CVCA Watershed Advisory Hearing

Permit Application 085/24 to Build a Replacement ATV Crossing in a Wetland

Gary S Bowen

April 3, 2025.

Bowen ATV Crossing East Half Lot 29 Con. 3







Opening Remarks

My name is Gary Bowen, I am representing our family at today's Hearing.

I have over 40 years of relevant professional experience, with the last 20 years at the Toronto and Region Conservation Authority. I retired at end of 2019.

In my senior position at TRCA, I was copied on Regulatory permits issued within the City of Toronto, York Region and Durham Regions for the watersheds that I managed.

When required, I was called into meetings to discuss Regulatory permits that were under review with planning, ecology and engineering staff.

I would not be here today defending this permit application if I thought this crossing poses a flood risk or would damage our wetlands.

What is at question at this Hearing is an ATV trail that is no longer than most rural laneways, crossing a small section of five interconnected connected wetlands.

Located in a remote headwater tributary. There are no occupied dwellings nearby. The closest public infrastructure is a bridge 10km downstream in another watershed.

How can this crossing pose a flood risk?

Background Information

- In June 2022, a Land Survey revealed the ATV trail which we have been using for over 30 years to cross a wetland was on our neighbours' property.
- The current ATV wetland crossing was built on top of an old beaver dam as shown on the background for the introductory slide. With the site location shown in slide 2. There were no flooding or public safety issues stemming from this long term established wetland ATV crossing. There were no downstream wetland hydrologic impacts.
- Our use of this ATV trail is seasonal for recreational and property access purposes.
- Our property has been in family ownership since 1929, so for almost 100 years, we had access to both parts of Lot 29 Con 3 (crossing at this approximate location).
- We are seeking to build a replacement ATV crossing with a better environmental footprint, about 150 m downstream on our property.
- ATV and snowmobile Association trails within the CVCA's jurisdiction routinely cross both wetlands and watercourses.
- Both the Regulation and CVCA policy state that development activity could be permitted in regulated areas if it can be demonstrated through professional studies that the "Tests of the Regulation" are met.
- Qualified professionals help me complete Environmental Impact Studies; concluding there are no risk : flooding, protection of life or property and no hydrologic impact to wetlands.

Development in a Wetland Permit Application Timeline

- 1. First Meetings with CVCA staff early 2024
- 2. Site Meeting May 22, 2024, with CVCA
- 3. Draft Permit submitted for input from CVCA May 27, 2024.
- 4. June 19, 2024 email from CVCA staff denying the permit and advising that if we wished to challenge this at a Hearing, additional studies were recommended. Staff provided details on issues they had with the permit application.
- 5. July 2024, I took over the permit file and engaged two qualified professionals to assist me in addressing issues raised by CVCA staff.
- 6. July 2024, Dr. William Booty a retired Research Scientist visited the site and inspected the crossing, the local materials which will be used to build the crossing and the wetlands in proximity of the crossing. Bill reported in his Memo of July 2024.
- July 2024 based upon recommendation from the GRCA's Engineer, I engaged Mr. Bruno Dobri, a registered Professional Water Resources Engineer (Port Hope). Engineer Report provided Dec 16, 2024.
- 8. I prepared an EIS Report and submitted this to CVCA along with a request to advance the permit application on Jan 13, 2025.
- Permit Application denied and the need for hearing was established on February 5, 2025.

Proposed Crossing Design

FIGURE 4

CROSSING DIAGRAM

BASED ON SKETCH PREPARED BY JOHN BOWEN ON JULY 21, 2024



TABLE 1CROSSING SPECIFICATIONS
BOWEN APPLICATION
LOT 20 CONC. Z DELMONT TO

LOT 29 CONC. 3 BELMONT TWP.

TIMING The crossing will be installed when the site is as dry as possible and has maximum vegetation cover. Water levels can be manipulated through removing portions of the downstream beaver dam if necessary.

RETENTION OF EXISTING VEGETATION MATT

The crossing will be constructed on top of vegetation.

EXISTING BEAVER DAM

The dam will be incorporated into the crossing where it aligns.

CONSTRUCTION METHODOLOGY

- Fill will be locally sourced from pits located a minimum of 30 m from the edge of the wetland.
- · Several types of fill will be piled and made available to use where appropriate.
- Prior to construction, silt fencing will be placed upstream and downstream of the proposed work site.
- Prior to construction, a straw bale sediment trap will be placed immediately downstream of the location the culvert will be installed at.
- The culvert will be at minimum 60 cm in diameter and 5 m long.
- Rip rap will be placed on the upstream end of the culvert.
- A layer of stone will be placed first in the location of the culvert prior to installation so that the culvert is just slightly lower (10%) than the bottom of the existing creek.
- A beaver grate will be placed on the upstream culvert intake immediately after installation.
- Filter fabric will be placed on top of existing vegetation on the first and last 10–15 meters of the crossing, then sand/gravel fill will be added as required.
- Prior to placing fill on the remainder of the crossing, full-length trees (minus limbs) may be placed on top of the undisturbed vegetation to form corduroy.
- Filter fabric and/or limbs will be installed on top of the corduroy, then fill to an approximate depth of 1 m.
- Should it be necessary to use corduroy, all exposed wood will be covered.
- Upon completion of the crossing, the straw bale and silt fence will be retained for 3–4 weeks until vegetation cover on disturbed areas is re-established.
- Native vegetation will quickly grow back on the site; seeding with non-native pasture mixes etc. is not recommended.

Environmental Guidelines for Access Roads and Water Crossings Ontario Ministry of Natural Resources 2019

Swamp Treatments

| Good Practices- Swamp Treatments | Permit Application 085/24 |
|--|--|
| Deep swamps should be avoided if at all possible, due to the risk of failure and the potential cost of repair | Shallow marsh no water present except during periods of run off. |
| Select a crossing location where there are a well developed root matt supporting tree growth | Well developed root matt, soft maple and alder present |
| The most common swamp treatment method on access roads roads is to float the road fill on the natural root matt and minimize disturbance of the organic deposit | Root matt will be retained |
| If possible limit fill depths over the swamp ro 1.3 metres or less | Fill 1.0 metres |
| If the consequences of the natural matt failing are serious use reinforcement materials such as geotextile fabric , geo- grid matts, brush matts or log corduroy | Geotextile material and Corduroy in specification |
| Promote frequent cross culvert, approximately every 300 metres to ensure that surface water is equalized on both sides of the road | Culvert will be installed and beaver grate incorporated. |

FIGURE 3

LOCATION OF PROPOSED ATV CROSSING GOOGLE EARTH (2022)



DESCRIPTION OF WETLANDS IN PROXIMITY OF THE ATV CROSSING

There are five wetlands near the crossing site. These wetlands are illustrated in **FIGURE 5**, which also includes in tabular format, relevant information for each wetland. The crossing site is in wetland #3 as indicated on the drawing. All five wetlands are unevaluated. Neither wetland #3 nor the other four interconnected wetlands are identified as being Provincially Significant, a bog, or a fen.

The five wetlands depicted in **FIGURE 5** are interconnected due to local topographic features and by water level control through beaver dams (at the outlet and upstream of the crossing site). The total surface area for the five wetlands is 24.1 ha. Wetland #3 (OGFID #70967387) has an area of 5.11 ha, which is about 24% of the (five) total wetlands.

UPPER DAM

OUTLET DAM

3

FIGURE 6

DIGITAL TERRAIN MODEL: WETLANDS ADJACENT TO PROPOSED CROSSING PROPOSED CROSSING IN RED



FIGURE 5

WETLANDS IN PROXIMITY OF THE PROPOSED CROSSING

PROPOSED CROSSING IN RED

| WETLAND | OGFID | AREA (M²) | % OF AREA |
|---------|----------|-----------|-----------|
| 1 | 70967332 | 16,807.3 | 7.9 |
| 2 | 70967376 | 4,431.9 | 2.1 |
| 3 | 70967387 | 51,164.5 | 23.9 |
| 4 | 70967473 | 51,929.8 | 24.3 |
| 5 | 70977415 | 89,748.8 | 41.9 |
| | TOTAL | 214,082.3 | |



FIGURE 7

PETERBOROUGH COUNTY GIS DIGITAL TERRAIN MODEL, 2 M CONTOURS PROPOSED CROSSING IN RED



Flood storage areas 7.2 acres or 2.9 Ha Old New AT\



The **red polygon** shows perimeter of the area of wetland upstream of the new crossing.

A 2.7m high elevation drop at the inlet upstream of the crossing limits the backwater storage.

The increase in flood storage footprint is very small vs. the watershed drainage area above the new crossing is shown with the green shading. This figure depicts the elevation profile of the stream that runs through the wetlands. Starting at the inlet of Wetland 1 and exiting at the beaver dam (outlet) for Wetland #5. Red Arrow is proposed new crossing location.

Top elevation 224m, at the crossing 222m and outlet 221 m





aph: Min, Avg. Max Elevation: 221, 223, 224 m Range Totals: Distance: 1.22 km Elev Gain/Loss: 4.98 m. -7.69 m Max Slope: 7.6%, -8.4% Avg Slop



Image © 2025 CNES / Airbu

PHOTOGRAPH 1

DRONE PHOTO, WETLAND #5 2022 PHOTOGRAPH 2 CREEK AT PROPOSED CROSSING SPRING 2024





Dry creek channel most summers

Subsection 28.1(4) of the Conservation Authorities Act states that the Conservation Authority may issue a permit with or without conditions.

To receive permission for development, it must be demonstrated in an application to the satisfaction of the CVCA that the control of flooding, erosion, dynamic beaches or unstable soil or bedrock will not be affected.

These are referred to as the "Tests of the Regulation."

To support applications for development, submission of technical studies may be necessary. These technical studies must be carried out by a qualified professional with recognized expertise in the appropriate discipline and must be prepared using established procedures and recognized methodologies to the satisfaction of the CVCA.

The CVCA may request the technical studies, which will be carried out at the expense of the applicant.

As the expertise for reviewing technical studies varies among CAs, the CVCA may request a peer review to be completed by a qualified professional. Peer reviews are also completed at the expense of the applicant.

Environmental Impact Study

FOR AN

All-Terrain Vehicle Crossing of a Small Wetland

EAST HALF OF LOT 29 CONCESSION 3, BELMONT TOWNSHIP

SUMMARY

The investigation and analysis of relevant environmental data—combined with the required "professional" reviews of the proposed crossing location, the suitability of local fill materials, the crossing design, and construction methodologies—all indicate there are no constraints that would preclude building this ATV crossing. The requested engineering review has confirmed there will be no hydrologic impacts and the sized culvert can safely convey flood flows.

Operation and maintenance practises outlined for the ATV crossing will ensure there will be minimal disturbances to adjacent wetlands.

PREPARED BY Gary S. Bowen Retired Watershed Specialist and Great Lakes Advisor Toronto and Region Conservation Authority

WITH INPUT FROM

Mr. Bruno Dobri Dobri Engineering Port Hope, Ontario **Dr. William Booty** Retired Research Scientist Environment Canada Note: The CVCA accepted our EIS report and did not undertake a peer review.

Appendix 1 Memo prepared by Dr. William Booty retired Research Scientist

1. There are a number of mounds of glacial till near the crossing that can be used as a source of fill for the crossing. They consist of well sorted locally derived (Precambrian metasediments) coarse sand and gravel. I personally visited the site with Gary Bowen in July 2024 to inspect the site of the crossing and to select the best sources of local bed materials which are all outside of the 30-metre buffer zone of the wetland.

2. This material would provide transverse high transmissivity of water through the crossing bed and therefore would prevent significant issues to the watershed flows and locally to the wetlands along with a suitably sized culvert.

3. Any materials that might be eroded from the crossing bed would have minimal downstream implications to the wetlands.

4. A crossing of this size should have a negligible effect from a watershed perspective or locally to the downstream wetlands.

Dr. William G. Booty

Email from Dobri Eng. Sept 6, 2024

Gary:

I went through the information that you provided. You have done a significant amount of work on this.

Based on the information, I completed calculations on the peak flows for the upstream catchment using the rational method, which is conservative.

Catchment data - Area 193 ha, length of travel 3,546m, Slope S=0.80%, runoff coefficient C=0.05 wetland/lakes, MTO IDF data for the area

I calculated the peak flow to be 0.242 cms to 0.533 cms for the 2-yr and 100-yr storm events respectively. The 600mm CSP culvert will provide a flow capacity of 0.50cms where the culvert has a cover of 300mm (0.60cms with 600mm cover), under inlet control conditions. Theoretically, the culvert will have the capacity to convey the peak flow during the 100-yr storm event. This however is not necessary, since safe access/egress is not required for an ATV trail. Realistically, I doubt that all the upstream flow would be directed through this culvert.

I don't see any issue with this. I will provide a memo to you.

One question. Can you mark up the proposed crossing location on the contour plan that you provided and send it to me.

Thanks.

Bruno

September 16, 2024, Email from Dobri Eng.

Gary:

I completed my analysis and was hoping to get a memo out to you but have run out of time.

The proposed 600mm CSP will convey the majority of the peak flow during the 100-yr storm event.

The rest will simply overtop and that is not an issue. It is not for residential use, requiring safe access/egress.

I will finalize this when I get back. I do not see this installation creating any wetland concerns.

Bruno

Text from Dec 16, 2024, Memo Dobri Eng. (Appendix 2 in EIS)

REPLACEMENT ATV CROSSING LOT 29, CONCESSION 3, BELMONT TOWNSHIP

Mr. Gary Bowen:

You provided me with a substantial amount of information on your property and adjacent land.

The information included photos and available mapping of the area and a detailed description of the work you intend to perform with a sketch of the plan.

In summary, you are using an existing ATV trail through the wetland to access your property. The existing trail includes an ATV crossing over your neighbour's property. You propose to construct a new crossing on your property (downstream of the existing crossing) and stop using the existing trail crossing.

You made an application to the Crowe Valley Conservation Authority (CVCA). Your application included the supporting documents that you provided to me. The information included your intended construction approach and an elevation sketch of the proposed crossing (both attached). The 600mm CSP would have a minimum 600mm (2') of cover. The crossing across the wetland would be approximately 130m long.

CVCA denied the application and requested sizing for the culvert and confirmation that the hydrological function of the wetland will not be impacted.

The selected design flow through the culvert is contingent on the intended use of the crossing. For example, a culvert under a driveway may only require conveyance of the peak flow during the five-year storm event, whereas a culvert under a roadway may require conveyance of the peak flow during the 25-year storm event. For the ATV crossing, a culvert conveying the peak flow during the five-year storm even would be sufficient, since the use is limited.

The estimated peak flow through the proposed culvertt is 0.515 cm during the 100-year storm event. Install a 600 mm diameter CSP culvert at the proposed ATV trail crossing location. Using the MTO Design Chart 2.32: Inlet Control: Circular CSP and SPCSP, with 600 mm earth cover over the culvert, the flow through the culvert is 0.6 cm. The culvert will convey the calculated peak flow during the 100-year storm event, which exceeds normal design practice.

The proposed crossing will create a berm with the top elevation at approximately 222 m (masl) and a bottom elevation of approximately 220.5 m. The berm will be a minimum 1.2 m high and have a maximum top width of 4 m. The above is illustrated in the **ATTACHMENTS**.

Based on my analysis, I am of the opinion that relocating the existing ATV trail further south through the wetland and on your property will not negatively impact the existing wetland.

PREPARED BY:

Bruno Dobri, P. Eng.

Dobri Engineering Ltd. 205 Peter Street PO Box 441 Port Hope, Ontario L1A 3Z3



If you wish to proceed with the development activity as proposed, you have the option to request a hearing with the Crowe Valley Conservation Authority Watershed Advisory Board. At the hearing, the Board will assess the application to determine if the proposed development activity is likely to affect the control of flooding, and/or is not likely to create conditions or circumstances that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.

- Mr. Bruno Dobri, Engineering Port Hope . addressed these concerns he reports there are no risk.
- As detailed in the EIS our replacement ATV Crossing site is in a remote headwater section of Otter Creek. There are no occupied dwellings downstream of the crossing.
- Nearest public infrastructure at risk, is a bridge on Preston Road over the North River (10 kms downstream). See Maps in next slide
- Otter Creek flows into the North River (a much larger watershed) immediately upstream of this bridge.

Owenbrook

Dete

Lasswade

Blue Mountain

Norwood

North River Nephton Watershed

Oak Lake

Cordova Mines Round Lake –North River Bridge

The Ridge

Havelock

Trent River

Healey Falls

Blairton

Allar

Catchments for ATV crossings

Maltby cottage

February 5, 2025, CVCA email

Construction of a road/trail placed on organic soils (unstable soils) and in an area susceptible to flooding could require significant ongoing maintenance and material being continually added to the wetland/floodplain. Continually adding material to repair or maintain the trail will impact the control of flooding.

- Dr. Booty has stated in his memo that any materials eroded from the crossing bed would have minimal downstream implications to the wetland.
- Mr. Bruno Dobri foresaw no issue with the wetland crossing design and our maintenance plans. If the crossing design (130m by 4m by 1 m) poses no flood issues, how can adding a small amount of fill during maintenance be a flooding concern?
- John Bowen prepared a supporting memo for this hearing, providing additional insights on the crossing design and its environmental footprint.

Summary Points for CVCA Board Consideration

- 1. To the best of our knowledge, we completed all the technical studies requested in support of this permit application and the Hearing.
- EIS which includes the engineering review, was submitted on January 13, 2025. We offered to meet in person to discuss these studies when it was submitted.
- 3. After we were advised on January 30 that CVCA staff were reviewing the EIS and determining whether a peer review is required. We offered to meet again on February 3, 2025, once their review was completed.
- 4. CVCA email Feb 4 , 2025 inferred our application was complete Outstanding was hearing fee (which was paid)
- 5. CVCA staff did not require a peer (or engineering review) of the EIS, nor did they ask me any specific technical questions. We concluded that no additional technical studies were required, and that we had addressed all their concerns.
- We were surprised to see "word for word" the same concerns first cited by staff in a June 2024 email appearing again on February 5, 2025, in the email denying the permit and that these issues needed to be addressed at the Hearing.

Conclusions & Recommendations

Through the EIS and supporting Engineering Report we have :

- 1. Demonstrated that ATV trail development with the wetland is acceptable and there are no hydrologic impacts.
- 2. Furthermore, we have demonstrated that the control of flooding, erosion and unstable soils will not be affected.
- 3. There are no public safety or protection property Issues.
- 4. We have explained the need to replace the old crossing and our justification for the 4 m width of the ATV wetland crossing.

Recommendations:

That the CVCA Board approve our Wetland Development Application and CVCA staff be directed to issue the permit.