

TOWER ROAD DAM AND RESERVOIR CITY OF MONCTON

Introduction

Moncton City Council has authorized Touchie Engineering, a division of R.V. Anderson Associates Limited to proceed with the design and construction services for the proposed Tower Road Dam and Reservoir in Turtle Creek, N.B. Touchie Engineering was selected based on a successful technical and financial proposal in response to the City of Moncton's Request For Proposal # RFP08-009 and a subsequent presentation to the review team on the proposal submission.

Background and Project History

Raw water supply for the Cities of Moncton and Dieppe and the Town of Riverview is currently obtained from the Turtle Creek watershed. The watershed has a catchment area of 170 km². Previously, surface water supplies were obtained from the McLaughlin Road reservoir on a tributary of Halls Creek.

The existing Turtle Creek Reservoir was designed and constructed between 1963 and 1966 to act as the primary water supply source for the City of Moncton water supply system. Since 1963, 129 km² or 76 percent of the watershed draining to the Turtle Creek Reservoir has been gauged by Environment Canada to measure the stream flow.

As a result of very dry summers and falls in 1989 and 1994, the City experienced drought conditions. The reservoir did not fill until December 8, 1989 and January 15, 1995 respectively. As a result, gates were installed at the existing Dam in 1996 and 1997 to raise the water level by 2.1 meters thus providing an additional 1.8 million cubic meters of storage. In 2000, the City experienced another dry summer and the drought conditions resulted in the reservoir not being filled until October 31, 2000. A very dry summer was once again experienced in 2001 with the reservoir not filling until March 1, 2002.

The City wishes to ensure that an adequate supply of water is available to meet the current and future needs of the tri-communities.

Proposed Tower Road Dam

From a comparison of the average and minimum stream flows and the yield values in the watershed, there is a potential to increase the Turtle Creek watershed yield substantially by providing additional reservoir capacity to store runoff which is now discharged over the existing spillway.

A second dam is to be constructed at Tower Road approximately 5 km upstream from the existing dam near the existing roadway bridge. A total storage of 16.5 million cubic meters may be developed at this site. The proposed Tower Road Dam may be developed using a concept similar to the existing Turtle Creek Dam. Development is expected to be completed in two stages by adding gates at a later date to increase the storage from an initial storage of 10.0 to 16.5 million cubic meters. Availability of funding, demand for water, and the final design of the reservoir and spillway will determine when the total available ultimate storage is developed.

A Pre-Design Report will determine the physical size and construction materials used for the construction of the dam, but it is anticipated that the main dam would be approximately 20 m in height and extend 1.2 km along Tower Road. It would be constructed of either a homogeneous section of compacted impervious fill or a central core of impervious fill with quarried rock or gravel upstream and downstream.

An estimate of the equivalent population served from the watershed from the existing and proposed reservoirs has been developed based on the calculated yields. The equivalent population that could be served from the increased storage increases from 80,510 to 175,450 with the addition of the Tower Road Dam. Allowances for commercial, industrial, and institutional users have been included.

A second catchment area provides additional reliability and security for a continuous supply of water to the Moncton Water Treatment Plant. If for any reason the existing dam, intake structure, tunnel, Low Lift Pumping Station, or forcemains to the Treatment Plant were out of service or the existing reservoir became contaminated, there would be no means of maintaining an adequate water supply to the Moncton Water Treatment Plant. A future pumping station and forcemain from the proposed Tower Road Dam to the Water Treatment Plant would provide a second supply line to the Water Treatment Plant.

This project has been registered with the Province of New Brunswick under the Environmental Impact Assessment Regulation. In accordance with section 6(6) of the New Brunswick Clean Environment Act, the project has received the Minister of Environment's Determination that the undertaking may proceed pursuant to Regulation 87-83 under the Clean Environment Act.

Schedule

Collection of data and site surveys will commence immediately. The Pre-Design Report is scheduled to be completed in early 2009. A project web site will be maintained throughout the design and construction phases. Public information sessions will be held on completion of the Pre-

Design Report. Detailed design will be completed by the summer of 2009 and it is expected the construction will commence in the spring of 2010. Construction on the current scope of work is expected to be completed by the summer of 2012.

Cost Estimates

Cost estimates for the proposed project were presented to the City of Moncton in 2002. It was **estimated in April 2002** that for Tower Road Dam, Pumping Station, and gates for additional storage the costs would be in the order of \$18.5 million dollars. Land acquisition (an ongoing program by the City), Legal Surveys and Legal Costs were not included in those estimates.

The Engineering News Record (ENR) Cost Index in April 2002 was listed at 8106.74. The ENR for June 2008 is currently at 9470.80. This correlates to a percentage increase of 17% in construction costs since 2002. With the busy state of the construction market and the understanding that the construction of the project would be the spring of 2010, it is anticipated that the costs for construction of the dam, spillway, and reservoir would be in the order of \$19-20 million dollars. The construction of the future pumping station, forcemain and gates would be \$6-8 million dollars.

Summary

Touchie Engineering looks forward to working with the City of Moncton on this essential infrastructure project, benefitting the citizens of Greater Moncton. Along with our experience working together with the City, Touchie Engineering also has a successful history working with the rest of the talented project team, which consists of Gemtec Limited, AMEC Environmental, and Hughes Surveys.

Touchie Engineering has been engaged in the practice of civil, municipal and environment consulting engineering in New Brunswick since 1980. As a division of R.V. Anderson Associates Limited of Toronto, Ontario, Touchie Engineering is a multi-disciplined team providing environmental and infrastructure expertise for technologies related to: water, wastewater, stormwater management, municipal infrastructure, transportation and urban development.

R.V. Anderson Associates Limited (RVA), is an employee-owned multi-disciplinary firm, providing technical expertise to a wide range clients throughout the Atlantic Provinces, the rest of Canada, and overseas. RVA is comprised of over 200 employees specializing in environmental and infrastructure engineering for water, wastewater, transportation, and urban development projects.