



Date: July 13, 2022

To: Brett Nelson, Alaska State Conservation Engineer
Cc: Jon Oestriech, Acting North Hub Leader

From: Jeff Oatley, Watershed Engineer
Ryan Maroney, Watershed Planner

Re: Akiak EWP Initial Site Investigation Report
Akiak, Alaska

Location: The Village of Akiak is located approximately 23 air miles East of Bethel on the Kuskokwim River.

Purpose: The community of Akiak requested NRCS assistance through the Emergency Watershed Protection (EWP) Program, due to significant erosion caused by spring snowmelt runoff, which is threatening homes.

Participants: Ryan Maroney - Watershed Planner, Jeff Oatley - NRCS Watershed Engineer, Sammy Jackson - Superintendent, Akiak House Relocation and Renovation Project (AHRRP)

Background/Findings: NRCS is familiar with Akiak and with Kuskowkim River erosion near Akiak, Alaska. In 2013, NRCS engineers were tasked with developing a structural solution to the erosion issue at Akiak. After completing a channel survey and investigating channel morphology using historical imagery of this reach of the river it was determined that an engineering design and/or construction project aimed at mitigating erosion at Akiak was beyond the scope and resources of the NRCS. Rather than producing a preliminary design of a structural solution a scoping report (*An Assessment of Streambank Erosion and a Revetment Concept Design on the Kuskokwim River at Akiak, Alaska*) was produced.

Akiak has been planning and executing a managed retreat from the eroding streambank for several years. In 2019 Akiak requested EWP assistance from NRCS. This request resulted in an EWP home relocation project in which six homes were moved away from the eroding streambank.

Joel Neimeyer, who is a consultant to the Akiak Native Community, provided NRCS a status report on Akiak Managed Retreat Activities on June 13, 2022, simultaneous with this EWP request for assistance. This report provided information regarding what the community hopes to accomplish through this EWP request.

Ryan and I arrived in Akiak at approximately 11:30am on July 11th. We met with Sammy Jackson who showed us two homes that are near the eroding streambank and the community wants to relocate to a safer location, and a third abandoned residence that the community wants to demolish, as it is not occupied and is not structurally sound enough to relocate. Sammy then showed us the locations that the two homes would be moved to, and the locations of the six homes that were moved in the 2019 EWP project.

We used a handheld Bad Elf GNSS Surveyor GPS to record the current top of bank location. We then marked the three homes that the community measured the distance from the top of the bank to each structure. Figure 1 shows the results of this effort. This figure also illustrates how the bank erosion at Akiak has progressed from 1957 to 2022. Table 1 summarizes the data with the measured distance to the top of the bank.

The hydraulic conditions of the Kuskokwim River at Akiak are severe. The erosion situation that we have observed over the last decade in Akiak has continued. Rather than a steady, continual erosion of land there appears to be some irregular scallop patterns, which given the considerable hydraulics of this section of the Kuskokwim River, can be very dramatic, with up to 100 feet of lateral erosion occurring in a very short amount of time.

Recommendations/Follow-Up: There are two occupied homes and one abandoned home that are immediately threatened (See Figures 2-5). The data presented in Figure 1 and Table 1 show that these homes are all between 116 and 167 feet of the top of the bank. Given the history of rapid erosion occurring over a very short period of time at this location, it is reasonable to consider these homes to be imminently threatened and to relocate them while it is still safe to operate heavy equipment in their vicinity.

The scope of this project is clear: Relocate two homes and demolish a third home. Ryan and I will be continuing to work with the community to develop a cost estimate for a potential EWP project. It seems likely that Akiak may be able to complete the project before this winter if NRCS can finalize an agreement fast enough.

Table 1. Summary of data collected during the site assessment in Akiak, Alaska on July 13, 2022. The GPS Point # corresponds to the numbers presented in Figure 1.

GPS Point #	Description	Distance to top of Streambank (feet)
600	Steven Kvamme Residence (Relocate)	167
601	Calvin Charles Residence (Relocate)	166
602	Demantle Residence (Abandoned)	116

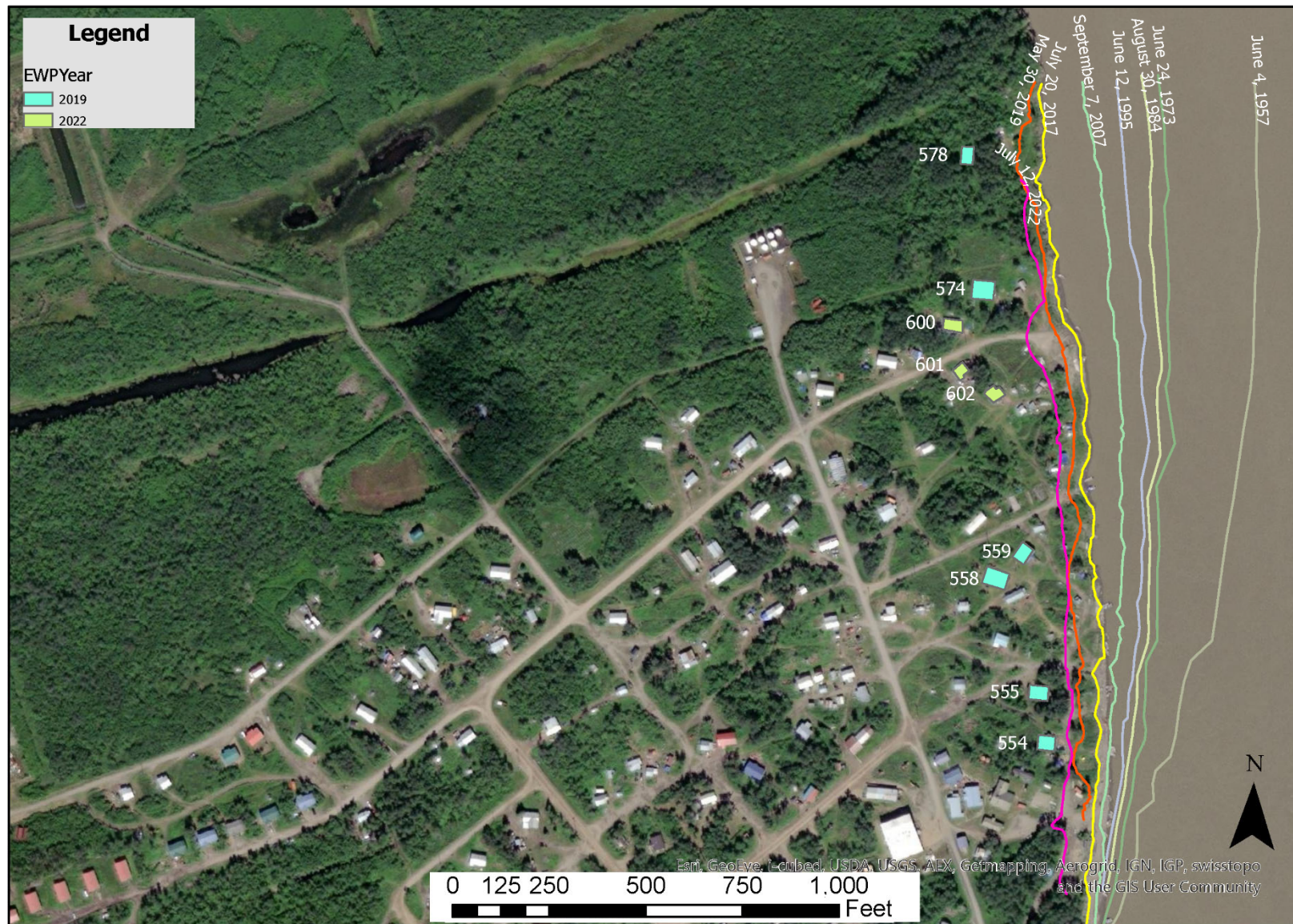


Figure 1. This 2017 image shows the approximate location of the top of the bank in 2017, as well as the top of bank location for 1957, 1973, 1984, 1995, and 2007, 2019, and 2022. Also identified are the homes and other features identified during the July 11th, 2022 site visit.



Figure 2: Structure #600 (left) and Structure #601 (right) identified for relocation.



Figure 3: Abandoned Structure #602 identified for demolition and removal.



Figure 4: Bank erosion in front of structures #600-602.



Figure 5: Bank erosion in front of structures #600 - 602 as seen from the Kuskokwim River.

Prepared By:

Jeff Oatley, Watershed Engineer
USDA NRCS Fairbanks, AK
907-750-8072
jeff.oatley@usda.gov

Ryan Maroney, Watershed Planner
USDA NRCS Palmer, AK
907-687-7983
ryan.maroney@usda.gov