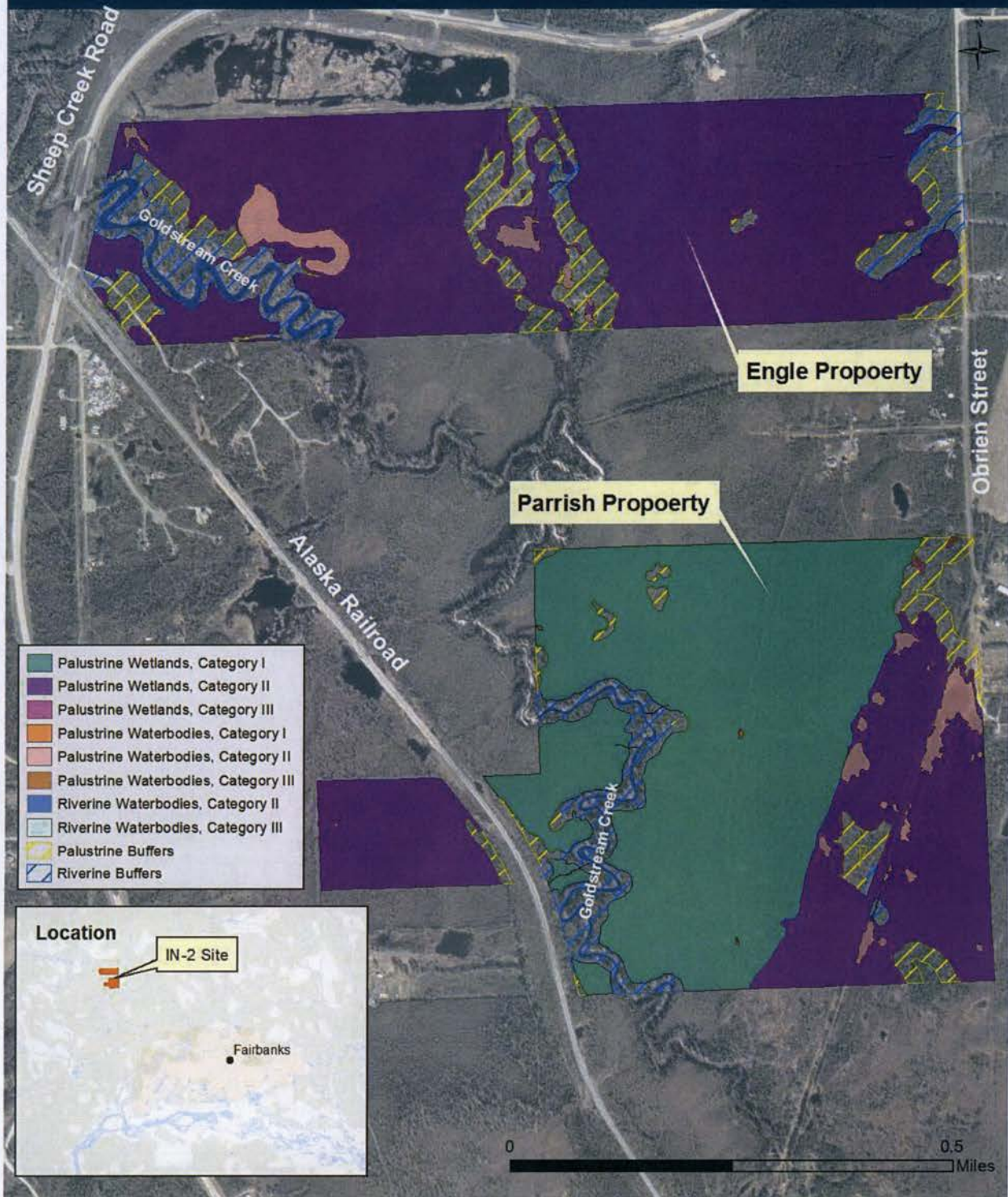


# VICINITY MAP

## IN-2 Site Map and Wetland Management Categories

THE  
CONSERVATION FUND





January 11th, 2017

**Instrument Modification Request - Site Addition**  
**IN-2 Mitigation Plan (Engel and Parrish Properties)**  
Alaska In-Lieu Fee Compensatory Mitigation Program  
The Conservation Fund

**Project Details:**

POA Number	POA-2010-312
Identification	IN-2 (Engel and Parrish Properties)
Mitigation Type	Preservation
General Location	Goldstream Valley, Fairbanks, North Star Borough
Service Area	Interior (IN)
Partner	Interior Alaska Land Trust
Coordinates	64.905N, -147.931W
Legal	TL 1501 Section 15, T1N, R2W, Fairbanks Recording District, State of Alaska

**Total Acres Protected: 332.22**

Acres of Aquatic Resources:	276.98
Acres of Buffer:	50.72

**Total Proposed Credits: 283.73**

Riverine Credits:	15.65
Palustrine Credits:	268.12

**1. OBJECTIVES [33 CFR § 332.4(c)(2)]**

The Conservation Fund (TCF) proposes establishing the IN-2 mitigation site for inclusion in its Alaska In-lieu Fee Compensatory Mitigation Program Instrument. The IN-2 site involves the preservation of two properties (referred to herein as Engel and Parish) totaling 332.22 acres of wetlands, waterbodies, and uplands located on Goldstream Creek in Fairbanks, Alaska. The project is designed to address the needs of the Tanana River HUC-6 watershed, using in-lieu fee program funds to fulfill obligations from the sale of advanced compensatory mitigation credits in the Interior Service Area. The IN-2 project site was selected for its proximity to historic and ongoing development, priority within the locally significant Headwaters Goldstream Creek HUC-10 watershed, and capacity to actively reduce turbidity and improve water quality in wetlands and other waters of the U.S. (WOUS) impacted by activities authorized by Department of the Army permits pursuant to Section 404 of the Clean Water Act. Preservation of these properties is the selected method of compensatory mitigation and removes threats to the site's aquatic resources associated with development trends in the city of Fairbanks.

The proposed IN-2 mitigation project is consistent with the TCF's Alaska In-lieu Fee Compensatory Mitigation Program Instrument (Instrument) (TCF 2013). This project meets the five criteria for preservation identified in 33 CFR § 332.3(h):

1. *CFR § 332.3(h)(i): The resources to be preserved provide important physical, chemical, and biological functions for the watershed.* The IN-2 site contains approximately 276.98



acres of wetlands and waterbodies that support migratory bird, moose, fox, and beaver habitat, retains and removes sediments, nutrients, and toxicants, and regulates groundwater recharge and discharge for the Headwaters Goldstream Creek HUC-10 watershed, a tributary watershed to the Tanana River. See Section 2, Section 4, and Appendix A for additional information.

2. *CFR § 332.3(h)(ii): The resources to be preserved contribute significantly to the ecological sustainability of the watershed.* The IN-2 site is located downstream from historic and ongoing mining and construction. The relatively natural condition of the contained portion of Goldstream Creek and associated palustrine wetlands actively filter pollutants and reduces turbidity, provide a buffer to the downstream portions of Goldstream Creek and the Headwaters Goldstream Creek watershed, and limiting the influx of pollutants into the greater Tanana River watershed. See Section 2 for additional information.
3. *CFR § 332.3(h)(iii): Preservation of the site is determined to be appropriate and practicable.* N/A - to be determined by the Army Corps of Engineers (Corps).
4. *CFR § 332.3(h)(iv): The resources are under threat of destruction or adverse modification.* The properties are in the Goldstream Valley, a 15-mile long corridor of wetlands flanked on either side by rapidly developing residential areas. Similar mixed wetland parcels have been filled and developed in the area. See Section 2 for additional information.
5. *CFR § 332.3(h)(v): The preserved site will be permanently protected through an appropriate real estate or other legal instrument.* Corps drafted and approved restrictive covenants described herein will be executed upon approval of this mitigation plan, at which time the IN-2 properties will be conveyed to the Interior Alaska Land Trust (IALT) (Long-term Steward), being the most appropriate entity for long-term management and stewardship. See Sections 3 and 10 for additional information.

The IN-2 Mitigation Site was evaluated for preservation using a watershed approach and has been determined to be high priority for preservation because of its position in the landscape, regional significance to wildlife, proximity to wetland impacts, and development and conversion trends observed at the watershed level.

The objective of the proposed IN-2 Mitigation Site is:

- To preserve in perpetuity the ecological integrity of the IN-2 Mitigation Site. TCF proposes to generate credits from the preservation and maintenance of the Mitigation Site to offset unavoidable impacts to WOUS that have been authorized under Department of the Army permits pursuant to Section 404 of the Clean Water Act (CWA).
- To permanently maintain baseline conditions as described herein in Section 4 and documented in the Functional Assessment (Appendix C).

## **2. SITE SELECTION [33 CFR § 332.4(c)(3)]**

The IN-2 site was strategically selected using a watershed approach consistent with TCF's Instrument and Compensatory Planning Framework for the Interior Service Area. Developed in coordination with the Corps, the document details the historic impacts, current conditions, and development trends to be addressed by in-lieu fee site selection activities. The objective of this



analysis is to identify sites with the potential to mitigate the high density of anthropologic wetland disturbance and conversion in the vicinity of the Fairbanks North Star Borough identified therein, focusing on the Tanana River HUC-6 watershed (Figure 1).

Within the Tanana River HUC-6 watershed, TCF identified the Goldstream Valley as a priority location to mitigate these impacts and made use of an ongoing partner-conducted parcel prioritization effort for specific site selection (Appendix A). To assess the specific needs of the Goldstream Valley, TCF referenced existing studies for the containing Headwaters Goldstream Creek HUC-10 watershed.

## **2.1 Current Conditions of the Interior Service Area**

The Interior Service Area is approximated by the following subdivisions: Interior Alaska Highlands, Kanuti Flats, Kuskokwim Highlands, Koyukuk-Innoko Lowlands, Norton Sound Highlands, Tanana-Kuskokwim Lowlands, Yukon Flats, and Yukon-Kuskokwim Delta (Tieger et al. 1979). Using wetland estimates for those divisions, the Interior Service Area contains approximately 97 million acres of principally palustrine type wetlands (Hall et al 1994). The wetlands of the Interior Service Area lie within the Yukon River Basin and drain into the Yukon River via other major rivers, which include the Tanana, Nenana, Koyukuk, Porcupine, and Innoko. As of 2016, US Bureau of Land Management (BLM) found that the majority of water resources and soils in the associated Central Yukon Resource Management Area are in natural condition, excepting those impacted by human activities or climate (BLM 2016).

Wetlands and aquatic resources in interior Alaska have experienced disturbance from a variety of sources including: transportation projects, mining, energy development, agriculture, tourism, and recreation. However, the largest impact to wetlands has come from urbanization. Commercial and residential development has occurred in and around the 264 communities of the Interior Service Area. The most extensive urbanization has occurred in the Fairbanks North Star Borough (ADEC 2010). As of 2007, one quarter of the wetlands (~78,000 acres) in the greater Fairbanks area had been lost to urban development projects or converted to uplands (ABR 2011).



## IN-2 Site Location and Watershed Analysis Map

THE  
CONSERVATION FUND

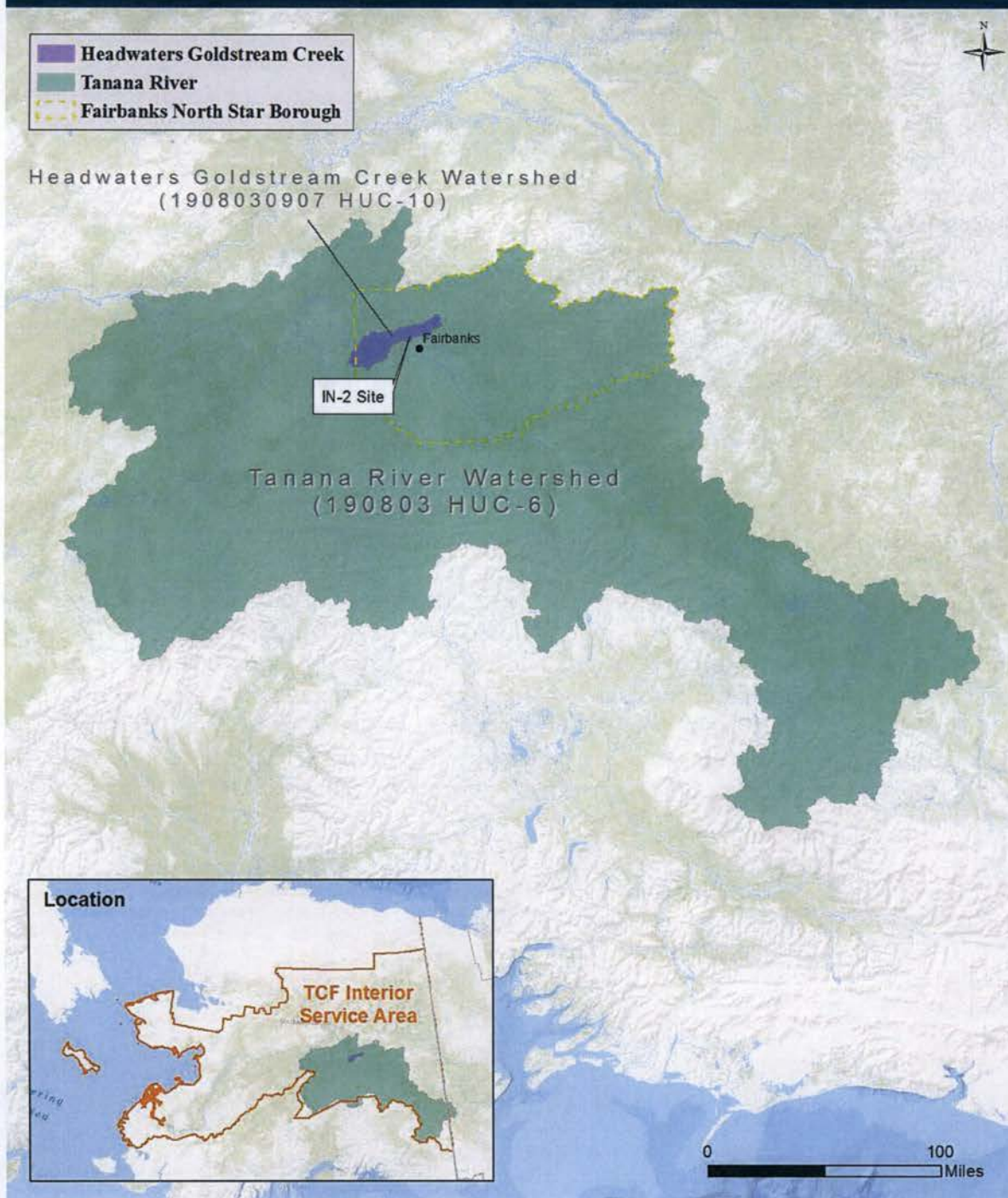


Figure 1 – Map of TCF's Interior Service Area, Ecologically Relevant Watersheds, and IN-2 Property Location



## **2.2 Identification of Watershed Needs**

### **2.2.1 Tanana River HUC-6 Watershed**

Regulatory guidance pertinent to the lands and natural features of the Tanana River watershed and watershed units therein (including the Headwaters Goldstream Creek watershed) comes from the BLM, Alaska Department of Natural Resources (ADNR), Alaska Department of Fish and Game (ADFG), and the Fairbanks North Star Borough. These agencies prioritize maintenance of current capture, storage, filtration, and water and sediment release mechanisms within the natural range of variability of existing terrestrial, riparian, and aquatic ecosystems (BLM 2016, ADNR 2001, ADF&G 1994 and 1998, North Star Borough 2005). These documents are consistent with TCF's Compensatory Planning Framework and identified the following pertinent watershed and regional needs:

- localized mitigation of wetland loss,
- avoidance of detention of overland flow,
- promotion of moisture storage by soil,
- protection of soils from surface erosion,
- maintenance of infiltration and permeability consistent with the potential/capability of the site,
- maintenance of nutrient cycling consistent with the potential/capability of the site,
- protection of near stream vegetation loss and subsequent erosion,
- maintenance of plant conditions consistent with the potential/capability of the site,
- protection of key vegetative communities that provide essential habitat, particularly for species of management concern, with consideration of habitat shift,
- minimizing anthropogenic disturbance,
- minimizing anthropogenic vectors for spread of non-native invasive species

### **2.2.2 Headwaters Goldstream Creek HUC-10 Watershed**

The importance of undeveloped land in the Goldstream Valley is demonstrated by the creation and public support for the Goldstream Public Use Area. The Alaska Senate renewed the designation of approximately 2,000 acres in 2010 for its unique habitat and recreation potential. Protection of additional private parcels in the Goldstream Valley is necessary to preserve the integrity of the geographically disconnected Public Use Area lands. Ecologically, the Alaska Department of Environmental Quality has found Goldstream Creek to be polluted from excess turbidity. Point source and non-point source pollution (turbidity) has predominantly resulted from construction, mining, and erosion upstream from the IN-2 site. Land use activities have caused loss of riparian vegetation and soils, elimination of stream banks, and loss of natural habitat. Increased levels of turbidity impact drinking water sources, diminish fish rearing success, and impair recreational uses. ADEC advises to keep the naturally vegetated corridors along the creek to filter pollutants in the "Upper Goldstream Watershed", a portion of the Headwaters Goldstream Valley watershed that includes the IN-2 site (ADEC 2015).

## **2.3 Identification of Desired Outcomes**

Desired outcomes for aquatic resource compensatory mitigation projects in the greater Fairbanks area include the creation and expansion of "green" infrastructure in and adjacent to communities. Successful projects will be of a scale and location to preserve or enhance connectivity and



continuity of aquatic resources specifically addressed in Section 2.1, focusing on maintaining the hydrologic and bio-geochemical aspects of green infrastructure. Contributing ecological functions might include:

- Groundwater recharge
- Surface water collection, storage, and discharge
- Maintenance of the natural stream flow regime
- Shoreline stabilization
- Sediment and pollutant storage
- Nutrient cycling and storage

Secondary outcomes include maintenance of habitat and recreational/educational opportunities.

#### **2.4 Identification of Potential Project Sites**

TCF selected the Goldstream Valley focus area for its proximity to the primary impacts occurring in the Tanana River watershed, wetland and habitat quality, and available opportunity for preservation projects. With help from the IALT, TCF identified relatively large parcels with willing sellers.

#### **2.5 Assessment of the Potential of Sites to Meet Watershed Needs**

IN-2 properties were selected based on the Goldstream Valley parcel prioritization conducted by the IALT described in Section 2.6 (Appendix A). Parcels were evaluated based on the presence of Goldstream Creek, the presence of Fairbanks North Star Borough trails, adjacency to existing protected lands, property size, proportion of wetlands, and the presence of lakes or ponds.

#### **2.6 Prioritization of Project Sites**

The findings of the Goldstream prioritization are attached herein (Appendix A). Engel and Parrish were identified concurrently with the Goldstream Valley prioritization exercise, at which time TCF brought the properties before the Interagency Review Team and acquired them with the intent of approving the sites for wetland mitigation. Note that IALT subsequently excluded Engel and Parrish from the ranking visualization, but advised TCF that the IN-2 site merits a “high” priority score equivalent to the adjacent parcels. IALT included the following language in the prioritization document explaining the site’s value within the prioritization framework:

*“Goldstream Valley contains a beautiful and well-loved green space within the Fairbanks community. It contains miles upon miles of (primarily winter) trails, which are used by everyone from dog mushers and berry pickers to moose and foxes. Goldstream Creek is the centerpiece of this valley, creating the wetlands that serve as homes for many species of native plants and animals. Areas like this are what make the Fairbanks community unique, as they allow residents to get outside and enjoy Interior Alaska right from their own backyards.*

*The Engel and Parrish properties were prioritized as essential parts of the IALT’s work to protect the natural character of western Goldstream Valley. Together, their conservation will protect nearly 350 acres of wetlands that would otherwise likely be subdivided into small residential lots. Their size, continuity with existing conserved parcels, and location within the Goldstream valley, make them ideal conservation choices. They both contain Goldstream Creek.*



*While Engel is adjacent to the Peat Ponds, a property owned by the land trust, Parrish is also proximal to this great resource. The Peat Ponds enjoy tremendous local support, and the small parking lot is regularly full of local residents both appreciating wildlife and recreating. Conservation of the Engel and Parrish properties form an essential core of the larger Goldstream Valley conservation project greatly enhancing the Goldstream Public Use Area while also conserving the natural spaces that characterize the region” (IALT 2015).*

## **2.7 Threat**

Specific threats to the IN-2 site include habitat destruction and fragmentation, wetland functional loss, and adverse impacts to fish and wildlife. The primary sources of these threats are land alteration (e.g., subdivision, road construction, developments, trails, mineral extraction), chemical pollution, (e.g., fuel, motor oil, septic system leaks), and trash (e.g., garbage, litter, abandoned vehicles) associated with commercial, residential, and recreational developments. The immediacy of planned development is demonstrated by the recording of the adjacent Goldstream Creeksites Subdivision Plat, Plat # 2016-67, Fairbanks Recording District (Figure 2). Existing access from Sheep Creek Road and Obrien Street increases the likelihood of these parcels over equivalent parcels in the area.

Surface development will reduce the IN-2 site’s capacity to retain and remove sediment, nutrients, and toxicants originating from upstream mining and development activities, reducing the downstream buffer to the greater Tanana River watershed (ADEC 2015, HDR 2015). Disruption of the subsurface by septic installation, well drilling, and gravel mining activities associated with nearby development will disrupt underlying permafrost, changing the site hydrology and further reducing capacity for sediment, nutrient, and toxicant filtration (ADEC 2015, HDR 2015). IALT notes that septic installations will be particularly damaging given the areas proclivity to freeze/thaw cycles and flooding, likely leading to contamination of areas hydrologically connected to the IN-2 site. Threats to the Goldstream Creek channel include gold dredging and rerouting. Nearby examples of these activities include the adjacent “Peat Ponds” property, formed by historical gold dredging, and rerouted Cripple Creek at the base of Chena Ridge.



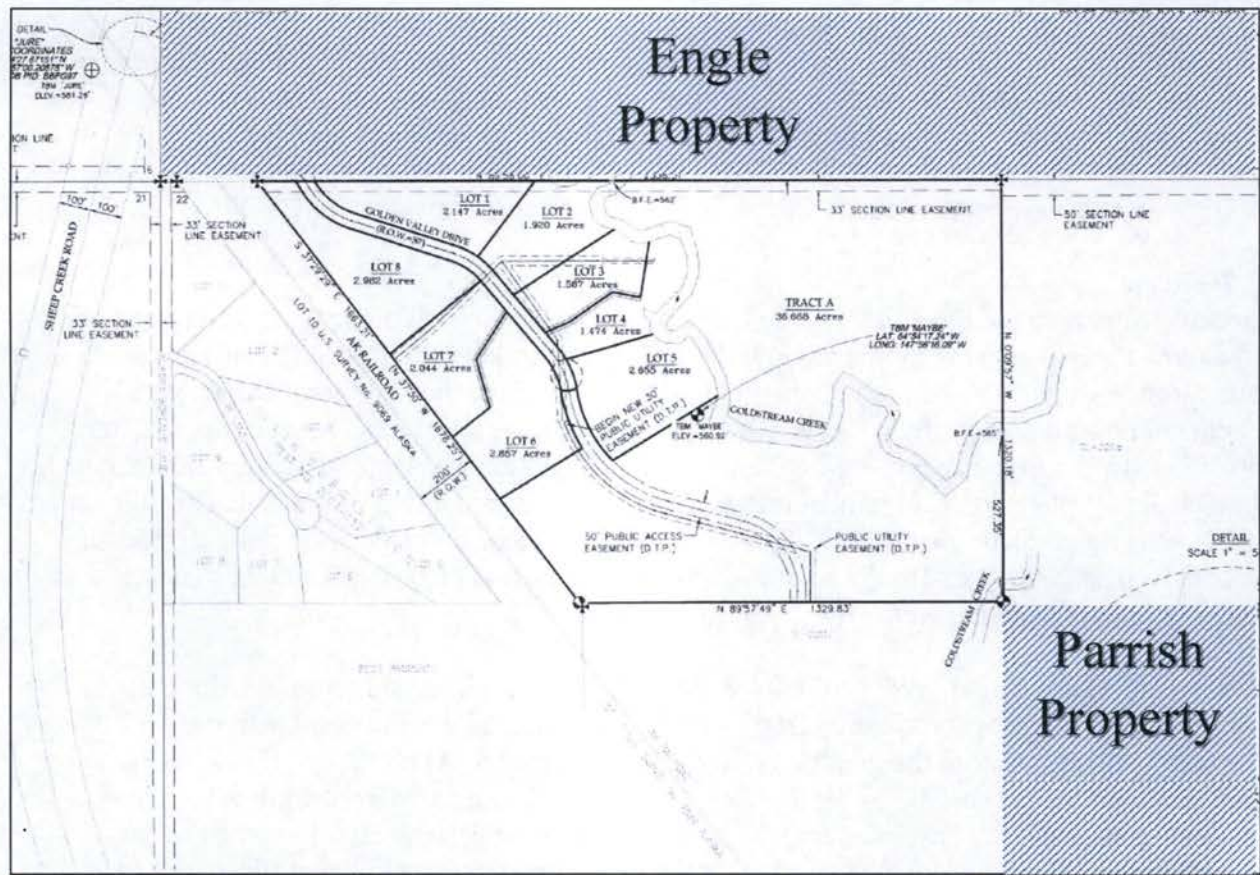


Figure 2 - Goldstream Creeksites Subdivision Plat with the location of the Engle and Parrish properties.

### 3. SITE PROTECTION INSTRUMENT [33 CFR § 332.4(c)(4)]

TCF acquired the title to the fee simple surface and subsurface estates. Following the approval of this proposed mitigation plan, TCF will record Corps approved restrictive covenants to the property deeds pertinent to the aquatic resources. TCF will convey the properties to IALT, a 501(c)(3) non-profit land conservation entity in Fairbanks.

The IALT is an established land trust, and the best and most qualified entity to for long-term ownership and management. IALT have agreed to the responsibilities of the Long-term Steward pursuant to the Long Term Management Plan (Appendix B) and the preservation intent expressed in this mitigation plan and in the deed. Long-term Management will be funded from annual financial returns generated from an endowment described in the Long-term Management Plan. Collectively, these actions provide the protection mechanism for the proposed IN-2 mitigation site.

### 4. BASELINE INFORMATION [33 CFR § 332.4(c)(5)]

The Engel and Parrish properties contain approximately 322.22 acres of uplands, wetlands, and waterbodies along Goldstream Creek (Figure 3). The attached wetland and waterbody Functional Assessment (FA) reports (Appendix C) describe the wetlands, waterbodies, and uplands identified on the properties, as well as their hydrological, biological, and social functions and values. On-site field work was completed in Fall 2015 to inform this assessment. The primary



wetland assessment tool used was the Alaska Wetland Assessment Method (AKWAM), and wetlands and waterbodies were categorized by their Cowardin classification (Cowardin et al. 1979). The FA reports provide baseline information representing the current, baseline condition of the IN-2 property. These report will be amended with established summertime photo points for the purpose of monitoring and reporting upon approval of the IN-2 wetland mitigation plan, subject to the credit release schedule outlined in Section 13.

#### 4.1. Aquatic Resource Assessment

The Engel and Parrish FA delineations identify approximately 276.98 acres of wetlands and waterbodies on the property. These consist of 0.32 acres of palustrine forested wetlands, 241.18 acres of palustrine scrub-shrub wetlands, 7.43 acres of palustrine scrub-shrub/emergent wetlands, 14.70 acres of palustrine emergent wetlands, 8.24 acres of palustrine waterbodies, and 5.11 acres of riverine waterbodies (Figure 3). Cumulative wetland classes and acreage for the IN-2 site are detailed in Table 1. Acreages vary from FA report metrics due to rounding.

#### 4.2. Upland Buffers

100-foot wide buffers provide important protections to ecosystem functions and services performed by the property's wetlands and waterbodies. The Engel and Parrish properties contain 50.72 acres of upland buffers, including 27.64 acres of riverine buffer and 23.08 acres of palustrine buffer (Figure 3). Where overlapping, buffers were classified as riverine to prioritize the higher function wetland type. Acreages vary from FA report metrics due to rounding and treatment of overlapping-type buffers.

Table 1. IN-2 Mitigation Site Aquatic Resources and Buffers

Resource Type	Class (Cowardin)	Acres Total
<b>Palustrine Forested Wetlands</b>		
Saturated needle-leaved evergreen forested wetland	PFO4B	0.32
Total		0.32
<b>Palustrine Scrub-Shrub Wetlands</b>		
Seasonally flooded broad-leaved deciduous scrub-shrub wetland	PSS1C	29.42
Impounded seasonally flooded broad-leaved deciduous scrub-shrub wetland	PSS1Ch	0.32
Saturated broad-leaved deciduous/needle-leaved evergreen scrub-shrub wetland	PSS1/4B	8.98
Seasonally flooded broad-leaved deciduous/needle-leaved evergreen scrub-shrub wetland	PSS1/4C	9.22
Saturated broad-leaved evergreen/broad-leaved deciduous scrub-shrub wetland	PSS3/1B	2.15
Seasonally flooded broad-leaved evergreen/ broadleaved deciduous scrub-shrub wetland	PSS3/1C	1.25
Saturated broad-leaved evergreen/needle-leaved evergreen scrub-shrub wetland	PSS3/4B	5.38
Saturated needle-leaved evergreen/broad-leaved deciduous scrub-shrub wetland	PSS4/1B	47.20



Seasonally flooded needle-leaved evergreen/ broad-leaved deciduous scrub-shrub wetland	PSS4/1C	24.91
Saturated needle-leaved evergreen scrub-shrub wetland	PSS4B	112.35
Total		241.18
<b>Palustrine Scrub-Shrub / Emergent Wetlands</b>		
Saturated broad-leaved deciduous scrub-shrub/ persistent emergent wetland	PSS1/EM1B	0.52
Seasonally flooded broad-leaved deciduous scrub-shrub/persistent emergent wetland	PSS1/EM1C	2.06
Saturated needle-leaved evergreen scrub-shrub/ persistent emergent wetland	PSS4/EM1B	1.80
Seasonally flooded persistent emergent/broad-leaved deciduous scrub-shrub wetland	PEM1/SS1C	3.05
Total		7.43
<b>Palustrine Emergent Wetlands</b>		
Saturated persistent emergent wetland	PEM1B	0.88
Seasonally flooded persistent emergent wetland	PEM1C	0.79
Impounded seasonally flooded persistent emergent wetland	PEM1Ch	1.76
Semi-permanently flooded persistent emergent wetland	PEM1F	11.17
Permanently flooded persistent emergent wetland	PEM1H	0.08
Permanently flooded persistent emergent wetland and pond with an unconsolidated bottom	PEM1/UBH	0.02
Total		14.70
<b>Palustrine Waterbodies</b>		
Impounded permanently flooded palustrine pond with an aquatic bed	PABH	1.48
Permanently flooded palustrine pond with an unconsolidated bottom	PUBH	6.76
Total		8.24
<b>Riverine Waterbodies</b>		
Permanently flooded lower perennial stream with an unconsolidated bottom	R2UBH	4.96
Permanently flooded upper perennial stream with an unconsolidated bottom	R3UBH	0.11
Seasonally flooded intermittent stream bed	R4SBC	0.04
Total		5.11
<b>Total Aquatic Resources</b>		<b>276.98</b>
Palustrine Upland Buffer	UPL	27.64
Riverine Upland Buffer	UPL	23.08
<b>Total Buffer Uplands</b>	<b>UPL</b>	<b>50.72</b>
<b>Non-buffer Uplands</b>	<b>UPL</b>	<b>4.52</b>



# IN-2 Site Map with Wetlands

THE  
CONSERVATION FUND

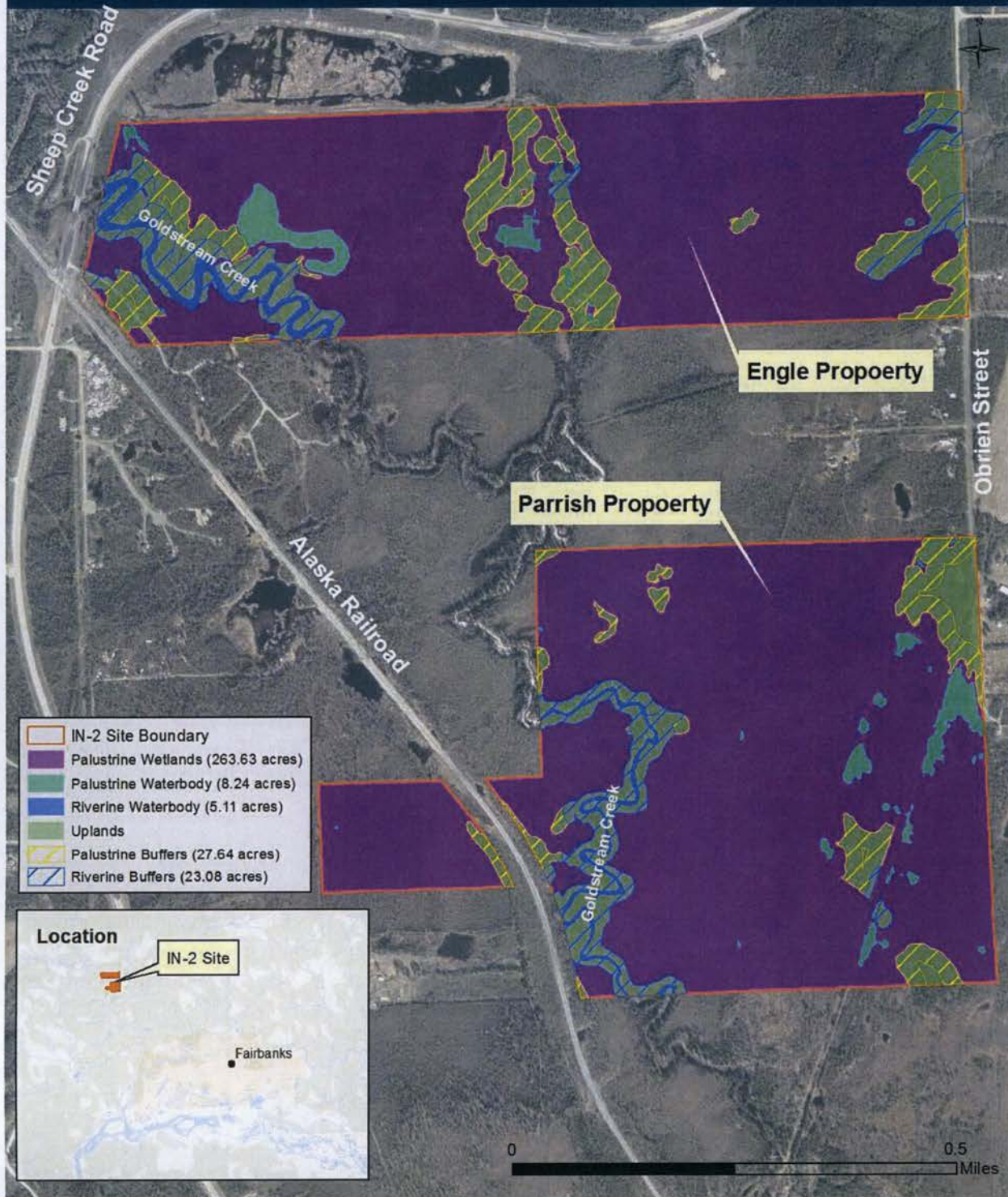


Figure 3 - Site Map with Wetlands and Wetland Buffers



## **5. DETERMINATION OF CREDITS [33 CFR § 332.4(c)(6)]**

TCF proposes to generate credits from the preservation and maintenance of the IN-2 site using two different methods to determine credits. This was done to ensure that the compensation determination method for permitted wetland impacts matches the method used for the determination of credits. TCF used the credit determination methodology outlined in RGL 09-01 (USACE 2009) to compensate for the sale of advanced credits (i.e., debits), being the same methodology used to determine the compensation requirements of the Corps issued wetland permits that purchased those Interior Service Area advanced credits. Released credits generated from the preservation of the IN-2 site in excess of advanced credit sales were determined using the Alaska District Credit Debit Methodology Version 1.0 (USACE 2016). This was done based on Corps input that future permitting will proceed using the Alaska District Credit Debit Methodology Version 1.0, ensuring appropriate compensation should these released credits be selected to offset those future impacts. In both scenarios each credit was assigned to 1 of 2 general wetland types – palustrine or riverine – based on the Cowardin classification (Cowardin et al. 1979).

As credits are released pursuant to the credit release schedule described in Section 13, they will be used to fulfill palustrine and riverine debits for TCF's Interior Service Area. Any credits in excess of accumulated debits will be sold as released credits. Based on the following determination of credits, TCF expects to apply all generated palustrine credits towards fulfillment of the existing 342.23 debits, apply a portion of the riverine credits towards fulfillment of the existing 1.24 debits, and generate 15.37 excess released riverine credits.

### **5.1. Units of measure [33 CFR § 332.8(o)(1)]**

The unit of measure for credits are acres multiplied by the functional value of acres protected and maintained.

### **5.2. Assessment [33 CFR § 332.8(o)(2)]**

TCF used the FA reports, best professional judgment, and input for the Corps to assess the functional capacity of aquatic resources and buffers on the IN-2 Mitigation Site.

### **5.3. Credit production [33 CFR § 332.8(o)(3)]**

#### **5.3.1 Credit Production for Fulfilment of Existing Debits**

TCF used a functional multiplier per each wetland management category consistent with the preservation-compensation ratios provided by RGL 09-01 (Table 2). Management categories for credit production were determined in the FA reports (Appendix C) and are detailed in Figure 4. Associated wetland buffers were included in credit calculations based on their ecological significance to the functionality of IN-2 Site wetlands. Based on input from the Corps and HDR wetland scientists, credits from buffers were calculated using a 50% functionality ratio (Table 2).

**Table 2. Functional Multipliers by Management Category**

<b>Management Category</b>	<b>Functional Multiplier</b>
Category I	1.00
Category II	0.90
Category III	0.70
Upland Buffers	0.50



TCF proposes to satisfy 268.12 palustrine debits and 1.24 riverine debits by the production of credits. 3.20 acres of Category II riverine (stream) wetlands and 23.08 acres of riverine buffers were excluded from this calculation and applied to the determination of released credits by the Alaska District Credit Debit Methodology Version 1.0. Table 3 presents credits by type, acreages, and management category, including the proportion of riverine wetland acreage to be applied to determination of released credits.

**Table 3. Proposed Credits Generation Methodology**

<b>Cowardin Credit Category</b>	<b>Management Category</b>	<b>Mapped Acres</b>	<b>Functional Multiplier</b>	<b>Possible Credits</b>	<b>Credits Used</b>
Palustrine Wetlands	I	96.31	1.00	96.31	96.31
	II	167.21	0.9	150.49	150.49
	III	0.12	0.7	0.08	0.08
Palustrine Waterbodies	I	0.06	1.00	0.06	0.06
	II	8.13	0.9	7.32	7.32
	III	0.06	0.7	0.04	0.04
Palustrine Buffers	N/A	27.64	0.50	13.82	13.82
<b>Total Palustrine Credits Toward Existing Debits</b>				<b>285.65</b>	<b>268.12</b>
Riverine Waterbodies	II	4.96	0.9	4.46	1.13
	III	0.15	0.7	0.11	0.11
Riverine Buffers	N/A	23.08	0.5	11.54	0.00
<b>Total Riverine (Stream) Credits Toward Existing Debits</b>				<b>0.39</b>	<b>1.24</b>
<b>Total Credits Toward Existing Debits</b>				<b>98.75</b>	<b>269.36</b>



# IN-2 Site Map and Wetland Management Catagories

THE  
CONSERVATION FUND

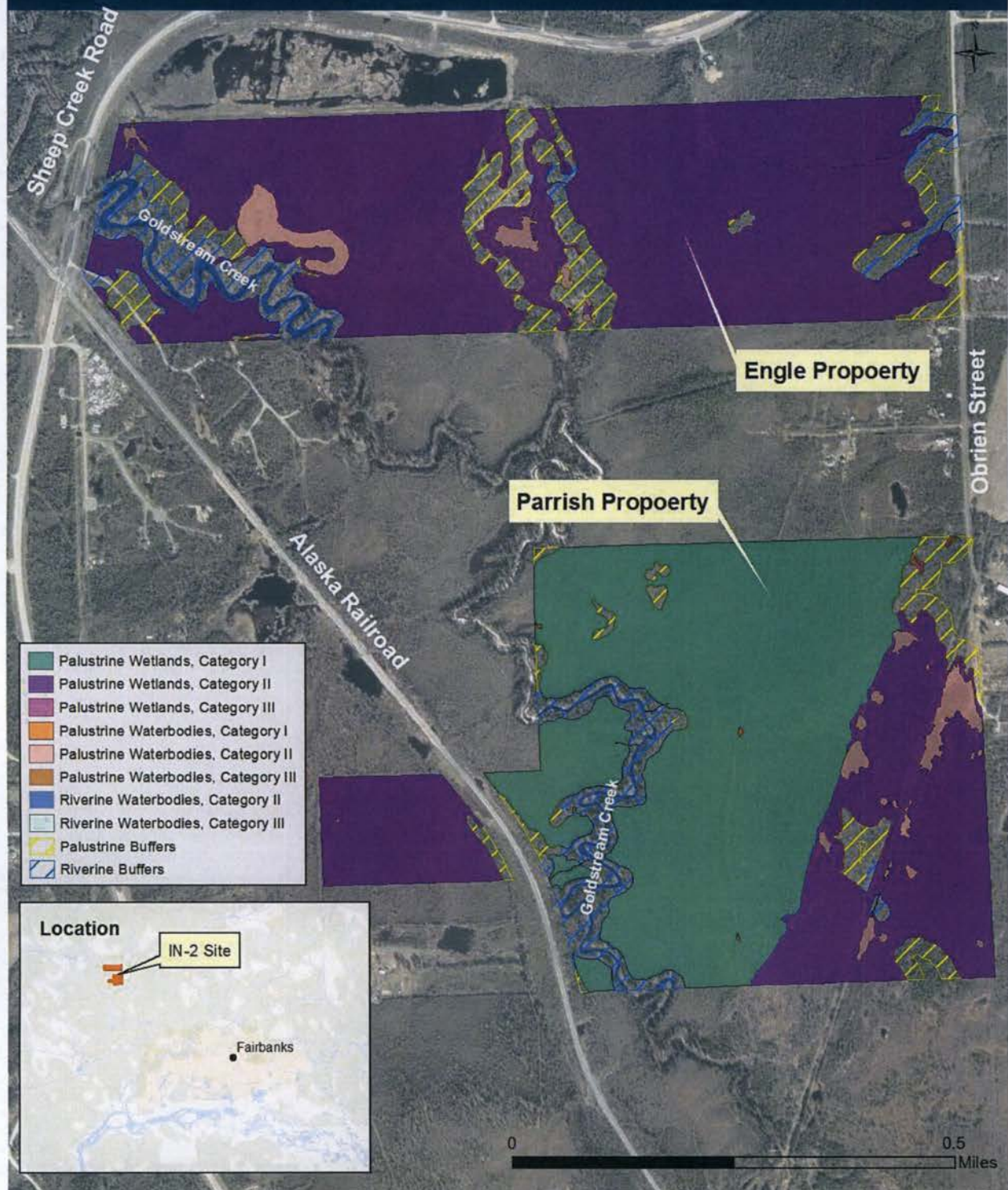


Figure 4 - Site Map with Wetland Management Categories for Credit Determination



### 5.3.2 Credit Production for Released Credits

TCF proposes to generate 14.41 riverine (stream) released credits using the Alaska District Credit Debit Methodology Version 1.0. This number of riverine credits accounts for the anticipated difference between site conditions with and without preservation ( $\Delta$ ), applying a preservation adjustment factor (PAF) for threat (T), ecological significance (ES), time lag (TL), and risk (R) as outlined in this section. Values are reported in Table 4.

Credit production from the preservation and maintenance of the IN-2 Mitigation Site reflects the difference between “With Preservation” and “Without Preservation” conditions (Eq. 1). “With Preservation” represents the permanent protected state of 100% of existing riverine wetlands and their function in current condition. An unprotected condition or “Without Preservation” conditions reflects the eventuality that the threats described in Section 2.6 are executed. TCF assumes that fill, displacement, or rerouting of riverine waterbodies would remove all function in their existing form. TCF assumes that fill or displacement of riverine buffers would remove all function in their existing form. Loss of these functions would negate both the local and regional significance of wetlands described in Sections 2 and 4. “Without Preservation” function is thus assumed to be 0% for all riverine wetland units.

(Eq. 1)  $\Delta$  = With Preservation – Without Preservation

A categorical Threat of 0.3 was assigned for all IN-2 riverine wetlands based on the following factors:

- **(0.3) Demonstrated land use trend within the boundaries of an incorporated city, town, or borough. (Example: Platted land zoned for development).** The IN-2 site is within the Fairbanks North Star Borough, adjacent parcels have been platted for subdivision and development (Goldstream Creeksites Subdivision, Plat # 2016-67, Fairbanks Recording District), the Engle and Parrish appraisals found future development to be the best and highest value, and is located in an area demonstrating both residential and commercial development.

**Demonstrated threat of mining activities through extensive prospecting, which indicates there are economically recoverable reserves/commodities.** The IN-2 Site is adjacent to the “Peat Ponds” property formed by historical gold dredging and is downstream from historic and active dredging activities.

An additive Ecological Significance score of 0.5 out of 0.7 was assigned for all IN-2 riverine wetlands based on the following factors:

- **(0.1) Aquatic resources that are adjacent to or connect to regionally important publicly held lands.** The IN-2 site is within the Goldstream Valley Public Use Area.
- **(0.3) Site contains aquatic resources that have been identified as significant or productive within a specified Ecoregion.** ADEC identified the portion of Goldstream Creek and associate wetlands contained in IN-2 Site as uniquely value in reducing turbidity and pollution from upstream mining and development activities, buffering the larger Tanana River watershed. Site wetlands also support a large number of waterbirds,



migratory songbirds, invertebrates that supply key forage for birds and fish, and visiting mammalian wildlife including moose, bears, caribou, and furbearers. Goldstream Creek supports Arctic grayling.

- **(0.1) Scarcity of Aquatic Resource Type.** The IN-2 site wetlands are uniquely situated in the Goldstream Valley habitat corridor as demonstrated in the IALT Goldstream Valley Parcel Prioritization. Development of these wetlands would lead to habitat fragment of the existing ecological corridor currently serving many species of native plants and animals.

A cumulative PAF score of 0.8 ( $0.3 + 0.5$ ) was applied to Eq. 2 and Eq. 3.

(Eq. 2)  $PAF = T + ES$

(Eq. 3) Preservation Adjusted  $\Delta = (\Delta)(PAF)$

A Time Lag score of 1.0 was assigned for all IN-2 riverine wetlands. The IN-2 site is a preservation project and has no time lag between credit release and the achievement of desired outcomes.

A Risk score of 1.25 was assigned for riverine waterbodies and 1.5 for riverine buffers based on the following factors:

- **Plant Communities:** Risk to plant communities was determined to be negligible. These wetlands were evaluated to be Management Category II, indicating that the plant communities are established, minimally disturbed, and have low vulnerable to change after the site is preserved. Long term and adaptive management funds and protocols will be implemented upon site establishment to further negate risk.
- **Invasive Exotic/Noxious Species:** Risk from invasive species was determined to be negligible. There are few recruitment sources nearby and preservation negates the likelihood of disturbance that would create suitability for establishment. Long term and adaptive management funds and protocols will be implemented upon site establishment to further negate risk.
- **Water Quality:** Risk to water quality beyond existing conditions was determined to be negligible. Point source pollution of riverine waterbodies and riverine buffers is negated by preservation of the site. Long term and adaptive management funds and protocols will be implemented upon site establishment to further negate risk from point source pollution. Increased management and restoration activities by the ADEC upstream from the IN-2 site have reduced the likelihood of non-point source pollution beyond current quantities.
- **Water Quantity:** Risk to water quantity was determined to be negligible. The vulnerability of riverine waterbodies and upland buffers will be low upon preservation.
- **Indirect Impacts:** Risk to riverine waterbodies and riverine buffers from indirect sources was determined to be low, but not negligible. Risk scores of 1.25 and 1.5 were assigned, respectively. Changes to adjacent land use are likely to be limited to low density residential development. TCF determined that riverine buffers have a higher risk of impact than do riverine waterbodies. This risk is largely negated by the long term and adaptive management funds and protocols that will be implemented upon site establishment.



- **Direct Impacts:** Risk to riverine waterbodies and riverine buffers to direct impacts was determined to be negligible. Fee ownership by the Interior Alaska Land Trust, endowment of the Long-Term Stewardship Fund, and the restrictive covenants effectively eliminate the potential for permanent direct impacts.
- **In-Lieu Fee Advanced Credits:** The vulnerability that TCF will not be able to provide the required compensatory mitigation is negligible based on programmatic status and track record.

Delta was further adjusted to include Time Lag and Risk scores (Eq. 4). Credit production was thus determined by multiplying acres of riverine waterbodies and riverine buffered wetlands by the Adjusted  $\Delta$  (Eq. 5).

(Eq. 4) Adjusted  $\Delta$  = (Preservation Adjusted  $\Delta$ )/((TL)(R))

(Eq. 5) Credits = (Adjusted  $\Delta$ )(Acres)

Cowardin Credit Category	$\Delta$	Threat	Environmental Significance	Time Lag	Risk	Acres	Credits
Riverine Waterbodies	100%	0.3	0.5	1	1.25	3.20	2.10
Riverine Buffers	100%	0.3	0.5	1	1.5	23.08	12.31
Total Released Riverine Credits							14.41



## **6. MITIGATION WORK PLAN [33 CFR § 332.4(c)(7)]**

The work plan for the IN-2 site includes several tasks to be completed before conclusion of the site Maintenance Period, described in Section 7. These tasks are:

- Task 1: Acquisition of the Engel and Parrish properties for IN-2 mitigation site establishment (completed Spring 2015).
- Task 2: Complete functional assessments and phase 1 evaluation (ESA) (completed Winter 2015).
- Task 3: Prepare and submit the wetland mitigation plan to the Corps.
  - Coordinate with the IALT board of directors to develop the Long Term Management Plan and the Long Term Management Endowment.
  - Consult with the IALT about site establishment needs and costs (i.e., signs, debris clean up, etc.).
  - Prepare the IN-2 Mitigation Plan, Long Term Management Plan, Baseline Conditions Report, and Protection Instrument.
- Task 4: Approval of the IN-2 Mitigation Plan and expenditure of in-lieu fee program funds (Spring 2017).
- Task 5: Execution of the Engel and Parrish restrictive covenants described herein (Winter 2017).
- Task 6: Conveyance of the properties to the IALT with the site establishment funds (Winter 2017).
- Task 7: Amendment of the Baseline Conditions Report to include summertime photo points and submit to the Corps for approval (Summer 2017).
- Task 8: Complete site establishment activities (Summer 2017).
  - Post signs at prominent access points and along existing trails.
  - Remove existing structures and debris described in the Baseline Conditions Report.
  - Communicate with neighboring landowners about the IN-2 site's ownership, contact information, status as a mitigation site, and the long-term intent of the site.
- Task 9: Complete site monitoring during the Maintenance Period by the protocols of the Long Term Management Plan. Monitoring and report generation will be done by the IALT. For years 1, 3, and 5 reports generated by the IALT will be submitted to the Corps by TCF.
- Task 10: Written approval of site Maintenance Period by the Corps.
- Task 11: Grant the Long-term Management Endowment to IALT. Continued site management by the Long-term Steward by the protocols of the Long-term Management Plan.

Financial costs associated with this work plan are detailed in Section 12, Financial Assurances, and Appendix D.

## **7. MAINTENANCE PLAN [33 CFR § 332.4(c)(8)]**

Upon site establishment, the site will be maintained by the IALT following the protocol specified in the Long-term Management Plan. Site establishment and maintenance period activities include:



- Removal of existing debris and trash
- Installation of property boundary and informational signage
- Community outreach and communication by IALT
- Site monitoring

Site establishment funds and 5-years of monitoring funds will be granted to IALT as detailed in Section 12. During this period the monitoring reports generated for years 1, 3, and 5 will be given to the TCF for quality assurance and submitted by TCF to the Corps. Successful site maintenance will result from meeting the site Performance Standards described in Section 8, demonstrated by monitoring reports consistent with the standards outlined in Section 9. After year 5, the IALT will continue to implement the protocols of the Long-term Management Plan, including annual monitoring, reporting, and document storage. These records will be available to the Corps upon request.

#### **8. PERFORMANCE STANDARDS [33 CFR § 332.4(c)(9)]**

Performance standards are ecologically-based standards that are used to determine whether the compensatory mitigation site is achieving its objectives. The performance standard for the IN-2 site is to *maintain 100% of the baseline condition or improve the baseline condition*. Monitoring will verify if the performance standard is being met.

#### **9. MONITORING REQUIREMENTS [33 CFR § 332.4(c)(10)]**

Monitoring will be conducted by the IALT. Monitoring will follow the protocols Long-term Management Plan. TCF will provide the IALT generated monitoring reports to the Corps no later than December 31<sup>st</sup> on year 1, year 3, and year 5 of the monitoring period. The monitoring report will reflect the format and requirements described in Corps Regulatory Guidance Letter 08-03 (USACE 2008), including the following information:

- Project overview
- Monitoring requirements and performance standards
- Data summary
- Maps and plans
- Conclusions

Completion of the monitoring period will occur upon written approval from the Corps after year 5. Annual monitoring, report generation, and document storage will continue in perpetuity by the IALT. Records will be available to the Army Corps upon request.

#### **10. LONG-TERM MANAGEMENT PLAN [33 CFR § 332.4(c)(11)]**

Long-Term management of the IN-2 site will be provided by the IALT, pursuant to the Long-term Management Plan (Appendix B). The protocols of the Long-term Management Plan will be executed upon site establishment. A description of long-term management needs, annual costs for these needs, and the non-wasting endowment that will provide for the annual returns to meet these costs is in the Long-term Management Plan.



### **11. ADAPTIVE MANAGEMENT PLAN [33 CFR § 332.4(c)(12)]**

Adaptive management is a management strategy to address unforeseen changes in the site conditions. Protocols for adaptive management are detailed in the Long-term Management Plan. (Appendix B). Specific measures include:

- Establishing a litigation risk fund upon site establishment
- Standard thresholds for implementation of adaptive management

The performance standard may be revised in accordance with adaptive management to account for measures taken to address deficiencies in the mitigation site. Within the site Maintenance Period IALT will notify TCF, who will notify the Corps within 30 days of discovery of impacts. Adaptive management strategies will be implemented by IALT to address site deficiencies. Beyond the site Maintenance Period, IALT will implement adaptive management based on the protocols of the Long-term Management Plan.

Any necessary infrastructure improvements, grading, or alteration of the site's hydrology and/or topography by the IALT or its representatives must be approved by the Corps and the necessary permits, such as a Section 404 permit, must be obtained at any period after site establishment.

### **12. FINANCIAL ASSURANCES [33 CFR § 332.4(c)(13)]**

Financial assurances are provided to ensure a high level of confidence that the compensatory mitigation project will be successfully completed, in accordance with its performance standard. Financial assurances will be drawn from TCF's AKILF program account upon completion of credit release schedule benchmarks. Appendix D details the financial assurances. Incurred project development and real estate costs outlined in will be refunded to TCF upon mitigation plan approval. Site establishment, monitoring, and management costs for the 5-year maintenance period totaling \$38,600.00 will be granted to the IALT from the TCF ILF program account upon mitigation plan approval and site establishment. The Long-term Management Endowment totaling \$53,333.00 for management in perpetuity will be granted to the IALT upon demonstrating 100% maintenance of baseline conditions for 5 years, acknowledged by written approval from the Corps. All financial assurance funds will be held by an FDIC ensured institution. All costs, including long-term management costs, adaptive management costs, and financial assurances, are based on estimates by TCF and IALT. Actual costs will be presented to the Corps by TCF in the annual financial reports.

### **13. CREDIT RELEASE SCHEDULE [33 CFR § 332.8(o)(8)]**

The risk of failure for this compensation site is low. As such, TCF proposes to release a significant number of credits after initial protection actions have been accomplished in pursuit of the performance standard. TCF will submit to the Corps for credit release approval the appropriate and reasonable documentation to demonstrate that the specific actions have been accomplished. Table 4 shows the credit release schedule.



Table 4. Credit Release Schedule

<b>Performance Standard</b>	<b>Actions</b>	<b>Percentage of Credits Released</b>	<b>Number of Credits Released</b>
Site establishment	<ul style="list-style-type: none"> <li>• Development and approval of the IN-2 Mitigation Plan and Associated Documents</li> <li>• Approval and recording of the Declaration of Restrictive Covenant for both IN-2 site properties</li> <li>• Conveyance of IN-2 Properties to the IALT</li> <li>• Establishing the site establishment and maintenance period fund</li> </ul>	<b>75%</b>	<ul style="list-style-type: none"> <li>• 201.09 Palustrine</li> <li>• 11.74 Riverine</li> </ul>
Establish Baseline Conditions Report	<ul style="list-style-type: none"> <li>• Create summertime photo points</li> <li>• Approval of the modified Baseline Conditions Report by the Corps</li> </ul>	<b>10%</b>	<ul style="list-style-type: none"> <li>• 26.81 Palustrine</li> <li>• 1.60 Riverine</li> </ul>
Maintain 100% of the baseline condition or improve the baseline condition	<ul style="list-style-type: none"> <li>• Approval of monitoring reports for year 1, year 3, and year 5. Funding of the Long-term Management Endowment</li> </ul>	<b>15%</b>	<ul style="list-style-type: none"> <li>• 40.22 Palustrine</li> <li>• 2.31 Riverine</li> </ul>
<b>TOTAL</b>		<b>100%</b>	<ul style="list-style-type: none"> <li>• 268.12 Palustrine</li> <li>• 15.65 Riverine</li> </ul>



## REFERENCES

- Alaska Department of Natural Resources (ADNR). 2001. *Tanana Basin Area Plan*.
- Alaska Department of Environmental Conservation (ADEC). 2015. *Upper Goldstream Creek Turbidity, Draft Total Maximum Daily Load Summary*.
- Alaska Department of Fish and Game (ADF&G). 1994. *Restoration and Enhancement of Aquatic Habitats in Alaska: Case Study Report, Policy Guidance, and Recommendations*.
- Alaska Department of Fish and Game (ADF&G). 1998. *Lower Chena River Watershed Management Strategies and Information Needs*.
- Bureau of Land Management (BLM). 2016. *Analysis of Management Situation, Central Yukon Resource Management Plan*.
- Cowardin, L.M., Carter, V., Golet, F.C., and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Office of Biological Services, U.S. Fish and Wildlife Service, FWS/OBS-79-31. Washington, D.C.
- The Conservation Fund (Fund). 2013. *Alaska In-Lieu Fee Compensatory Mitigation Program Instrument*. Anchorage, AK.
- Fairbanks-North Star Borough. 2005. *Regional Comprehensive Plan*.
- Interior Alaska Land Trust (IALT). 20015. *Goldstream Valley Parcel Prioritization*.
- United States Army Corps of Engineers (USACE). 2008 *Army Corps of Engineers Regulatory Guidance Letter 08-03*.
- United States Army Corps of Engineers, Alaska District (USACE). 2016. *Alaska District: Credit Debit Methodology, Version 1.0*.



**APPENDIX A**  
**Goldstream Valley Prioritization**

**APPENDIX B**  
**Long-Term Management Plan**

**APPENDIX C**  
**Functional Assessment Documents**

**APPENDIX D**  
**Financial Assurances**