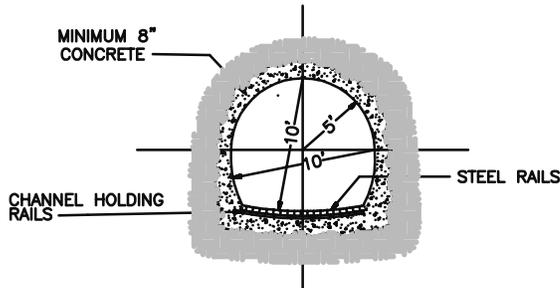
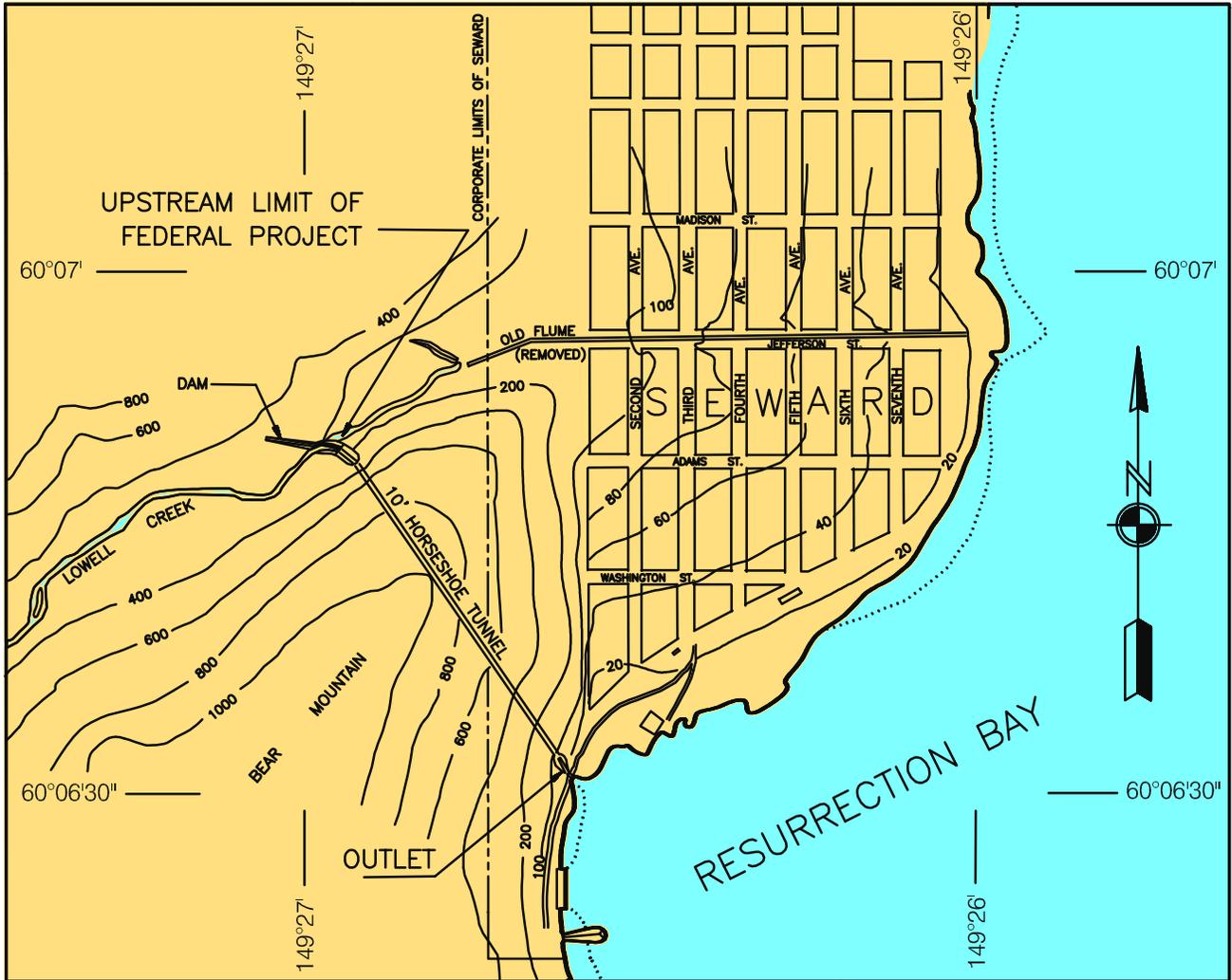


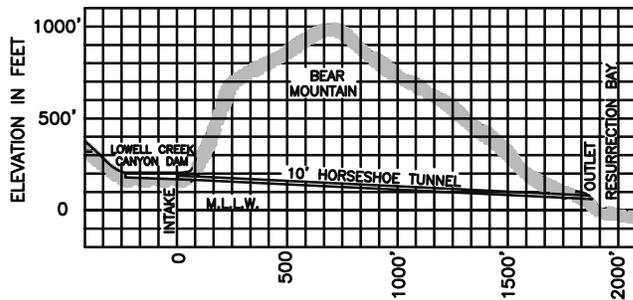
LOWELL CREEK



TYPICAL SECTION OF TUNNEL
NOT TO SCALE

METRIC CONVERSIONS					
FEET	METERS	FEET	METERS	FEET	METERS
10	3.04	500	152.4	1500	457.2
25	7.62	600	182.8	2000	609.6
200	60.96	800	243.8	2070	630.9
400	121.92	1000	348.0		

NOTE: THIS LOCALITY SHOWN ON U.S.C. & G.S. CHART NOS. 16682 & 16680.



PROFILE OF TUNNEL
SCALE: AS SHOWN

FLOOD CONTROL
LOWELL CREEK
ALASKA
Revised 1998

500 0 500 1000 1500
SCALE IN FEET

100 0 100 200 300 400 500 600
SCALE IN METERS

LOWELL CREEK, ALASKA
(CWIS NOS. 72856, 10140, & 12838)

Condition of Improvement 30 September 2011

AUTHORIZATIONS: (1) Public Resolution No. 52, 9 February 1927 (69th Congress) as adopted, provided for the construction of an intake dam and timber flume through the city of Seward. (2) Public Law No. 336, 14 February 1933 (72nd Congress) as adopted, provided for the maintenance of the authorized project. (3) Flood Control Act, 25 August 1937 (House Doc. 154, 75th Congress, 1st Session) as adopted, provides for the construction of a diversion dam 25 feet high and 400 feet long, and for a concrete lined tunnel 10 feet in diameter and 2,070 feet long through Bear Mountain to protect the city of Seward from the floodwaters of Lowell Creek. (4) Water Resources Development Act, 2007, Section 5032, LOWELL CREEK TUNNEL, SEWARD, ALASKA. (a) LONG-TERM MAINTENANCE AND REPAIR.—(1) MAINTENANCE AND REPAIR.—The Secretary shall assume responsibility for the long-term maintenance and repair of the Lowell Creek tunnel, Seward, Alaska. (2) DURATION OF RESPONSIBILITIES.—The responsibility of the Secretary for long-term maintenance and repair of the tunnel shall continue until an alternative method of flood diversion is constructed and operational under this section, or 15 years after the date of enactment of this Act, whichever is earlier. (b) STUDY.— The Secretary shall conduct a study to determine whether an alternative method of flood diversion in Lowell Canyon is feasible. (c) CONSTRUCTION.— (1) ALTERNATIVE METHODS.—If the Secretary determines under the study conducted under subsection (b) that an alternative method of flood diversion in Lowell Canyon is feasible, the Secretary shall carry out the alternative method. (2) FEDERAL SHARE.—The Federal share of the cost of carrying out an alternative method under paragraph (1) shall be the same as the Federal share of the cost of the construction of the Lowell Creek tunnel.

EXISTING PROJECT:	<u>LENGTH</u>	<u>HEIGHT</u>	<u>WIDTH</u>
• Diversion Dam	400 ft	25 ft	
• Tunnel	2070 ft	10 ft	10 ft

PROJECT USAGE: The completed diversion tunnel through Bear Mountain effectively controls Lowell Creek and eliminates flooding from this source in the city of Seward, Alaska.

PROGRESS OF WORK:

- 1937 - The original intake structure and timber flume are found to be beyond economical repair in 1937. Total costs of the original project equaled \$143,929.
- 1940 - The existing project is completed except for placing concrete between the steel rails in the tunnel floor.
- 1944 - The armor rails are found to be in bad condition due to failure of the hold-down bolts.
- 1945 - The rails are welded to the steel channel cross-ties and finished with concrete to complete the project. Operation and maintenance is turned over to local interests. Annual inspections are to be conducted in compliance with the provisions of local cooperation.
- 1969 - Emergency rehabilitation work on the tunnel is accomplished using Public Law 99 (84th Congress) funds.
- 1982 - Inspection of the project reveals that the tunnel needs to be repaired.
- 1984 - Repairs to the tunnel are effected by local interests.
- 1987 - A post-storm inspection in April shows that major damage has occurred to the tunnel floor from heavy rainfall and debris the previous October.

LOWELL CREEK, ALASKA (continued)

30 September 2011

- 1988 - The tunnel is repaired under the rehabilitation authority of PL 99 (84th Congress) during the period January through April.
- 1989 - Another major rainstorm occurs at Seward in August resulting in major damage to the tunnel. Repair work is again accomplished under PL 99 (84th Congress).
- 1993 - An inspection during the low flow period in late winter indicates that the project is in good operational condition.
- 1995 - Heavy rains in September wash out the bridge below the outlet works and transport a large quantity of debris through the tunnel.
- 1996 - An inspection of the tunnel found no significant damage from the September 1995 flood. The project is in satisfactory operational condition.
- 1998 - Corps inspectors find the project in fair operational condition. Concrete on the tunnel floor is showing signs of wear.
- 1999 - An inspection in March reveals continued erosion of concrete on the tunnel floor. Maintenance will be required in the next 1 to 2 years.
- 2000 - Congress appropriates \$1 million for making repairs to the tunnel but the Corps lacks sufficient authorization to perform the work under the O&M program.
- 2001 - The Secretary of the Army was authorized by Section 510 of the Water Resources and Development Act of 2000, Public Law 106-541, and the Energy and Water Development Appropriations Act, Public Law 106-60, to "carry out, on an emergency, one-time basis, necessary repairs of the Lowell Creek Tunnel in Seward, Alaska, at Federal expense and at a total cost of \$3,000,000." A Project Cooperation Agreement is negotiated, and plans and specifications are prepared for a maintenance contract.
- 2002 - Contract is awarded to repair the tunnel entrance apron, relining portions of the eroded tunnel floor with high strength concrete, and replacement of the chain link fence near the tunnel entrance.
- 2003 - Construction contract for tunnel repairs is completed in March.
- 2006 - The tunnel is inspected on 24 March and showed approximately 0.1 feet of wear in the tunnel invert. The 2003 repairs are in good to excellent condition. The crown and tunnel walls are original construction and appear to be in satisfactory condition.
- 2007 - The project is inspected by Corps and City personnel in March. Erosion in the tunnel was noted but nothing serious enough to warrant repair at this time. The City was notified by letter of the necessity to periodically inspect the diversion dam. WRDA 2007 passes and changes project authorization.
- 2008 - The project is inspected by USACE and the City of Seward, Department of Public Works in March. The tunnel invert below station 2+00 remains in sound condition. The invert above station 2+00 is in operable condition but has received some damage. This damage is not significantly greater than the previous inspection.
- 2010 - Lowell Creek Tunnel is inspected annually by the Corps and this year on 26 March. The damaged fence was repaired/replaced in August. The second periodic inspection of the dam inlet and outlet took place 21 October. The final dam rating is expected to be finished in March 2011.

Continues on page 2-14b

LOWELL CREEK, ALASKA (continued)

30 September 2011

2011 - The Corps Screen Portfolio and Risk Assessment team assigns a Dam Safety Action Classification rating of “3” in February with the Corps Senior Oversight Group concurring on the rating in March.

COST TO DATE:

CG Appropriation 10140	\$416,382
CG Costs 10140	\$416,382
CG Contributed Appropriation 10140	\$421,218
CG Contributed Costs 10140	\$421,218
O&M Appropriation 12838	\$2,493,090
O&M Costs 12838	\$2,364,729

Lowell Creek Tunnel near Seward, Alaska



Lowell Creek inlet (top) and outlet (bottom) in 2007.

Lowell Creek Tunnel near Seward, Alaska



Looking upstream from the Lowell Creek Tunnel inlet (top) and looking downstream toward the entrance of the tunnel in 2010.

Lowell Creek Tunnel near Seward, Alaska



New fence replacement on the outlet of the tunnel in 2010.

Lowell Creek Tunnel near Seward, Alaska



Lowell Creek Tunnel entrance in 2010.