

## History of the William's Lake dam, 1700's to 2016

The dam structure dates back to the 1700's. At that time it was used as a control for a wood conduit to the North West Arm for the forestry industry of the day in Mainland South. In the 1800's the dam was rebuilt and tooled to be the energy supply for a sugar cane mill on the Arm. Again in the 1800's it was used for service to allow ice production for Halifax from William's Lake. In the mid and late 1900's residential and recreational uses became the focus of the lake and again the dam was integral to these functions. It was during this time, the Williams Lake Conservation Company (a non-profit volunteer organization)(WLCC) became active attempting to maintain and enhance this important community resource.

The WLCC was formed in 1968 at the suggestion of the Nova Scotia Water Resources Commission (WRC) "in order that the WRC might have a responsible body with which to deal over the reconstruction and maintenance of the dam at the outlet of William's Lake." The WLCC was granted a 20-year Water License for Williams Lake which allowed the Company to become responsible for maintaining the dam such that the water level in the lake would vary no more than 1 foot above or below the established level while still ensuring that the flow of water down the outlet stream to the Arm was maintained.

In 1970 the WRC established the water level at 61.12 feet, and the Dept. of Energy, Mines and Resources installed a gauge near the dam. At that time, C.A.E. Fowler (designer of the previous dam, resident of Hall's Rd.) suggested inexpensive modifications met WRC specifications. The dam repairs at this time were undertaken by local residents and were made with bagged concrete, and a spillway was completed.

By the mid 70's "vandalism growing worse each year has meant that the bagged concrete and rock has been chipped and pried loose making holes in the dam itself, the conduit pipe has been ripped out, large sections of the old wooden dam have been ripped out and used for fires..." This led to a "meeting at the dam with John Jones, Director of Water Planning and management and Lee Lewis, Chief of the Water Resources Section, NS Department of the Environment (DOE) to reach understanding of each other's concerns regarding the dam".

Cameron Construction was engaged and estimated the cost of repair at \$2800. The Province and City were asked for contributions and a fund-raising drive occurred. Fill and bagged concrete were placed around the conduit so it couldn't be moved and fill was extended out on either side to cover the remains of the old dam. The \$3100 cost of this repair in the summer of 1977 was raised by 58 families around the lake and from Jollimore. John Theakston (DOE) made an on-site inspection and "expressed satisfaction with the results."

More dam repairs occurred in the fall of 1984 under WLCC President Murray Clement's direction. Grants "from the city and the provincial departments of finance and

environment” covered the cost. This included the installation of Gabion baskets to shore up the structure. A letter from the Minister of Environment approved the technical and financial help.

By 1994, the Gabion baskets were in poor condition due to vandalism and that summer, the “lowest lake levels since 1968” were recorded. Jim Fletcher (local resident, dam engineer) and John Theakston of the DOE inspected the dam and concluded: 1) it “needed to be shored up”; 2) “seepage under the dam might be repaired by installation of a polyethylene sheet (\$1000-\$5000) but this would be a band-aid approach”. DOE was mostly interested in shoring it up. In December, repairs of the dam were completed. This included shoring up with large granite boulders. This time, member/non-member donations plus some monies from the WLCC membership account and some from the proceeds of a raffle raised funds.

In November 2001 as result of a complaint to NS Dept. of Environment (DOE) and the concerns of many residents at the western end of the lake about the very low water levels, a special general meeting was held. Investigation of the dam structure was approved. ‘Ways and Means’ and ‘Solutions’ Committees were formed to raise funds and investigate what to do.

Between 2002-06, there were very low summer water levels. A major fund-raising appeal to members and all local residents continued. The engineering firm YMCL Engineering was requested to submit an estimate and plan for investigation of the dam structure. This investigation was completed early in 2005 with bore holes indicating the substructure of dam was eroded and effectively there was “nothing” under the visible part of the dam. This was also evident from observations that the stream behind the dam continued to flow strongly to the Arm even when the lake water was several meters distant from the front of the dam due to drought.

YMCL submitted a proposal for replacing the dam with an estimated cost of \$250,000-\$300,000. The executive of the WLCC felt this represented a much more elaborate structure than would actually be required.

With the 20-year term of the water license due to expire at the end of December 2006, the president of the WLCC Andrew Ross wrote to the DOE in November 2006 giving notice of intent to renew the license but requesting a year extension to allow a mechanism for fulfilling one aspect of the application, namely remediation of the dam to be determined.

In 2006, MLA Michele Raymond, intervened with the DOE on behalf of the WLCC and was able to negotiate an extension of the Water Licence beyond 2008 pending identification of a more permanent solution to the dam repair problem.

In 2008-2009, Dalhousie University engineering students Tobin Stetson and Blair Hastey, under the supervision of Dr. David Hansen, undertook a study of the hydrology of Williams Lake and the dam. In their final report, alternative less-elaborate and less-costly replacements than the YMCL replacement were proposed.

In 2007, WLCC President Andrew Ross met with the DoE to ask about remediation of the dam structure and in 2009 wrote requesting guidance on and approval for remediation measures. They did not respond.

In 2010 an ad hoc Dam Committee was struck with Paul Cashman, a local resident and now a member of the WLCC executive, as chair. In October 2010 Paul wrote to the DOE on behalf of the WLCC, seeking approval for dam remediation measures. They did not respond.

The WLCC still maintains a strong interest in repairing the dam. However the approval processes are more complex than in previous years and recent land ownership and potential land usage designation changes have added to these complexities. We continue to seek a viable solution.

## **Dam Ownership**

Ownership of the Williams Lake Dam, as with other dams in Nova Scotia, is unclear. The land on the southern side is part of a much larger parcel of land purchased by Clayton Developments from the McCurdy Estate late in 2011. A different landowner owns the land on the northern side of the dam. The access road to the dam from the Purcell's Cove Road runs along the northern side of the stream that flows from the dam. The road runs across the land of two private landowners. To access the dam with the heavy equipment needed for repairs and the YMCL engineering study required the permission of both landowners.

Clayton Developments has stated publicly that they have received legal opinion that they do not own the dam. Watercourses and lakes fall under provincial jurisdiction. Williams Lake and the outflow stream to the Arm are within the Halifax municipality. A registered municipal beach on one part of Williams Lake, the pond behind the Cunard Junior High School, makes the lake level and water quality a municipal issue.

The Royal Nova Scotia Yacht Squadron, which has used the outflow stream from Williams Lake as a supply of water, also has rights with respect to the dam. "Subject to the burden of the owners of PIDs 41054446 and 270942 using the waters, water-courses and water powers and privileges belonging or appertaining to said lands and premises or usually held, used or enjoyed in connection therewith, and also the right to pass to and from the Lake and the Public Road and to enter the adjoining property formerly of one Henry Lawson for purpose of repairing the dams and for other purposes connected with the use of the water powers and privileges hereby conveyed, as defined and described in a deed dated May 19, 1910 and recorded June 2, 1910 at the Halifax County Registry of Deeds in Book 409 at Page 91 as Document # 1047."

*Sources* : WLCC documents and correspondence, Heather Watts History of William's Lake, YMCL Engineering Report on the Dam, Andrew Ross Note of intent to renew Water License November 2006

*Recent updates*: Melanie Dobson, on behalf of the WLCC executive, Sept 4, 2016