ALASKA DISTRICT TRIP REPORT
Alaska Villages Erosion Technical Assistance
Newtok, Alaska

August 2005 Field Trip and Preliminary Observations

LOCATION OF TDY: Nelson Island, Alaska

DATE OF TRAVEL: August 22 to August 28, 2005

PURPOSE: Wetland delineation fieldwork and Archaeological surveys.

NARRATIVE
From August 24 to August 27, 2005, a team formed by Marcia Heer (Regulatory Specialist), Margan Grover (Environmental Resources Archaeologist) and Estrella Campellone (Environmental Resources Biological Technician) went to the proposed Newtok relocation site on Nelson Island to conduct archeological and wetland and vegetation surveys.

FIELDWORK
Most of the data was collected in the vicinity of the village relocation site, crosswind runway 1 (westside of crosswind runway), runway 4, proposed barge site and potential borrow site (figure 1).

Wetlands
Data on soil, hydrology, and plant species cover were collected to conduct a preliminary wetland delineation study. A total of 23 detailed observation points (photos, hydrology, vegetation and soil descriptions) were collected in the area (figure 2). For the wetland analysis, these detail descriptions will be complemented with vegetation data collected during June 2005 fieldwork. Twenty GPS points were collected at each of the wetland observation points; in some cases more than one observation point is represented by a GPS point; therefore, GPS points do not exactly match the number of wetland observations.

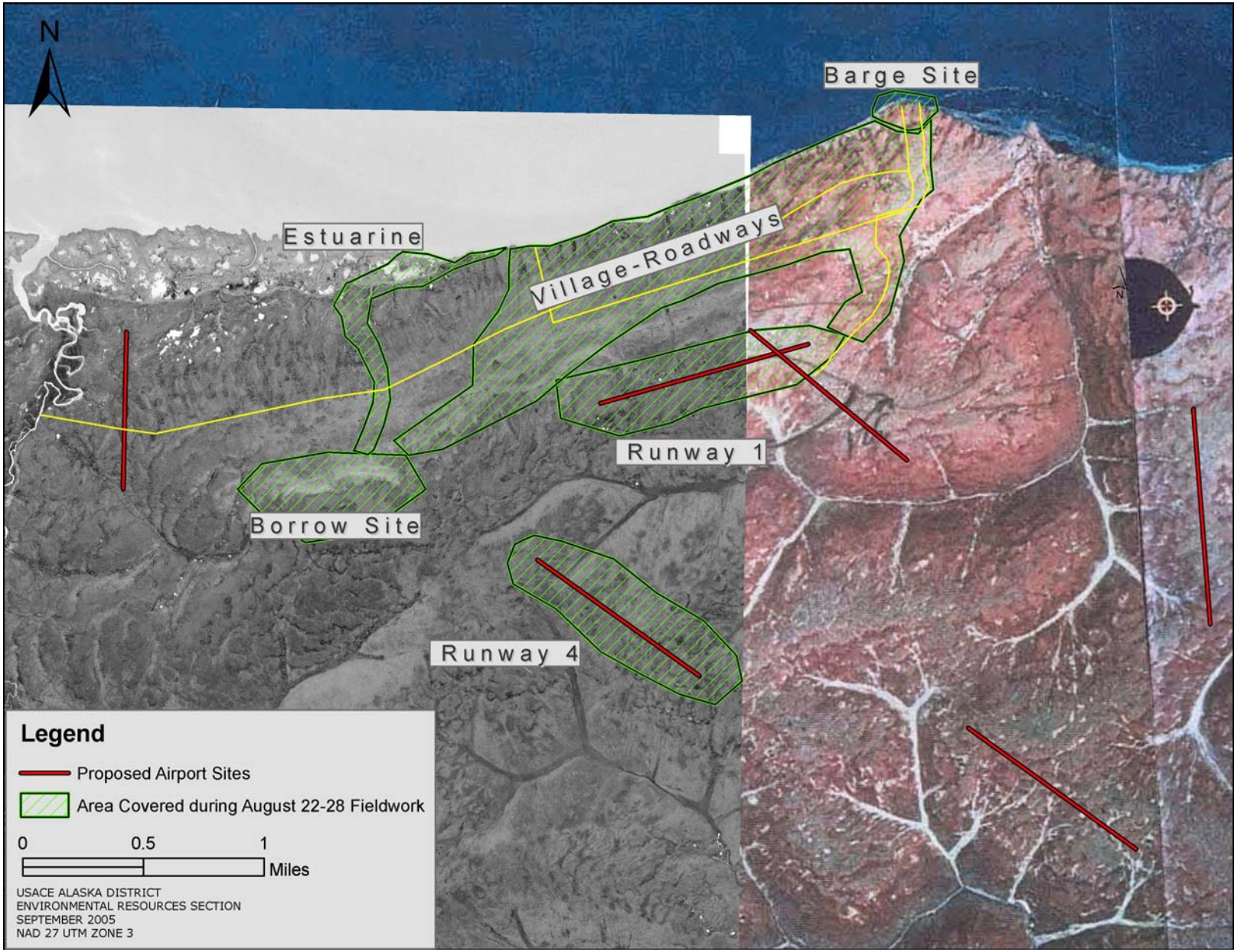

Figure 1: General areas covered during this field trip.

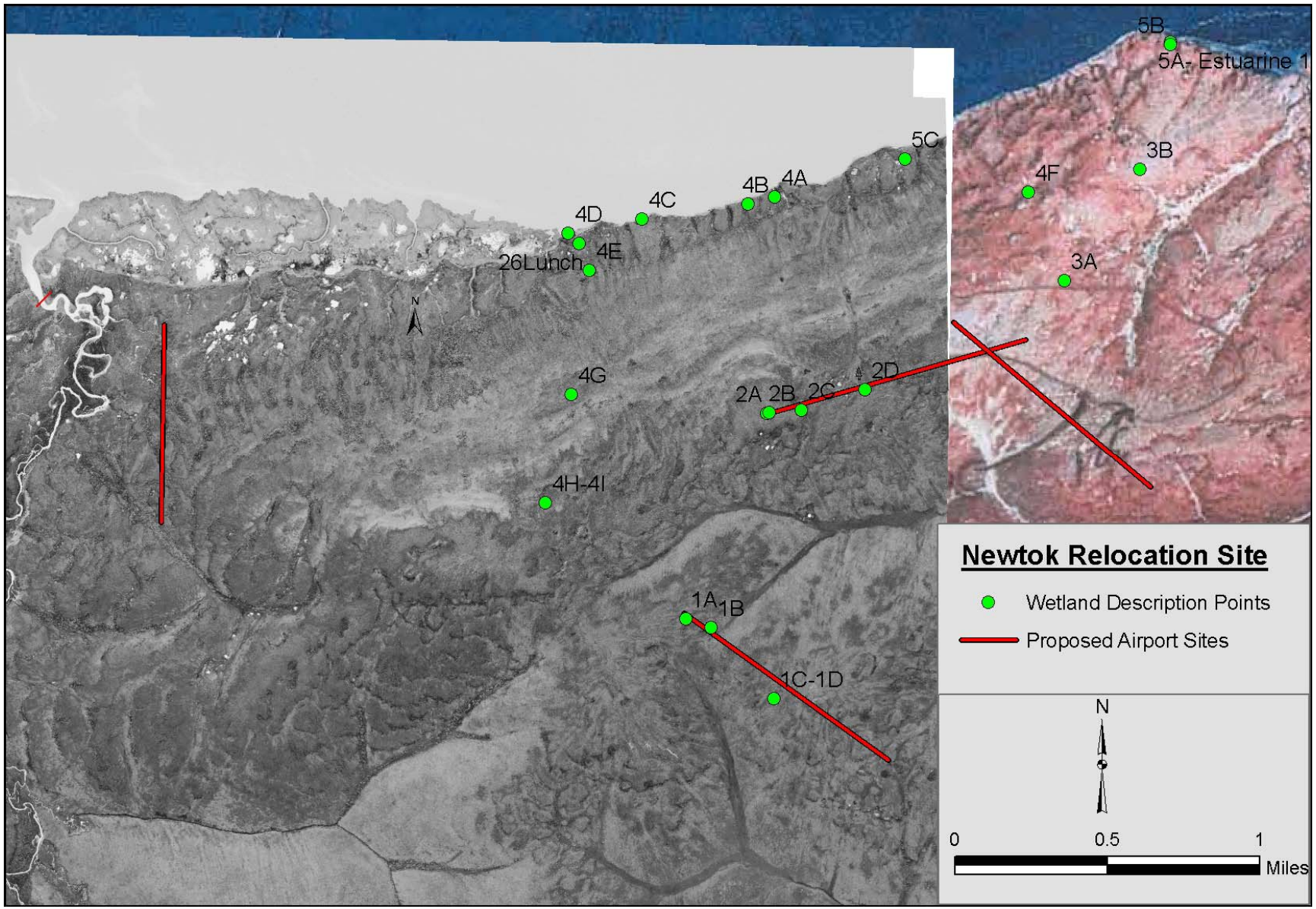

Figure 2: Wetland description points.

Preliminary Observations
These are only preliminary observations; a wetland delineation report is currently being prepared, which will provide more detailed information on wetland and vegetation types, and wetland delineation maps.

- Wetland indicators were found in most areas of the Newtok relocation site.

- Palustrine wetlands occupy the majority of the relocation site. The typical classes are scrub-shrub and emergent persistent (figure 3).

    - Palustrine scrub-shrub wetlands are found at the foothills of the relocation site, where they are exposed to runoff and rainwater inputs (figure 3). They are established on boggy soils with shallow permafrost forming complexes of peat-like moss-lichen and broad-leave-evergreen scrub-shrub wetlands (cottongrass tussock tundra, sphagnum, and dwarf scrub based on Viereck et. al 1992 descriptions). Palustrine scrub-shrub wetlands are also found along foothill drainages, where tall and low scrub, dominated by willows, are common.

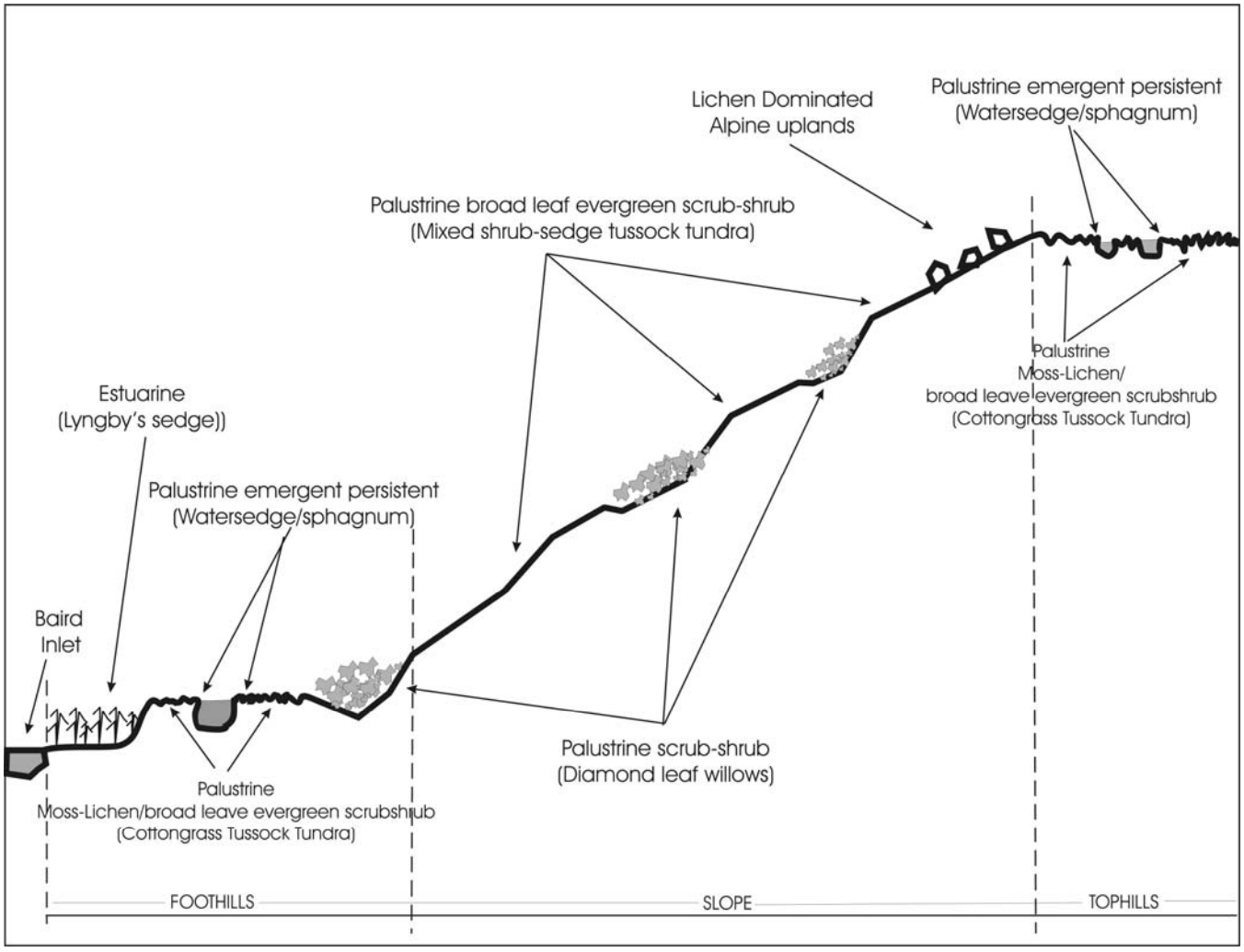

Figure 3: General representation of wetlands and vegetation at Newtok relocation site

- In the slope (relocation site), palustrine scrub-shrub wetlands are established in more mesic[1] conditions, although hydric soil indicators are still observed. Sphagnum is not as abundant, and low growing ericaceous shrub tundra is dominant (Viereck et. al 1992) (photos 10a, 14, 15 & 16).

- At the top of the hills (runway 1 and hilltop above proposed quarry site), the general topography simulates an eroded plateau or peneplain, with shallow dendritic drainages. Palustrine scrub-shrub wetlands (similar to the ones found at the bottom of the hills) are usually located on slightly raised microtopography and form a wetland complex with palustrine emergent wetlands (located in lower relief areas or isolated depressions) (figure 4) (photos 1, 2, 3, 4, 5 & 19).

- Palustrine emergent persistent wetlands are found mainly along seasonally flooded drainages, small depressions, and ponds fringes located at the foothills (figure 3) (photos 11, 12 & 13). They are also found at the hilltops, in low relief, and in depressions fed mainly by snow accumulation and rainfall (photo 5). On these hilltops wetlands are part of an intricate shallow drainage system that feeds into headwater tributaries of the East and Takikchak creeks. Most of these tributaries are seasonally flooded and are classified as intermittent streams. They form intertwined wetland complexes with palustrine scrub-shrub wetlands (dwarf scrub and low-scrub vegetation based on Viereck et. al 1992). Takikchak Creek watershed covers approximately 14,700 acres, whereas East Creek is a small watershed with about 2,800 acres (figure 4). Both Takikchak Creek (proposed as source of freshwater for the relocation site) and the potential quarry site are in the same watershed system, so consideration should be given to the potential impacts quarry activities could have on these wetlands and hilltop drainages.

- Estuarine emergent persistent wetlands are found at the mouth of the Takikchak Creek and at the mouth of East Creek at the proposed barge site (photos 9 & 10). These wetlands are influenced by brackish waters from Baird Inlet and are dominated by pure stands of Lyngby's sedge (shoreward) and bluejoint (landward). These wetlands provide feeding and resting habitat for several waterfowl species. Takikchak estuary is outside the area where the village would be located, but Takikchak Creek has been proposed as a potential water source. Takikchak estuary might also provide rearing and feeding habitat to several life stages of anadromous fish that use this stream.

- Areas of uplands are found at the north facing slopes of the proposed borrow material site. Vegetation in these areas is typical of windswept alpine slopes with a predominance of crust mosses, lichens, and alpine plant species. Soils are rocky and shallow with an abundance of bolders (photos 17 &18). Vegetation has formed root mats that cover the rock bed in many areas.

- Drainage slopes in the vicinity of runway 4 display moderate to well-drained soils. These stable slopes have undergone lateral erosion processes that have caused deepening of the active layer, rejuvenation of the weathered-derived nutrient supply into the soils, and improved its

[1] Mesic-Refers to sites or habitats characterized by intermediate moisture conditions; that is, neither decidedly wet (hydric) nor decidedly dry.

permeability. This has helped the establishment of lush vegetation with abundance of forbs and grasses. These slopes drain into the headwater tributaries of East Creek (figure 4). Although these tributaries are intermittent streams, they are defined as waters of the U.S. under the Clean Water Act.

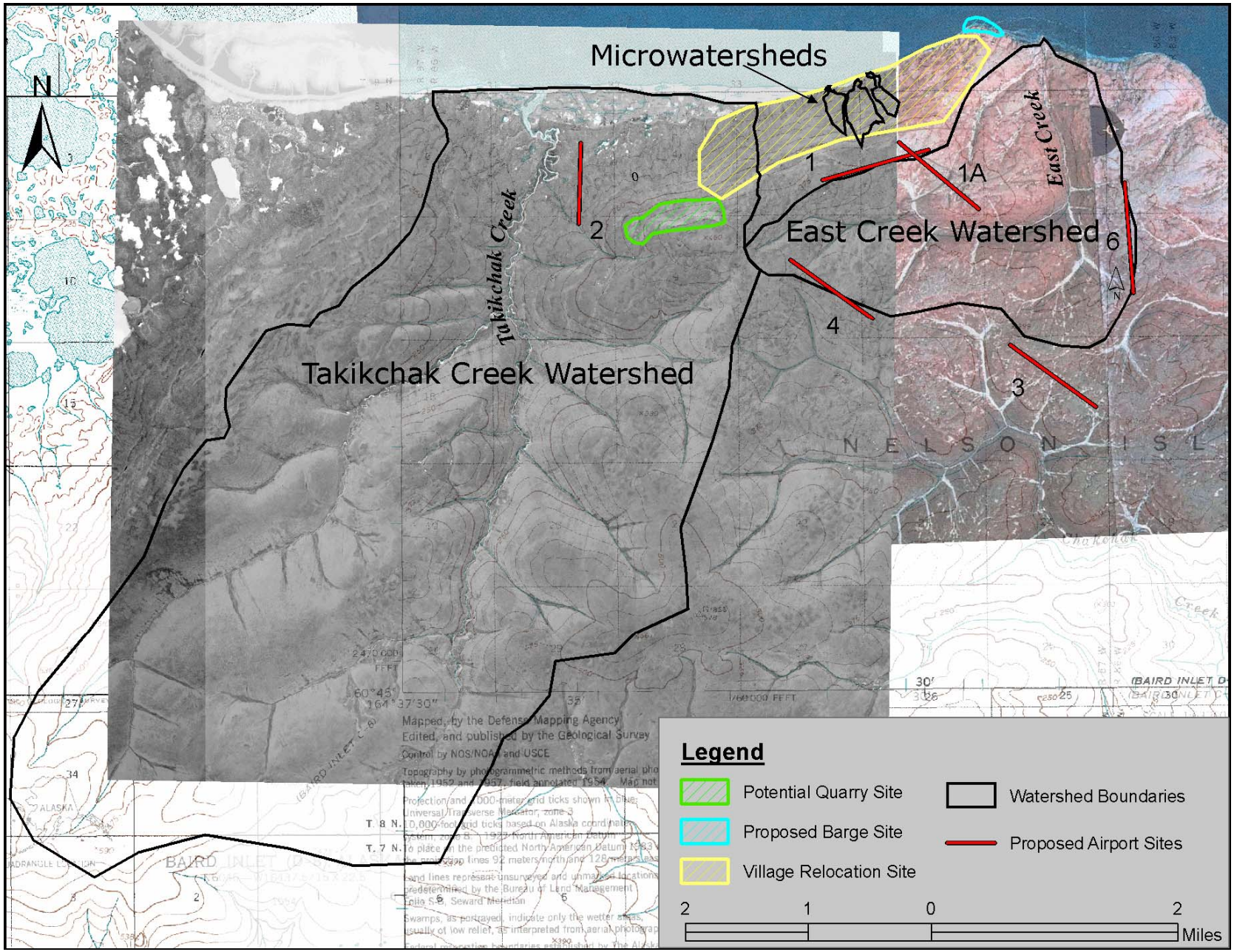

Figure 4: Watersheds and potential areas of development at the relocation site.

(Site-specific archaeological information redacted, per U.S. Army Corps of Engineers National Historic Preservation Act policy)

Literature

Cowardin, L. M., V. Carter, F. C. Golet, E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U. S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. Jamestown, ND: Northern Prairie Wildlife Research Center Online. http://www.npwrc.usgs.gov/resource/1998/classwet/classwet.htm (Version 04DEC98).

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.

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Attachments
Photos

ATTACHEMENTS

Runway 1

Photo 1: Palustrine emergent wetlands found in depressions. Runway 1 - Sample Site 2B.

Photo 2: Palustrine scrub-shrub wetlands on slightly higher microrelief. Runway 1- Sample Site 2A

Photo 3: Palustrine scrub-shrub wetlands on slightly higher microrelief. Runway 1- Sample Site 2A

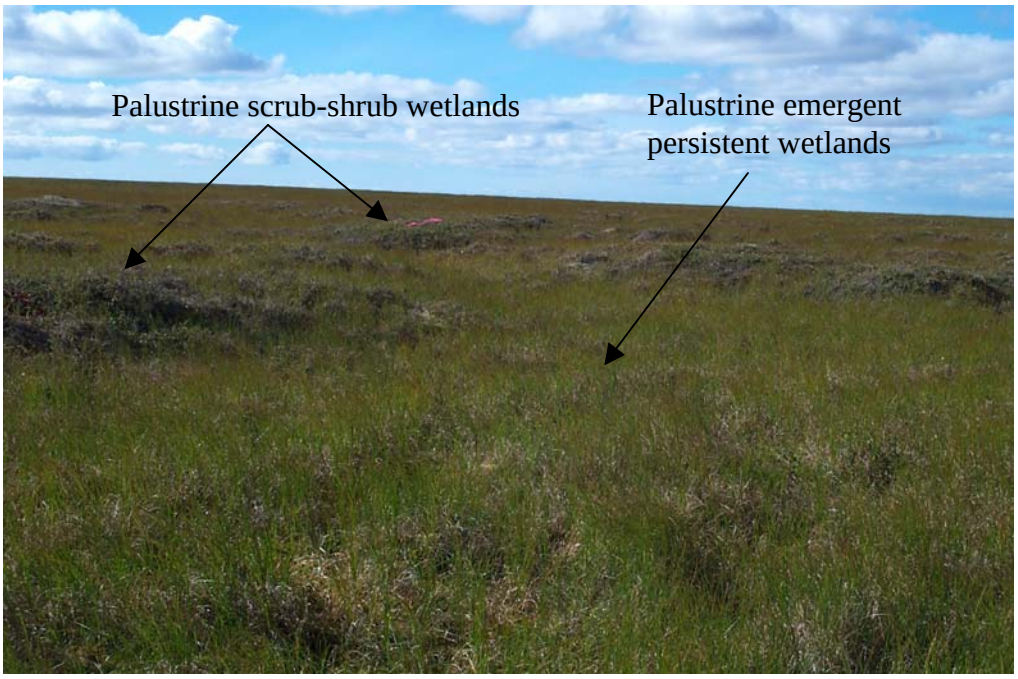

Photo 4: Palustrine scrub-shrub wetlands on slightly higher microrelief areas and palustrine emergent persistent wetlands in depressions – runway 1 general area.

Photo 5: Palustrine emergent persistent wetlands on pond fringes – runway 1 general area.

Runway 4

Photo 6: Runway 4 general view. Bluejoint and willows (*Salix pulchra*) are the dominant plant species at this sample site. Forming mats are crowberry, Labrador tea and dwarf birch.

Photo 7: Sample Site 1B - runway 4. Moderate drained soils found along drainage slopes with high plant species diversity. Soil rejuvenation caused by lateral erosion along drainage slopes might explain the improved soil hydrological conditions.

Photo 8: Palustrine scrub-shrub wetlands. Sample Site 1A- runway 4.

Takikchak Creek Mouth

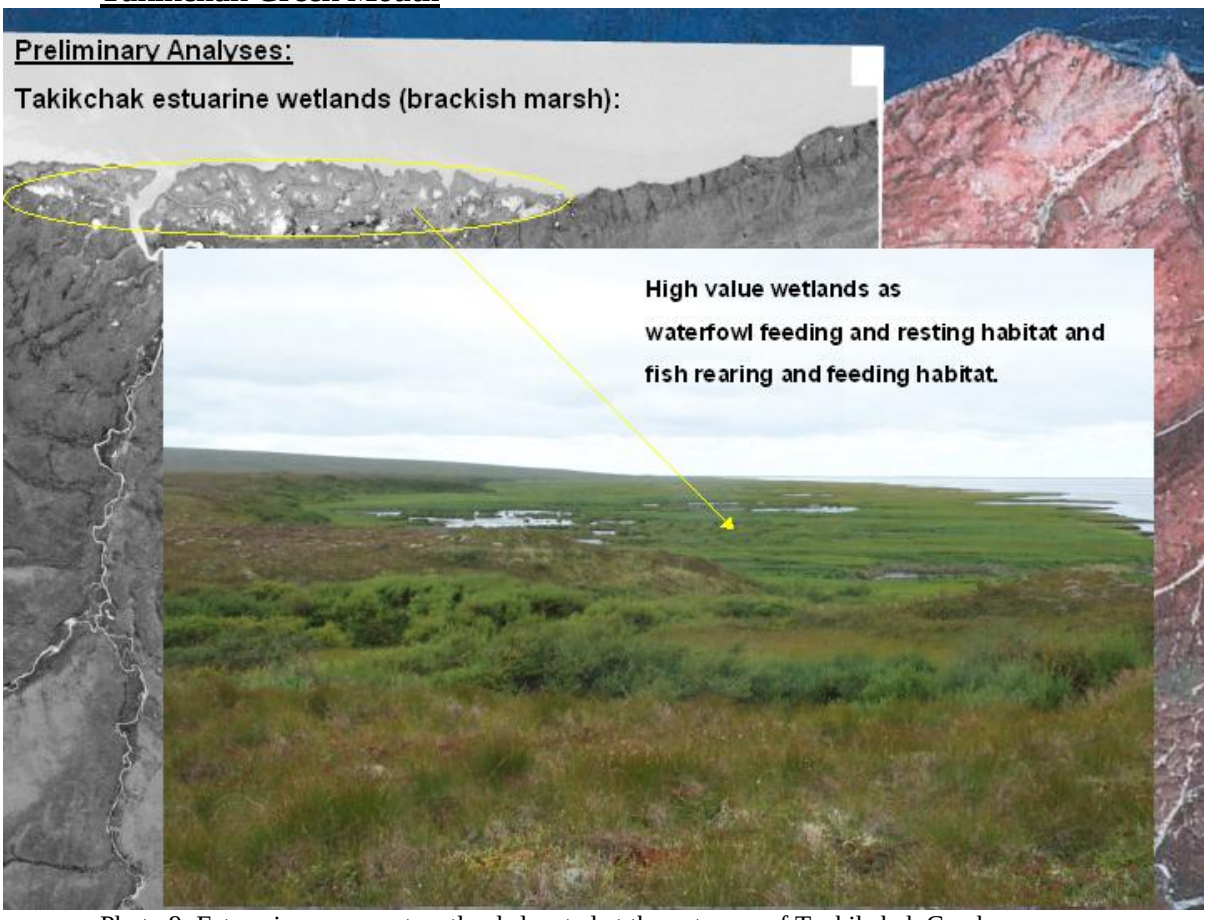

Photo 9: Esturarine emergent wetlands located at the entrance of Tackikchak Creek.

East Creek – Barge Site

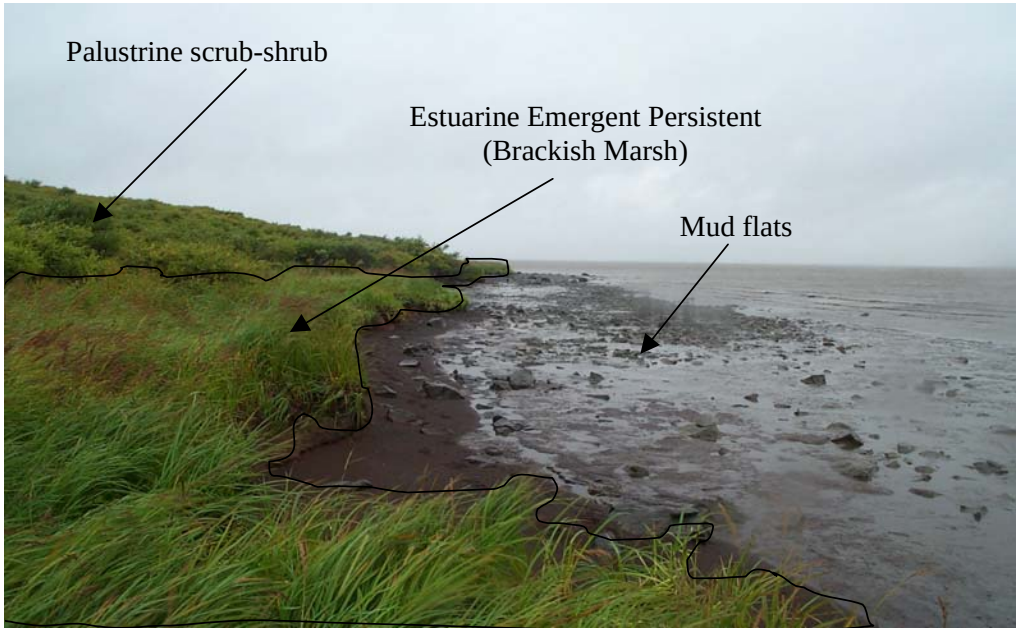

Photo 10: Estuarine emergent persistent wetland at the proposed barge site.

Photo 10a: Barge site vicinity. Vegetation is mainly dominated by scrub willow (Salix pulchra), Bigelowii sedge and low growing plants growing in patches (crowberry, dwarf birch, and Labrador tea).

Foothills by relocation site

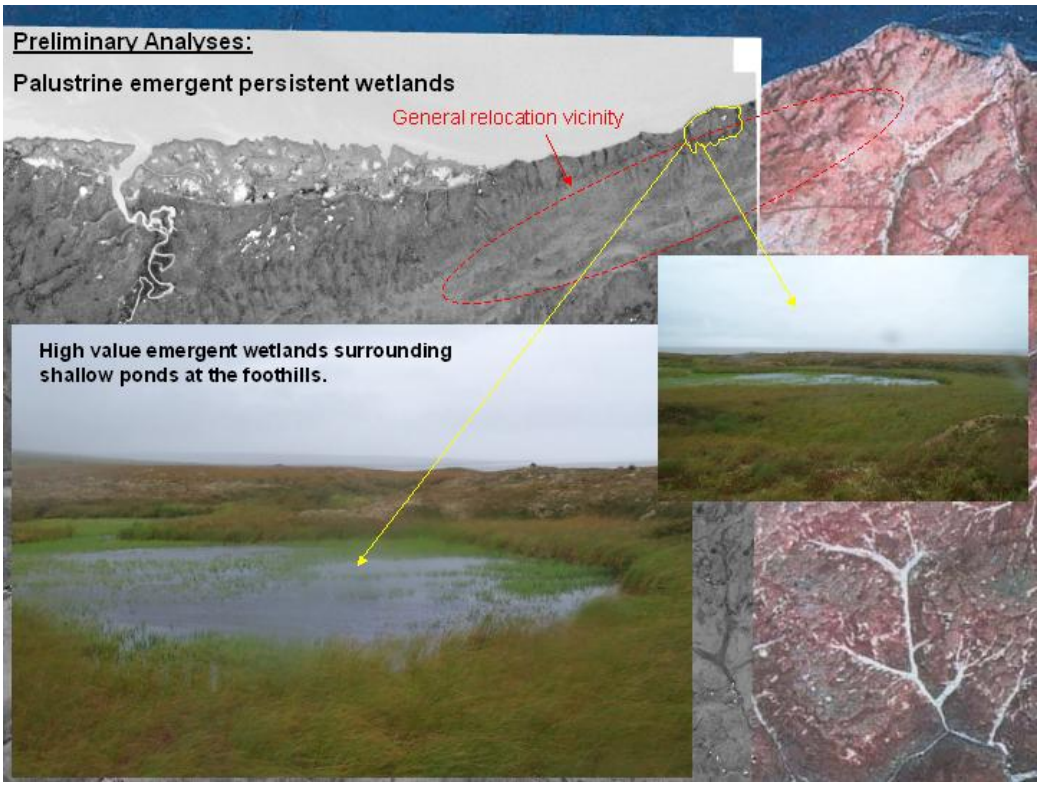

Photo 11: Palustrine emergent persistent wetlands located in the foothills between the relocation site and the Baird Inlet shoreline.

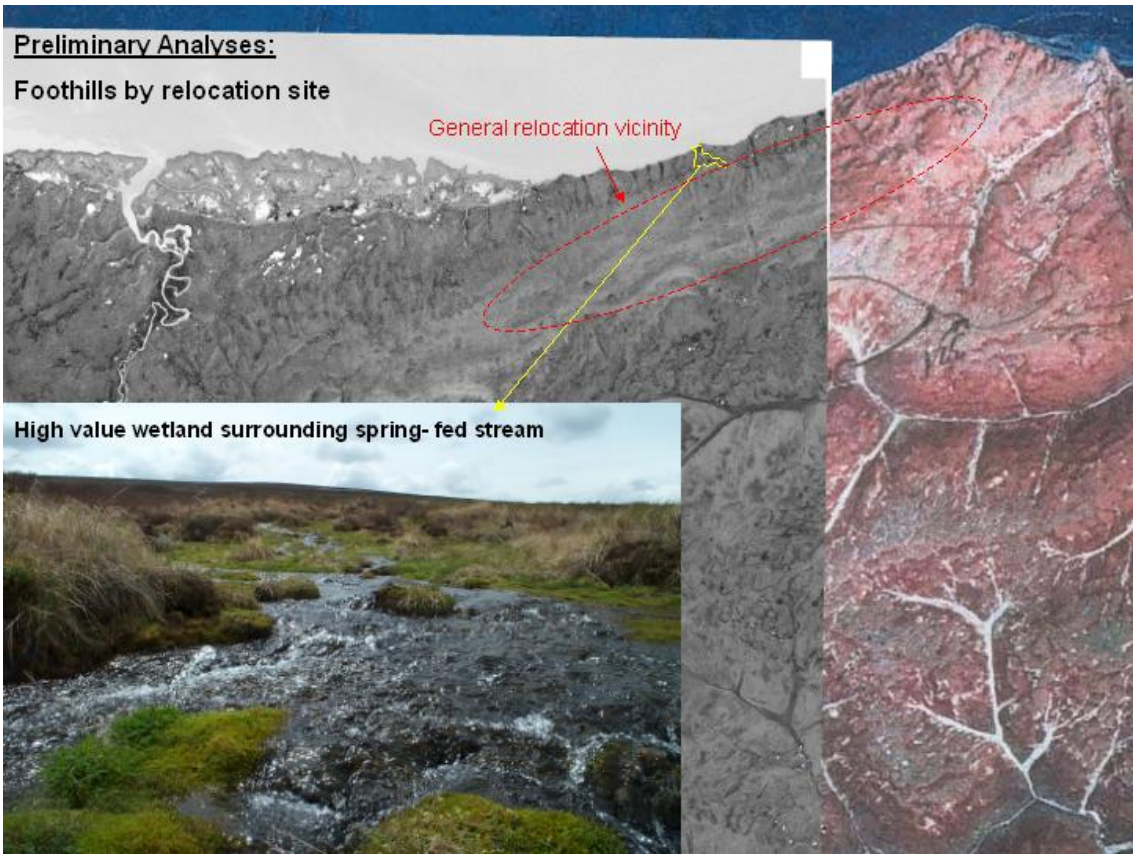

Photo 12: Palustrine emergent wetlands along spring-fed stream.

Foothills within Takikchak Watershed

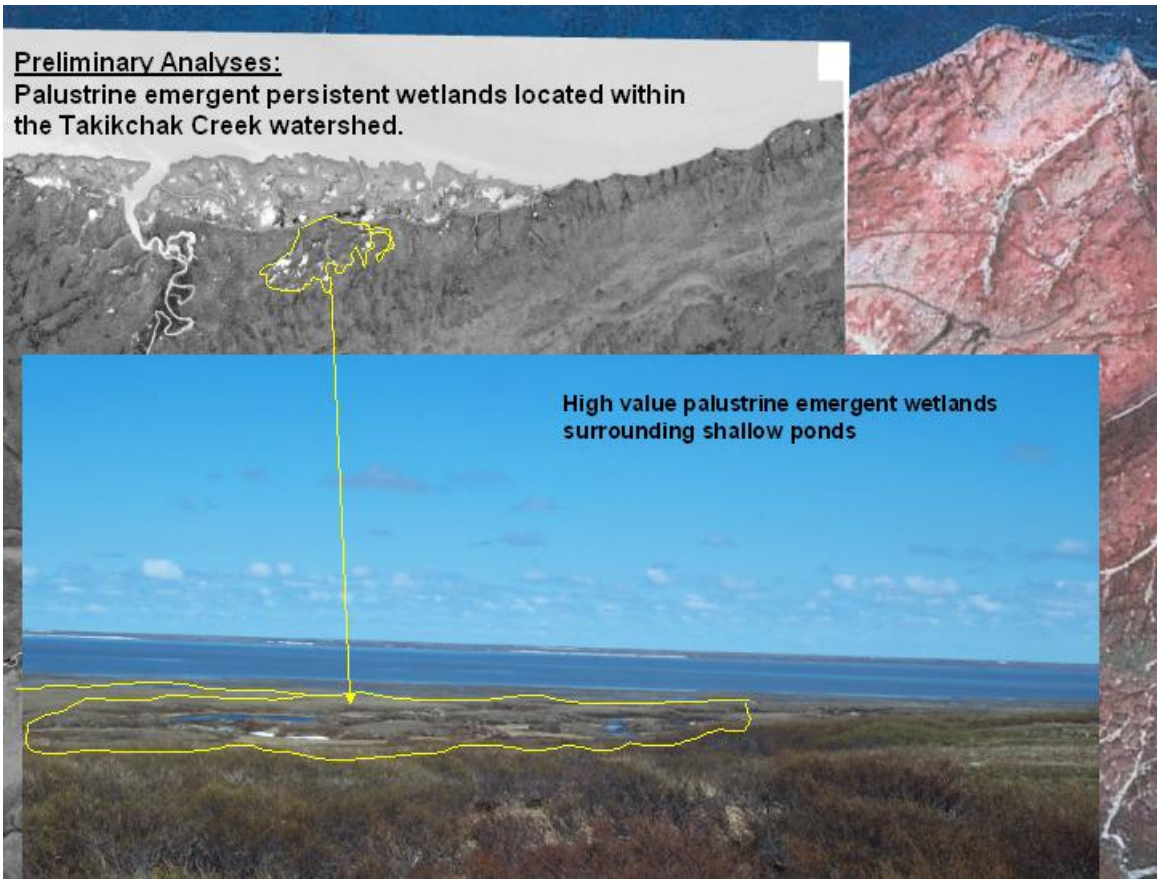

Photo 13: Palustrine emergent persistent wetlands located at the foothills by Takikchak Creek.

Village Relocation Site

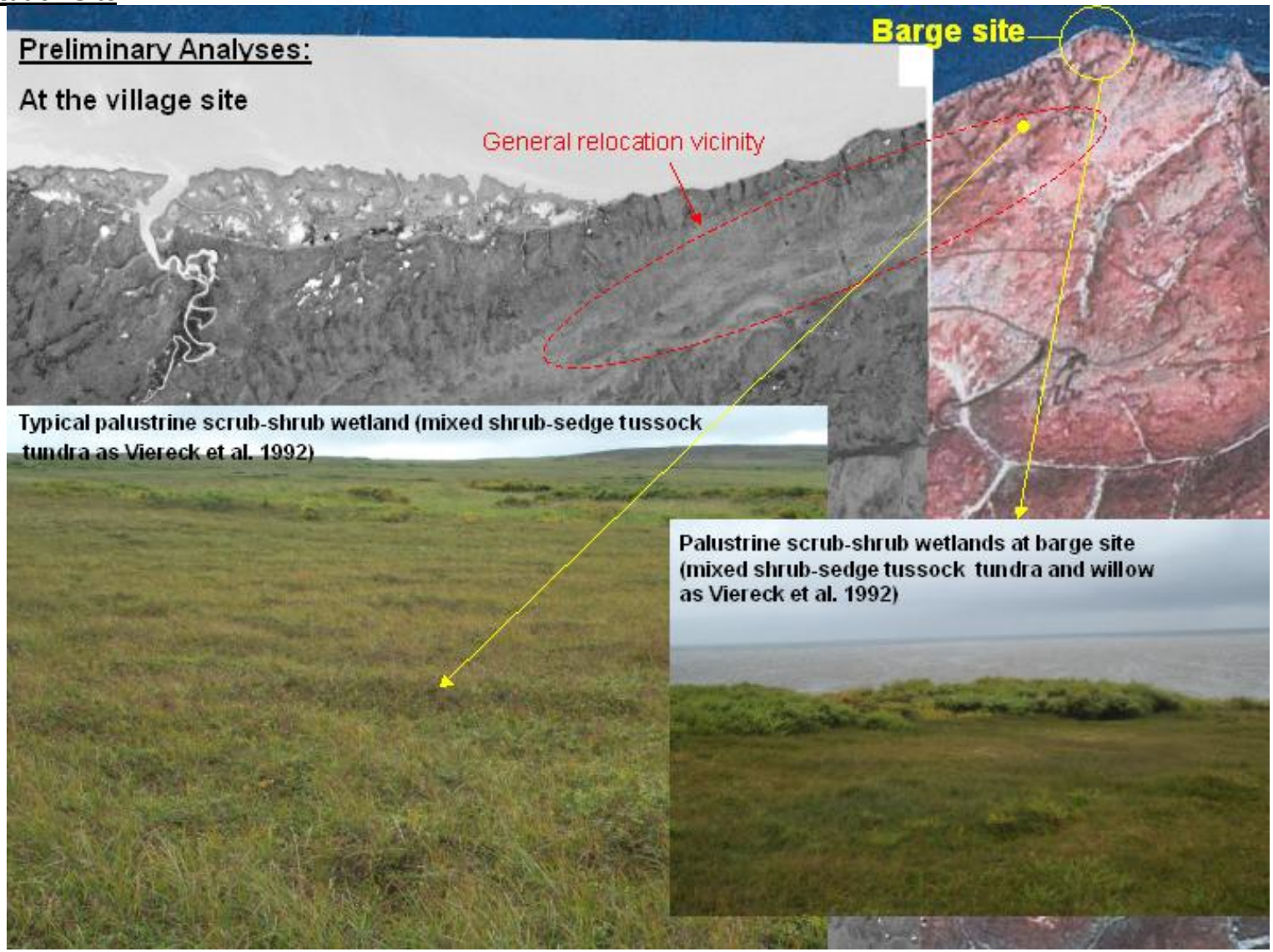

Photo 14. Proposed village relocation site. Most of the proposed relocation vicinity display soils with various degrees of hydromorphism and the development of shallow ice on gentle slopes. Wetlands with standing water are found mainly at the lower foothills as shown on photos 11 and 12.

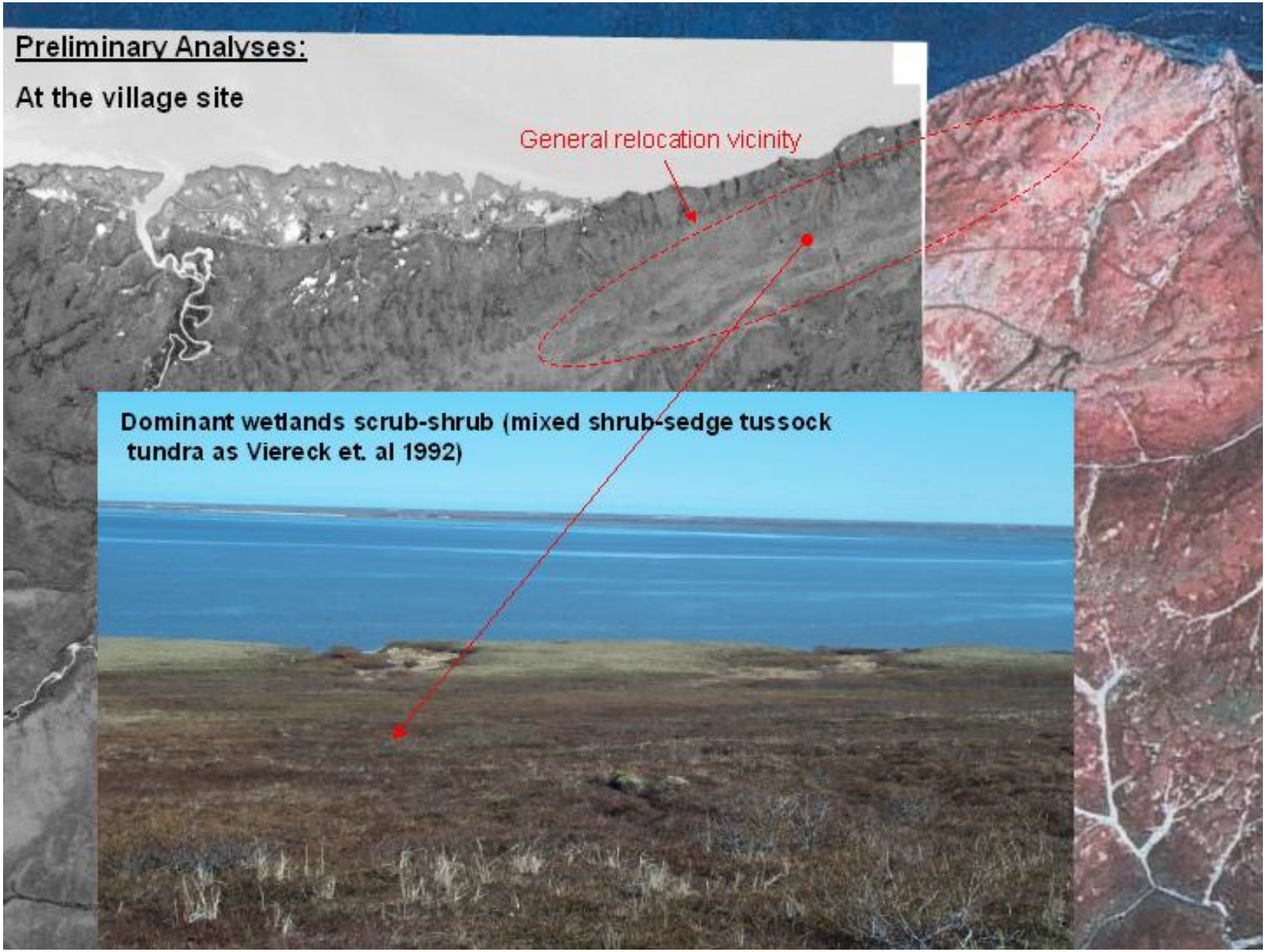

Photo 15: Wetlands located at the village site are mainly scrub-shrub (willow patches along drainages and mixed shrub-ericaceae/sedges established on polygonal wet to mesic conditions in gentle slopes).

Photo 16: Other view of palustrine scrub-shrub wetlands on gentle slopes at the Newtok relocation site.

Potential Borrow Site

Photo 17: Potential borrow site view (uplands).

Photo 18: View of borrow site looking up the slope.

Photo 19 Palustrine Emergent/scrub-shrub wetland - Sample Site 2C at runway 1.