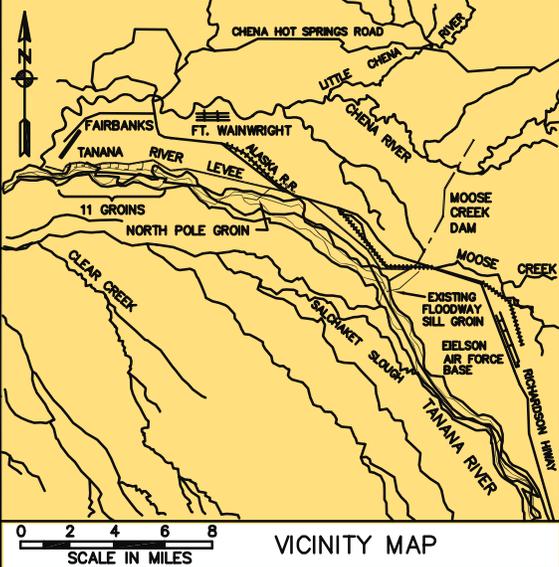
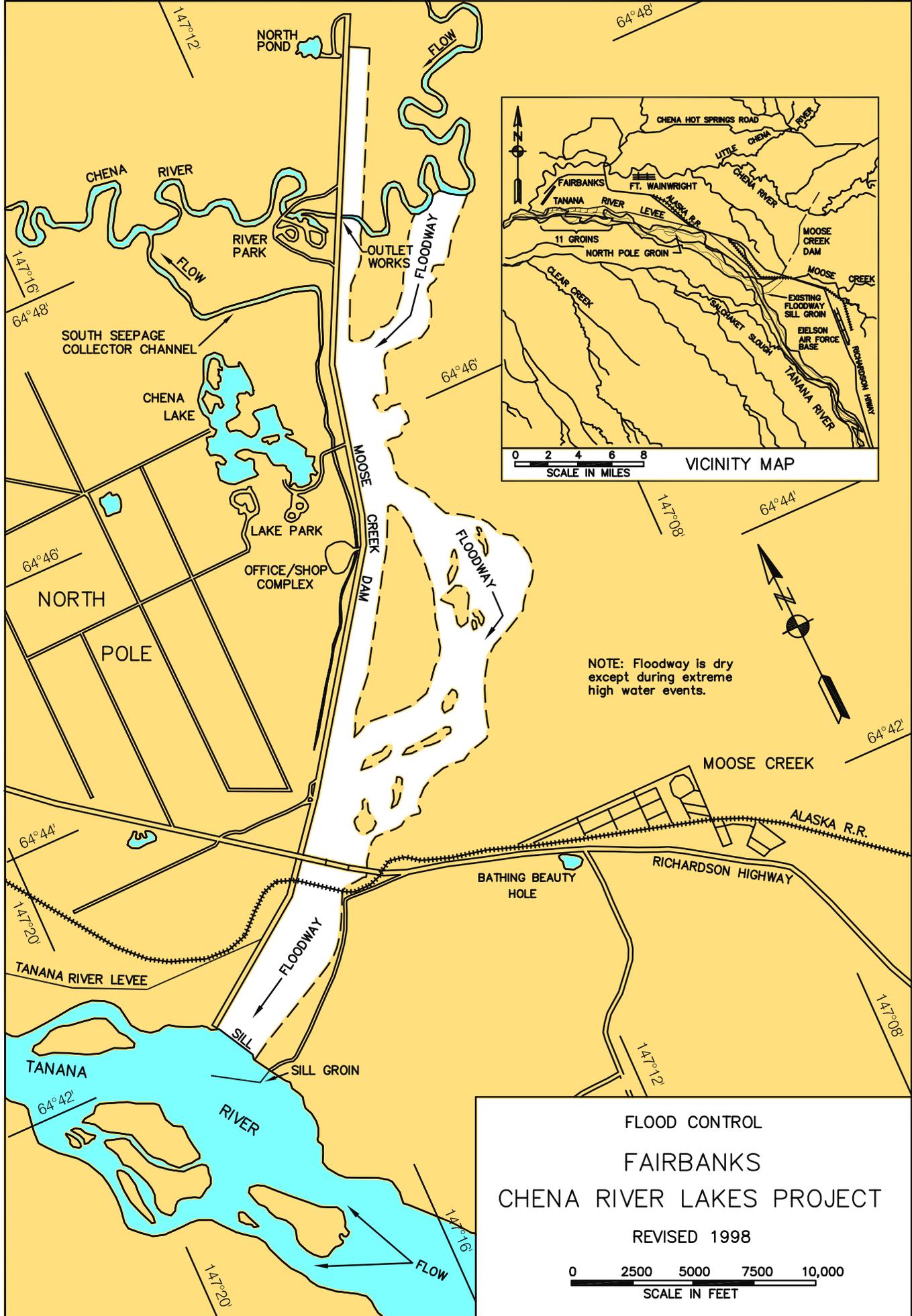


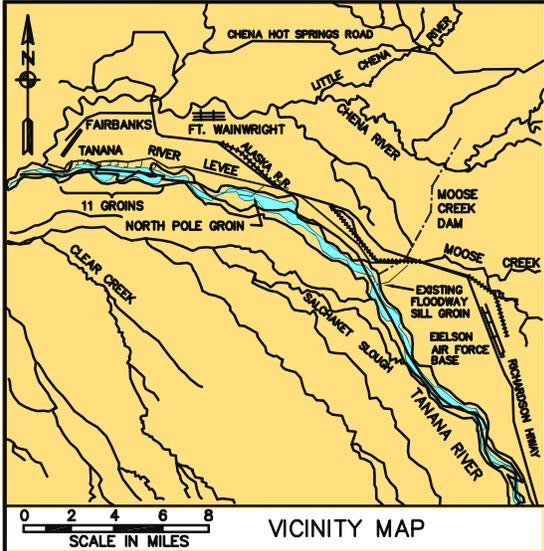
**FAIRBANKS,  
CHENA RIVER LAKES &  
TANANA RIVER LEVEE**



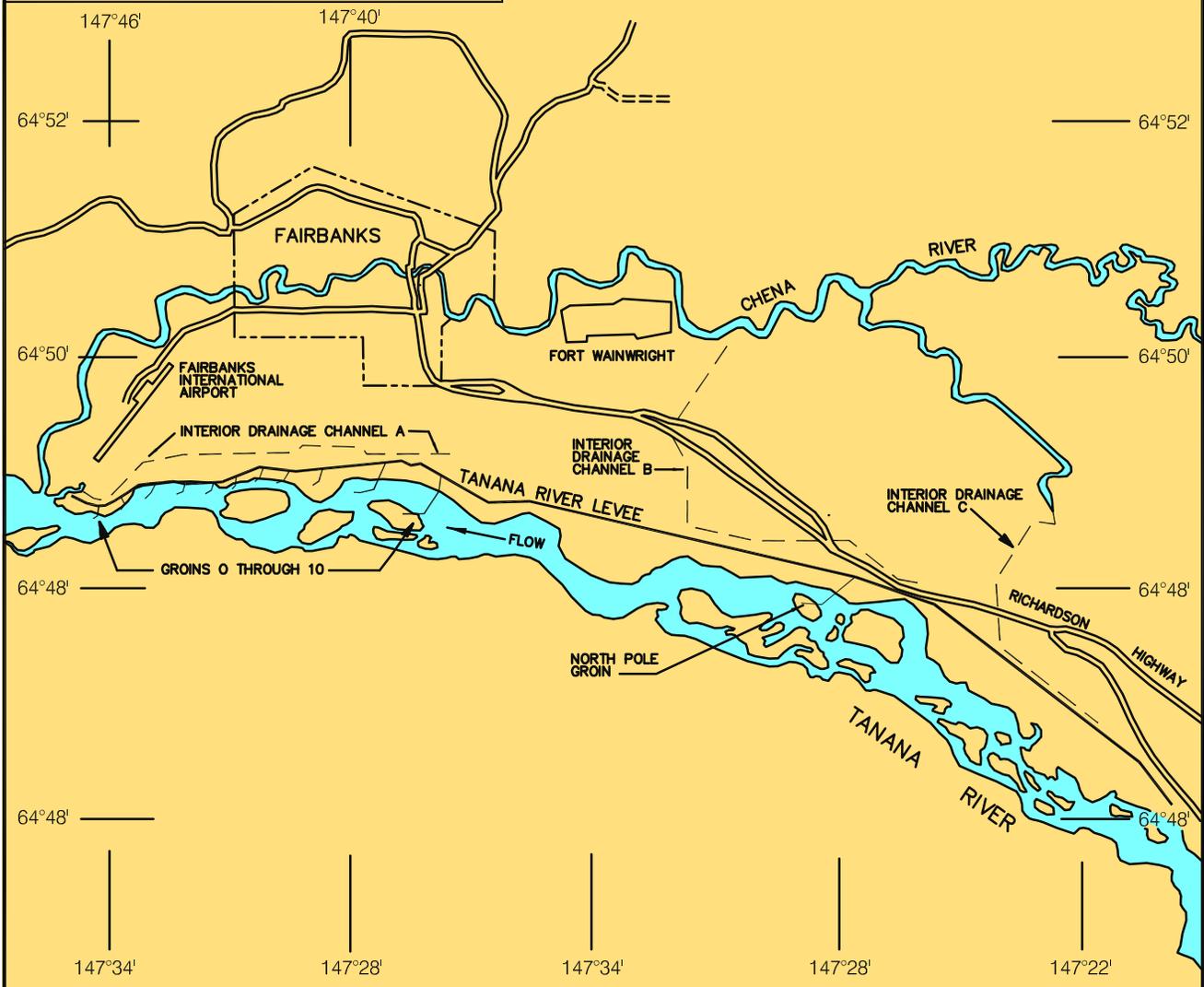
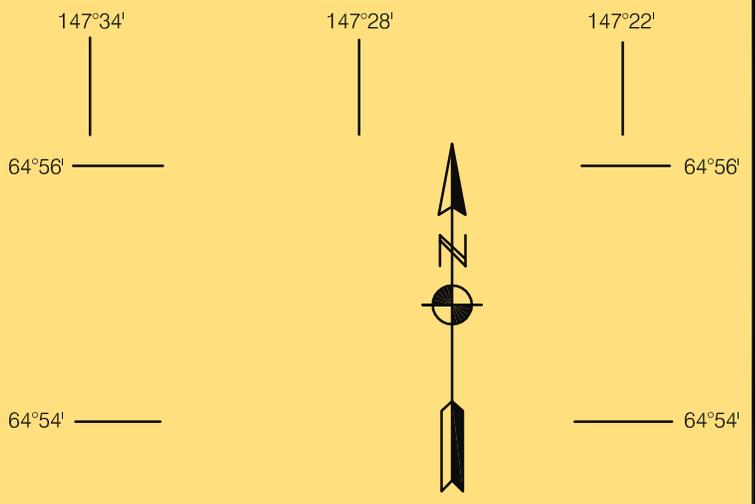
NOTE: Floodway is dry except during extreme high water events.

FLOOD CONTROL  
 FAIRBANKS  
 CHENA RIVER LAKES PROJECT  
 REVISED 1998

0 2500 5000 7500 10,000  
 SCALE IN FEET



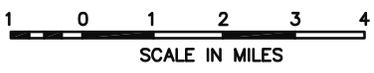
VICINITY MAP



NOTE

THIS MAP FOUND ON USGS QUADRANGLE MAPS, FAIRBANKS C-1, D-1, AND D-2.

FLOOD CONTROL  
FAIRBANKS  
TANANA RIVER LEVEE  
REVISED 1998



**FAIRBANKS, ALASKA**  
**Chena River Lakes and Tanana River Levee**  
(CWIS NOS. 72738 & 72854)

Condition of Improvement 30 September 2010

**AUTHORIZATION:** Flood Control Act of 13 August 1968, Public Law 90-483 (House Doc. 148, 90th Congress, 2nd Session) as adopted, provides for construction of a dam and floodway for the Chena River (17 miles east of Fairbanks), for a dam and reservoir on the Little Chena River, and for a 27 mile long levee system with interior drainage works on the north side of the Tanana River.

<b>EXISTING PROJECT:</b>	<u>LENGTH</u>	<u>DEPTH</u>	<u>WIDTH</u>
• Moose Creek Dam (Chena River) . . . . .	8.1 miles		
• Tanana River Levee . . . . .	22 miles		

**PROJECT USAGE:** This project provides protection to Fairbanks and adjacent areas, including Fort Wainwright, from recurring flood damage from the Chena and Tanana Rivers. In addition, the project is a popular recreational area averaging 133,000 visitor days of use per year since 1993.

**PROGRESS OF WORK:**

- 1970 - Pre-construction planning is initiated and aerial photography is obtained.
- 1973 - Phase I of the Tanana levee construction begins in June. A contract is awarded in November for the foundation excavation of the Moose Creek Dam.
- 1974 - Phase I of the Tanana levee construction is completed. Foundation excavation continues for the Moose Creek Dam.
- 1975 - Moose Creek Dam foundation excavation is essentially completed. Final design work nears completion.
- 1976 - Phase II of the Tanana levee is completed. The Moose Creek Dam outlet works and embankment are under construction.
- 1977 - Richardson Highway and Alaska Railroad bridges are constructed over the floodway. A major portion of the dam embankment is completed.
- 1978 - Moose Creek Dam outlet works and embankment are completed. Floodway clearing, excavation, and sheet pile sill are also complete. Contract is ahead of schedule. The dam and reservoir on the Little Chena are placed under a "deferred" status.
- 1979 - Moose Creek Dam and Floodway are operational; final grades constructed, groin to protect sheet pile sill in place, and shaping of the borrow pits to form Chena Lake is completed. An additional 222 foot segment of Tanana levee is constructed and work on Interior Drainage Channels B & C is underway.
- 1980 - Interior Drainage Channels B & C are completed; several slough blocks are repaired, and construction of a fish ladder at the Moose Creek dam outlet works is begun.
- 1981 - Construction of the Tanana levee is complete with the exception of additional groin protection along the Tanana River.

**CHENA RIVER LAKES and TANANA RIVER LEVEE, ALASKA** (continued)

30 September 2010

- 1982 - Major activities include repair of the Tanana levee due to settling, repairs to Interior Drainage Channel B culverts, and work on the Moose Creek Dam; a contract is awarded to apply an impervious silt blanket and armor rock protection, install relief wells adjacent to the dam, and add a second emergency gate at the outlet control works.
- 1983 - Interior Drainage Channel A is completed; work on the recreation area at Chena Lake is in progress and other miscellaneous repairs and upgrades are achieved.
- 1984 - A contract is awarded to construct five protective groins along the Tanana levee. Further improvements are made at the outlet works of Moose Creek Dam, and the recreation area at Chena Lake is completed.
- 1985 - Construction of groins 4 through 8 is accomplished along the Tanana levee. A high water event in May is successfully controlled by the project.
- 1986 - Contracts are awarded for an office & warehouse and 30 relief wells at the Moose Creek Dam site, and a contract for groins 9 and 10 is awarded for the Tanana levee. High water events June, July, and August are controlled by the project.
- 1987 - The contracts awarded last fiscal year are completed including groins 9 and 10 on the Tanana Levee. A new construction contract for visitors' facilities is awarded in August.
- 1988 - The south seepage collector channel is completed as well as the visitors' facilities. A contract for gate modifications at the outlet works of the Moose Creek Dam is awarded in September.
- 1992 - Gate modifications are completed and a curb wall is installed at the Moose Creek Dam outlet works. Major flooding in Fairbanks is averted by controlling the flow through the outlet works during May and June.
- 1995 - Phase I of the bike trail project is completed along the seepage collector channel road.
- 1996 - A long term fish study is continuing on the Chena River. The Tanana Levee, groins, and interior drainage channels were inspected and found in satisfactory condition. The visitor kiosk near the outlet works is completed.
- 1997 - Phase II of the bike path is completed; modifications to the trash racks at the outlet works are made, and the access ramp to the outlet works is paved. Fifteen (15) relief wells are installed on the downstream side of the dam. The old Nike landfill site is officially capped and closed.
- 1998 - Moose Creek Dam *Salmon Watch* activities attract thousands of visitors to the dam to view the salmon migration and learn about the Corps mission in flood control, recreation, and natural resource management. No flood or high water events occur on the Chena River.
- 1999 - At the Chena Project 35 relief wells are repaired (18 under contract). Ground water monitoring is continued. The Tanana River levee is inspected and found in good condition. The lower Chena River is dredged during the winter; 79,251 cubic yards are removed through several shoals to enable safe navigation of the waterway.
- 2000 - Moose Creek Dam is operated for flood control in August, 2000, for first time since 1995. This operation is the thirteenth time the Chena River has been regulated since the initial regulation event in 1981. The lower Chena River and the Boat Launch at the Federal project are dredged over the winter; a total of 26,406 yards are removed from both areas.

Continues on page 2-6b &amp; 2-7b

**CHENA RIVER LAKES and TANANA RIVER LEVEE, ALASKA** (continued)

30 September 2010

- 2001 - No flood events are reported.
- 2002 - Moose Creek Dam operated in May for a unique Spring breakup/ice damming/backwater flood event. In July, heavy precipitation raised the Chena River to near operating threshold and caused debris buildup behind the dam, necessitating operations contractor callout for bailing work. The dam is operated in August following over two inches of precipitation in the Chena watershed over a short period. Moose Creek Dam Salmon Watch officially began on June 24; approximately 10,000 Chinook salmon passed through the dam. Corps and Fairbanks North Star Borough personnel conducted the annual joint inspection of Tanana River Levee system. A portion of the Project boundary is re-surveyed, brushed and re-marked, resulting in discovery of numerous encroachments.
- 2003 - Moose Creek Dam was operated for flood control for the 17th and 18th times in July and September, 2003. The twelfth periodic inspection was performed in August with the finding that the Project was in excellent condition. The annual joint Corps-Fairbanks North Star Borough inspection of the Tanana levee was performed with positive results. The Project benefited from a 160-acre prescribed burn in a unit of black spruce by the Bureau of Land Management/Alaska Fire Service for habitat enhancement. Moose Creek Dam Salmon Watch attracted thousands of visitors to the Project to watch the annual salmon run in the Chena River. A new volunteer host site was developed near the Project's entrance and will be occupied beginning in May 2004. New multi-year flood debris bailing and crane operations contracts were developed and awarded to local contractors.
- 2004 - No flood or high water events necessitating the operation of Moose Creek Dam occurred in 2004. A peak flow of 6700 cubic feet per second, well below the dam's operating threshold, was recorded during the Spring breakup on May 8, 2004. A record nine million acres of land was burned in Alaska by wild land fires, including a yet undetermined amount of land within the Chena watershed. At least two of the Chena Project's remote weather recording sites sustained major fire damage. The Project's first remote dam camera went online during the reporting year and became a popular educational tool for the community and others by providing real time images of the river. The Project conducted its second annual Mayor's Day visit to acquaint local mayors and government officials with the Project. A "load moment indicator" was procured for the Project's 90-ton crane to accurately measure loads being picked by the crane during debris bailing operations.
- 2005 - There were no flood or high water events necessitating the operation of Moose Creek Dam. The Chena Project was readied early for expected service in the spring, but was not needed as the melt never produced the operational threshold flow. The Chena River's highest flow was recorded on 29 April at 5,300 cubic feet per second, well below the usual operating threshold of the dam. Above average precipitation over the spring and summer was well distributed and did not produce enough runoff to operate the dam at any time during the rest of the flood season. In other activities the Project's operations staff removed and replaced the 8,000 pound viewing window in the fish ladder. This window had sustained damage from possible earthquake-related movement in the fish ladder structure. In July, a successful internal ERGO inspection was conducted by District and Project staff. A highlight of the year was a site visit by the Chief of Engineers, Major General Stroock in August of 2005.

Continues on page 2-6c &amp; 2-7c

**CHENA RIVER LAKES and TANANA RIVER LEVEE, ALASKA** (continued)

30 September 2010

- 2006 - The Chena River Flood Control Project celebrated its 25<sup>th</sup> anniversary of operation in 2006. There have been 18 regulated flood events to date including the initial test fill performed in 1981. Peak flow on the Chena River occurred on 23 May showing approximately 5,300 cubic feet per second passing through the dam, well below the usual operating threshold. There were no subsequent high water or debris events for the year. The 13<sup>th</sup> periodic inspection of the dam and all its engineered features was completed in July. The Project was found to be in good operating condition on its silver anniversary. Inspection of the Tanana Levee and supporting structures finds the project to be in very good condition overall. Minor deficiencies and potential problems were noted. The Fairbanks North Star Borough was commended for its good work maintaining the project.
- 2007 - Inspection of the Tanana River Levee was performed in August. No major deficiencies were found that would prevent the Tanana Levee, interior drainage channels, and groins from performing their intended function. At the Chena Dam no high water or flood events occurred in 2007. A damaged gate support ear and a latch pin assembly were repaired at the outlet works. Work was begun to prepare the outlet works structure for the installation of remote cameras for use in operations, security and public use.
- 2008 - One of the wettest summers on record in the Fairbanks area necessitated operation of Moose Creek Dam on August 1 and 2, 2008 to regulate the flow of the Chena River.
- 2009 - The 14<sup>th</sup> periodic inspection of the Chena Project was conducted in July by the District's security manager and Division elements of the dam and the office facility. A modernization design was completed for bringing the Project Office in compliance with American with Disabilities Act and for increasing energy efficiency. The old underground 25,000 gallon heating fuel tank was removed and replaced with a new tank above ground. The Corps and the Fairbanks North Star Borough Department of Parks partnered on an emergency dredging job at the Borough's boat launch into the Chena River. Moose Creek Dam received a Dam Safety Action Classification (DSAC) level one rating on September 3, 2009 following a screening portfolio risk analysis (SPRA) conducted in June. The failure modes identified were due to seepage/piping and seismic activity.
- 2010 - Many operations and maintenance activities combined to make for the busiest year in the Chena River Flood Control Project's operating history. In response to the Dam Safety Action Classification (DSAC) ratings the Chena Project received in late 2009, the Corps held public meetings in January to promote public awareness of the deficiencies found and to explain corrective actions planned for the future. Construction contracts were subsequently awarded in early spring for modifying the floodway control sill by reducing its height approximately four feet to an elevation of 502 feet above mean seal level and increasing the monitoring area downstream of the dam by removing a fifty foot band of timber paralleling the dam's eight-mile stability berm. More work is planned for future years. Beginning in March, 2010, the Chena Project office/maintenance shop was readied for a nearly \$5M remodel and building addition with American Recovery and Reinvestment Act funding. The funds were used to modernize the existing 22-year old building to improve energy efficiency, make it compliant with the Americans with Disabilities Act; and add reception, conference and training space.

Continues on page 2-6d &amp; 2-7d

**CHENA RIVER LAKES and TANANA RIVER LEVEE, ALASKA** (continued)

30 September 2010

Additionally, an emergency response bay was planned so that Corps park rangers could respond more effectively to public safety emergencies, in both winter and summer. In April, a critical hydraulic structural steel inspection was performed in which the dam's service, emergency, bulkhead and fish-way gates were all thoroughly inspected by a multi district team of Corps engineers. This was the first inspection of its kind since the dam began operating in 1981. All gates were removed from the outlet works structure using the Project's crane and subjected to comprehensive internal and external visual inspections. This major inspection revealed all the gates were in excellent operating condition. The Moose Creek Acres Berm was inspected July 2010. The berm has two sections divided by high ground. The berm was in good shape along the westerly most section. Overgrown vegetation has completely engulfed the eastern most section. Both sections were scheduled for vegetation removal and additional gravel imported to level the crest. The Tanana River Levee was inspected July 2010. The easterly section owned by the U.S. Army Corps of Engineers is overgrown with vegetation. The remaining section owned by the Fairbanks North Star Borough (FNSB) had some sections of overgrown vegetation and encroachments. The levee was generally found to be in good shape.

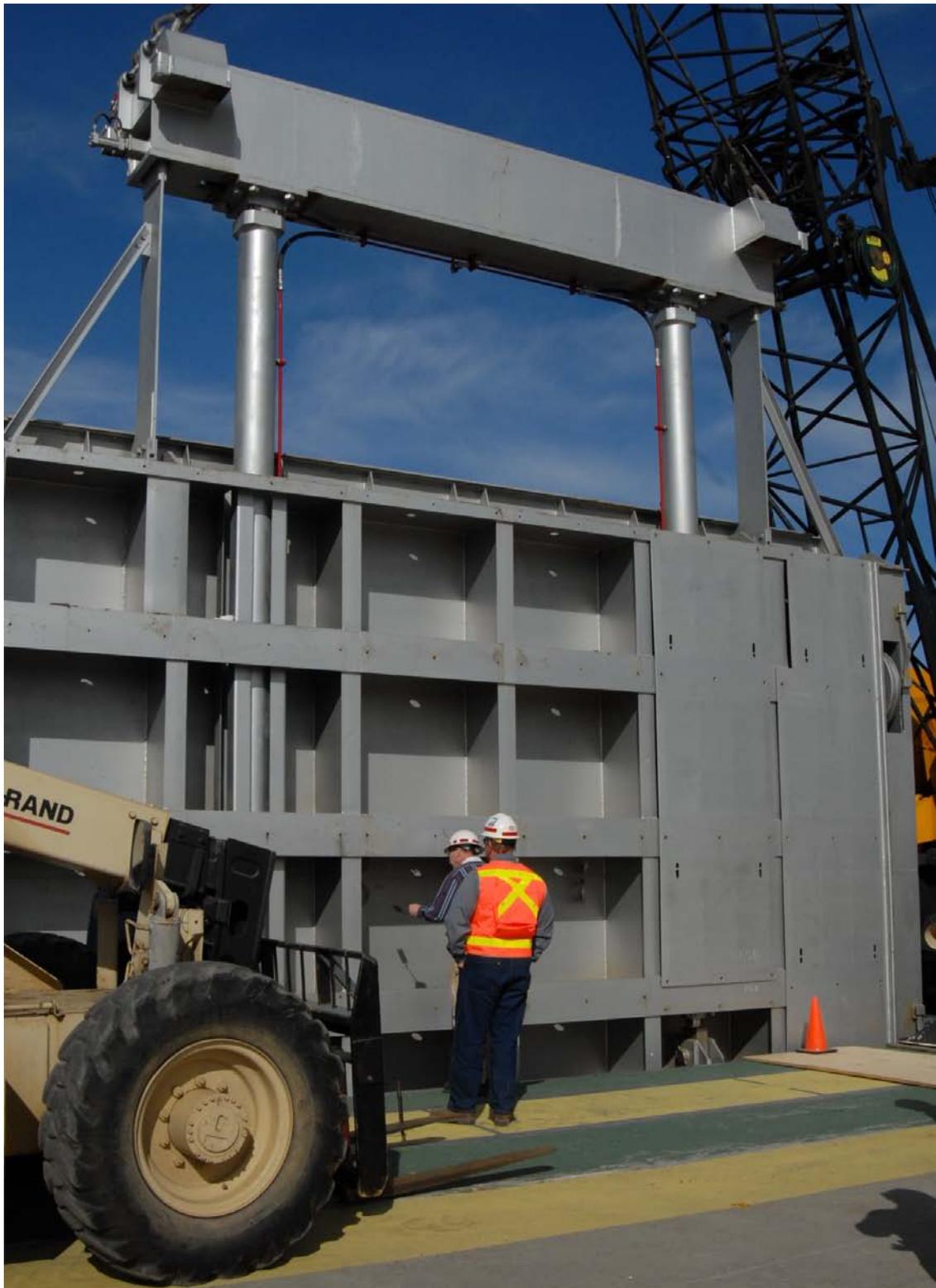
**COST TO DATE:**Chena River Lakes

CG Appropriation	\$216,342,765
CG Costs	\$214,626,462
CG Contributed Appropriation	\$2,382,929
CG Contributed Costs	\$2,382,929
O&M ARRA Appropriation	\$6,697,375
O&M ARRA Costs	\$4,567,330
O&M Appropriation	\$49,899,231
O&M Costs	\$46,965,963

Tanana River Levee

CG Appropriation	\$54,875,478
CG Costs	\$54,875,478
CG Contributed Appropriation	\$0
CG Contributed Costs	\$0
O&M Appropriation	\$0
O&M Costs	\$0

**Chena River Lakes & Tanana River Levee  
Fairbanks, Alaska**



Chena flood gate inspection in 2010.



Chena inspection in the summer of 2010.



Tanana River Levee in 2009.



The westerly section of the berm was generally in good shape, July 2010.

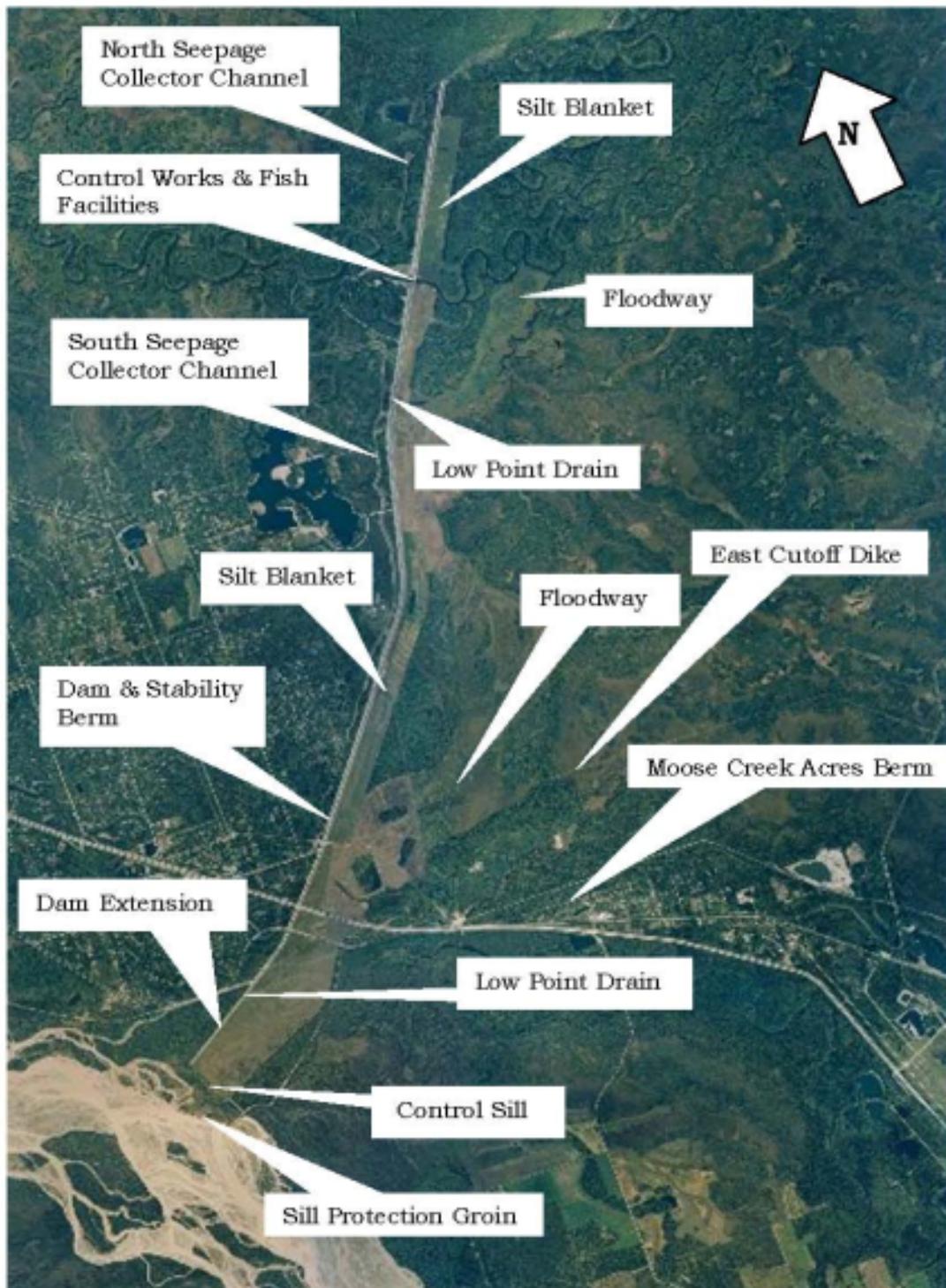


Tanana River Levee inspection, July 2010.



Looking down the Tanana River Levee during an inspection in July, 2010.

## PROJECT FEATURES ILLUSTRATION SHEET



### MOOSE CREEK DAM

Figure 2. General locations of Moose Creek Dam features.