Dixon Diversion Project

Terrestrial Resources Study Planning Meeting

March 19, 2024

ALASKA ENERGY AUTHORITY

Meeting Goals

- Project Overview
- Address Consultation Needs to Finalize Study Plans
  - Extent of study area for Vegetation and Wildlife Habitat Mapping Study
  - Identify wildlife species to include in the Wildlife Habitat Evaluation Study

ALASKA ENERGY AUTHORITY

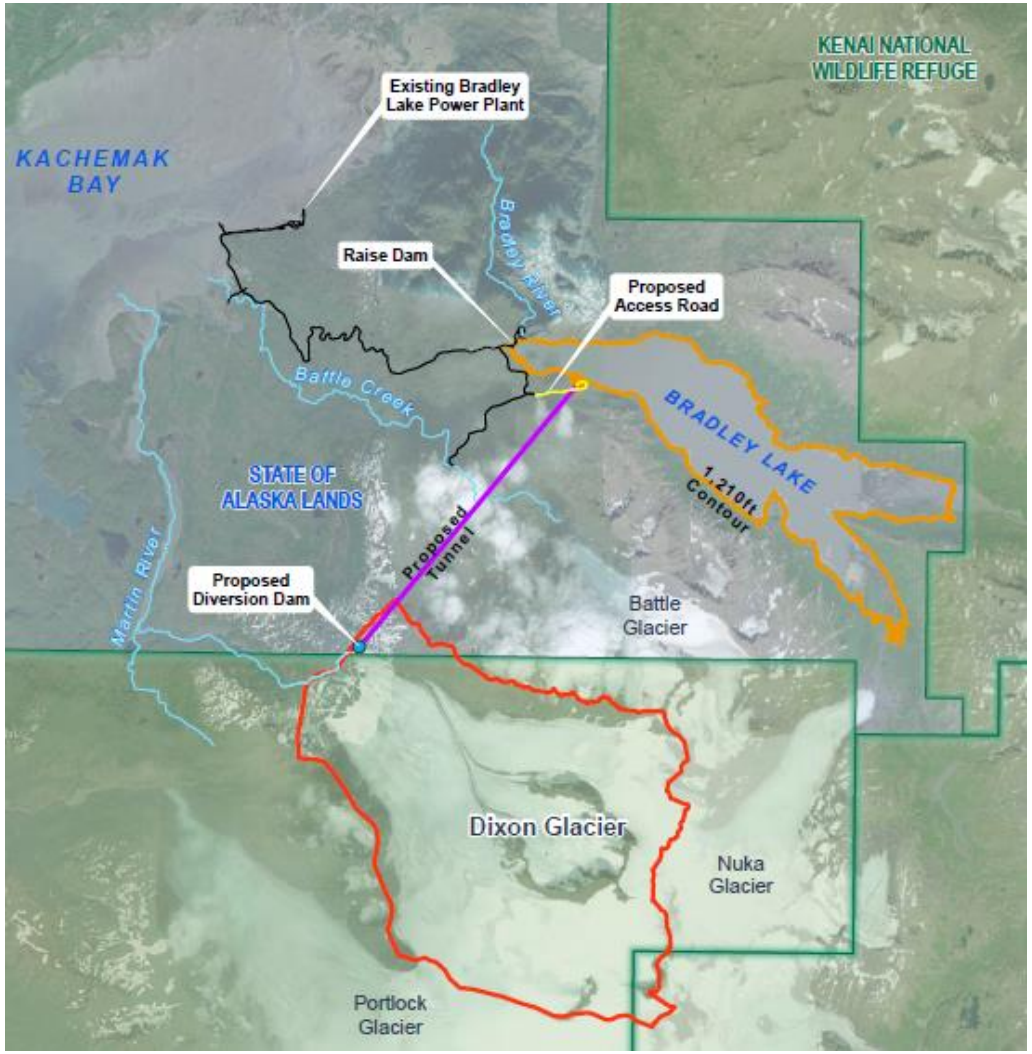
DIXON DIVERSION

Bryan Carey, P.E.
Director of Owned Assets

Joint Agency and Public Meeting
Terrestrial Resources
March 19, 2024

ALASKA ENERGY AUTHORITY

Project Overview



Project Elements:

- Raise Bradley Dam and Lake
- New Dixon Diversion Dam
- Diversion Tunnel to Bradley Lake
- New Access Road from Battle Creek road to tunnel outlet
- Underground Power Line

Project Overview

Removed Elements:

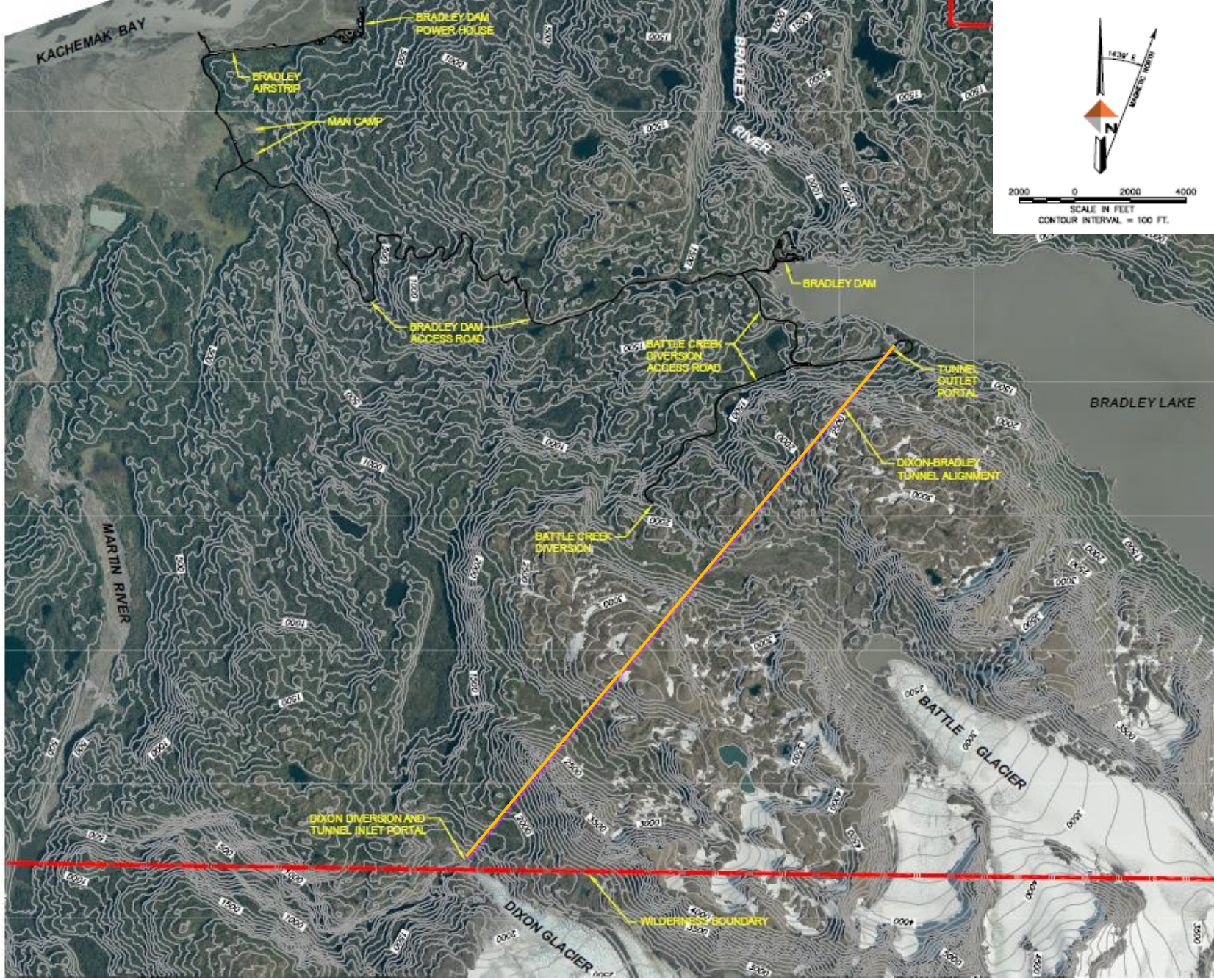
- Martin River Alternative
  - New MR power plant
  - Diversion to new MR power plant
  - New road to new MR power plant
- Road to Dixon Diversion Dam
- New overhead transmission lines

Dixon Glacier Source

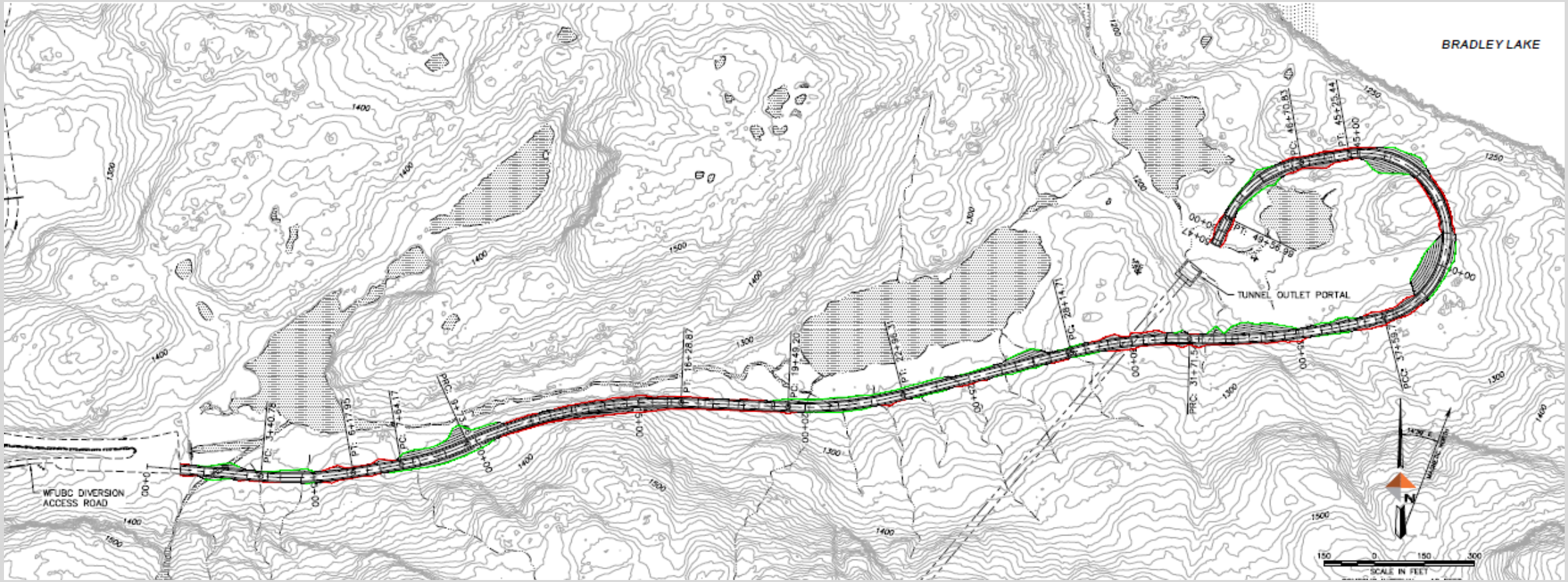
Diversion and Intake

Dixon Diversion and Tunnel

- Diversion Dam
  - ~25 feet high
- Diversion Tunnel to Bradley Lake
  - 4.7 miles long



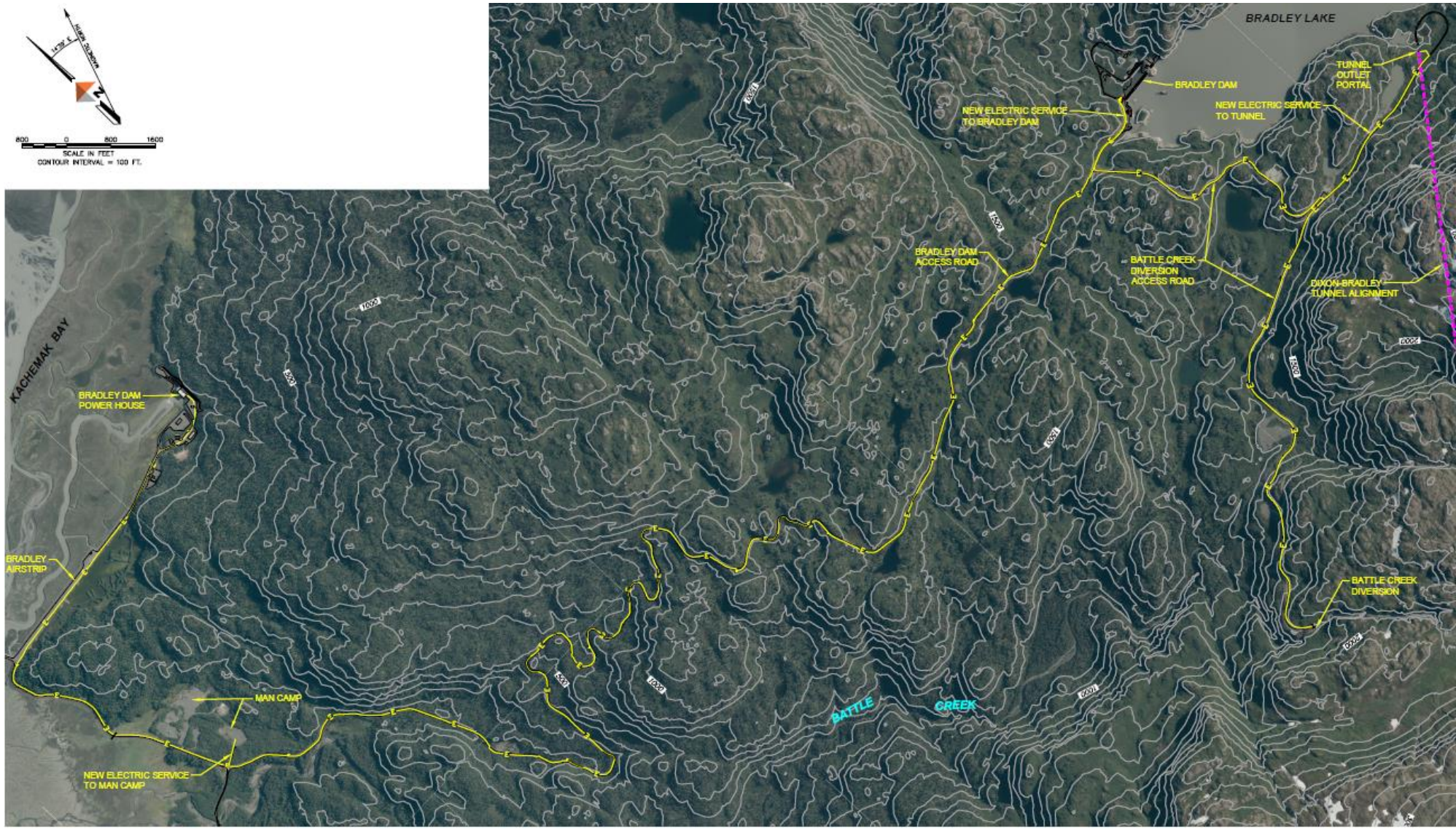
New Access Road



New access road from WFUBC Diversion Road to the Dixon Tunnel Outlet Portal

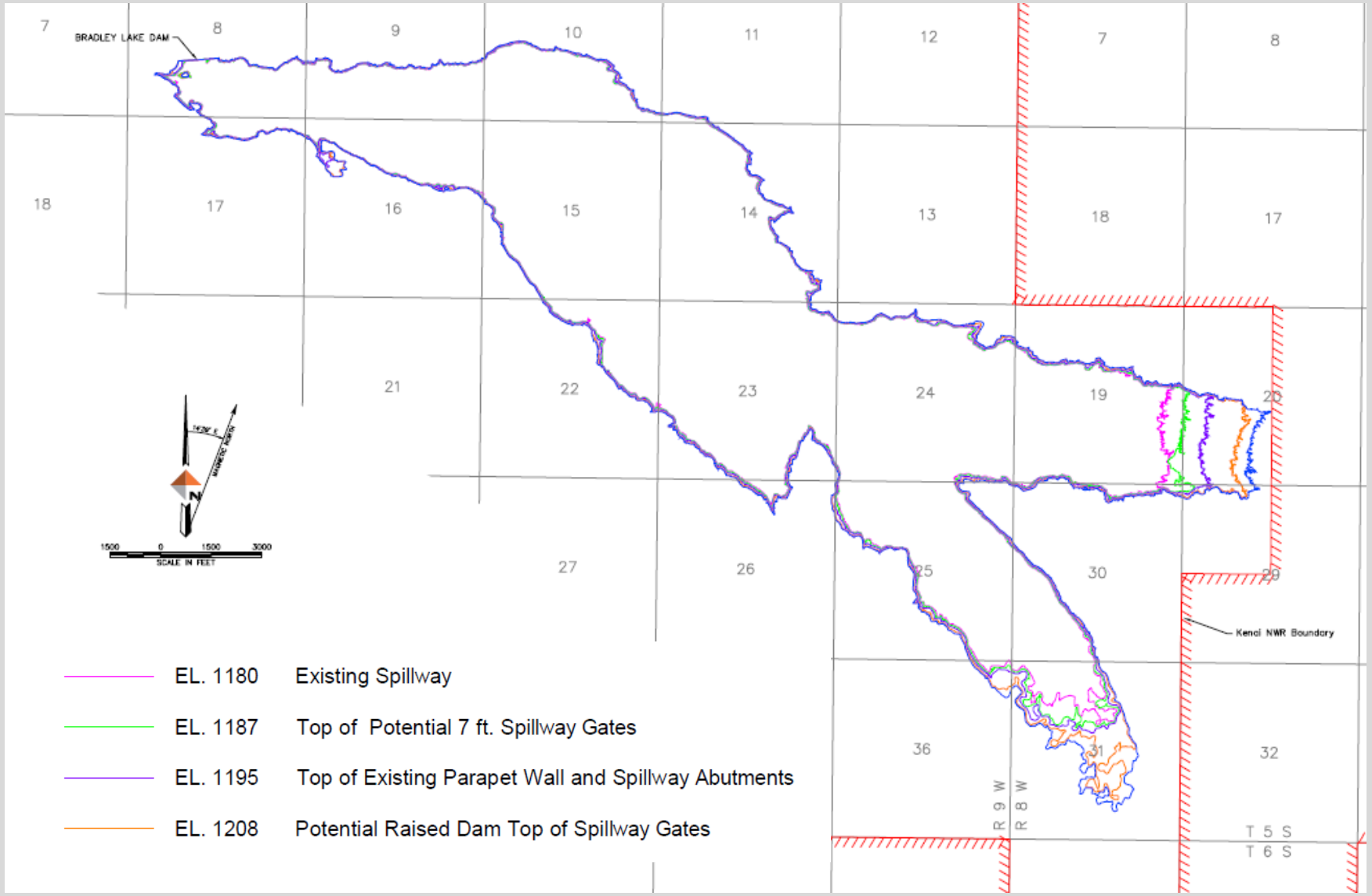
Underground Power Line

- Along existing road from powerhouse to Bradley Dam, and Battle Creek Diversion
- Along new road to Dixon tunnel outlet portal
- Within tunnel to Dixon Diversion
- Spur to worker camp



Bradley Lake Pool Raise

- Up to 28-ft increase
  - 1,208 ft elev
  - 404 acres
  - State land



QUESTIONS?

Vegetation and Wildlife Habitat Change Study

- ABR, Inc.—Environmental Research & Services

- Wendy Davis
- Terry Schick

Goals & Objectives

Goal:

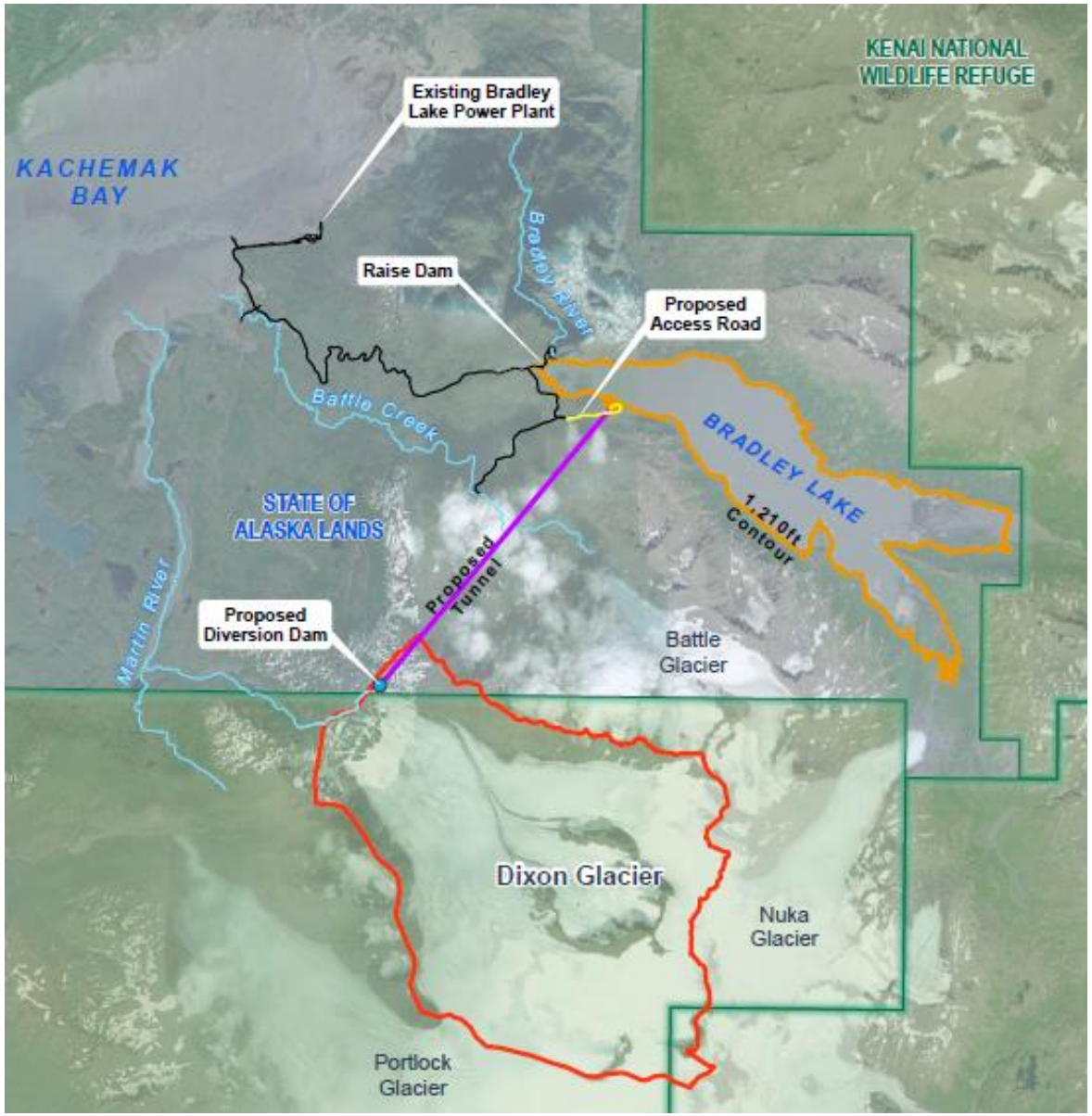
- In conjunction with the Wildlife Habitat Evaluation and Martin River Geomorphology Study, quantify potential Project impacts and future change in extent of important wildlife habitats.

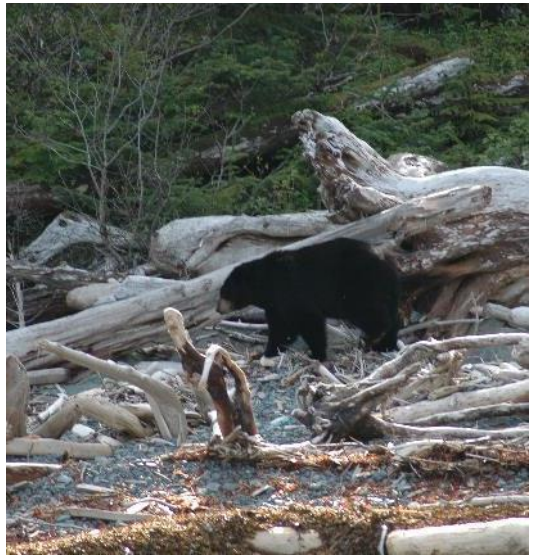
Objectives:

- Identify, delineate, and map existing vegetation and wildlife habitat types in the study area.
- Prepare a vegetation and wildlife habitat map depicting expected, future, post-construction conditions.

Methods

- *Study area to be developed with state and federal agency input;* ***proposed buffer zone of 250 m around Project design elements****, to encompass likely direct and indirect impacts; cumulative impacts assessed in larger area.*
- Mapping will be done using a multivariate method, deriving habitats from several mapped landscape attributes (vegetation, physiographic position, surface form, and disturbance type).





Methods

- Field survey conducted in July 2024 in conjunction with other Project field efforts.
- Vegetation mapping will be coordinated with the Project wetland mapping (line work and field data will be shared).
- Future conditions vegetation and habitat map for Martin River riparian areas will rely on the anticipated channel changes from Geomorphology Study.

Methods

- Preliminary, desktop habitat mapping prepared in spring 2024 prior to field survey.
- Habitat change quantified by comparing areal coverage of each habitat type in the current and predicted future habitat maps.
- Habitat change, by wildlife species, assessed in conjunction with the Wildlife Habitat Evaluation and Geomorphology Study.

Schedule

2024:

- March–May: prepare preliminary existing conditions map (all except Martin River)
- July: field survey
- 2024 Interim Report

2025:

- Finalize existing conditions map, prepare future conditions map
- Final Study Report

Agency Comments on DSP

- USFWS looking forward to discussing mapping buffer zone sizes appropriate to wildlife in the area.
- Response: This meeting!

Discussion

Extent of vegetation and wildlife habitat mapping

Wildlife Habitat Evaluation

- ABR, Inc.—Environmental Research & Services

- Rebecca McGuire
- Terry Schick

Goals & Objectives

Goal:

- Provide specific habitat evaluation information for birds, mammals, and amphibians to facilitate assessment of potential impacts to wildlife habitats.
- Provide data for a quantitative assessment of habitat impacts for species which are not specifically studied in the field.

Goals & Objectives

Objectives:

- Determine local habitat associations for selected wildlife species of concern.
- Categorically rank habitat values for each species and habitat type.
- Informs predictions of species responses to habitat changes from proposed project modifications (conducted in license amendment application).

Methods

- Based on habitat maps prepared in the Vegetation and Wildlife Habitat Change Study.
- *Wildlife species of concern list (currently consists of 31 species) to be determined with state and federal agency input*.
- Utilize project specific habitat-use data, when available, and habitat association information from scientific literature.

Draft Species List for Analysis

Harlequin Duck	Savannah Sparrow
Black Scoter	Song Sparrow
Common Merganser	Orange-crowned Warbler
Red-breasted Merganser	Yellow Warbler
Willow Ptarmigan	Wilson's Warbler
Rock Ptarmigan	Alaska marmot
Semipalmated Plover	American beaver
Spotted Sandpiper	Singing vole
Kittlitz's Murrelet	Snowshoe hare
Golden Eagle	Dusky shrew
Northern Harrier	Western water shrew
Bald Eagle	Little brown bat
Red-tailed Hawk	River otter
Belted Kingfisher	Moose
Alder Flycatcher	Mountain goat
Fox Sparrow	

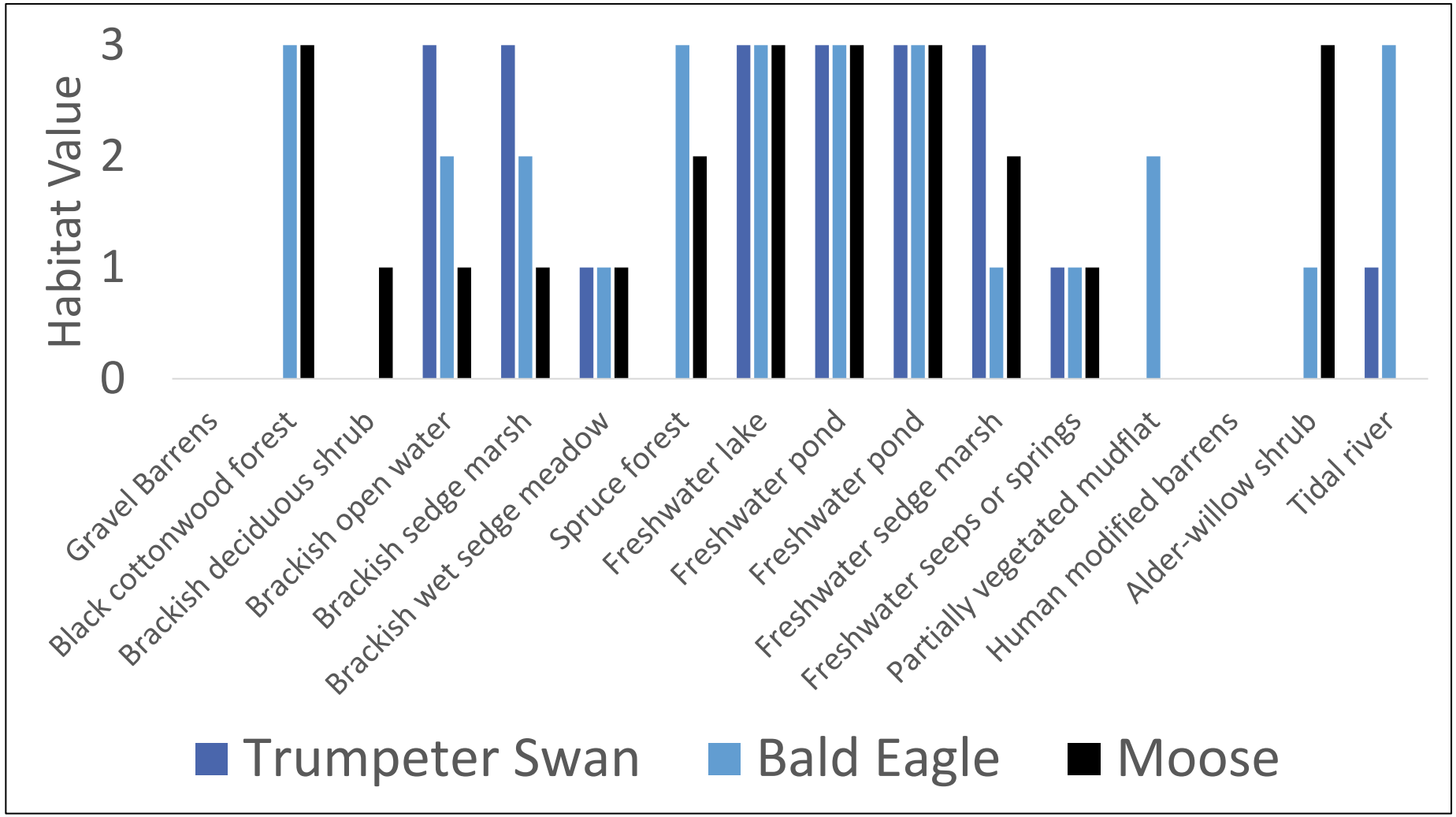
Methods

- Ranking procedure based on methods developed for forested areas in western U.S.; recently used to assess change in habitat value for wildlife in Alaska.
- Categorical habitat values (high, moderate, low, negligible) determined for each mapped habitat type and species of concern.

Methods

Example species-by-habitat matrix

Habitat values:
3 = high
2 = moderate
1 = low
0 = negligible



Schedule

2025:

- Rank mapped habitats for each species for existing and future conditions
- Final Study Report

Agency Comments on DSP

- USFWS interested in more quantitative analysis to determine species that use the area and in which life-history stages.
- Response: Categorical habitat-value rankings account for use in all life-history stages; quantitative habitat change analysis will be conducted when rankings are linked to mapped habitats (existing vs future conditions).

Discussion

Wildlife Species List to include in Analysis

Draft List of Wildlife Species	
Harlequin Duck	Savannah Sparrow
Black Scoter	Song Sparrow
Common Merganser	Orange-crowned Warbler
Red-breasted Merganser	Yellow Warbler
Willow Ptarmigan	Wilson's Warbler
Rock Ptarmigan	
Semipalmated Plover	Alaska marmot
Spotted Sandpiper	American beaver
Kittlitz's Murrelet	Singing vole
Golden Eagle	Snowshoe hare
Northern Harrier	Dusky shrew
Bald Eagle	Western water shrew
Red-tailed Hawk	Little brown bat
Belted Kingfisher	River otter
Alder Flycatcher	Moose
Fox Sparrow	Mountain goat

Raptor Nesting Study

- ABR Inc.—Environmental Research & Services

- Joe Welch
- Alex Prichard

Goals & Objectives

Goal:

- Collect baseline data to evaluate and mitigate potential effects of Project construction and proposed Project facilities and activities on eagles and other raptors that may nest in the vicinity of the Project.

Goals & Objectives

Objectives:

- Evaluate imagery and, if needed, survey cliff habitats above Bradley Lake for nesting golden eagles and other cliff-nesting raptors and categorize cliff quality for golden eagles.
- Surveys of forest and riparian areas for tree-nesting raptors, especially bald eagles, will be conducted in a future year to provide current data on nest locations just prior to construction.
- Develop recommendations for work timing windows and avoidance areas for other Project field activities to prevent disturbance of known raptor nest sites.

Methods

Raptor Nesting Study, 2025:

- Evaluate aerial imagery for cliff-nesting raptor habitat above Bradley Lake.
- If needed, in a partial-day effort in spring 2025, use a helicopter (Robinson R44) with 2 trained observers to survey areas within a 2-mile buffer zone surrounding cliff habitats above Bradley Lake.
- Survey will follow USFWS protocols for nesting raptor surveys in Alaska.
- Survey suitable habitat for cliff-nesting raptors, especially golden eagles and peregrine falcons, and assess cliff-nesting habitat quality for golden eagles.

Schedule

2025:

- February: evaluate imagery for cliff-nesting habitat
- Late May or early June: Aerial cliff-nesting raptor nest survey (if needed)
- Final Study Report

PME Pre-construction Survey (Year TBD):

- April–June: Aerial tree- and cliff-nesting (if needed) raptor nest surveys
- Final Survey Report

Agency Comments on DSP

- USFWS recommended revising the study to “Raptors and Migratory Birds,” in light of the potential for power line mortality of all bird species.
- Response: New power lines are not proposed now, so increased collision and electrocution risk is avoided.

Wetlands Study

- Kleinschmidt: Betsy McGregor
- Study to be completed by DOWL

Source: Ian Dickson KTOO 2014.

Goals and Objectives

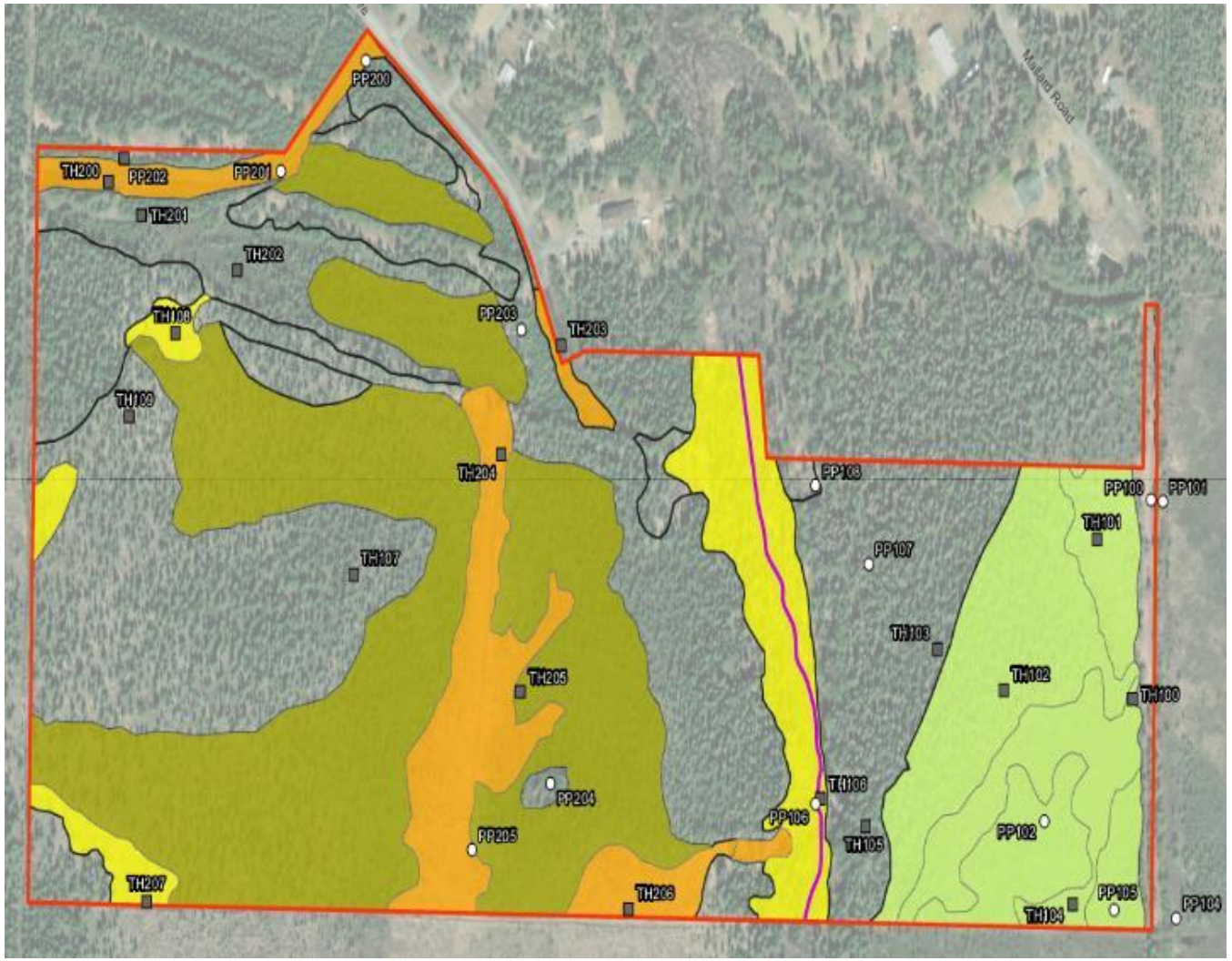
- Goals
  - Identify wetland and waterbody extents
  - Assess wetland quality/functions
- Objectives
  - Map wetlands from Veg mapping study
  - Delineate wetlands in areas subject to Section 404 permit
  - Evaluate wetland functions
  - Identify wetlands to be avoided or to minimize impacts
  - Identify potential areas for mitigation

Methods

- Start with preliminary vegetation map and LiDAR
- USACE Pre-application Meeting
- May-Sept data collection
- Ground truth prelim map
- Delineate areas subject to Section 404 permit - soil, vegetation, and hydrology
- Functional assessment
- Finalize wetland & waterbody boundaries map

Schedule

- 2024
  - July: Field data collection, Bradley Lake area
  - 2024 Report
- 2025
  - May-Sept: Field data collection, Martin River area
  - 2025 Report



QUESTIONS?

Thank you for your participation!