



**The Appleton Wetland;  
Its Decline, Cause and Recommended Action**

**Appendix Q: MVCA Staff Report 2683/12**

**Report prepared by**

**Appleton Wetland Research Group  
of the  
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**August 11, 2014**

## **MVCA Staff Report 2683/12**

The above staff report from Paul Lehman, P. Eng., the General Manager of the Mississippi Valley Conservation Authority (MVCA) and addressed to the Chair and Members of the Board of Directors of MVCA on the subject of the Enerdu Expansion and Redevelopment Project is included in the pages that follow.

It does have a number of items in it that are relevant to the state of the Appleton Wetland, and provides a useful reference on the decline of the wetland.

**Staff Report # 2683/12**

May 29, 2012

**Memorandum**

**To:** The Chair and Members of the Board of Directors  
Mississippi Valley Conservation

**From:** Paul Lehman, P.Eng.,  
General Manager

**Re:** Enerdu Expansion and Redevelopment Project

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**Background**

The Enerdu Generating Station is located on the Mississippi River in Almonte. See figure 1. It was originally constructed in 1842 as the Wylie Flour Mill. Between 1993 and 1997, the dam was repaired and two turbines were installed to generate electricity. The facility has been in operation since that time.

The Enerdu Station is described in the Mississippi River Water Management Plan (MRWMP) as a run of the river type facility. It was considered to have limited ability to influence flows and water levels in the river once flows exceeded 15 cubic meters per second (cms) which corresponds to the existing plant capacity. At the time of preparing the MRWMP there was some concern that the flashboards may aggravate flooding conditions, particularly at the Almonte fairgrounds, if the flashboards did not fail under high flows. Unlike stoplogs that can be removed and replaced as required, the flashboards are installed when flows are low enough to allow operators to enter the river to install the boards and then remain in place until they fail, usually as a result of high flows and/or ice taking them out.

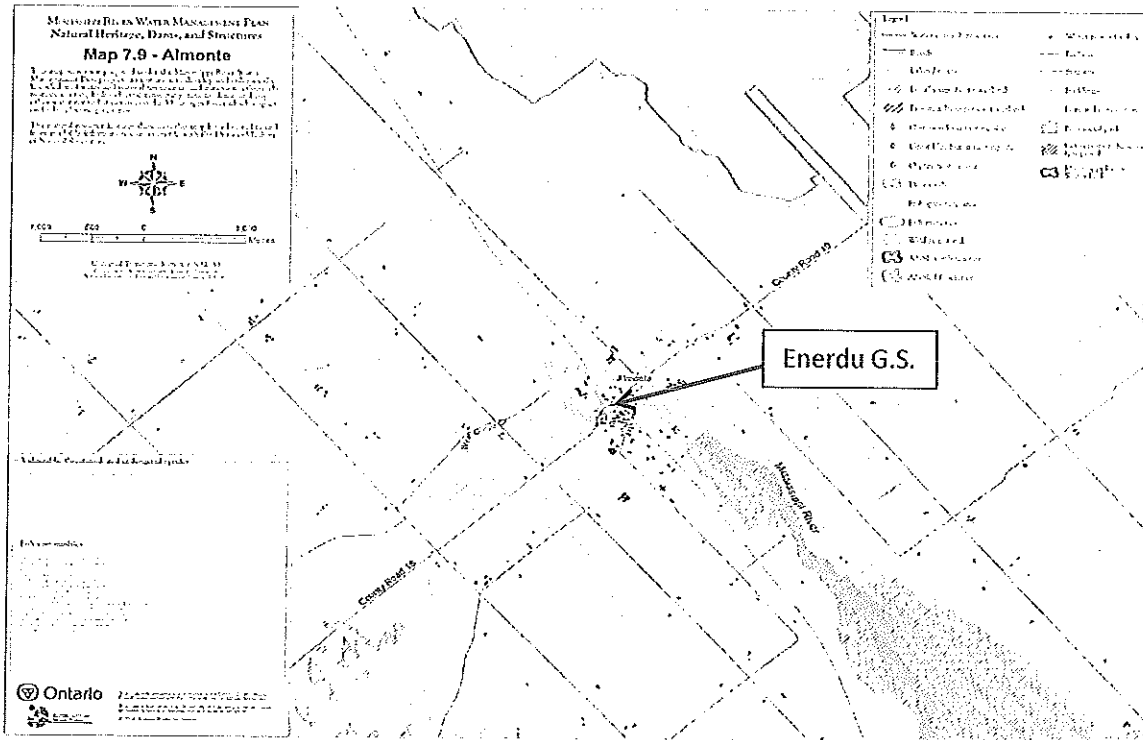
**Mississippi River Water Management Plan**

The *Lakes and Rivers Improvement Act* provides authority to the Minister of Natural Resources to order dam owners to participate in the preparation of water management plans. In 2003, the Minister subsequently directed the owners of the five hydro generating facilities along the Mississippi River and MVC to prepare a water management plan for the Mississippi River in accordance with Guidelines prepared by MNR.

As such, MVC along with the owners of the five generating stations are considered proponents of the MRWMP and are responsible for operating their facilities in accordance with the plan including compliance reporting and effectiveness monitoring. The Ministry of Natural Resources is responsible for investigation and compliance enforcement.

The MRWMP was approved by MNR in 2007 and implementation is guided by a Steering Committee consisting of the owners of the five generating stations, MVC, MNR, DFO and First Nations. A public Standing Advisory Committee was also established to provide public oversight of the MRWMP and to assist in the identification and resolution of issues.

Figure 1 – Enerdu G.S. Location



### Enerdu Operation

Due to a lack of historical water level data upstream of the Enerdu facility, a best management practice operating range of 117.20 m to 117.70 m (GSCD) was established by the MRWMP, based on the elevations of the existing sill and flashboard system. This operating range is the range in water levels which Enerdu should maintain under normal operating conditions. Flood risk mapping was used to establish an upper compliance level of 118.00 m. The upper compliance level is the maximum allowable upstream water level which cannot be exceeded unless the flashboards have been removed. Based on a hydraulic analysis of the flashboard system, it was determined that the upper compliance level would be exceeded at streamflow rates greater than 40 cms (25 cms if the plant is not operational). The MRWMP further required dam owners to install and monitor water level gauges and report water levels to the Ministry of Natural Resources to demonstrate compliance with the MRWMP. In July 2006, MVC also installed a staff gauge on the bridge upstream of the Enerdu dam and began monitoring weekly water levels to provide improved data for future review of the plan.

## **Appleton Wetland**

In response to concerns raised by a resident that the Enerdu generating station had raised water levels adjacent to the Appleton wetland causing a dieback of trees, MVC and MNR staff inspected the forested areas of the Appleton Wetland which were experiencing dieback. The MNR Forest Health Specialist did not see any evidence of insect or disease damage which could contribute to the dieback. These concerns were raised with the Steering Committee and the Standing Advisory Committee in January 2011 and again discussed at the Steering Committee in April 2011.

In an effort to help resolve this issue MVC staff committed to investigate the influence which the existing flashboards would have on water levels in the Appleton Wetland. Anecdotal information obtained through discussion with the former operator of the Almonte PUC dam (now Mississippi River Power) indicated that the flashboards had been installed in roughly the same place and same height since the early 1960's. There was no information regarding the specific dates at which the flashboards had been installed or came out. Discussions with the former operator of the Appleton Generating Station revealed that in his opinion the water levels increased about 30 cm (1 foot ) when the flashboards were installed. It was also indicated that their installation had a detrimental effect on Appleton's hydro generation capacity however as the boards were being installed when flows were low, the plant was not generating near full capacity which limited the impact on production.

With the assistance of the Mississippi Valley Field Naturalists, MVC staff measured water levels at the tailrace of the Appleton dam and at the Almonte Bridge throughout the summer of 2011. MVC also conducted a hydraulic analysis of the river channel between the Bridge Street Bridge in Almonte and Appleton which indicated that water levels being measured at the Bridge location are indicative of water levels adjacent to the wetland at streamflows of less than 60 cms. As such it was concluded that the flashboards increased water levels along the river adjacent to the wetland between 30 cm and 20 cm at flow rates of 10 cms and 60 cms respectively.

Streamflow rates in the Mississippi River during the fall and winter periods have exhibited a significant increase of 100% – 200% over the past 35 years and most notably in the past 5 years. Stream flows over the past five years during the late fall and winter periods have been 50 to 60 cms which would have resulted in water levels in excess of 117.8 m which would inundate some portions of the wetland for extended periods of time even with the flashboards out.

Further research would be required to determine whether these factors would have an impact on the dieback being experienced within the wetland area. MNR has indicated that they will be investigating further.

## **Enerdu Expansion and Redevelopment Project**

In July 2011, OEL-HydroSys (the consultant for Enerdu) held a preliminary Environmental Assessment coordination meeting and invited potentially interested agencies including;

- Ministry of Natural Resources
- Ministry of Environment
- Ministry of Northern Development and Mines
- Ministry of Tourism and Culture
- Ministry of Aboriginal Affairs
- Mississippi Valley Conservation Authority
- Algonquins of Ontario
- Canadian Environmental Assessment Agency
- Ontario Waterpower Association
- Town of Mississippi Mills
- County of Lanark
- Mississippi River Power Corporation

The meeting was intended to provide an overview of the project and to confirm applicable policies and approvals. The Project Description is attached as Appendix A. The project is being planned in accordance with the Class Environmental Assessment for Waterpower Projects developed by the Ontario Waterpower Association. Subsequently, a “Notice of Commencement” of the project was issued in the EMC on September 8<sup>th</sup> and 15<sup>th</sup> with a community information session held on September 26<sup>th</sup> in Almonte.

In January 2012, a Draft Environmental Report for the proposed expansion and redevelopment of the Enerdu GS was circulated to interested agencies for comment. On February 7<sup>th</sup>, a second public information session was held in Almonte to discuss the project and answer questions from the public.

In February 2012, MVC staff submitted comments on the Draft Environmental Report to the consultants (attached as Appendix B). On April 11<sup>th</sup>, MVC staff attended a public meeting with representatives of Enerdu to answer questions regarding the project and MVC’s role with respect to the project.

### **Current Project Status**

As mentioned previously, the Enerdu Expansion and Redevelopment Project is being planned in accordance with the Ontario Waterpower Association’s “Class Environmental Assessment for Waterpower Projects” (Class EA). This Class EA is a proponent led planning process which includes legislated and mandated public consultation requirements. This process only fulfills the requirements of the *Ontario Environmental Assessment Act* and does not replace the approvals required under other legislation.

As described in the Class EA for Waterpower Projects, the planning process consists of five phases through which a project proposal moves from concept to implementation phases. These phases are described as follows for each project proposal:

- Phase 1 – Project Concept: the initial concept phase of a project proposal and the development of public engagement and consultation plans, as appropriate;
- Phase 2 – Project Definition: the determination of project specific considerations and the start of public engagement and consultation in the EA process;
- Phase 3 – Project Assessment: development of mitigation strategies to address identified key considerations;
  - The Enerdu project is currently in this phase with preparation of a Draft Environmental Report which was circulated for agency comment
  - As a result of public concerns, the proponent may undertake redesign or development of mitigation strategies
- Phase 4 – Documentation: summarizing and reporting on information analyzed and collected, outcomes of consultation and engagement and reaching conclusion on the EA;
  - At this Phase “Notice of Completion” of the Class EA will be issued and an Environmental Report will be made available for public review. Any outstanding concerns are to be addressed to the proponent within 30 days. If the proponent cannot resolve a concern, the commenter may request the Minister of Environment to issue a Part II Order (under the *Ontario Environmental Assessment Act*) which would require the proponent to begin a more detailed Environmental Assessment process.
- Phase 5 – Project Implementation: subsequent permits, approvals and monitoring.
  - If no outstanding concerns are identified, or Part II Order requests are received, the project is considered approved and the proponent may proceed with applying for subsequent permits and approvals. This may include approvals under the *Lakes and Rivers Improvement Act, Public Lands Act, Fisheries Act, Navigable Waters Protection Act*, permits under the *Conservation Authorities Act, Ontario Water Resources Act* and a Building Permit.
  - It is in the proponent’s interest to resolve any outstanding concerns related to these subsequent approvals or permits through the Class EA process.

Once the project has been completed, the proponent must undertake an amendment to the Mississippi River Water Management Plan which may require further public consultation and approval of the Ministry of Natural Resources.

### **MVC Role in Project**

Conservation Authorities are identified as an agency with potential interest in proposed waterpower developments and as such has been contacted for preliminary comment on the project. Through this review, it was determined that parts of the proposed project may be subject to Ontario Regulation 153/06 and as such will require a permit from MVC before proceeding.

In addition, as a proponent of the MRWMP, MVC will also have an opportunity to provide further input to plan amendment process.

**Recommendation:**

Resolved, That staff report 2683/12 be received for information.