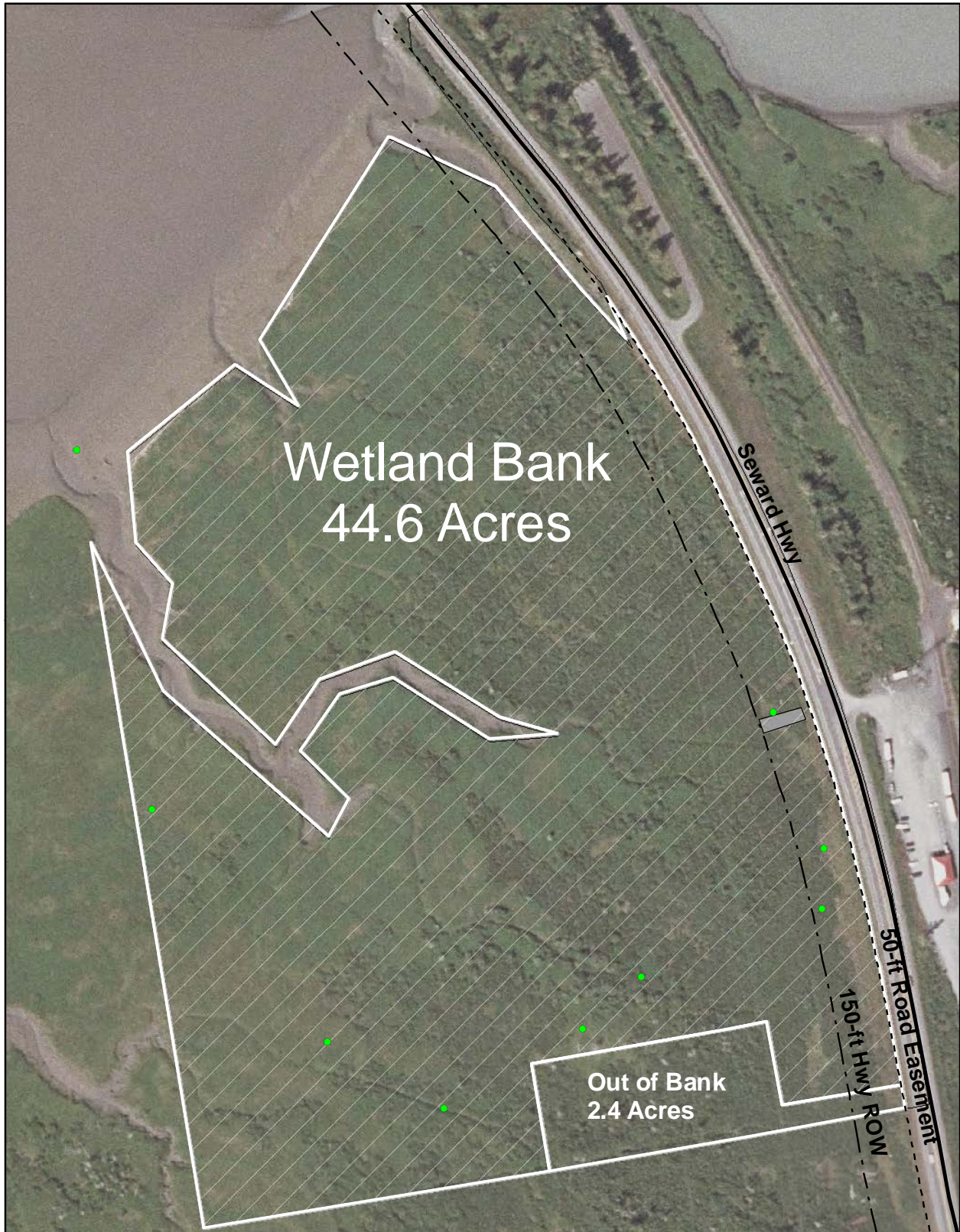
**Figure 8 - Bank Property Configuration**

**Redmond Development LLC**  
270 Old Johns Rd  
Indian, AK 99540

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**Hemlock Scientific, LLC**  
199 Comfort Ln  
Indian, AK 99540





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Coordinate System: NAD\_1983  
StatePlane\_Alaska Zone 4  
January 21, 2014

*The James Toman Mary Redmond Reserve*

Wetland Bank Prospectus

**Figure 8 - Bank Property Configuration**


**Redmond Development LLC**  
270 Old Johns Rd  
Indian, AK 99540

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**Hemlock Scientific, LLC**  
199 Comfort Ln  
Indian, AK 99540

Vegetation	Cowardin	REV	Acres
Graminoids	E2EM1P	REV 1	23.121
Shrub-Scrub	E2SS1/EM1P	REV 1	20.472
Tidal Gut	E2US3N	REV 1	0.868
Trees	E2FO5P	REV 1	0.097
<b>Grand Total</b>			<b>44.558</b>





**Legend**

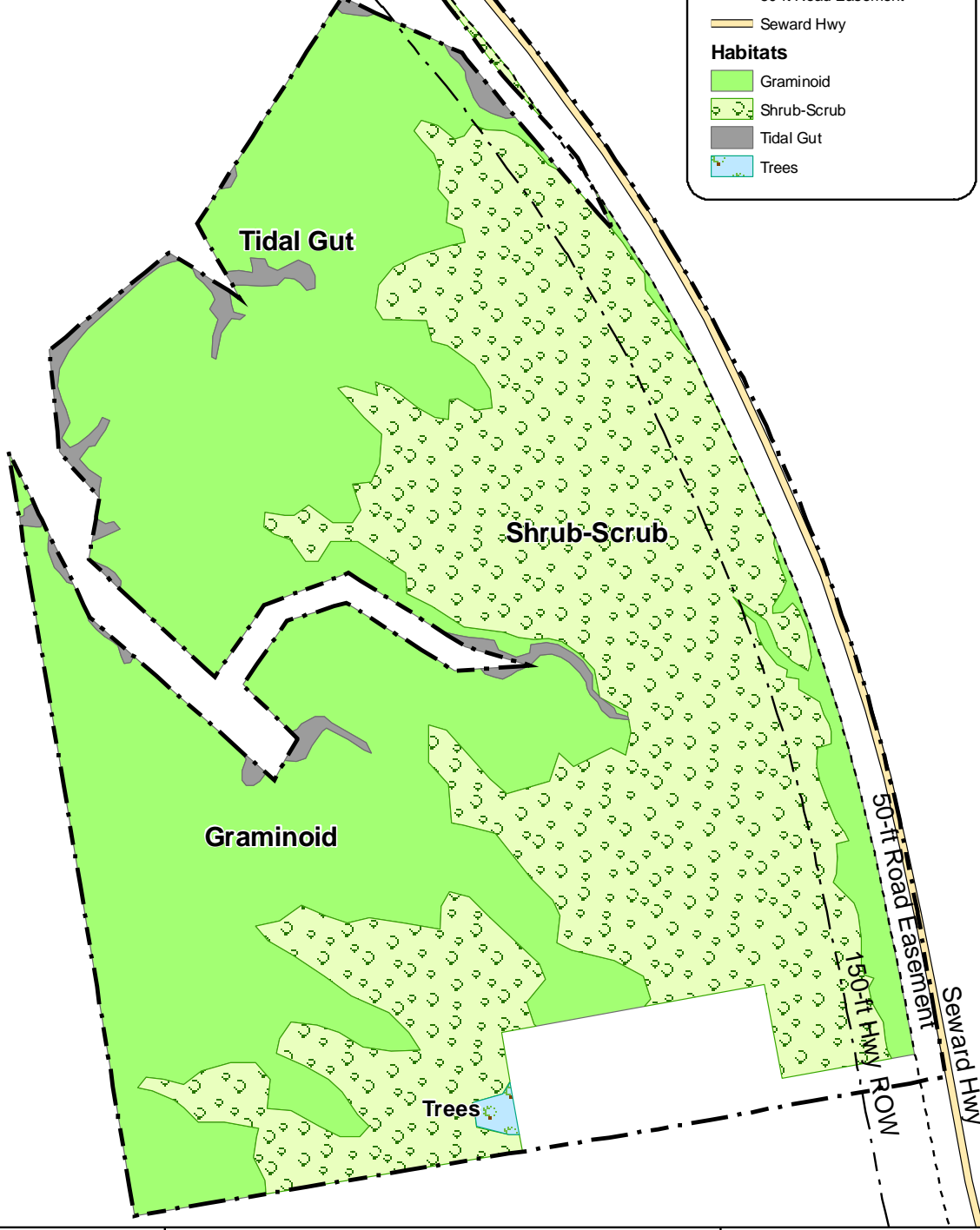
 Redmond Parcel

**Seward Highway Features**

-  150-ft Hwy ROW
-  50-ft Road Easement
-  Seward Hwy

**Habitats**

-  Graminoid
-  Shrub-Scrub
-  Tidal Gut
-  Trees



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0 100 200 Feet

Coordinate System: NAD\_1983  
StatePlane\_Alaska Zone 4  
January 22, 2014

*The James Toman Mary Redmond Reserve*

Wetland Bank Prospectus

**Figure 9 - Bank Habitats**

**Redmond Development LLC**  
270 Old Johns Rd  
Indian, AK 99540

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**Hemlock Scientific, LLC**  
199 Comfort Ln  
Indian, AK 99540

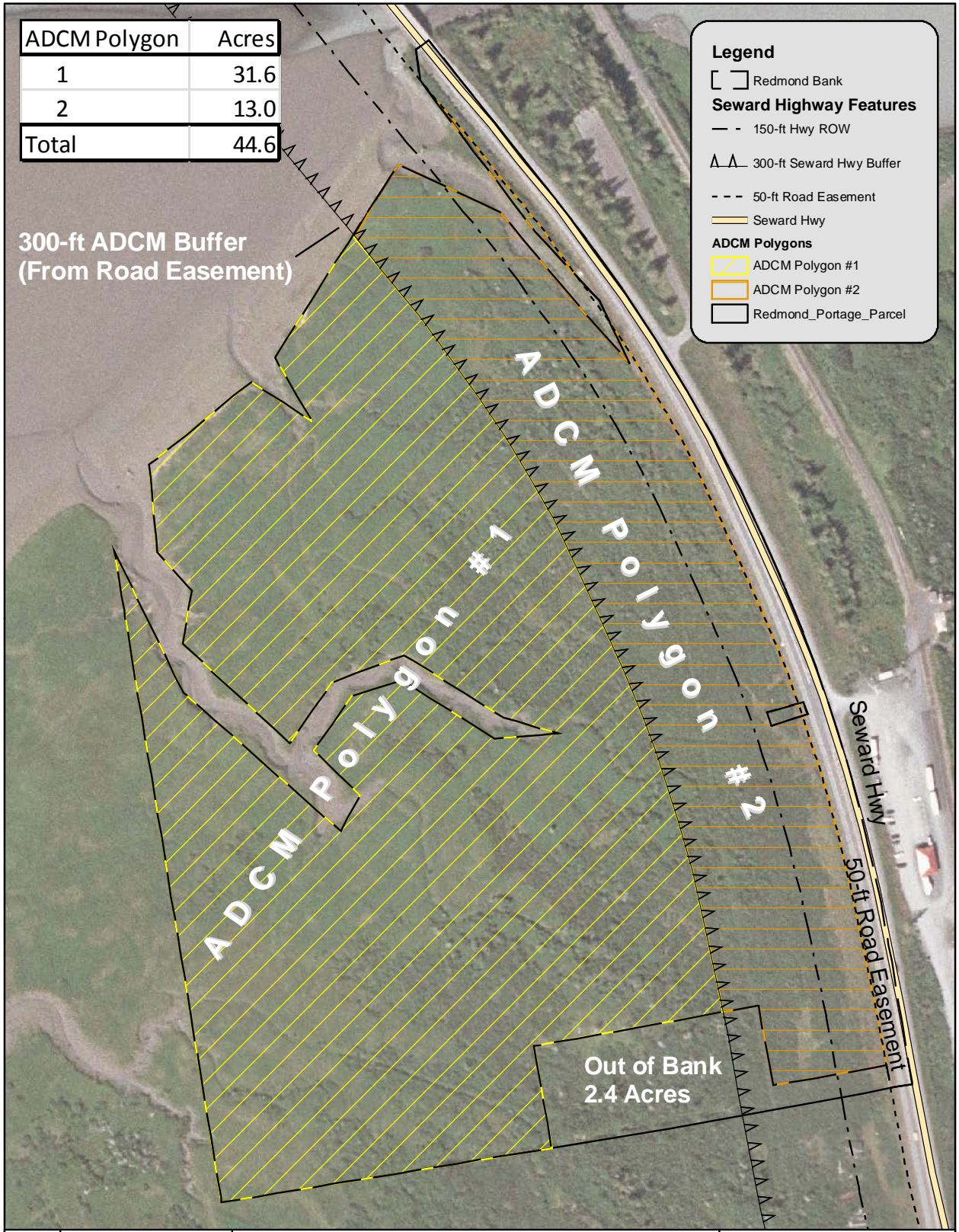


ADCM Polygon	Acres
1	31.6
2	13.0
<b>Total</b>	<b>44.6</b>

300-ft ADCM Buffer  
(From Road Easement)

**Legend**

- Redmond Bank
- Seward Highway Features**
- 150-ft Hwy ROW
- 300-ft Seward Hwy Buffer
- 50-ft Road Easement
- Seward Hwy
- ADCM Polygons**
- ADCM Polygon #1
- ADCM Polygon #2
- Redmond\_Portage\_Parcel



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0 100 200 Feet

Coordinate System: NAD\_1983  
StatePlane\_Alaska Zone 4  
January 22, 2014

*The James Toman Mary Redmond Reserve*  
Wetland Bank Prospectus  
**Figure 10 - ADCM Polygons**

**Redmond Development LLC**  
270 Old Johns Rd  
Indian, AK 99540

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**Hemlock Scientific, LLC**  
199 Comfort Ln  
Indian, AK 99540

**Attachment 1**  
**Representative Site Photos**

**James Toman Mary Redmond Reserve**  
**Wetland Bank Prospectus**





**Recent photo of the Bank property to the northwest from near the southeast corner (20130929).**



**Recent photo of the Bank property to the north from near the southeast corner (20130929).**





**Commercial development across the Seward Highway from the proposed Bank property (20130929).**



**White spruce and poplar trees have re-invaded a small area on the south side of the Bank (20130929).**





**A small area on the south side of the Bank supports a mature white spruce tree despite being inundated several times a year by tidal flooding (20130929).**



**Remnants of a Sitka Spruce tree that was killed by the tidal flooding stands among thriving willows and graminoid meadows (201309329).**





**Sedges and grasses line the edges of tidal guts that extend into the Bank property, providing a diversity of cover and forage conditions for small mammals and birds (201309329).**



**The tidal guts, though mostly outside of the property boundary, provide a direct link to the estuarine waters. After the high tide subsides, water slowly drains out of the wetlands (201309329).**





**Near the north end of the Bank property, the tidal guts become deeper and wider, with steep sides turfed with a mixture of grasses and herbs (201309329).**



**The intertidal area of the north boundary of the Bank property, view toward the east and Twentymile River bridge of Seward Highway (201309329).**





**Intertidal zones defined by the topography, with the foreground of a sand-dominated substrate with grass cover. The rise in the background is accentuated by a dense colony of sedges (201309329).**



**Lupines are found in great quantity in the graminoid communities. (201309329).**





**Plant species commonly found on the intertidal mud deposits in the Bank include seaside plantain and (201309329).**



**Drift deposits of logs and other coarse woody debris floated into the Bank property enhance the ecological linkages between the marine and freshwater environments (201309329).**





**Tidal floodwaters remain in the upper channels of the tidal guts that are choked with vegetation (201309329).**



**Sweet gale, a common wetland plant in the region, is found throughout most of the property, except for the nearshore area dominated by sandy substrate and the mud in tidal guts (201309329).**





**The thicket of willows on the east and south side of the proposed Bank provide dense cover for song birds and deposit a thick layer of organic matter each year (201309329).**

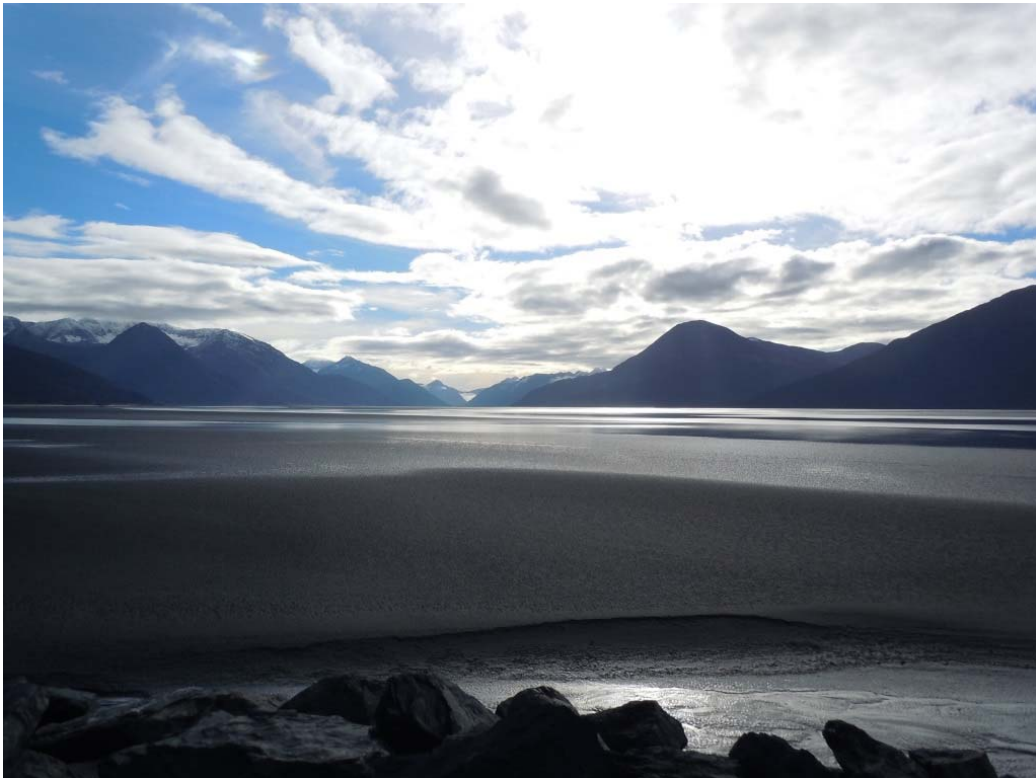


**Dense stands of lyme grass and sedges occur on the terraces above the tidal guts (201309329).**





**Graminoid community of lyme grass overgrown with lupines (201309329).**



**Turnagain Arm, view toward Portage from Seward Highway near Girdwood. This area would all be included within the Bank Service Area (201309329).**

**Attachment 2**  
**Anchorage Debit Credit Method**  
**Worksheets**

**James Toman Mary Redmond Reserve**  
**Wetland Bank Prospectus**



Information for Projects Producing Debits							
Project Name:	N/A	POA #:	N/A	Name of Waterway/ Aquatic Area:	N/A	Date:	N/A
Applicant:	N/A	Watershed:	N/A			Prepared by:	N/A

Information for Projects Producing Credits							
Project Name:	Redmond Wetland Bank	POA #:	N/A	Name of Waterway/ Aquatic Area:	Turnagain Arm, Cook Inlet	Date:	9/30/2013
Project Proponent:	Bill Redmond	Watershed:	Turnagain Arm, Cook Inlet			Prepared by:	Pat Athey
Project to which Credits Apply							
Project Name:	N/A	Applicant/Permittee:		N/A		POA #:	N/A

Spreadsheet 1: List of Polygons

Debit-Producing Project					
Project Name:	N/A	POA #:	N/A	Date:	N/A
Applicant:	N/A	Watershed:	N/A	Prepared by:	N/A
Sheet/Figure # Depicting Polygon #'s (list by sheet, if more than one):					

Credit-Producing Project					
Project Name:	Redmond Wetland Bank	POA #:	N/A	Date:	9/30/2013
Proponent:	Bill Redmond	Watershed:	Turnagain Arm, Cook Inlet	Prepared by:	Pat Athey
Sheet/Figure # Depicting Polygon #'s (list by sheet, if more than one):					

S.	T.	U.	V.	W.	X.	Y.	Z.
Landform	REV	Polygon ID	Polygon Description	Dominant Indirect Impacts Factor	Size Factor	Aggregate Indirect Impacts Factor (Col W <sup>col X</sup> )	Polygon Size
Waterways	1						
	2						
	3						
	4						
Wetlands	1						
	2						
	3						
	4						
S.	T.	U.	V.	W.	X.	Y.	Z.
Landform	REV	Polygon ID	Polygon Description	Dominant Indirect Impacts Factor	Size Factor	Aggregate Indirect Impacts Factor (Col W <sup>col X</sup> )	Polygon Size
Waterbodies	1						
	2						
	3						
	4						
Intertidal Zone	1	1	vegetated	1.00	0	1.00	31.600
		2	vegetated	0.90	0	1.00	13.000
Subtidal Zone	2						
		3					

Spreadsheet 5: Credits for Preservation

Project Name:	Redmond Wetland Bank	POA #:	N/A	Watershed:	Turnagain Arm, Cook Inlet	Date:	9/30/2013
Project Proponent:	Bill Redmond	Name of Waterway/Aquatic Area:	Turnagain Arm, Cook Inlet		Prepared by:	Pat Athey	
Project to which Credits Apply							
Project Name:	N/A	Applicant/Permittee:	N/A		POA #:	N/A	

P.	Q.	R.	S.	T.	U.	V.	W.	X.	Y.	Z.		
Landform	REV	Polygon Description	Regulatory Constraints Factor	Accessibility Factor	Threat (Col RxCol S)	Credit Ratio	Aggregate Post-project Indirect Impacts Factor	ID# (if nec)	Size	Credits [(Col Y/Col U) x Col W]	Note # (if nec)	
Intertidal Zone	1	vegetated	3	1	3	1.5	1.00	1	31.600	21.067		
		vegetated	3	1	3	1.5	0.90	2	13.000	7.800		
	REV 1 Sub-totals									44.600	28.867	
	2					0						
	REV 2 Sub-totals									0.000	0.000	
Subtidal Zone	2					0						
	REV 2 Sub-totals									0.000	0.000	
	3					0						
REV 3 Sub-totals									0.000	0.000		
Waterways	1					0						
	REV 1 Sub-totals									0.000	0.000	
	2					0						
	REV 2 Sub-totals									0.000	0.000	
	3					0						
REV 3 Sub-totals									0.000	0.000		
4					0							
REV 4 Sub-totals									0.000	0.000		
Total Preservation Credits										28.87		

0.00

Notes:

**Spreadsheet 6: Project Debit-Credit Summary**

Debit-Producing Project							
Name of Project:	N/A				Watershed:	N/A	
Applicant:	N/A				POA #:	N/A	
Prepared by:	N/A				Date:	N/A	
Size of Direct Impacts:	Waterways	Subtidal Zone	Intertidal Zone	Waterbodies	Wetlands	Uplands	Total Non-waterways
							0.00 ac
Credit-Producing Project							
Name of Project:	Redmond Wetland Bank				Watershed:	Turnagain Arm, Cook Inlet	
Proponent:	Bill Redmond				POA #:	N/A	
Prepared by:	Pat Athey				Date:	9/30/2013	
Project to which Credits Apply:							
Project Name:	N/A				POA #:	N/A	
Applicant/Permittee:	N/A						
Size of...	Waterways	Subtidal Zone	Intertidal Zone	Waterbodies	Wetlands	Uplands	Total Non-waterways
Restored Area:						N/A	0.00 ac
Enhanced Area:							0.00 ac
Established Area:						N/A	0.00 ac
Preserved Area:			44.60 ac				44.60 ac
Credits Area:	0 sf	0.00 ac	44.60 ac	0.00 ac	0.00 ac	0.00 ac	44.60 ac

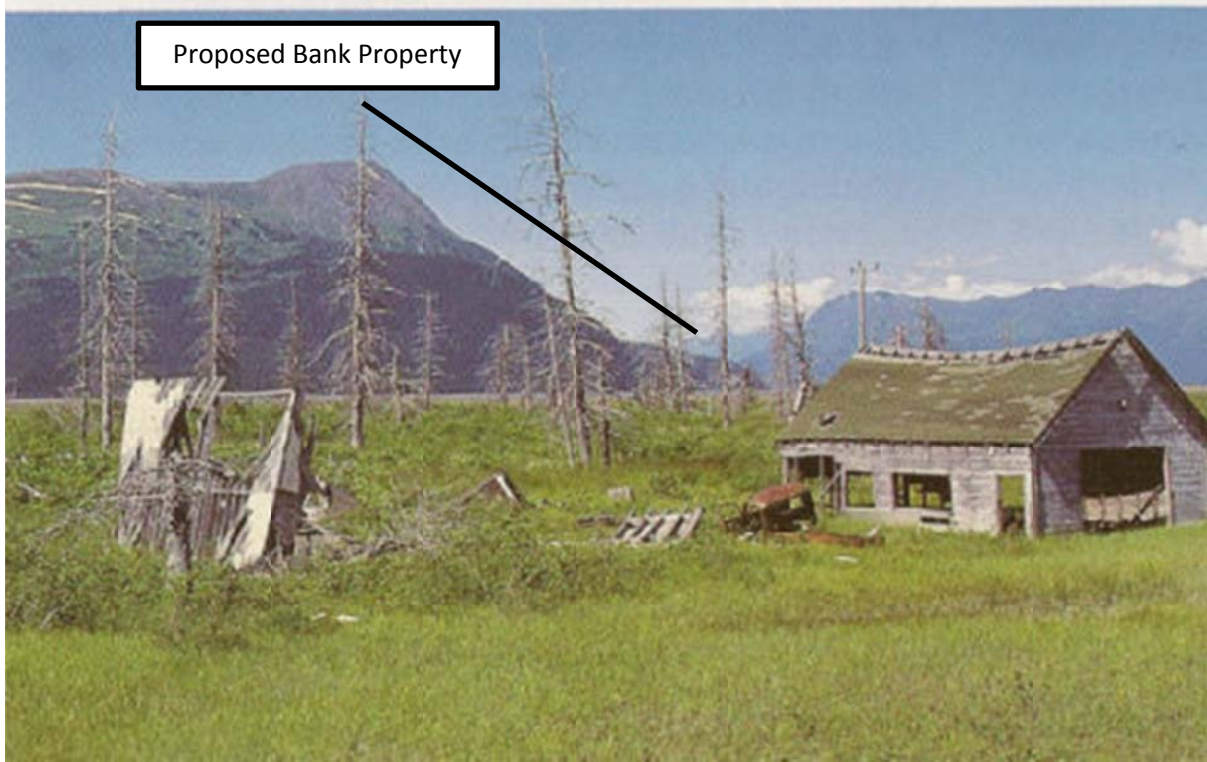
Project Debits Summary							
S.	Number of Debits per Landform						Z. Total Debits (T+U+V+W+X+Y)
	T.	U.	V.	W.	X.	Y.	
REV	Subtidal Zone	Intertidal Zone	Waterways	Waterbodies	Wetlands	Uplands	
1	N/A						0.00
2							0.00
3		N/A					0.00
4	N/A	N/A					0.00
<b>Totals</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

Project Credits Summary								
R.	S.	Number of Credits per Landform						Z. Total Credits (T+U+V+W+X+Y)
		T.	U.	V.	W.	X.	Y.	
Type of Project	REV	Subtidal Zone	Intertidal Zone	Waterways	Waterbodies	Wetlands	Uplands	
Restoration	1	N/A					N/A	0.00
	2						N/A	0.00
	3		N/A				N/A	0.00
Enhancement	1	N/A						0.00
	2							0.00
	3		N/A					0.00
	4	N/A	N/A			N/A	N/A	0.00
Establishment	1	N/A					N/A	0.00
	2						N/A	0.00
	3		N/A				N/A	0.00
Preservation	1	N/A	28.87					28.87
	2							0.00
	3		N/A					0.00
	4	N/A	N/A					0.00
<b>Totals</b>		<b>0.00</b>	<b>28.87</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>28.87</b>

## **Attachment 3**

### **Photos of Portage Area Soon After 1964 Earthquake**

#### **James Toman Mary Redmond Reserve Wetland Bank Prospectus**



Photos of the property adjacent to the proposed Bank property at Portage, Alaska soon after the subsidence-caused tidal flooding (upper) and the current conditions (lower). From USGS.





Tidal flooding at Portage soon after the 1964 earthquake and earth subsidence. From USGS.



Seward Highway bridge at Twentymile River destroyed by the 1964 earthquake. This on the north side of the proposed Bank property. From USGS.



Anchorage Museum of History & Art. Library & Archives.

Cracked earth at the Portage Inn along the Seward Highway. From USGS.



Cracked earth along the Seward Highway. From USGS.

**Attachment 4**

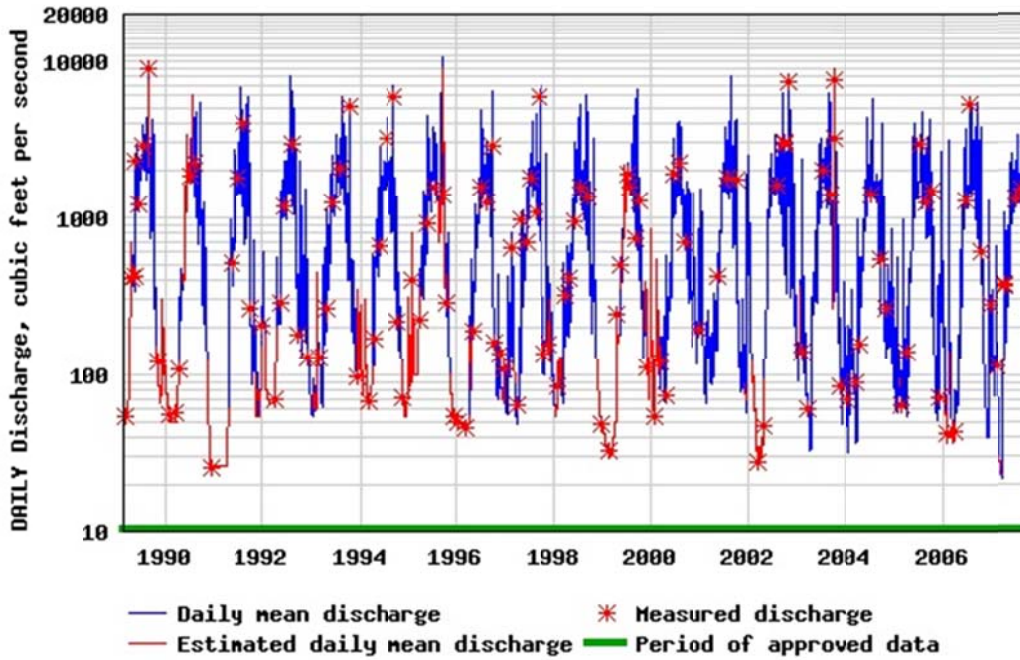
**Discharge Data for the Twentymile River and Portage Creek  
US Geological Survey**

**James Toman Mary Redmond Reserve  
Wetland Bank Prospectus**

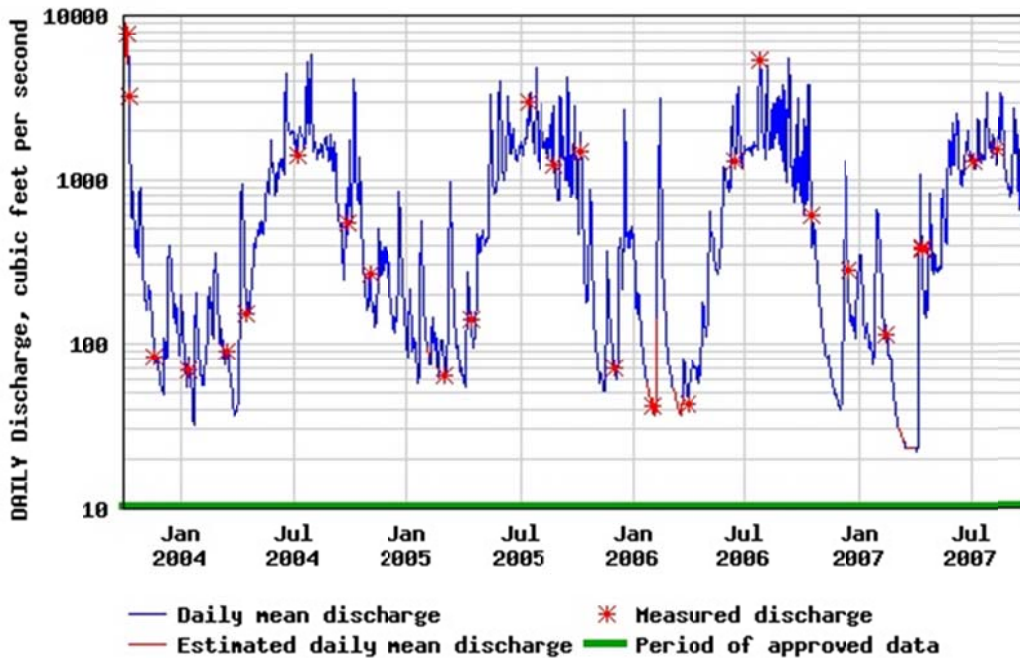




### USGS 15272280 PORTAGE C AT PORTAGE LK OUTLET NR WHITTIER AK



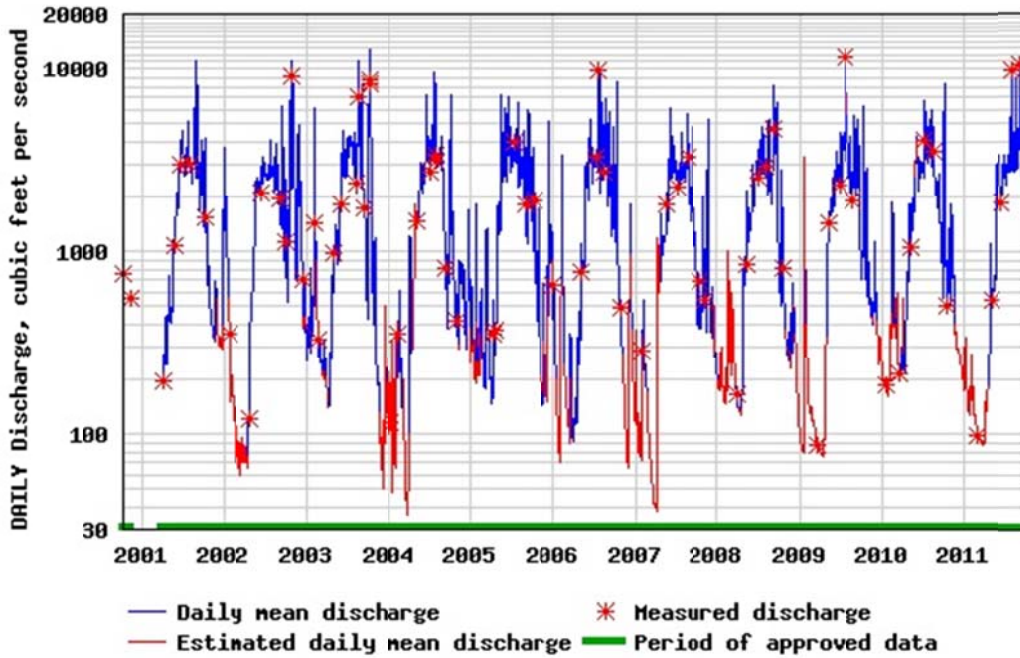
### USGS 15272280 PORTAGE C AT PORTAGE LK OUTLET NR WHITTIER AK



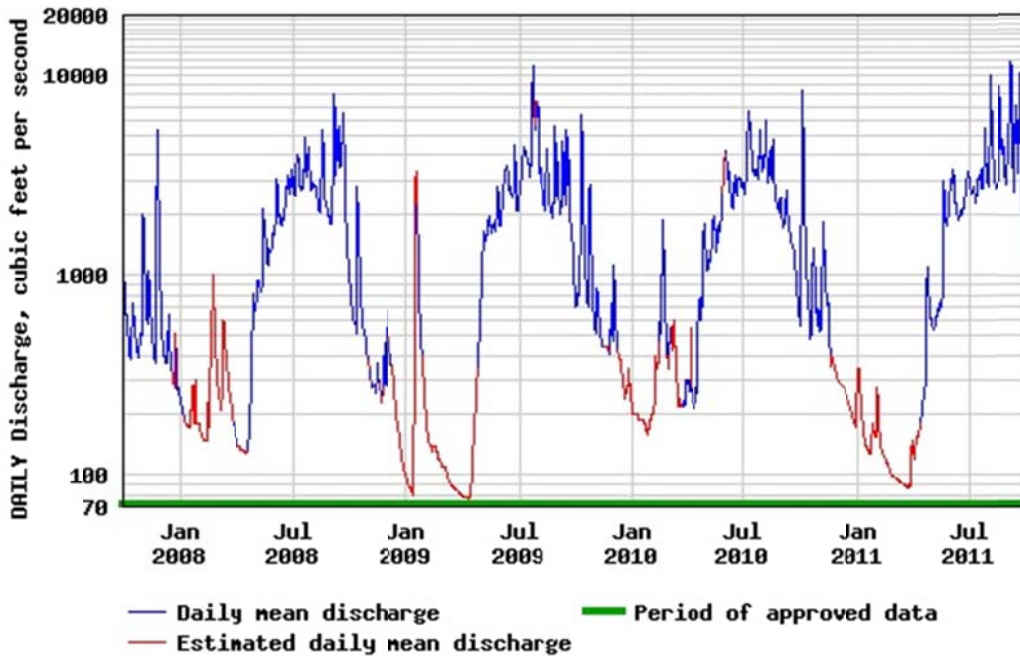




### USGS 15272380 TWENTYMILE R BL GLACIER R NR PORTAGE AK



### USGS 15272380 TWENTYMILE R BL GLACIER R NR PORTAGE AK



**Attachment 5**  
**Wetland Delineation Report (2011)**

**James Toman Mary Redmond Reserve**  
**Wetland Bank Prospectus**

# Potential Jurisdictional Wetlands

US Survey 12192 / MOA#09023102000  
Portage Property  
Municipality of Anchorage, Alaska

Prepared for

**Mr. Bill Redmond**

270 Old Johns Road  
Indian, Alaska 99540

Prepared by

**Restoration Science & Engineering**  
911 West 8<sup>th</sup> Avenue, Suite 100  
Anchorage, Alaska 99501



April 21, 2011

## **RESTORATION**

### **SCIENCE & ENGINEERING**

911 W. 8<sup>TH</sup> AVENUE, SUITE 100  
ANCHORAGE, AK 99501  
VOICE: 907-278-1023  
FAX: 907-277-5718  
RESTORSCI.COM

Bill Redmond  
270 Old Johns Road  
Indian, Alaska 99540

Subject: Wetland Delineation  
Portage Property  
US Survey 12192; MOA#09023102000; S9N3E Sec 30; USGS Seward D-6

Restoration Science and Engineering (RSE) of Anchorage, Alaska performed a wetland delineation of the proposed Potter Highlands Subdivision property located in Anchorage, Alaska. Maps of the Study Area location, the delineated wetlands, streams, and other features of the investigation are provided in Maps 1 through 4 (Attachment 1).

### **Methods**

Potential jurisdictional wetlands and other Waters of the U.S. were identified and delineated in the field by Pat Athey of RSE using current Corps of Engineers Alaska District methodology as described in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0)*<sup>1</sup>. Wetlands were identified on the property based on the presence of hydrophytic vegetation, hydric soil, and wetland hydrology at specific locations (DPs) and correlated with conditions in surrounding areas. The Study Area was inspected over several days beginning in early September and continued through mid-October 2010, which was noted as within the growing season at the location as evidenced by deciduous trees leafed out and herbaceous vegetation present during the inspections.

Existing data that were reviewed as part of this work included:

1. USGS Topographic Series Maps
2. National Wetlands Inventory (NWI) Maps

The National Wetland Inventory maps indicate wetland polygons within the property, which was confirmed during the initial inspection of the property. Detailed field inspections were conducted throughout the property to document the wetlands and other aquatic sites.

The methodology used for delineating wetlands is known as the triple parameter approach. The premise of this approach is that the three essential characteristics of wetlands (hydrophytic vegetation, hydric soils, and wetland hydrology) must all be present to have a positive wetland determination. These methods were used to achieve accurate characterization of the wetlands at specific observation points and to correlate the findings with existing data (aerial photography, soils mapping, and other maps where these were available). The determination points were numbered sequentially (e.g., "DP-1") for tracking on wetland determination data forms published in the Alaska Regional Supplement.

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<sup>1</sup> U.S. Army Corps of Engineers (USACE). 2007. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Alaska Region (Version 2.0). Department of the Army Corps of Engineers. U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi, pp. 117.

Soils were evaluated for hydric indicators by digging test pits and comparing the soil to the listed indicators provided in the Regional Guidance document. Correlations of observations with the soil type descriptions in the Anchorage Soil Survey<sup>2</sup> which does not include mapping of the property, were used to identify mapped soil types based on correlation with similar tidally-influenced soils in the Anchorage area. Water must be present in order for wetlands to exist; however, it does not need to be present throughout the entire year. Wetland hydrology is considered to be present when there is permanent or periodic inundation or soil saturation for a significant period of time during the growing season, which is specified as two weeks or more by Alaska Regional guidance. Indicators of wetland hydrology include areas of ponding or soil saturation, evidence of previous water inundation such as sediment deposits, watermarks on soils or leaves, and drainage patterns among others. Test pits were inspected to evaluate the presence of indicators below ground surface, including saturation and high water tables.

### Findings

The property is located along the coastline of Turnagain Arm, a branch of Upper Cook Inlet of the Pacific Ocean in south-central Alaska (Map 1). The location is at the mouth of Twentymile River, which drains a mountainous region to the east (Map 2).

The topography of the property and surrounding coastline is flat and level, with the vegetation dominated by shrubs and graminoid meadows. There are small stands of dead conifer trees to the west and south of the property, which are remnants of the uplands that dominated the area until coastal subsidence and flooding that resulted from the 1964 earthquake<sup>3,4,5</sup>.

Potential jurisdictional wetlands and waters were found throughout the property as determined by a detailed evaluation of vegetation, soils, and hydrology at established determination points and supported with observations throughout the area. The location of determination points (DPs) where detailed data were collected to evaluate the presence of wetland conditions is presented in Map 2. The results of the wetland delineation are also summarized in Map 3, showing the wetland classifications<sup>6</sup> that were mapped onto an aerial image base layer. Completed data forms for determination points are provided in Attachment 2. Representative pictures of the determination points and other features on the property are provided in Attachment 3.

Vegetation classifications were assigned according to Viereck et al.<sup>7</sup> for the area investigated. These are summarized in Table 1 along with the Cowardin wetland types and the Anchorage Debit-Credit Method (ADCM)<sup>8</sup> categories and Relative Ecological Value (REV) assignments.

---

<sup>2</sup> Natural Resource Conservation Service (NRCS). 2001. Soil Survey of Anchorage Area, Alaska.

<sup>3</sup> Combellick, Rodney A. 1992. The penultimate great earthquake in south-central Alaska: evidence from a buried forest near Girdwood. Alaska Division of Geological and Geophysical Surveys.

<sup>4</sup> Larsen, Christopher F., Keith A. Echelmeyer, Jeffrey T. Freymueller, and Roman J. Motyka. 2003. Tide gauge records of uplift along the northern Pacific-North American plate boundary, 1937 to 2001. *Journal of Geophysical Research*, Vol. 108, NO. B4, 2216.

<sup>5</sup> Combellick, R.A. 1991. Paleoseismicity of the cook inlet region, Alaska: evidence from peat stratigraphy in Turnagain and Knik Arms.

<sup>6</sup> Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, Office of Biological Services, Washington, D.C., pp. 103.

<sup>7</sup> Viereck, L.A.; Dyrness, C.T.; Batten, A.R.; Wenzlick, K.J. 1992. The Alaska vegetation classification. Gen. Tech. Rep. PNW-GTR-286. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 278 p.

<sup>8</sup> The Anchorage Debit-Credit Method, A Procedure For Determining Development Debits And Compensatory Mitigation Credits for Aquatic Areas in Anchorage, Alaska. Developed by Representatives of the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and Municipality of Anchorage. Revised March 29, 2010.



**Table 1**  
**Summary of Wetland Features**

<b>Wetland Types</b>	<b>Vegetation Type</b>	<b>ADCM Category</b>	<b>ADCM REV</b>	<b>Acres</b>	<b>Percent</b>
E2EM1P	Mesic graminoid herbaceous	Intertidal/Vegetated	1	25.3	48%
E2SS1P	Closed tall shrub	Intertidal/Vegetated	1	22.6	43%
E2US3N <sup>1</sup>	Tidal gut	Intertidal/Unvegetated/Beluga Whale Concentration Area	1	2.8	5%
U	Upland Not Vegetated	Uplands/Developed	4	2.0	4%
<b>Total</b>				<b>52.7</b>	<b>100%</b>

<sup>1</sup>The MOA parcel mapping indicate the tidal guts are outside of the parcel boundaries and the total acreage indicated here includes these tidal guts.

The proportion of different wetland types in the property are summarized in Table, indicating about half of the wetlands are mesic graminoid herbaceous and half are closed tall shrub vegetation communities. All of the wetlands at the property would be considered REV 1 based on the habitat characteristics.

In summary, wetlands were identified and delineated on the property and are illustrated in Map 3. Please feel free to call or email me if you have questions or comments.

Sincerely,

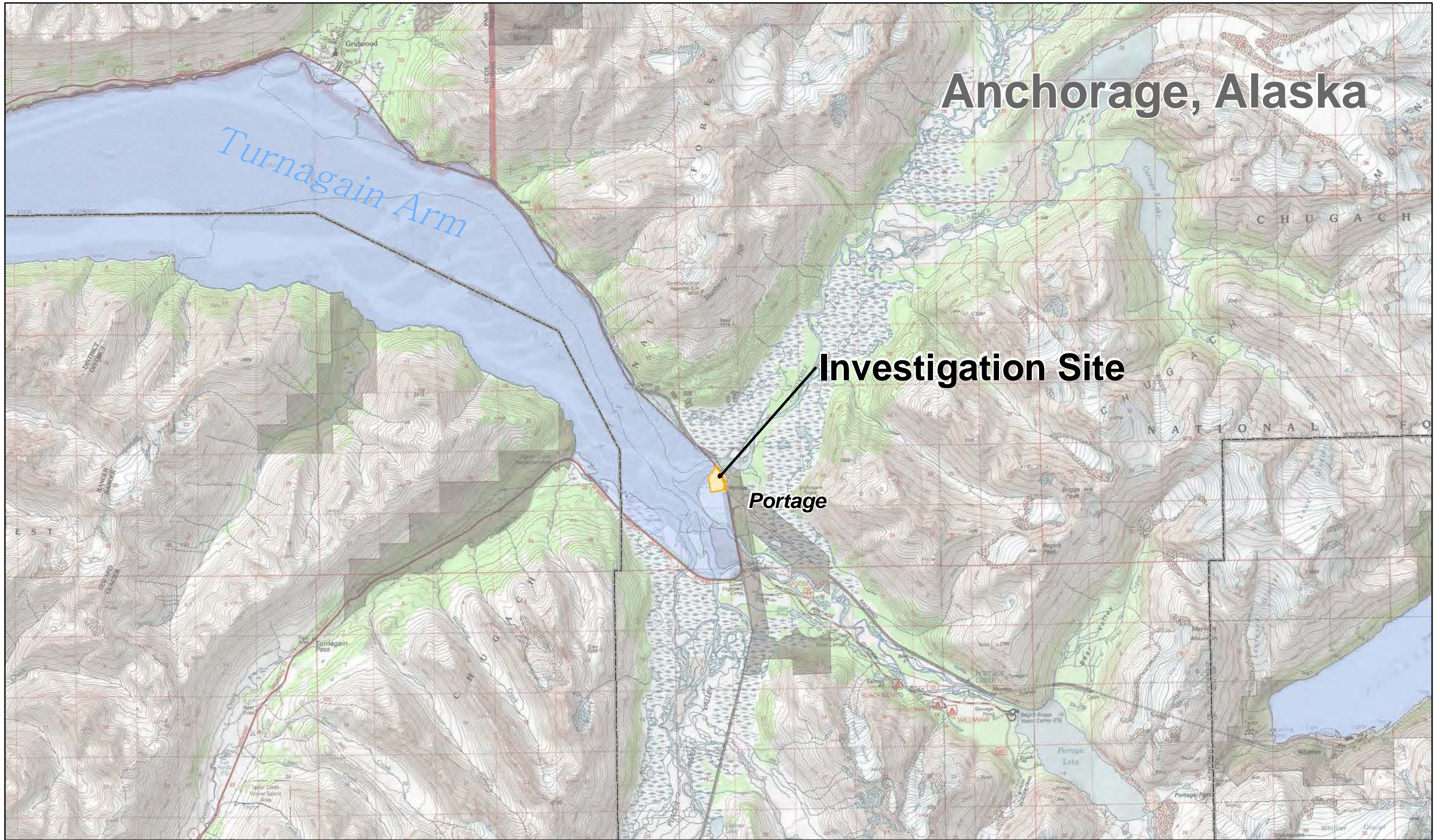
Restoration Science and Engineering  
Pat Athey

Attachments: 1. Maps  
2. Data Forms  
3. Pictures

# **Attachment 1 Maps**

Wetland Delineation  
Portage Property - US Survey 12192  
Anchorage, Alaska

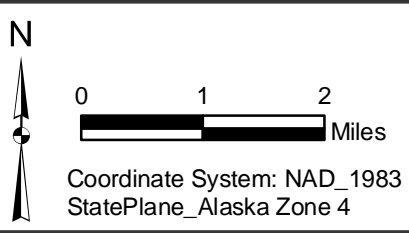




Anchorage, Alaska

Investigation Site

Portage

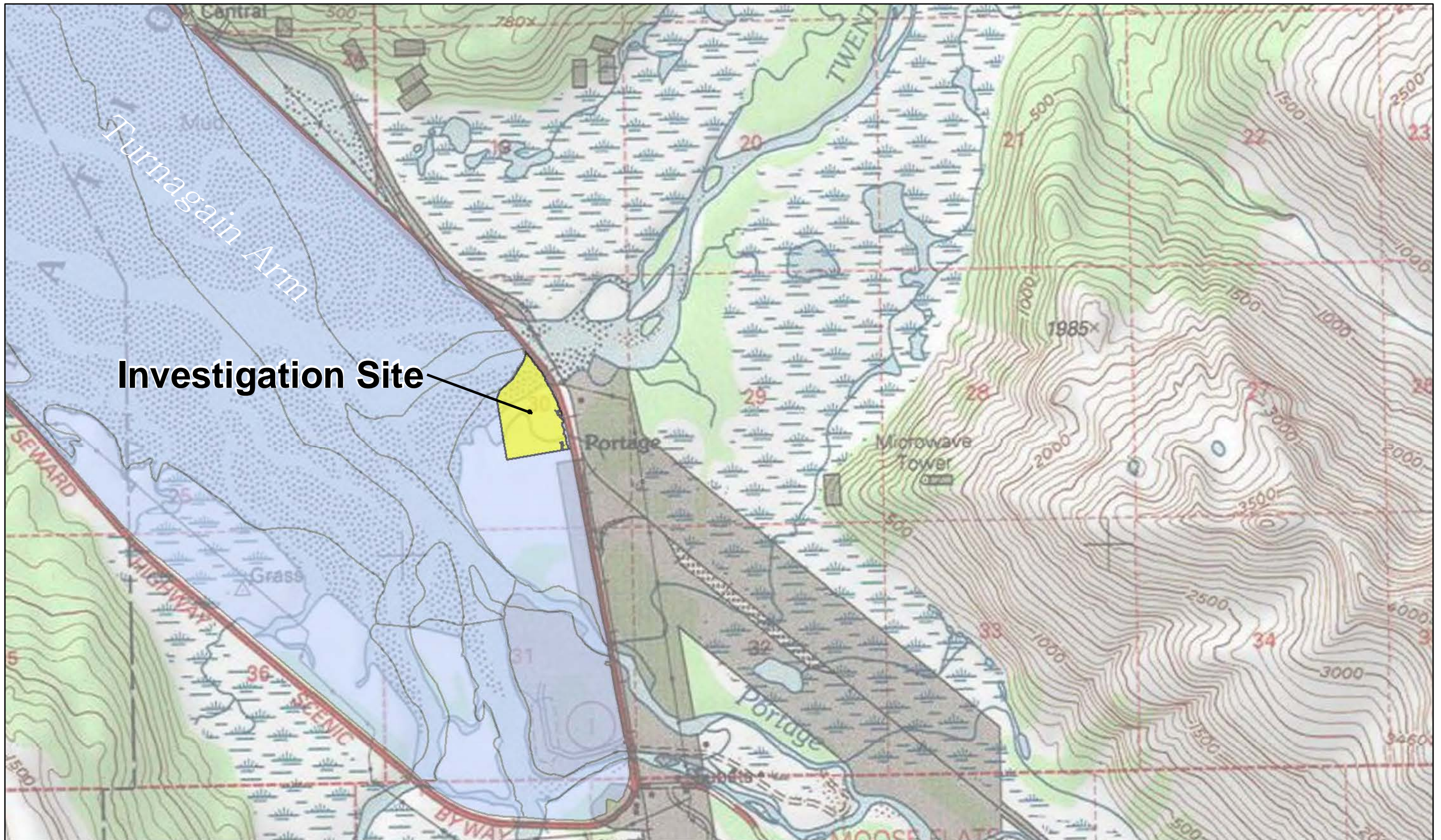


**Bill Redmond | Portage Property**  
**Wetlands Investigation**  
**Map 1. Wetland Investigation Location**

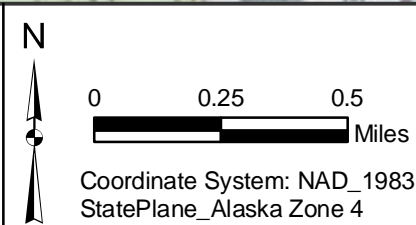
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**Investigation Site**

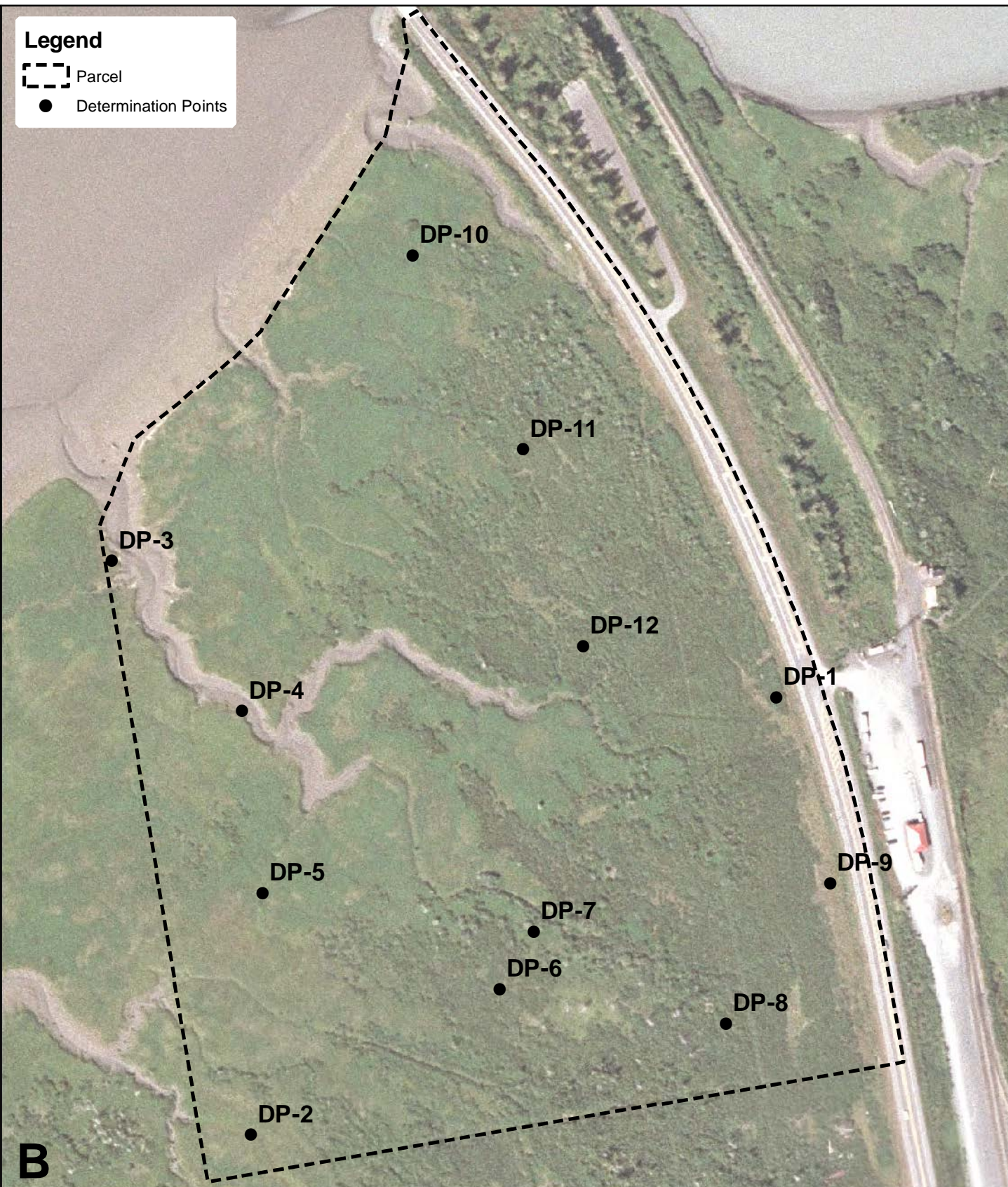
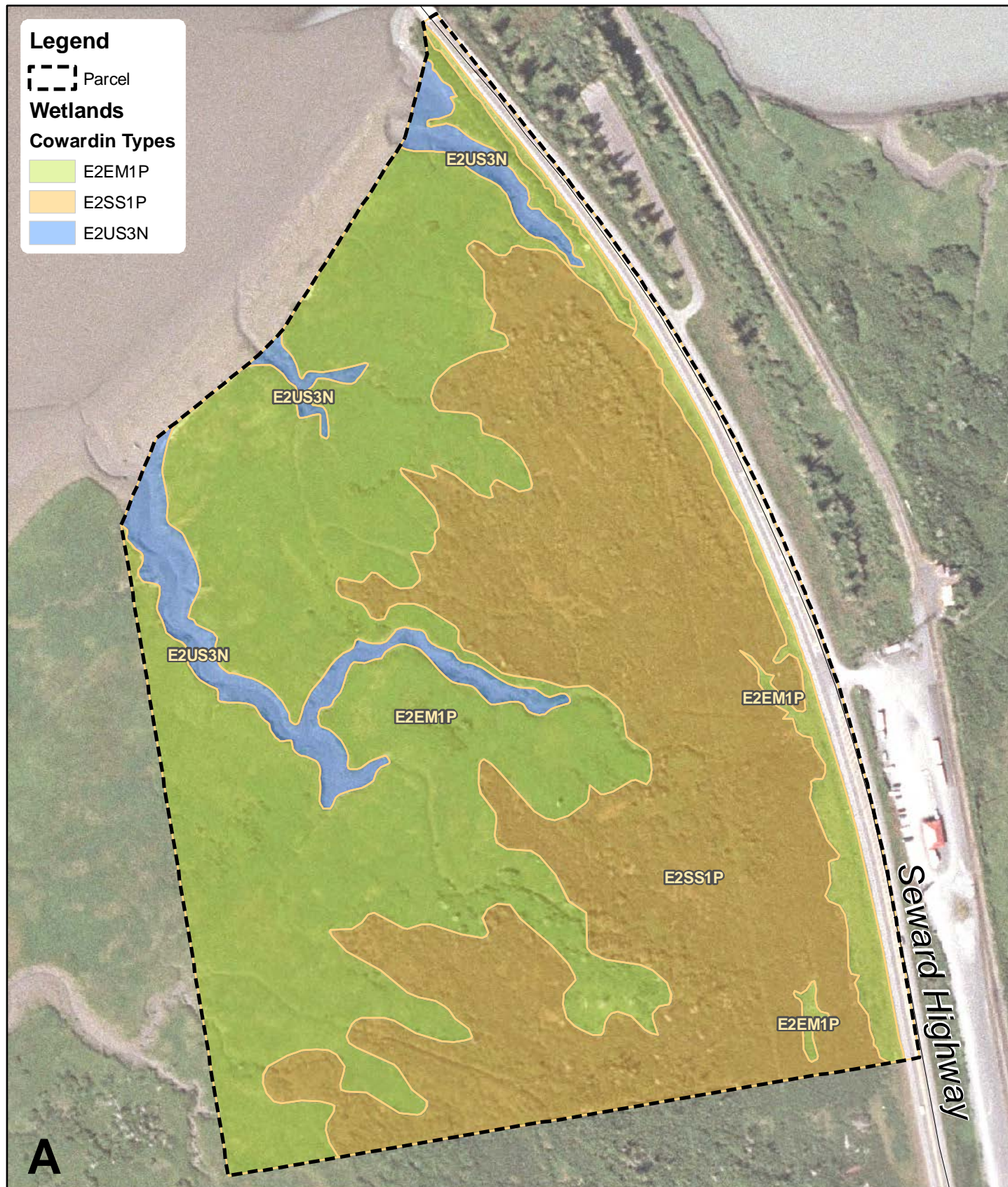


**Bill Redmond | Portage Property  
Wetlands Investigation  
Map 2. Site Vicinity**

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**Legend**

Parcel

**Wetlands**

**Cowardin Types**

- E2EM1P
- E2SS1P
- E2US3N

**Legend**

Parcel

Determination Points



N

0 200 400 Feet

Coordinate System: NAD\_1983  
StatePlane\_Alaska Zone 4

**Bill Redmond | Portage Property**  
**Wetlands Investigation**  
**Map 3. (A) Field Mapped Wetlands & (B) Determination Points (DPs)**

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**DP-1 - Tidal flooding September 9, 2010 09:38AM ADST**

**DP-1 - Tidal flooding September 9, 2010 09:39AM ADST**





**DP-1 - Tidal flooding October 7, 2010 08:59AM ADST**

**DP-2 – Intertidal graminoid meadow. September 13, 2010.**





**DP-3 – Intertidal graminoid meadow. September 13, 2010.**



**DP-5 Drift; tidal gut; lupine leaves. September 13, 2010.**







DP-6 September 13, 2010.



DP-7 - Tall Salix stichensis (FAC) September 13, 2010



DP-6 - Sediment deposits September 13, 2010.



DP-7 September 13, 2010.





**DP-8 – Soil Profile September 13, 2010.**

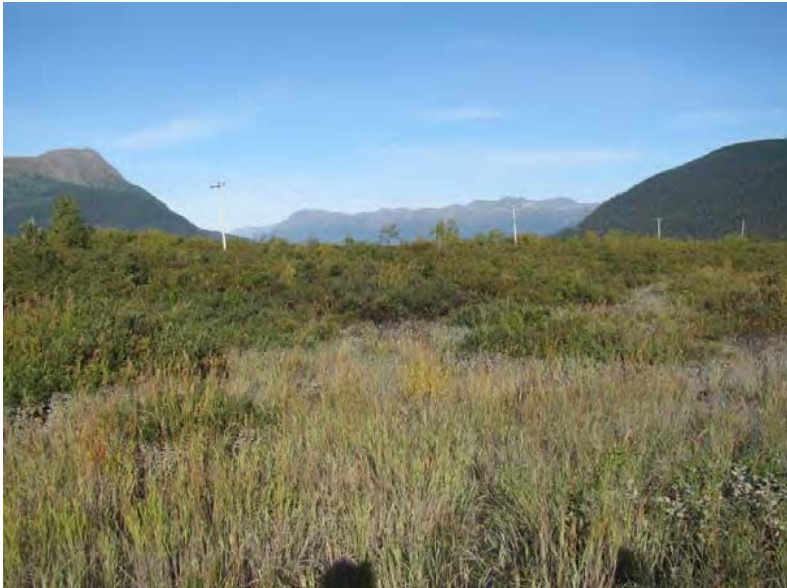


**DP-8 (Site & sediment deposits) September 13, 2010.**



**DP-9 Near Seward Highway September 13, 2010.**





**DP-9 Near Seward Highway September 13, 2010.**



**DP-10 Intertidal Graminoid Meadow September 13, 2010.**



**DP-10 Area (From North Side of Twentymile River) September 13, 2010.**





**DP-11 - Site Vegetation & Sediment Deposits September 13, 2010.**

**DP-11 – Drift Deposits and Flooding September 13, 2010.**





Northeast Side of Parcel - Tidal flooding September 9, 2010 10:05 AM ADST.

Northeast Side of Parcel - Tidal flooding September 9, 2010 10:05 AM ADST.