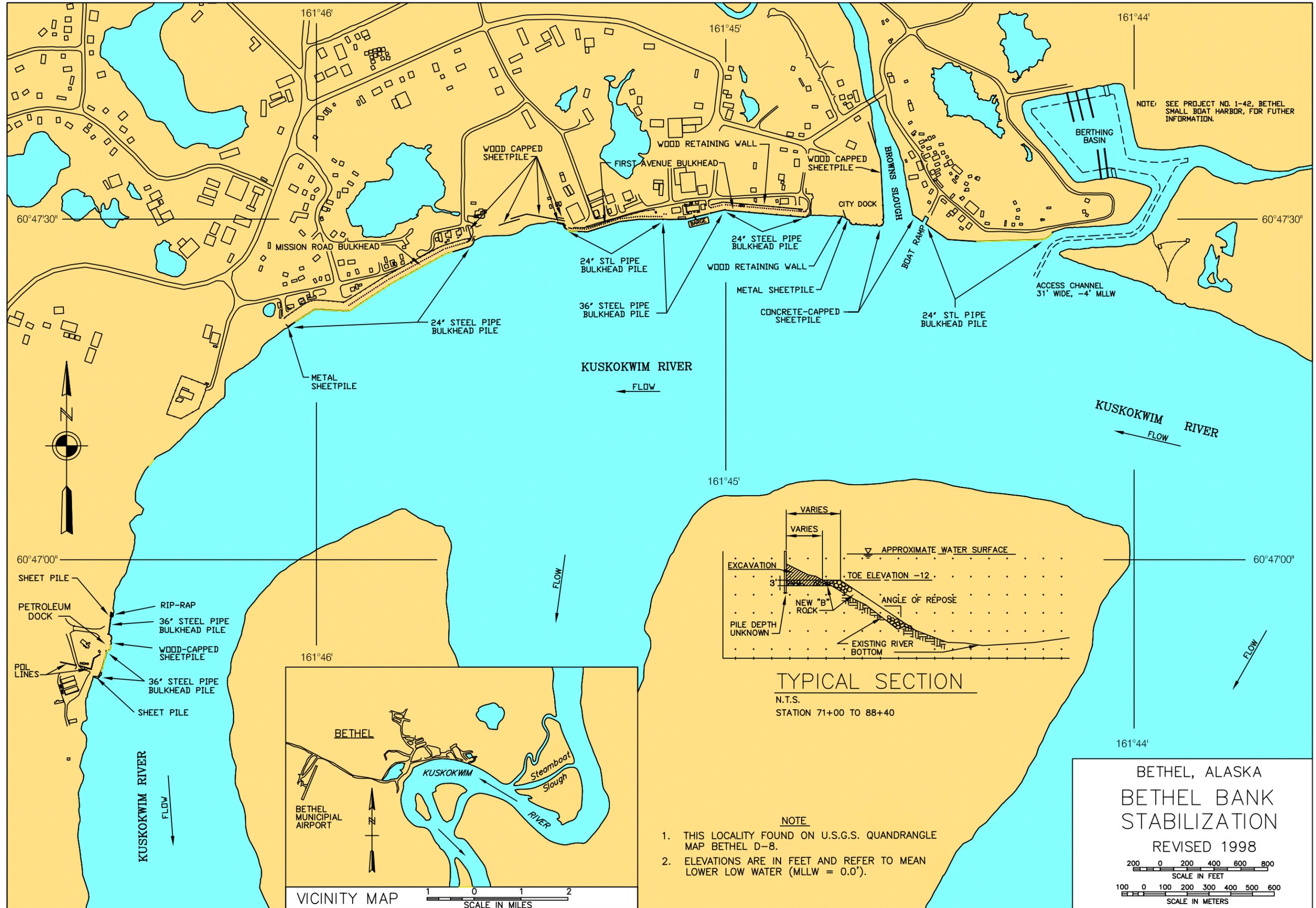


**BETHEL BANK
STABILIZATION**



BETHEL BANK STABILIZATION, ALASKA
(CWIS NO. 12314, 075440)

Condition of Improvement 30 September 2012

AUTHORIZATION: Public Law 99-662, under Section 202, 17 November 1986, as adopted, provides for the placement of 8,500 linear feet of rock rip-rap along unprotected river bank and existing bulkhead structures.

EXISTING PROJECT:	<u>LENGTH</u>	<u>DEPTH</u>	<u>WIDTH</u>
• Rock rip-rap	8,200 ft		

WORK PRIOR TO EXISTING PROJECT:

- 1985 - Under the continuing authority of Section 14, Public Law 79-526, dated 24 July 1946, emergency bank protection is authorized by the Chief of Engineers 13 September 1985. Approximately 200 linear feet of rock rip-rap is placed at the toe of the petroleum dock, and 40 linear feet of rock rip-rap is positioned at the downstream end of the Mission Road bulkhead for a total of 1,650 cubic yards of rock. Total cost for emergency protection equals \$ 553,970 of which \$ 30,000 is contributed by non-Federal sources.
- 1986 - Under Section 116 of Public Law 99-190 (House Joint Resolution 465) dated 19 December 1985, emergency protection is authorized for the Mission Road bulkhead. A contract is awarded in August and completed before freeze-up in October at a cost of \$ 538,942.

PROGRESS OF WORK:

- 1984 - Initial planning and preparation of the General Design Memorandum is begun.
- 1985 - The City of Bethel constructs 4,000 linear feet of bulkhead to protect the river bank. A storm in May endangers the bulkhead; the Corps moves ahead with an emergency bank protection project to save the works.
- 1986 - Work on the General Design Memorandum is 75% complete; the plan calls for rock rip-rap protection for 8,500 feet of river bank.
- 1987 - The General Design Memorandum is published in November.
- 1989 - The project is inspected by the Corps this year and the next.
- 1991 - Project dimensions are revised to protect 3,000 linear feet of previously installed bulkhead and 3,500 feet of unprotected river bank.
- 1992 - Plans and specifications are initiated, surveys conducted, and plans reviewed by the Corps.
- 1993 - Plans and specifications are approved in October.
- 1994 - Real estate acquisition is initiated.
- 1995 - Necessary real estate is acquired, and a construction contract is awarded in June. Armor rock protection is placed along 300 feet of the City Cargo Dock and along 700 feet of river bank downstream from the Mission Road Bulkhead. Placement of steel tie-back rods to hold the pipe-pile bulkheads in place is begun in September.
- 1996 - Bank protection work nears completion: (1) structural tie-backs along the pipe-pile bulkhead are completed, (2) 157,220 tons of "B" rock are placed along the embankment with only minor placement remaining, and (3) the embankment requires some erosion protection and seeding to reach completion.

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BETHEL BANK STABILIZATION, ALASKA (continued)

30 September 2012

- 1997 - Final inspection of the project, except for seeding, occurs in September. The completed project protects 8,200 feet of river bank and included placement of 221,220 tons of rock. Seeding of the sloped river bank is scheduled for June 1998.
- 1998 - The project is physically completed. Some contract issues are still outstanding.
- 1999 - Inspection finds the project in generally good condition. Minor erosion is noted at the downstream end of "Bootlegger Beach" where the rock ties into the bank. The bank slope downstream of the Petroleum Dock is filled and seeded.
- 2000 - The Federal project appears to be in good condition. Locals are notified of the need to keep adequate quantities of rock stockpiled in case of an emergency.
- 2001 - The rock revetment is found in good condition. Local interests make recommended repairs to eroded areas. Additional areas requiring fill and seeding are noted.
- 2002 - The bank stabilization project is inspected by the Corps and found to be in good condition with some minor areas of maintenance needed. The City of Bethel has been notified. Vertical aerial photography is taken in June.
- 2003 - Corps and local officials inspect the project in August. The project is reported to be in good condition with minor areas of needed maintenance. Continued monitoring is required.
- 2004 - The project is found in good overall condition. Areas of concern were noted, recommendations made, and continued monitoring is required.
- 2005 - The federal bank stabilization project was thoroughly inspected in June and found to be in good condition with some minor areas of maintenance needed. The City and Petro docks should be monitored on a continuing basis, especially after high water and breakup events.
- 2007 - A FY 2001 Congressional Add authorized and directed the Corps to extend the existing project an additional 1,200 feet upstream. Phase 1 of the project extension, placement of rip rap at the toe of the existing bulkhead was completed in September 2007.
- 2009 - The control of overland flow and traffic on the slope face appears to have greatly helped the establishment of vegetation and the prevention of erosion of the bluff behind the revetment. Overall the project looks to be in good condition, but the rock revetment needs maintenance.
- 2011 - The bank stabilization project was thoroughly inspected and found to be in good condition with some minor areas of maintenance needed.
- 2012 - Awarded a maintenance contract to Denali Drilling for dredging the basin and entrance channel in January 2013.

COST TO DATE:

CG Appropriation 75440	\$537,000
CG Costs 75440	\$537,000
CG Appropriation 12314	\$23,590,100
CG Costs 12314	\$22,876,621
CG Contributed Appropriation	\$5,715,000
CG Contributed Costs	\$5,318,451

BETHEL BANK STABILIZATION, ALASKA (continued)

30 September 2012

RANGE OF TIDE:	<u>Mean Range</u>	<u>Diurnal Range</u>	<u>Extreme Range</u>
	2.3'	4.0'	10.0'

Located on the north bank of the Kuskokwim River 400 air miles west of Anchorage, Bethel is a commercial and cultural center for the southwest region of the state. Improvements to the project will protect the city from the harmful effects of rapid riverbank erosion.

Bethel Bank Stabilization at Bethel, Alaska



High view of Bethel on a bend of the Kuskokwim River, July 1996.



Construction across a highly eroded portion of the bank, July 1996.

Bethel Bank Stabilization at Bethel, Alaska



Aerial view of the Bethel Small Boat Harbor with the Kuskokwim River in the fore ground.
Bank and road stabilization can be seen along the river, September 2010.