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May 9, 2022

Ms. Laurielle Natywary
Manager Community Planning North
Planning Services,
Legislative and Planning Services
Halton Region
Sent Via Email

Dear Ms. Natywary:

Re: Stormwater Management Concept, Regional Official Plan Amendment,
Milton Education Village Secondary Plan Lands

In response to our call earlier this week, this letter submission and the attached document from Crozier is being provided to address two policies: 4.2.1 and 4.2.3 of the Greenbelt plan and a more detailed explanation as to how the proposed storm water management concept for the Milton Education Village is in conformity with those policies. These submissions identify the unique attributes of this proposed research facility pond and why it is proposed at this location within the Greenbelt Plan.

The Greenbelt Plan states:

4.2.1.1 All existing, expanded or new infrastructure subject to and approved under the Canadian Environmental Assessment Act, the Environmental Assessment Act, the Planning Act, the Aggregate Resources Act or the Telecommunications Act or by the National or Ontario Energy Boards, or which receives a similar environmental approval, is permitted within the Protected Countryside, subject to the policies of this section and provided it meets one of the following two objectives:

a) It supports agriculture, recreation and tourism, Towns/Villages and Hamlets, resource use or the rural economic activity that exists and is permitted within the Greenbelt; or
b) It serves the significant growth and economic development expected in southern Ontario beyond the Greenbelt by providing for the appropriate infrastructure connections among urban centres and between these centres and Ontario's borders.

The attached letter from Mr. Nick Mocan, Crozier sets out in detail the proposal for this green infrastructure within the Greenbelt lands. As set out, this project presents a unique opportunity to contribute to the future of stormwater management in Ontario. The proximity of the lands to natural heritage features within the Greenbelt lands is a critical element for the success of the research program. This location provides an opportunity to develop and implement research activities regarding the effects of urban development and the associated stormwater practices in a location somewhat isolated from other direct urban influences. This requirement cannot be met in a location within the Urban Area due to the numerous direct influences from urban development. This research program requires a location with a combination of natural heritage and open space resources found within the Greenbelt while being proximate to the urban area to obtain the required base flow levels to supply the pond.

The research lead and steward of the research facility, Wilfrid Laurier University, is directly adjacent to this research facility. This will be a one of a kind facility with the university as the study manager in collaboration with their partners such as Conservation Halton and Crozier. The results of this research initiative will provide direct benefits to the Region of Halton, Conservation Authority and the municipalities as well as the Province (MECP) by providing a much stronger understanding of the best future technologies for storm water management. This research program will have economic and growth management benefits that ultimately will benefit not just Halton but southern Ontario and beyond. Benefits will include better planning for urban infrastructure including minimizing and managing of impacts on natural heritage resources as well as more efficient and effective designs for storm water management ponds. These best practices will not only benefit urban areas but will have direct application to smaller communities such as hamlets and villages as well as large scale agricultural uses and other rural uses such as golf courses and rural industrial uses that require storm water management facilities.

As set out above, this proposed green infrastructure project and research program for identifying and assessing best practices for storm water management facilities is in conformity with Section 4.2.1.1.a) of the Greenbelt Plan. It will provide a much needed understanding and new best practices for storm water management facilities for a wide range of uses permitted within the Greenbelt including the urban uses found within Towns/ Villages and Hamlets. This facility will support and provide tools to maintain and enhance the important resource of the Greenbelt - the natural heritage system. This facility will provide educational tourism as well as recreational opportunities as well as broad economic and growth management benefits within the Greenbelt and beyond.

Regarding Section 4.2.1.2, the following is provided:

4.2.1.2 The location and construction of infrastructure and expansions, extensions, operations and maintenance of infrastructure in the Protected Countryside are subject to the following:

a) Planning, design and construction practices shall minimize, wherever possible, the amount of the Greenbelt, and particularly the Natural Heritage System and Water Resource System, traversed and/or occupied by such infrastructure;

This will be demonstrated through SIS

b) Planning, design and construction practices shall minimize, wherever possible, the negative impacts on and disturbance of the existing landscape, including but not limited to, impacts caused by light intrusion, noise and road salt;

One of the components of the research program is the long term impact of chlorides on aquatic ecosystems. The objective of this endeavor is develop solutions that result in an overall net improvement.

c) Where practicable, existing capacity and coordination with different infrastructure services shall be optimized so that the rural and existing character of the Protected Countryside and the overall hierarchy of areas where growth will be accommodated in the GGH established by the Greenbelt Plan and the Growth Plan are supported and reinforced;

This policy is not applicable.

d) New or expanding infrastructure shall avoid key natural heritage features, key hydrologic features or key hydrologic areas unless need has been demonstrated and it has been established that there is no reasonable alternative;

KNHFs, KHFs and KHAs have been avoided.

e) Where infrastructure does cross the NHS or intrude into or result in the loss of a KNHF, KHF or KHA, including related landform features, planning, design and construction practices shall minimize negative impacts on and disturbance of the features or their related functions and, where reasonable, maintain or improve connectivity;

This will be achieved and will addressed through required SIS.

f) New or expanding infrastructure shall avoid specialty crop areas and other prime agricultural areas in that order of priority, unless need has been demonstrated and it has been established that there is no reasonable alternative;

As set out above, there is no reasonable alternative to this location. An AIA has been prepared in support of this application.

g) Where infrastructure crosses prime agricultural areas, including specialty crop areas, an agricultural impact assessment or equivalent analysis as part of an environmental assessment shall be undertaken;

An AIA has been provided in support of this application.

As set out above, the proposed storm water management research facility is in conformity with this section of the Greenbelt Plan.

Regarding Section 4.2.3, the following is provided: Section 4.2.3 (Stormwater Management and Resilient Infrastructure Policies) states:

1. Planning, design and construction of stormwater management infrastructure shall be carried out in accordance with the policies in subsection 3.2.7 of the Growth Plan.

   This proposal is an integral element of the overall storm water management plan for the MEV and addresses subsection 3.2.7 of the Growth Plan

2. Municipalities shall assess infrastructure vulnerability within Towns/Villages in accordance with policy 3.2.1.4 of the Growth Plan.

   This section is not applicable.

3. Stormwater management systems are prohibited in key natural heritage features, key hydrologic features and their associated vegetation protection zones. The determination of appropriate vegetation protection zones shall be defined in accordance with sections 3.2.5.4 and 3.2.5.5 of this Plan, which consider the area and nature of the feature being protected and the nature of the proposed SWM system.

   The SWM pond has been designed to avoid all KNHF and KHFs and associated VPZs – i.e., 30m buffers provided to wetlands.

4. Applications for development and site alteration in the Protected Countryside shall be accompanied by a SWM plan that demonstrates that:
   a) Planning, design and construction practices will minimize vegetation removal, grading and soil compaction, sediment erosion and impervious surfaces;
   b) An integrated treatment approach will be used to minimize stormwater flows and mimic natural hydrology through lot level controls, low impact development and other conveyance techniques;
   c) Applicable recommendations, standards or targets within a subwatershed plan or equivalent and water budgets will be complied with; and
   d) Applicable objectives, targets, and any other requirements within a stormwater master plan will be met in accordance with the policies in subsection 3.2.7 of the Growth Plan.

      All of these design parameters are met. It is noted that there is no storm water master plan for this area so this policy d) is not applicable.

5. The objectives of the SWM plan are to avoid, or if avoidance is not possible, minimize and mitigate stormwater volume, contaminant loads and impacts to receiving watercourses in order to:
   a) Maintain groundwater quality and flow and stream baseflow;
   b) Protect water quality;
   c) Minimize the disruption of pre-existing (natural) drainage patterns wherever possible;
   d) Prevent increases in stream channel erosion;
   e) Prevent any increase in flood risk; and,
   f) Protect aquatic species and their habitat

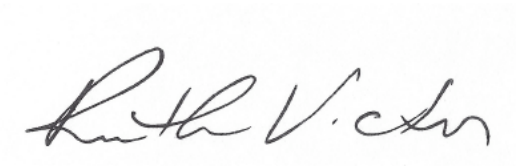
   The purpose of this research endeavor is to identify and apply best storm water management practices through a long term research program. All of these factors will be addressed.

One other policy area which I would like to address within this submission is the permission within the Regional Natural Heritage System for essential transportation and utility facilities. As per section 288, a utility includes stormwater system. Essential is defined in the Regional Official Plan means "that which is deemed necessary to the public interest after all alternatives have been considered and, where applicable, as determined through the Environmental Assessment process.

As set out in the attached letter from Crozier and explained within this submission, the proximity of the lands to natural heritage features within the Greenbelt lands is a critical element for the success of the research program. This location provides a unique opportunity to develop and implement research activities regarding the effects of urban development and the associated stormwater practices in a location somewhat isolated from other direct urban influences which is a requirement for the achievement of the study parameters. This would not be achieved in a similar manner for a location within the Urban Area due to the numerous influences of urban development. This research program requires a location with this combination of natural heritage and open space resources found within the Greenbelt while being proximate to the urban area to achieve the required base flow levels to supply the pond. As also noted previously, this will be a one of a kind facility with the university as the study manager and will provide direct benefits to the Region of Halton, Conservation Authority and the municipalities as well as the Province (MECP).

It is my opinion that this proposed research storm water management facility meets this definition of essential and is a permitted use under the ROP. Due to the unique attributes of this activity and to ensure that the Region granting the permission for this activity within the Greenbelt is not interpreted as a precedent for other requests for storm water management facilities outside of the Urban Area , it is appropriate within the Regional Official Plan Amendment to identify this research storm water management facility as a permitted use on a site specific basis.

Respectfully submitted,



Ruth Victor, RPP MCIP MRTPI

MAY 6, 2022

PROJECT NO: 1622-5749

SENT VIA EMAIL:
JILL.HOGAN@MILTON.CA

Town of Milton
150 Mary Street
Milton, ON L9T 6Z5

Attention: **Jill Hogan, Commissioner, Development Services**

RE: **STORMWATER MANAGEMENT CONCEPT**
REGIONAL OFFICIAL PLAN AMENDMENT
MILTON EDUCATION VILLAGE SECONDARY PLAN LANDS

Dear Jill,

Thank you for the opportunity to provide commentary regarding the proposed stormwater management concept as part of the development of the Milton Education Village ("MEV") Secondary Plan within which the campuses of Laurier and Conestoga will be located. We understand that the Town has filed a Regional Official Plan Amendment ("ROPA") application to allow for Green Infrastructure on defined Greenbelt lands, adjacent to the MEV's urban area, and that you are seeking additional technical guidance and expertise to support the proposed stormwater management concept.

As you are aware, I have been practicing stormwater management in the context of land development in Ontario for over twenty years. During my time as a practicing Water Resources Engineer, I have witnessed limited progress in terms of research, innovation, and deployment of Green Infrastructure for larger scale land developments, such as that proposed across the MEV lands. The fact remains that we continue to design and implement stormwater management measures for large developments based on the 2003 stormwater management guidelines of the Ministry of Environment, Conservation and Parks ("MECP"), despite some advancements and updates to other local stormwater management guidelines. Consequently, I have been working with Laurier and Western on separate federally funded stormwater management research projects across Ontario for the past four years to improve the future of stormwater management in Ontario.

The development of the MEV lands presents a unique opportunity to contribute to the future of stormwater management in Ontario for several reasons that are explained in this letter. First and foremost, the proximity of the development lands to the natural heritage features within the defined Greenbelt lands offers a unique opportunity to develop and implement research activities that study the effects of urban development and associated stormwater management practices in a manner that is isolated from any other material urban developments. This unique isolation is a long-term condition given that the MEV lands are situated at the western edge of the urban boundary of Milton where further urban developments are restricted due to the Greenbelt Plan policies. This isolation affords researchers the ability to test hypothesis and design field-scale experiments related to stormwater management without interference or contamination due to other proximate urban developments, which is the case in other parts of Milton and the GTA that are entirely or almost entirely built-out.

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Development pressures are being experienced in many municipalities across Ontario, especially those surrounding the GTA. These pressures are leading to land development of varying forms in and around natural heritage features and the implementation of Green Infrastructure without a focus on long-term study, innovation, and adaptation. As development pressures continue to intensify, our collective knowledge of the ability of Green Infrastructure to preserve or enhance the function of adjacent natural heritage features must follow suit. In this case where a sophisticated post-secondary campus would exist as a steward of the lands, the intimate location of the stormwater management or Green Infrastructure on the Greenbelt lands between the MEV lands and the protected natural heritage features, truly provides a unique opportunity for advanced study, public education, and innovation towards guiding future development across all of Ontario for decades ahead without compromising the integrity of the Greenbelt lands.

The area proposed for a stormwater management pond within the Greenbelt lands is in fact located within the table lands immediately adjacent to, but outside the local natural heritage features. This offers an intimate setting for research that extends beyond *stormwater management* research and into fields of study such as environmental chemistry, ecology, and botany, among others, where research questions can be posed, evaluated and valuable insights gained for implementation within both existing and proposed communities across Ontario resulting in significant positive implications to the environment province wide. Moreover, the same research could not be facilitated in its rigor at locations far from research and educational institutions.

If the proposed stormwater management pond location was restricted to the limit of the urban boundary, it would eliminate the opportunity to study the delicate interface between built form and associated stormwater management measures with the natural heritage features of the Greenbelt, and further eliminate the possibility of introducing broad research benefits to communities across Ontario.

There are significant gaps in our understanding of the impacts and integration of Green Infrastructure within or adjacent to natural heritage systems where the goals include sustainable development, environmental health, and public education. The water quality and water quantity parameters that could be examined within research facilities such as those proposed as part of the Centre for Urban Watershed Research ("CUWR") are numerous. A sampling of some of the potential future research areas that could address many existing gaps include the following:

- Evaluating long-term impacts of chlorides from controlled urban environments on aquatic ecosystems.
- Long-term adaptation of cold-tolerant wetland plant species within SWM ponds and surrounding natural heritage systems and their impact on the broader environment
- Optimizing SWM pond discharge configurations, forms and functions at the interface of natural heritage systems
- Understanding the role of Green Infrastructure and stormwater management on surface water / groundwater interactions in terms of water quality and quantity and ecosystem health

Climate change and its impact on stormwater management and natural heritage features in Ontario is an area that has seen limited research investment. Since we began our stormwater management research with Laurier in 2018, we have experienced a changing climate in such a short period of time, and we have observed first-hand the impacts of deteriorated stormwater outputs to natural heritage systems year-round. The ability for natural heritage systems to adapt to stormwater outputs is not well known, and so again, the intimate setting described above provides a unique opportunity to study the potential benefits of measures such as cold-tolerant wetland plants within stormwater management ponds to improve year-round function of ponds and minimize their impact on adjacent natural heritage features. There are so many other field-scale research opportunities across disciplines which could be deployed to study climate change challenges and solutions, but their effectiveness is dependent upon having sufficient stormwater flow inputs, close access to nature heritage features for discharge of flow outputs, and proximity to research and laboratory facilities for robust examination, all of which are possible with the location of the stormwater management pond on the table lands within the Greenbelt lands, as proposed.

I trust this provides you with an understanding of the technical merits of locating the proposed stormwater management pond for the MEV development onto the Greenbelt lands for the purposes of advancing the future of stormwater management through advanced research, public outreach, and education.

It is my opinion that the opportunity before the Town, Laurier, Conestoga, and many other stakeholders is a unique one that should receive due consideration given so many potential benefits to the environments and residents of Ontario.

Yours truly,

C.F. CROZIER & ASSOCIATES INC.

Nick Mocan, M.Sc., P.Eng.
President

NM/cj

cc Ulrike Gross, Wilfrid Laurier University, ulgross@wlu.ca

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