

Pine Hill/Kendall Dam Repair

1982 ANNUAL  
REPORT

Repair work has recently been completed on the Pine Hill Reservoir dam and the Kendall Reservoir dam. The cost of the project was \$667,000.00. Work at Pine Hill dam involved complete replacement of the valving system in the control well, new port

gates, new gates at the bottom of the dam, replacement of access ladders and flooring, and the refacing of the entire spillway and wing walls with the exception of the downstream wing walls. Core samples of the dam were taken to determine soundness and condition of the structure and all cracks were pressure filled with epoxy gunite. Work on the Kendall dam involved the reconstruction of the spillway and the wing walls.

Pine Hill Dam/Kendall Road Bridge

Repair work to the Pine Hill Dam face and stilling pool is in progress. The two face walls are being chipped out for repair and cracks are being pressure filled with epoxy gunite. Work will continue in the Spring of 1987.

Repairs were made to the stilling pool walls and front step down to the brook bed. Repairs were also completed on the Kendall headwalls and canal. Both wing walls and dam received gunite application to deteriorated areas. Weir blocks on the downstream side were epoxy grouted. The entire length of the canal received gunite patch repair work.

Replacement of the Kendall Road bridge was completed. A new poured concrete supporting base and walls replaced the old boxed culvert. The top deck of the structure was laid with prefabricated, prestressed concrete girders and slabs. Rip-rap, were up and downstream, was replaced and the banks of the spillway brook were regraded and seeded. Two tubular steel swing gates were erected on the bridge to restrict entry.

# 1988 ANNUAL REPORT

Contract repairs at Pine Hill Dam and Kendall Reservoir, which were initiated during the previous fiscal year by Jacor, Inc. of Milford, Massachusetts, remained uncompleted by this fiscal year's end. The contract includes the repair of the downstream face of Pine Hill Dam and outlet control of Kendall spillway bridge. These repairs represent the final repair work for the Pine Hill Reservoir Dam. However, unforeseen problems have been encountered with the polymer cementitious mortar on the downstream face of the dam. The mortar has not bonded properly and must be removed and then replaced with standard pneumatic mortar. The problem stems from excessive amounts of water travelling through the dam from the upstream side causing the deficient bonding of the repaired sections. The City's consultant, Coffin and Richardson, is presently working on a solution.

## Filtration

Final design engineering of the filtration plant and related facilities continued during the fiscal year. The single plant, which will be located on the shores of Holden Reservoir No. 2 is to have the capacity to treat 50 million gallons per day. The plant will utilize the direct filtration concept. The estimated cost for plant and system improvements is projected to be about \$54,000,000. By the close of the fiscal year, 50% complete design plans were available. The filtration plant is scheduled to be on-line early 1992 according to the schedule submitted by the consultant.

At the beginning of this fiscal year, the City retained the services of Arthur Beard Engineers, Inc. to complete a value engineering study for the water treatment facility. Value Engineering is an independent analysis of design documents and drawings for the facilities at the preliminary design completion stage. Value Engineering was used to identify areas of high potential cost savings, formulate creative ideas for alternate methods to achieve necessary functions and develop recommendations which result in substantial life cycle cost benefits and/or improve performance and reliability. Upon review of the Value Engineering teams recommendations, a total of \$2.46 million of present worth savings was realized which represents an 82:1 savings vs. cost of study ratio.

## Distribution System

A total of 31,226 feet of water mains were installed, and 11,397 feet were removed or abandoned during the past fiscal year. In addition, 71,148 feet of various sized water mains were cleaned and cement lined. The combined rehabilitation program resulted in 19.39 miles of improvements to our distribution system. The Department was pleased with the support that it received from the City Manager and City Council in appropriating the necessary funds to improve its aging distribution system.

Water Operations staff repaired 959 leaks in the system, and changed 1,191 5/8" and 3/4" meters as part of the domestic remote outside reading program.