

**BEAR VALLEY MITIGATION BANK PROSPECTUS  
KETCHIKAN GATEWAY BOROUGH  
T91E, R75S, SECTION 19  
COPPER RIVER MERIDIAN, ALASKA**

Prepared for:

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SWCA Project No. 22741

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## **INTRODUCTION**

SWCA Environmental Consultants (SWCA) was contracted by the applicant, Ketchikan Gateway Borough (Borough), to prepare a mitigation bank prospectus for the proposed Bear Valley Mitigation Bank (BVMB). The BVMB would preserve high function and value wetlands and non-wetland waters belonging to the palustrine (forested, scrub-shrub, emergent, and aquatic bed) and riverine Cowardin classes (Cowardin 1979). The wetlands and waters on the site are diverse, have a strong native character, provide important wildlife habitat, and contribute to the ecological sustainability of the Ketchikan watershed. A stand of mature upland forest that provides important connectivity to off-site forest lands would also be preserved. The proposed BVMB would be owned and operated by the Borough. The bank credits would be available to offset future unavoidable non-tidal wetland and water impacts authorized under Section 404 of the Clean Water Act associated with private and public development projects located within the proposed service area. This prospectus has been prepared to meet the requirements listed in the Code of Federal Regulations (CFR 2010). The U.S. Army Corps of Engineers (Corps) has conducted an initial review of the prospectus and has assigned Corps No. POA-2010-779 for tracking purposes.

## **A. PROPOSED MITIGATION BANK SITE**

### **Site Location**

The approximately 163-acre site is located on the Ketchikan (B-5) SW, Alaska, U.S. Geological Survey (USGS) quadrangle (Figure 1, Appendix A) and includes Tract A (103.91 acres), Tract B (13.98 acres), Tract D (1.95 acres), Tract F (1.82 acres), and Alaska State Land Survey (ASLS) 95-13 (41 acres). The site is located within Ketchikan city limits, approximately 1 mile north of downtown Ketchikan. The parcel map of the study area is shown in Figure 2 (Appendix A). The approximate centroid latitude and longitude is 55.354686°N and -131.641274°W.

### **Landscape Setting and Topography**

The project site is an undeveloped subalpine forest located in the Coastal Western Hemlock–Sitka Spruce Forest Ecoregion of Southeast Alaska (Gallant et al. 1995). Topography on the site ranges from gently rolling slopes to very steeply sided slopes (estimated at 45 percent). Steep slopes exist primarily along the site's perimeter and slope westerly, easterly, and southerly toward a narrow, low-lying valley. The valley slopes south, with the southern end of the site being the lowest elevation.

The site contains wetland and water features consisting of forested wetlands, muskegs, fens, a beaver pond, Schoenbar Creek (also shown as Lascawanda Creek on Figure 3, Appendix A), and perennial tributaries to Schoenbar Creek (Figure 4, Appendix A). Several smaller intermittent drainages with continuous bed and banks, hillslope seeps, and rivulets flow through the forested wetlands and eventually feed into Schoenbar Creek. Schoenbar Creek is a tributary to Ketchikan Creek (USGS 1991).

The site is remote and appears to support an abundance of wildlife. Recent bear and deer sign were observed throughout the site. A beaver was observed in the pond during a field visit on July 15, 2010, and recent beaver chew was noted near the southwest corner of the pond. A beaver dam is present along portions of the southern edge of the pond (SWCA 2010).

## Land Use

The majority of the site is zoned Low Density Residential (*RL* zone according to the Ketchikan Gateway Borough *Code of Ordinances* [2012]). Three relatively small areas located in the northwest and southeast parts of the site are zoned for Future Development (*FD* zone). According to the *Code of Ordinance*, the *RL* zone allows one and two family residences, twinhouse dwellings, and temporary buildings as *Principal uses*. Other structures are allowed as *Accessory uses* and through the conditional use permitting process. The *FD* zone allows for several *Principal uses* that range from low-intensity uses such as watershed reserves, wildlife preserves, and outdoor recreation to high-intensity uses such as agriculture, logging, mining, and resource extraction. *Accessory uses* and those allowed through the conditional use permitting process also allow for a wide range of activities in the *FD* zone. In relation to the *FD* zone, the *Code of Ordinance* states that “For all logging, mining and similar industrial extractive activities, a strip of uncleared land at least one hundred (100) feet wide shall be provided between such uses and all public rights-of-way and all adjoining boundaries of residential zones or recreational areas.” Due to the relatively small amount of *FD* zoned land within the BVMB site, which is effectively reduced even further by the required 100-foot setback from the *RL* zoned land, it appears that any development of the land would occur primarily according to the *Principal*, *Accessory*, and conditional uses assigned to the *RL* zone, unless this zoning is changed.

The site is currently undeveloped, and human activities on the land appear to be minimal. An old abandoned tarp/tent camping area was observed during the wetland delineation fieldwork in July 2010 near the pond. Residential development occurs south of the project site, with undeveloped, steep subalpine forest located to the north, northwest, and east of the project site. A rock quarry borders the site to the southwest and to the east. Lower Ketchikan Lake is located upslope and northeast of the site, in the Tongass National Forest.

## Wetland Delineation

A wetland delineation was conducted by SWCA in 2010. Wetlands on the site belong to the slope and depression wetland hydrogeomorphic classifications. The delineation identified a total of 155.23 acres comprising the following Cowardin classes on the site (Figure 4, Appendix A):

- 148.63 acres of palustrine, forested, needle-leaved evergreen, saturated, organic (PFO4Bg) (acreage includes Schoenbar Creek)
- 3.91 acres of palustrine, scrub-shrub, needle-leaved evergreen, saturated, organic (PSS4Bg)
- 1.26 acres of palustrine, emergent, persistent, saturated, organic (PEM1Bg)
- 1.43 acres of palustrine, emergent, aquatic bed, rooted vascular, permanently flooded (PAB3H)

The balance of the site contains:

- 5.89 acres of forested uplands
- Approximately 1.87 acres of Schoenbar Creek, based on an average width of 20 feet and a total length of 4,070 feet.

The Corps issued their approved jurisdictional determination for the BVMB on September 11, 2013.

The site's existing wetland function and value capacity was evaluated using the Wetland Ecosystem Services Protocol for Alaska - Southeast (WESPAK-SE; Adamus 2012). The WESPAK-SE function and value assessment produces scores for 18 functions and five values. The individual scores are reported on data sheets included in Appendix B. The wetland types within the proposed BVMB provide many indicators that contribute to important physical, chemical, and biological characteristics. Some of the site's unique characteristics include: areas of permanent inundation within the beaver pond, Schoenbar Creek, and tributaries to Schoenbar Creek; prolonged shallow inundation in many scattered isolated pools within the muskegs; its location in the lower third of the watershed; 100+ continuous acres of wetlands; the presence of mature forested uplands and riparian areas; structurally diverse native plant communities; peat soils; and sloped peatlands. The BVMB site scored higher than the WESPAK-SE regional average for every function and value except the surface water storage function. The lower than average score on the surface water storage function is likely because the majority of the reference wetlands used for the regional average consisted of a flat, lower elevation landscape position.

## **B. MITIGATION BANK OBJECTIVES**

The primary objective of the BVMB is to preserve approximately 163 acres of high-quality habitats in the vicinity of Ketchikan while providing a means to offset unavoidable impacts to federally jurisdictional wetlands and waters. The wetlands on the BVMB site contain well-interspersed, structurally diverse native vegetation communities, which provide excellent habitat for many wildlife species. An abundance of songbirds, juvenile bald eagle (*Haliaeetus leucocephalus*), and evidence of black bear (*Ursus americanus*) and Sitka black-tailed deer (*Odocoileus hemionus sitkensis*) were observed within the on-site wetland communities.

The pond, Schoenbar Creek, and tributaries to Schoenbar Creek provide important fish habitat. Schoenbar Creek, a tributary to Ketchikan Creek, is mapped in the Alaska Department of Fish and Game *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* (Johnson and Blanche 2010) as providing rearing habitat for coho salmon (*Oncorhynchus kisutch*) and cutthroat trout (*O. clarkii*) within the BVMB site (Stream #101-47-10250-2007-3009, -3013, and -3015). Mark Minillo with the Alaska Department of Fish and Game verified the presence of coho salmon, Dolly Varden char, and cutthroat trout in Schoenbar Creek using baited traps in August 2013 (August 9, 2013 email from Mark Minillo to Greg Swenson, SWCA).

The secondary objective is to preserve the upland forest present within the site to provide additional habitat and structural diversity to increase the value of the preserved wetlands. The forest also provides connectivity to large areas of undeveloped habitat outside of the bank site, and provides refugia habitat within the bank site.

## **C. ESTABLISHMENT AND OPERATION**

The Borough will establish the BVMB by recording a real estate instrument (such as a conservation easement or deed restriction) over the entire site, thereby preserving 157.10 acres of wetlands and waters and 5.89 acres of uplands in perpetuity. The site is under threat of development, therefore preservation is an appropriate mitigation option.

Appendix B of the Alaska District Regulatory Guidance Letter ID No. 09-01 (Corps 2009) provides sample ratios for compensatory mitigation that would be the basis of credit accounting for the BVMB. The ratios are illustrated in Table 1 below.

**Table 1.** Sample Ratios for Compensatory Mitigation

Impacted Non-Tidal Wetland or Water of the U.S.	Type of Compensatory Mitigation	
Function and Value	Preservation	Restoration and/or Enhancement
Low (Category III or IV)	1.5:1	1:1
Moderate (Category II or III)	2:1	1:1
High (Category I or II)	3:1	2:1

Source: Corps (2009).

Functions and area-based (e.g., acre credits) wetland and upland credit would be the primary credit type available; however, volume-based (e.g., cubic yard credits) stream credits are another unit that would apply to the streams within the BVMB. The Borough proposes to use the three dimensional space occupied by the stream below the ordinary high water elevation as the basis of calculations for stream credits. Fractions of area-based and volume-based credits would be available to compensate for small impacts.

The Borough will use a spreadsheet ledger for credit accounting and provide an annual summary of credit sales. Each credit sale will be documented on a standardized transaction form that reports the acceptance of a credit payment, the Corps permit number, and the number and resource type of credits secured by the permittee. The transaction form will be submitted to the Corps for every debit. An example credit transaction form is included in Appendix C.

#### **D. PROPOSED GEOGRAPHIC SERVICE AREA**

The BVMB would provide credits within the six- and eight-digit Hydrologic Unit Codes, (190101-Southern Southeast Alaska and 19010102-Ketchikan have coincident boundaries) (Figure 5, Appendix A). According to data provided by the Borough, the BVMB’s lowest elevation is approximately 135 feet above sea level and therefore is not subject to tidal influence. The bank site does not provide the functions and values associated with tidal, estuarine, or marine environments; therefore, the BVMB would only compensate for impacts to non-tidal freshwater wetlands and waters.

#### **E. NEED AND FEASIBILITY OF BANK**

The need for the BVMB is driven by the expected future growth of Ketchikan and surrounding areas. According to Borough staff (September 19, 2012 email from Jonathan Lappin, Ketchikan Gateway Borough to Stacey Reed, SWCA), several large projects are expected to occur in Ketchikan that will generate jobs and attract future residents. These projects include redevelopment of the former Ketchikan Pulp Company site, improvements to the existing shipyard, hydroelectric projects, a large aquarium complex, and upgrades to the existing road infrastructure. The current available residential vacancy rate in Ketchikan during the winter months is at most approximately 3 percent. Any significant increase in the population will result in a housing shortage. Residential development, including the development of new roads in and around Ketchikan, commonly results in wetland impacts that require compensatory mitigation through the Clean Water Act Section 404 permitting process. The Borough operates many facilities, including the airport, ferry system, dock facilities, bus system, wastewater treatment plants, water treatment plants, fire stations, public schools, library,

animal shelter, aquatic center, recreation center, parks, and playgrounds. These operations and facilities may unavoidably impact wetlands and waters that require mitigation.

Currently, the only mitigation options available in the Ketchikan watershed are purchasing credits from the in-lieu fee sponsor or conducting permittee responsible mitigation on a project-by-project basis. Wetlands in the Ketchikan area are generally undisturbed, offering limited opportunities for on-site wetland restoration or enhancement. The BVMB would provide a more efficient, predictable, and potentially cost-effective mitigation solution for the Borough and other project proponents in the proposed service area.

The BVMB project is feasible for the following reasons:

1. The Borough owns the site and is willing to dedicate the land in perpetuity for the purpose of wetland and habitat conservation;
2. The Borough has budget authority and the ability to allocate the funds necessary to permit, operate, and maintain the BVMB;
3. The BVMB site is located in a rural setting with compatible existing land uses; and
4. The BVMB is a preservation-style project that is naturally sustaining with low inputs (i.e., minimal needs for vegetation controls, no need for earthwork, minimal risk of upgradient hydrology alterations, no need to acquire water rights, and minimal risk of damage from off-road vehicles).

## **F. OWNERSHIP AND LONG-TERM MANAGEMENT**

The Borough will maintain ownership of the BVMB and be the bank sponsor. There are no known liens or rights-of-way. Known easements consist of:

- Tract A: A 50-foot easement for public access on both sides of Schoenbar Creek (Lascawanda Creek) as per Alaska Statute (AS) 38.05.127 (see ASLS No. 2005-1 for original wording; Figure 3, Appendix A)
- Tract A: A 50-foot public access easement along the northern property line per AS 19.10.010

The BVMB will be preserved over the long term through a conservation deed or a similar real estate instrument. The mitigation banking credits will be owned by the Borough, and the Borough will assume long-term management of the site and will not transfer management responsibility without prior approval from the Corps. The Corps may request a third-party easement holder.

As a sponsor of the mitigation bank, the Borough will be responsible for all of the necessary roles, including ensuring the continued success of the mitigation bank and preservation of its functions and values, maintaining accounting ledgers, tracking all fees collected and expenditures, and providing an annual report on credits sold.

## **G. QUALIFICATIONS OF THE SPONSOR**

The Borough has several goals that are consistent with the administration of the BVMB:

- Protect and preserve critical natural resources of the Borough
- Encourage healthy lifestyles by providing outdoor recreation areas for residents and visitors
- Promote economic activity in areas such as tourism by providing unique areas of interest for visitors

The Borough Lands Program will administer the BVMB. The Director of the Borough's Department of Planning and Community Development, Dr. Tom Williams, currently oversees Borough Lands Program personnel. Dr. Williams' academic background includes a doctorate concentration of environmental policy. Dr. Williams' work experience includes working with the Chesapeake Bay watershed administering and enforcing the Chesapeake Bay Protection Act, as well as other state and local programs – including wetland protection programs.

Dr. Williams also has work experience within the Florida Keys Marine Sanctuary administering a variety of federal, state, and local regulations. While employed with Monroe County, Florida, Dr. Williams worked within a regulatory jurisdiction that included over 16 species that were listed by the federal Endangered Species Act as endangered or threatened. The regulatory environment was rigid and protected a variety of flora and fauna. Evaluating requests for development within sensitive wetlands and critical habitat was part of the daily routine for planning staff of Monroe County.

The Department of Planning and Community Development will create a new position or add additional job duties and responsibilities to staff within the Department to administer the Borough's Lands Program. The level of this position will be commensurate with the responsibilities assigned. If the administration of the BVMB requires additional training or education, or additional staff, the Borough will take steps to insure that properly qualified personnel are in place.

## **H. ECOLOGICAL SUITABILITY**

The BVMB site is ecologically suitable because it provides important physical, chemical, and biological characteristics to the watershed and it lacks most human-induced environmental stressors such as altered hydrology, encroachment of unwanted vegetation, soil disturbances or erosion, and accumulations of refuse. Compared to reference sites in Southeast Alaska, the WESPAK-SE scores indicate that the BVMB wetlands have relatively high functions and values that would be preserved as part of the project.

## **K. LIST OF PREPARERS**

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Wetland Scientist, SWCA Environmental Consultants

C. Mirth Walker, PWS, Certified Wetland Delineator (CWD)  
Senior Wetland Scientist, SWCA Environmental Consultants

Stacey Reed  
Wetland Scientist, SWCA Environmental Consultants

## L. REFERENCES

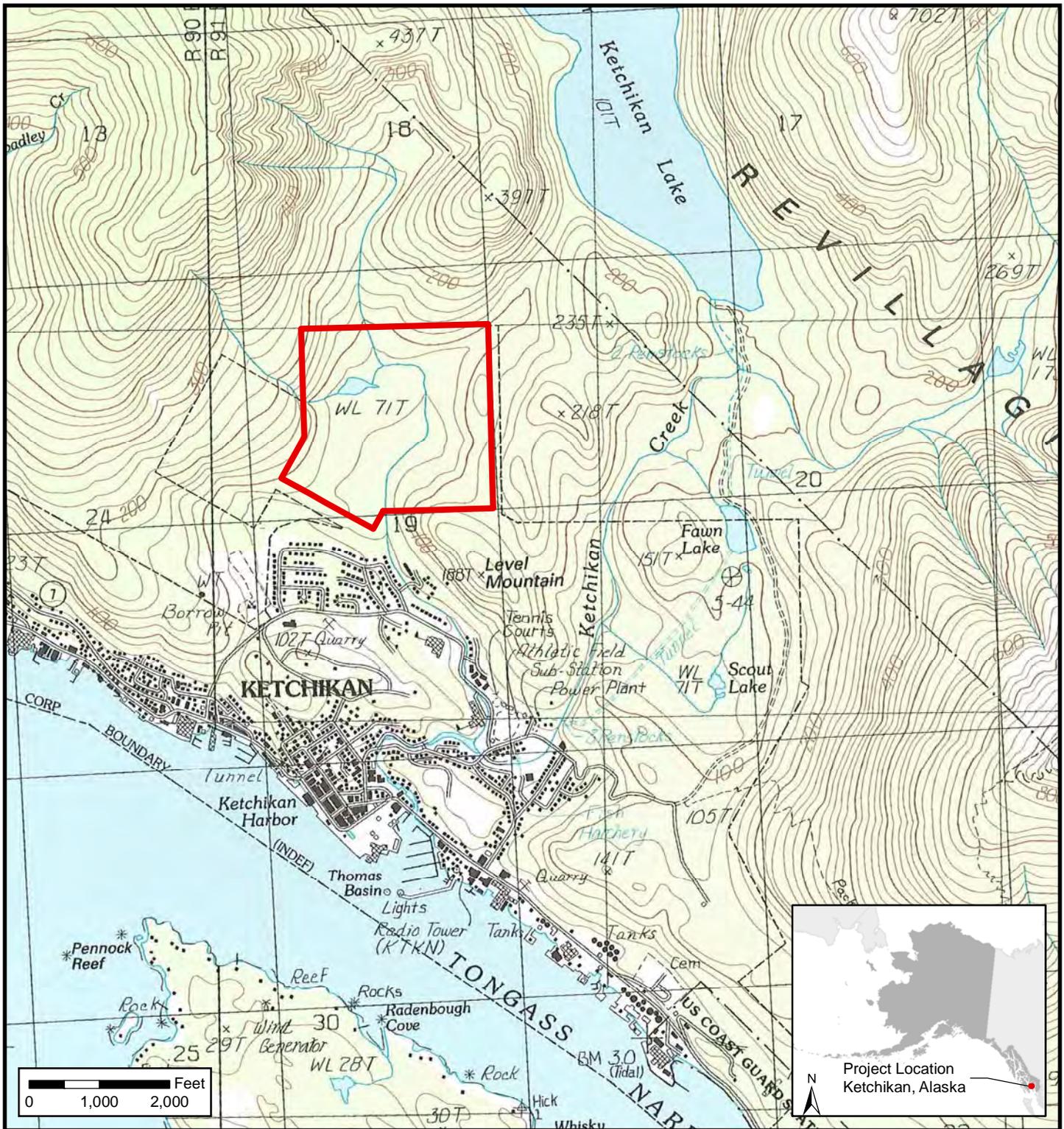
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## **APPENDIX A**

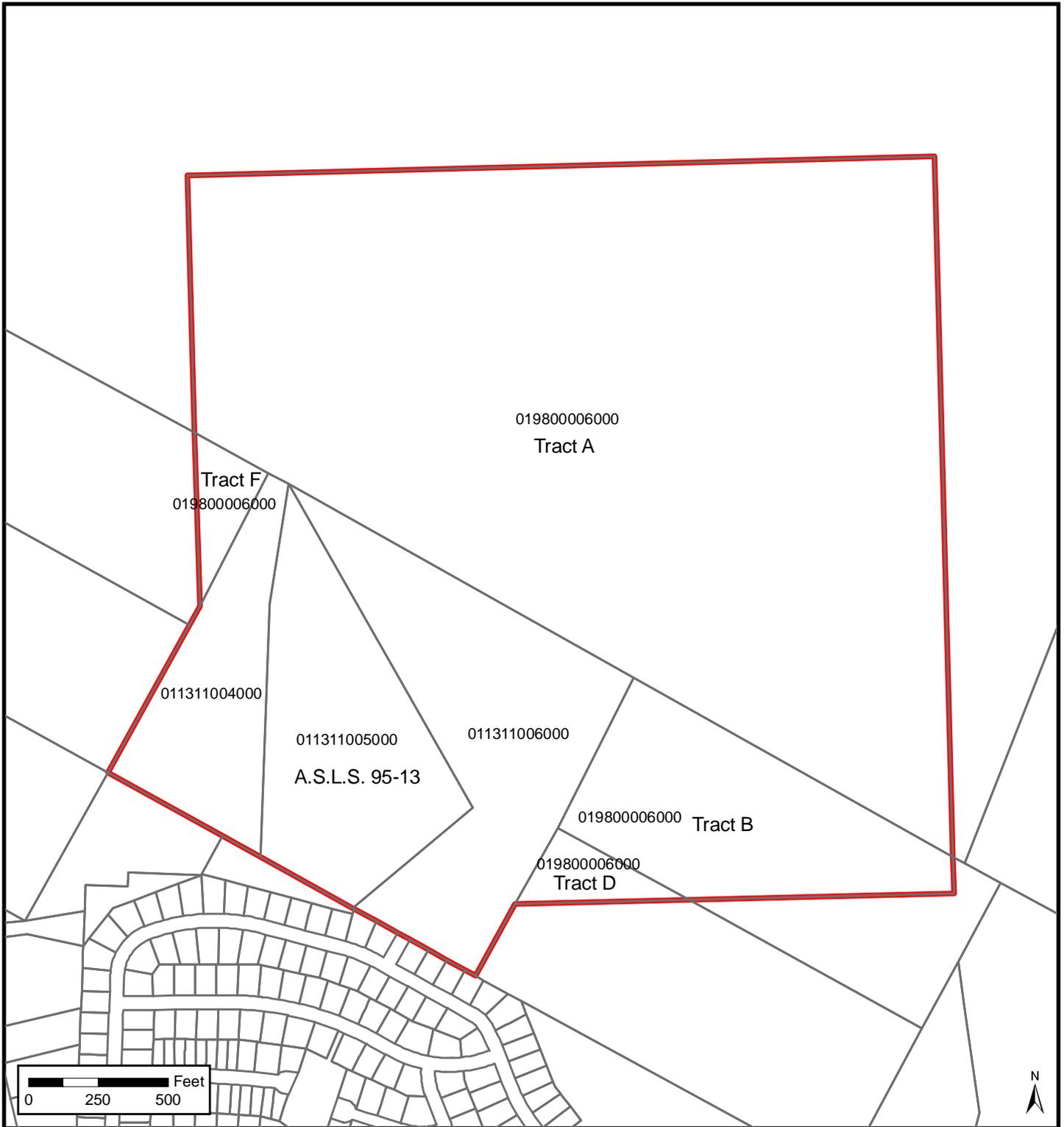
### **Figures**

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<p><b>Legend</b></p> <p> Bank Location</p> <p>Contour interval 20 meters</p> <p>Source: USGS 7.5' topographic quadrangle: Ketchikan (B-5) SW Alaska (Provisional Edition 1991).</p>	<p align="center">   <b>Bear Valley Wetland Mitigation Bank Site</b> </p> <hr/> <p><b>Figure 1. Site Location</b></p> <p>Project 22741 October 2013</p>
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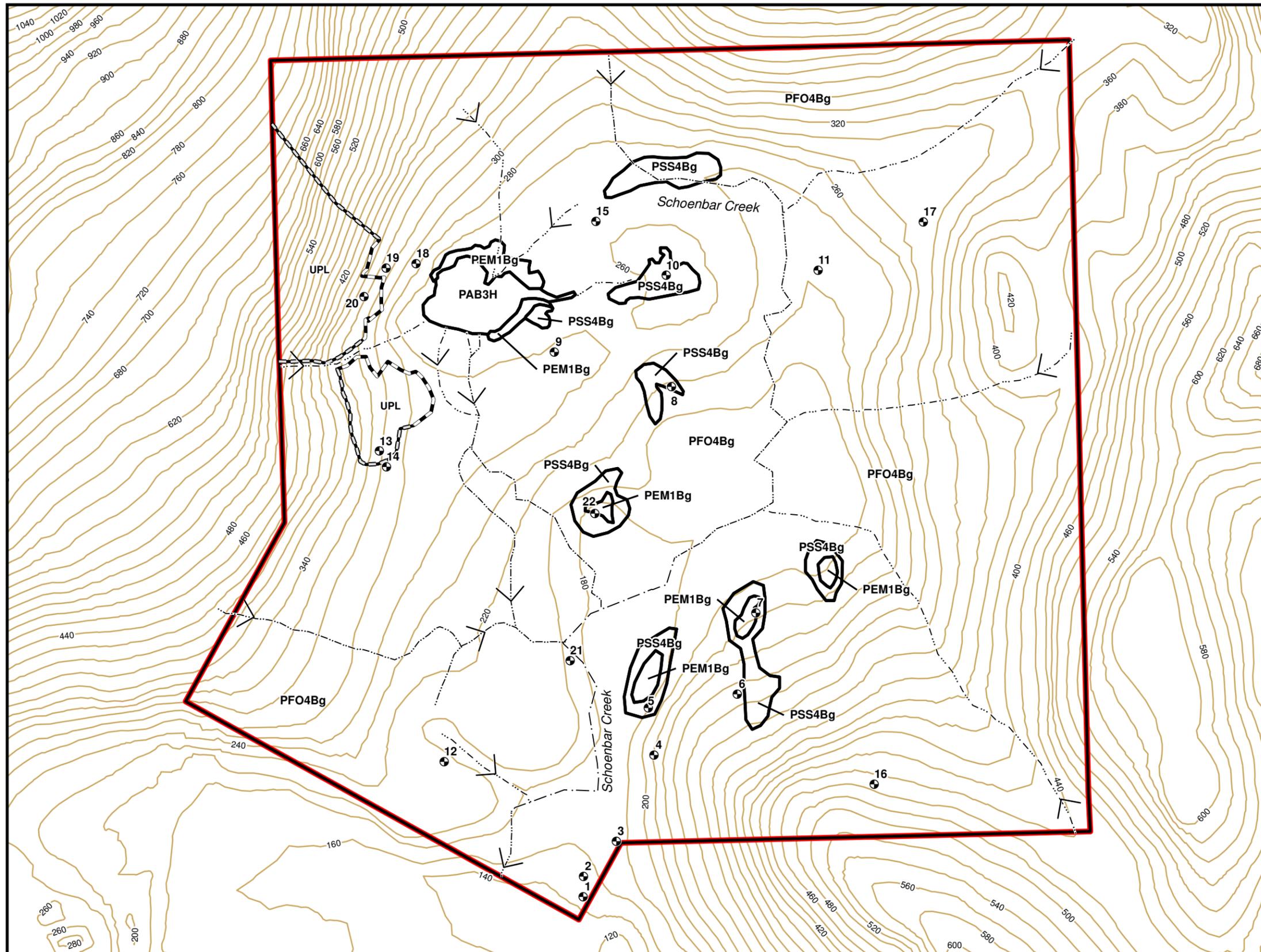


<p><b>Legend</b></p> <p> Bank Location</p> <p> Parcels</p> <p>Source: Parcel information provided by Ketchikan Gateway Borough, Alaska</p>	 	<p style="text-align: center;"><b>Bear Valley Wetland Mitigation Bank Site</b></p> <hr/> <p><b>Figure 2. Parcel Map</b></p> <p>Project 22741 October 2013</p>
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## Bear Valley Wetland Mitigation Bank Site

### Legend

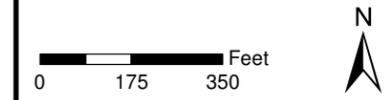
- Sample Plot (#4 & #16 were hand mapped)
- Streams (Centerline)**
  - GPS by KGB/SWCA (2010)
  - Wetland Delineation & Design Services (2001)
  - Aerial Photograph Interpretation

### Wetland Boundary Line

- GPS Collected
- Hand Digitized
- Study Area Boundary
- Contour (20 ft interval)
- Cowardin Classification

- PFO4Bg** - Palustrine Forested Needle-leaved Evergreen Saturated Organic (148.63 acres)
- PSS4Bg** - Palustrine Scrub-Shrub Needle-leaved Evergreen Saturated Organic (3.91 acres)
- PEM1Bg** - Palustrine Emergent Persistent Saturated Organic (1.26 acres)
- PAB3H** - Palustrine Aquatic Bed Rooted Vascular Permanently Flooded (1.43 acres)
- R3SB1** - Riverine Upper Perennial Streambed Cobble/Gravel Permanently Flooded (1.87 acres est.)
- UPL** - Upland (5.89 acres)

> Indicates direction of flow



Source: 20 foot contours provided by Ketchikan Gateway Borough.

Ketchikan (B-5), SW AK USGS Quad  
T75S, R 91E, Sec 19  
55.355513 N, -131.641898 W Centroid

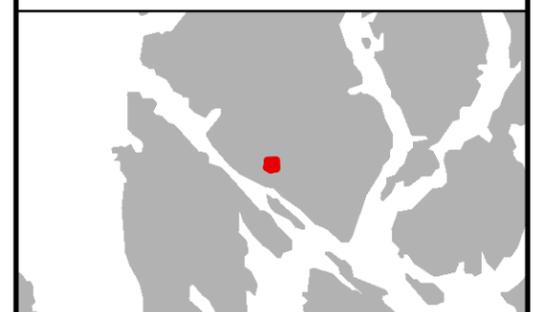
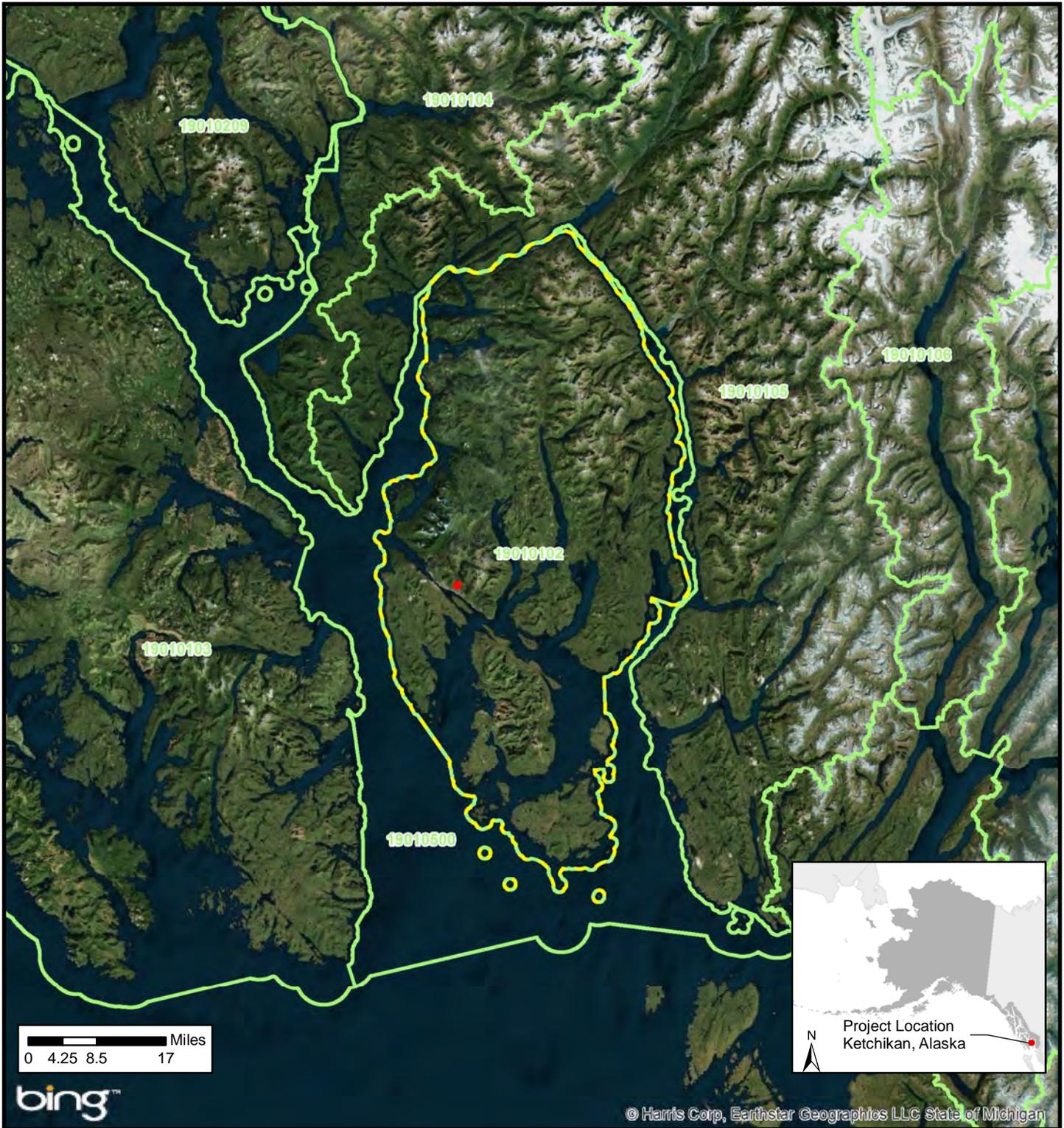


Figure 4. Wetland Map

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<p><b>Legend</b></p>		<p align="center"><b>Bear Valley Wetland Mitigation Bank Site</b></p>
<p> Bank Location</p> <p> 8-Digit Hydrologic Unit Code (HUC) Boundaries</p> <p> Ketchikan 8-Digit HUC Service Area (6-Digit HUC is Coincident)</p>	<p align="center"><b>SWCA</b> ENVIRONMENTAL CONSULTANTS Sound Science. Creative Solutions®</p>	
<p>Source: Bing Maps</p>	<p>Project 22741 October 2013</p>	

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**APPENDIX B**  
**WESPAK-SE Data Forms**

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CoverPg: Basic Description of Assessment	WESPAK-SE Non-tidal
Site Name:	Bear Valley Mitigation Bank
Investigator Name:	Stacey Reed
Date of Field Assessment:	July 12-15, 2010
Nearest Town:	Ketchikan
Latitude (decimal degrees):	58.2847
Longitude (decimal degrees):	-134.4261
Approximate size of the Assessment Area (AA, in acres)	163.00
AA as percent of entire wetland (approx.)	95%
What percent (approx.) of the <b>wetland</b> were you able to visit?	80
What percent (approx.) of the <b>AA</b> were you able to visit?	80
Have you attended a training session for this protocol? If so, indicate approximate month & year.	Yes - May 2012
How many wetlands have you assessed previously using this protocol (approx.)?	2 using WESPAK-SE 6 using ORWAP
Comments about the site or this assessment (attach extra page if desired):	

Site Name:	Bear Valley Wetland Mitigation Bank
Investigator Name:	Stacey Reed
Date of Field Assessment:	July 12-15, 2010
Latitude & Longitude (decimal degrees)	55.355628, 131.645747

Scores will appear below after data are entered in worksheets OF, FF, and FS. See Manual for definitions and descriptions of how scores were computed.

Results for this Assessment Area (AA):			Other Non-tidal Wetlands of Southeast Alaska					
Specific Functions or Values:	Function Score (wetland's relative effectiveness)	Value Score (potential or actual)	For Comparison: Function Scores			For Comparison: Value Scores		
			Regional Median (n=32)	Regional Minimum	Regional Maximum	Regional Median (n=32)	Regional Minimum	Regional Maximum
Surface Water Storage (WS)	2.51	4.72	3.52	2.53	5.39	2.50	0.00	10.00
Stream Flow Support (SFS)	5.47	6.26	3.06	0.00	8.15	0.91	0.00	5.60
Streamwater Cooling (WC)	5.74	4.16	2.59	0.00	9.26	1.15	0.00	7.46
Streamwater Warming (WW)	6.50	5.94	5.67	1.33	8.42	3.56	0.00	6.05
Sediment & Toxicant Retention & Stabilization (SR)	5.24	4.17	3.32	1.19	10.00	3.30	2.27	5.56
Phosphorus Retention (PR)	5.29	4.58	5.05	2.54	10.00	2.09	1.13	7.32
Nitrate Removal & Retention (NR)	5.54	7.62	5.25	3.34	10.00	7.14	5.63	8.37
Carbon Sequestration (CS)	5.48		5.12	3.71	7.64			
Organic Nutrient Export (OE)	6.69		4.56	0.00	6.69			
Anadromous Fish Habitat (FA)	5.92	10.00	0.00	0.00	8.29	0.00	0.00	10.00
Resident & Other Fish Habitat (FR)	5.75	1.50	0.00	0.00	7.35	0.00	0.00	8.16
Aquatic Invertebrate Habitat (INV)	4.61	6.87	4.80	2.81	7.42	6.25	1.23	8.32
Amphibian Habitat (AM)	5.65	5.00	5.29	4.24	6.40	5.00	4.41	5.96
Waterbird Feeding Habitat (WBF)	0.00	0.00	4.22	0.00	6.64	1.75	0.00	9.00
Waterbird Nesting Habitat (WBN)	0.00	0.00	2.63	0.00	7.86	0.00	0.00	10.00
Songbird, Raptor, & Mammal Habitat (SBM)	5.16	7.50	4.90	3.98	7.17	7.50	0.00	10.00
Pollinator Habitat (POL)	4.96	5.00	3.85	1.08	5.86	5.00	0.00	5.00
Native Plant Habitat (PH)	6.38	5.03	4.90	3.24	7.68	5.76	2.64	7.84
Public Use & Recognition (PU)		1.20				6.69	3.72	9.38
Subsistence & Provisioning Services (Subsis)		0.00				5.28	0.00	8.33
Wetland Sensitivity		4.23				3.06	2.21	3.85
Wetland Ecological Condition		4.44				5.10	1.67	7.78
Wetland Stressors (higher score means more)		1.84				1.18	0.50	3.17

**APPENDIX C**  
**Example Credit Transaction Form**

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Example Letter Documenting Payment and Credit Transaction

Date: \_\_\_\_\_

Juneau Field Office  
USACE Alaska District  
8800 Glacier Highway #106  
Juneau, AK 99801

Subject: Ketchikan Gateway Borough Bear Valley Mitigation Bank Credit Notification

The Borough has received payment from \_\_\_\_\_ (Permittee) on \_\_\_\_\_ (date) for the project named \_\_\_\_\_ and permitted under POA# \_\_\_\_\_.

Credits secured by the Permittee:

Resource type: <u>emergent wetland (PEM1Bg)</u>	Number of credits: _____
Resource type: <u>scrub-shrub wetland (PSS4Bg)</u>	Number of credits: _____
Resource type: <u>forested wetland (PFO4Bg)</u>	Number of credits: _____
Resource type: <u>pond (PAB3H)</u>	Number of credits: _____
Resource type: <u>stream (riverine)</u>	Number of credits: _____
Resource type: <u>upland</u>	Number of credits: _____

If you have any questions, please contact:

BVMB Plan Sponsor  
Ketchikan Gateway Borough  
Economic Development & Lands Management  
1900 First Ave., Suite 126  
Ketchikan, AK 99901  
907.228.6622

cc: Permittee