U.S. Army Corps of Engineers
Alaska District

Erosion Information Paper - Butte, Alaska

Current as of October 16, 2007

Community Information

Butte (BYOOT), population 3,166, is south of Palmer in the Matanuska Susitna Borough, between mile 9 and mile 16 of the Old Glenn Highway, 42 miles north of Anchorage. Butte is a 40.3-square-mile unincorporated area, bounded on the north by the Clark-Wolverine community, the east by the Chugach Mountains, the west by the Matanuska River, and the south by the Knik River. The area has primarily large-lot single family residences, with increasing residential development, some agriculture, several gravel mining sites and some neighborhood-oriented commercial development. The Butte's Circle View and Stampede Estates subdivisions are addressed in a separate erosion information paper.

Description of Erosion Problem

The Butte community is eroded along the Knik and Matanuska rivers. Erosion losses and threats along the Matanuska River may threaten existing development. Each summer the rivers may erode banks downstream (southwest) from the Old Glenn Highway Bridge for approximately 7 miles, to the Knik River confluence. The Matanuska River's primary source is the Matanuska Glacier, along with several tributaries entering along its way to Knik Arm. The river channel is braided through this reach. The river is highly dynamic, both vertically and laterally with areas of bank erosion, aggradations, and channel-shifting along much of its length. The river banks range from gradual beaches to vertical cliffs over 30 feet above the normal water level and very susceptible to severe undercutting by the river.

The dynamic nature of the Matanuska River and the resulting erosion is caused by natural physical processes associated with active glaciers that cover about 12 percent of the 2,070-square mile watershed. The glaciers supply large quantities of sediments and rocks ranging in size from clay to boulders. In addition to the large sediment load, the bank erosion is partially attributable to the non-cohesive and easily eroded nature of bank materials in some reaches.

According to the community, losses have exceeded 90 feet inland in a 24 hour period along more than 1,000 feet of bank, and during the last 20 years 1 mile of riverbank has eroded inland about 1,000 feet. Erosion may continue for months in the same location or shift in a matter of hours. Many studies have been conducted noting the high potential for bank erosion, including a USACE Reconnaissance Level Watershed Study in 2003. Notable erosion damage occurred in the early 1980s, 1990 through 1994, and in 2004 and 2005.

Potential Damages

Erosion has caused and threatens to continue causing losses to residential land, dwellings, accessory structures, state maintained Bodenburg Loop Road (now within 50 feet of the riverbank), and East Brian Drive (where several hundred feet of road have eroded). The river continues to approach dozens of homes, roads, and major power transmission lines, and it erodes farm land. New subdivisions and homes continue to be built near of active erosion. Erosion may allow river waters to flow into lower lying areas thereby increasing flooding, particularly in the area of Ye Olde River Road.

A series of dikes, riprap walls and other emergency efforts have been built to address individual sites at an expense estimated at over $1 million. The dikes have limited effective zones of protection and require frequent costly maintenance.

Photos and Diagrams

Photos of erosion have been provided by the community or other sources. Attached is a diagram depicting linear extent of erosion in the Butte area.

References

SOA, DES. 1992. *Matanuska River Erosion Task Force Interim Report*, 1992

USACE. 2007. *Alaska Community Erosion Survey, OMB approved number 07100001*, expires September 30, 2009 completed by Lynn Woods, Matanuska-Susitna Borough assembly member for Butte, Sutton-Alpine, Palmer on October 16, 2007, additional information provided by Frankie Barker, MSB planner.

USDA, NRCS. 2004. *Matanuska River Erosion Project,* September 2004.

Additional Information

This information paper, as well as those for other communities, can be accessed on the internet at www.alaskaerosion.com. For more information please contact the Corps of Engineers project manager at (907) 753-5694 or email Alaska.Erosion.POA@usace.army.mil

Photo 1: Matanuska River; well head remaining of home lost to river erosion, September 2007.

Photo 2: View north across Knik River to Bodenburg Butte in background, September 2007.

Butte Area

Old Glenn Highway

Erosion continues downstream approximately 7 miles

Flow

MATANUSKA RIVER

Abandoned restaurant/bar, well & septic lost to erosion

George W. Palmer Memorial Bridge

Old Bridge

Palmer Airstrip

Date of Aerial Photo: 09 May 00

NOTE: The extent of erosion shown on this figure is based on interviews with the community. This data has not been field verified. This figure is only intended to show areas of erosion, not rates or severity of erosion

Alaska District
Corps of Engineers
Civil Works Branch

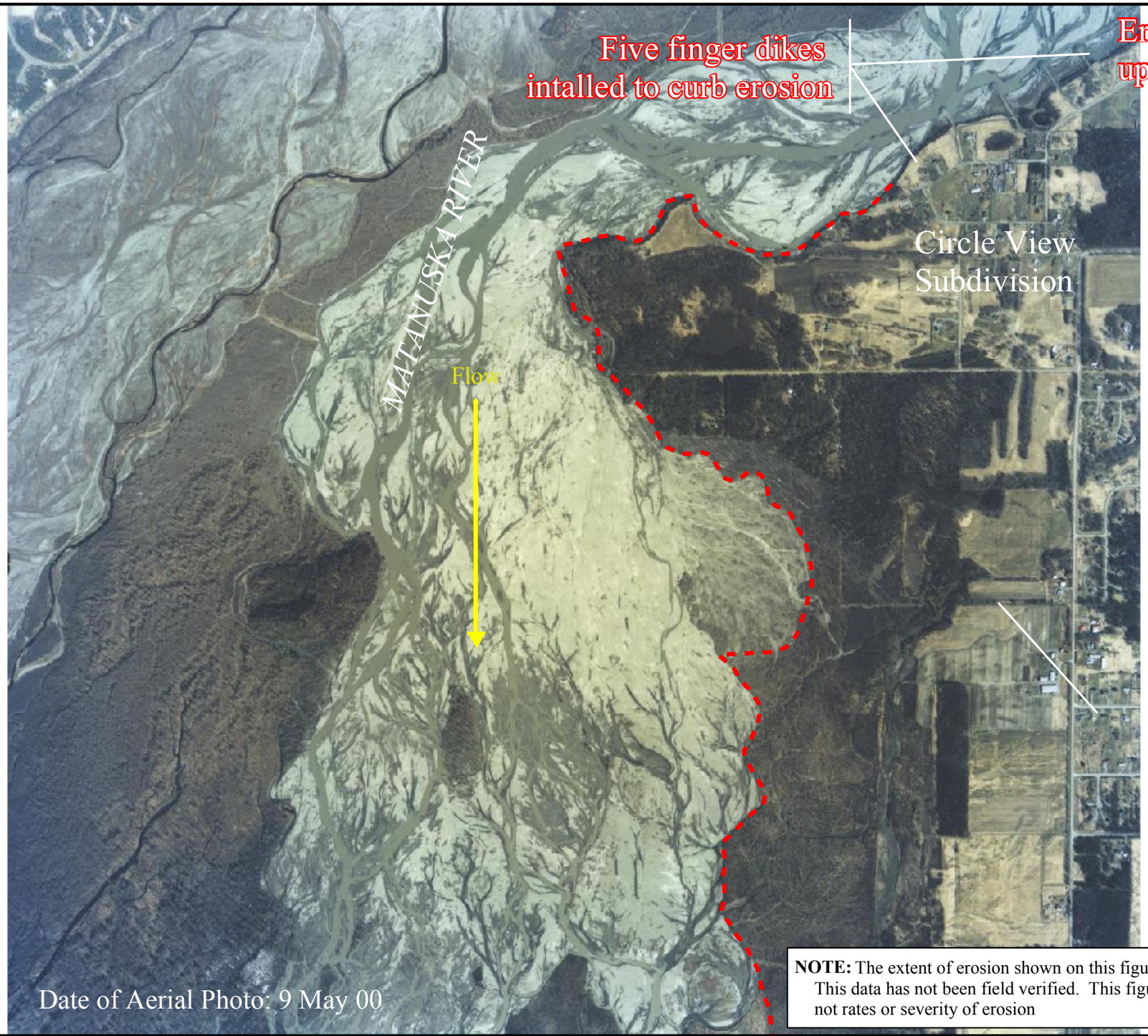
Linear Extent of Erosion

Part 1

N

Alaska Baseline Erosion

Butte, Alaska



NOTE: The extent of erosion shown on this figure is based on interviews with the community. This data has not been field verified. This figure is only intended to show areas of erosion, not rates or severity of erosion

Alaska District
Corps of Engineers
Civil Works Branch

Linear Extent of Erosion
Part 2

N

Alaska Baseline Erosion

Butte, Alaska