



December 17, 2008

Kathryn Pounder, MA, MCIP, RPP  
Senior Strategic Advisor  
Niagara Escarpment Commission  
232 Guelph Street  
Georgetown, ON L7G 4B1

Dear Ms. Pounder:

**Re: Niagara Escarpment Plan Amendment Application PS 161 05  
Walker Aggregates Inc.  
Lots 25 and 26, Concession 11 and 12  
Clearview Township, Simcoe County  
Related Applications: ARA Application and OPA**

**Member  
Municipalities**

Adjala-Tosorontio  
Amaranth  
Barrie  
The Blue Mountains  
Bradford-West Gwillimbury  
Clearview  
Collingwood  
Essa  
Innisfil  
Melancthon  
Mono  
Munster  
New Tecumseth  
Oran-Medonte  
Grey Highlands  
Shelburne  
Springwater  
Wasaga Beach

**Watershed  
Counties**

Simcoe  
Dufferin  
Grey

Member of



The Nottawasaga Valley Conservation Authority (NVCA) staff have reviewed the above noted application including supporting studies (e.g. Level 2 Natural Environment Technical Report, Adaptive Management Plan) and provide the following for your consideration:

**GENERAL COMMENTS:**

NVCA's comments are focused on the natural environment and the Adaptive Management Plan. Our comments are provided in accordance with Section 20 of the *Conservation Authorities Act*, and Sections 2 and 3 of the Provincial Policy Statement (PPS). We understand that the peer review approval of the hydrogeology modeling and the karst study remain outstanding. In addition, it also appears that the matters noted as category 1 in the Adaptive Management Plan (AMP) have not been agreed to by all parties. Upon resolution of these matters, additional comments may forthcoming from the NVCA.

**Proposal:**

To amend the Niagara Escarpment Plan by re-designating a portion of the Escarpment Rural Area designation to Mineral Resource Extraction Area to permit a quarry.

**Site Characteristics:**

The subject property is in the headwaters of the Pretty River and Batteaux Creek. The site contains numerous wetland features including the Rob Roy Provincially Significant Wetland (PSW), as well as unevaluated wetland features. The site also contains an Area of Natural and Scientific Interest (ANSI). Due to the noted wetland features and natural hazards the property is within a Regulated Area and is subject to the Authority's *Development, Interference with Wetlands, and Alterations to Shorelines & Watercourses Regulation (Ontario Regulation 172/06)*.

*Conserving our Healthy Waters*

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**NATURAL ENVIRONMENT:**

**ELC Mapping - Millar-Bridson Area:**

- Portions of the FOD6-5 and CUM1-1 communities south of the ANSI B wetland are wet and form part of a seepage front that flows northeast into the ANSI B wetland. Although relatively small (approximately 1 ha), these areas should be mapped as part of the wetland. The current proposed Limit of Extraction extends to the edge of (and possibly encroaches into) these wetland features.
- It is our understanding that both the Niagara Escarpment Plan and Greenland-Wetland Areas of the Clearview Official Plan (OP) prohibit development or site alteration within wetland areas (these include Provincially Significant Wetlands (PSW) and locally significant wetlands). In addition, these documents note that previously unidentified features may be identified through natural heritage studies and may be protected by relevant portions of the plan. The ANSI wetlands are an example of unidentified features that have been identified by Stantec and NVCA studies. Naturally-vegetated buffers, generally extending a minimum of 30 metres (m) from the edge of these features are encouraged in the OP.

On this basis, an extension of the wetland boundary accompanied by the addition of a 30 m buffer (similar to the Rob Roy PSW and as encouraged in the Township OP) would require changes to the proposed Limit of Extraction.

**Amphibian Breeding Habitat - Millar Pond:**

- The Millar Pond is a man-made feature that, over time, has come to be used as breeding habitat by amphibians which likely move south into the pond from forest/swamp communities to the north. Results from 2007 monitoring activities indicate that this feature supports the highest numbers of breeding spring peepers on the entire property and also supports chorus frogs (Great Lakes-St. Lawrence-Canadian Shield population; federally-threatened 2008) and smaller numbers of green frog and gray tree frog.

Loss of this feature (as proposed in the Natural Environment Report) could be viewed as loss of Significant Wildlife Habitat based on: large numbers of breeding amphibians and/or presence of a federally threatened species.

**ADAPTIVE MANAGEMENT PLAN (AMP):**

**General Comments:**

- The objective of the AMP is to design and maintain a precipitation discharge system that maintains the natural hydrologic conditions downstream of the quarry as closely as possible.

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This would include the quantity, quality and temperature of the discharge.

The targets for the AMP should then reflect this objective. The challenge will be to develop a series of targets that reflect this objective. For instance, in a wet year base flows in the downstream tributaries will be higher than in dry years. One suggestion is to use the monitored flow conditions from 2007 and 2008 as extremes in the setting of targets. The challenge will be to identify during the course of any year where we are in the range between 2007 and 2008. This could be based on the precipitation in the last month related to the extreme years. This will mean that a precipitation gauge will be required as part of the AMP.

- It would be reasonable to envision that the quarry will need to create a reservoir within the quarry to contain the portion of rainfall that would normally be lost to groundwater and then discharge the stored water at the same rate as it would have normally been lost into the groundwater (GW) table. Similarly for surface water runoff but it would occur over a much shorter period of time and directly to the streams. The secret for success is to ensure that the size of the reservoir has sufficient capacity to contain all of the water required to maintain the natural hydrologic cycle.
- The present recommended plan is to discharge reservoir storage into the wetlands and let it naturally discharge into the GW table. This may or may not work due to the capacity of the wetlands to recharge the GW table and the location of the wetlands to feed all of the downstream tributaries. If the downstream tributaries do not meet their targets, then an action plan is required. This should include installation of as many recharge wells as necessary to supply the GW table up to natural levels.
- We are of the opinion that the AMP needs to be transparent. The monitoring could be linked in real time to the internet with security if necessary so the success of the system can be tracked. An annual report should also be produced summarizing the annual success of the system with recommendations for improvements.
- The AMP needs to address monitoring in the post-operation scenario. The NVCA recommends a revised AMP to continue for the duration of the lake-filling stage of post-operation to ensure that the system re-equilibrates as proposed from the modeling results.
- Adaptive management is a systematic process for continually improving management policies and practices by learning from the outcomes of operational programs. A review process of the AMP at a pre-determined interval should be completed by all involved agencies to ensure that the triggers/thresholds are adequate.
- Compliance and enforcement measures should be outlined in the AMP, detailing the roles and responsibilities of the compliance/enforcing agencies.
- Stream flows, water temperature and proposed pool depths should be manually measured every 2 months at each stream flow location to calibrate rating curves and relationships and to

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check monitoring equipment. At this time, download logger data and check operations of monitoring equipment.

- The AMP does not mention the use of injection wells as part of mitigation process for groundwater (e.g. springs/seepage fronts).

Please provide additional information on the use of injection wells including: 1) location and depth of the wells, and 2) rationale that the point-directed water delivered in the injection wells will be able to replicate the natural diffuse flow conditions and that the majority of the discharge will be achieved at the existing seepage front.

- The AMP needs to explore the potential for cumulative impacts to the water resources with the proposed MAQ quarry to the west.
- The AMP should address access to the data with the NVCA requesting that the real time monitoring data be readily available to the agencies involved in the AMP.
- All monitoring equipment should be checked monthly.
- Control stations should be established, preferably in the Pretty River of Batteaux Creek catchments to assist agencies/proponent with identifying impacts that may be associated with quarry operations (as compared to natural variation during drought conditions).

**Section 5 (Category 2 AMP Key Concepts) of AMP:**

- Category 2 AMP key concepts (pg 6): Performance indicators:
  - Please incorporate temperature into groundwater monitoring.
  - How will wetland flow be determined? Would hydroperiod determination be more beneficial to the ongoing maintenance of the wetlands?
  - How are real time considerations being developed and what equipment/technologies are used to provide real time considerations?
  - Water quality should also be addressed in the AMP in the key concepts as monitoring indicator.
  - With the AMP focused on protecting the coldwater fisheries (in addition to wetland flora/fauna), could the Proponent provide some direction on the benefits of pool depth as a potential performance monitoring indicator for the AMP?
- Category components- page 7:
  - Under Green, please outline what constitutes 'routine monitoring as per ARA site plans'. In regards to Yellow, please advise on who will investigate the possible causes.

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**Section 5.1 (Thresholds Triggers) of AMP:**

- Surface water: temperature and flow (page 8):
  - The NVCA suggests the addition of another monitoring station to record background conditions. Understanding that the proposed below water table extraction site is located at the headwaters of 3 watercourses, a nearby, unaffected watercourse may be suitable either within the NVCA or Grey Sauble Conservation Authority watershed. This station will assist in providing background conditions to identify potential quarry impacts.
  - What monitoring is the proponent suggesting for the quarry itself? Will this be covered off under the Permit to Take Water process? In addition, it is proposed that the proponent undertake biannual water quality analysis of the pond within the quarry that will be pumped out to ensure that the water quality is satisfactory to the receiving basins.
  - It is understood that the proposed surface water monitoring sites will be equipped with level loggers. Barometric pressure is required to effectively calibrate the data. Could the Proponent outline how the barometric data will be obtained and the location of the recording device?
  - Information is lacking on the methodology proposed for temperature and flow data collection including, but not limited to: equipment used and frequency of data collection, the number of manual measurements, development of rating curves, and agency access to temperature and flow data.
  - General water quality measurements should be recorded regularly at the surface water monitoring locations.
  - Two monitoring wells equipped with continuous level logging devices are suggested - one at the north east and one at the south west corner of the proposed quarry footprint completed at the maximum depth of the quarry floor, to ensure that, as the quarry progresses, there is a mechanism to determine the impact of the quarry on the proximal groundwater levels and impacts to the proximal wetlands/watercourses. These monitoring wells are suggested to be paired with the proposed drive points in the respective locations.
- Please add the following monitoring site to those listed on page 8:
  - North Headwater Branch Batteaux River at eastern crossing of Simcoe Road 91 (24-25 Sideroad Nottawasaga).
  - We know that the Pretty River tributaries and Batteaux Creek tributaries, identified for

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surface monitoring work, are in closer proximity to the site than other adjacent watercourses. Do we know however that from a predominant groundwater flow direction perspective, that these watercourses are most at risk from quarry activities? In other words, are upper main branch Pretty River tributaries near Rob Roy and Mad River tributaries near Edward Lake less at risk and therefore do not need to be monitored? Please clarify.

- Wetland Areas- Surface Water Flow:

- We understand that the proposed wetland hydrographs have been developed using a combination of on-site monitoring and background literature review. The hydrographs (water levels and duration) appear reasonable. Is the intent to pump water into ANSI A and let it flow into ANSI B? Is the outlet from ANSI A into ANSI B capable of supporting this? Would it be preferable to pump into both ANSI A and ANSI B to more effectively maintain hydrographs rather than rely on ANSI A to effectively convey flows to ANSI B?
- How will retained features/functions such as the Bridson Pond (or possibly the Millar Pond) be maintained and monitored?

**Section 5.2 (Category 2 Decision Steps) of the AMP:**

- Surface Water Temperature (Pg 10):

- Summer stream temperatures <22 Celsius (C) not a viable target for headwater monitoring sites. Headwater temperatures much less than 22C may be critical for supporting an extended length of stream north-east of the Escarpment exhibiting temperatures less than 22 C.
- Proponent generally has identified absolute targets (see exception below) rather than relative targets. Recommend that a blend of relative and absolute targets should be set and that impacting beyond either one should cause a change in quarry operations. For example, impacting beyond relative threshold could trigger a change in operations even if absolute threshold was not surpassed. Development of relative targets would require establishment of reference station(s) not potentially impacted by quarry operations.
- Establishing off-site flow/temperature reference stations (ones which will not be impacted by quarry) and developing regression lines relating to potential impact stations (e.g. 17a and 18) is recommended. A site on a western headwater branch of the main Pretty River might work. Red trigger flow threshold for Station 18 would be that actual flows at Station 18 drop below the 95% confidence intervals (C.I.) for the predicted flows at Station 18, based on the actual flows at reference stations and established regression lines. Red trigger temperature threshold at Station 18 would be

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that actual stream temperatures' at Station 18 rise above 95 C.I.'s for predicted stream temperatures at Station 18, based on actual temperatures at reference sites and established regression lines.

- Real time/remote access data collection at both reference and test stations would be needed to support use of relative flow/temperature triggers after new quarry operation is initiated.
  - Confidence intervals (C.I.'s) for regression lines will have to be evaluated before finalizing development of monitoring triggers. If the C.I.'s are too broad it may be impossible to use this technique to establish useful trigger thresholds.
  - Note summer stream temperatures only may be suitable triggers, spring and fall temperature triggers probably not useful.
  - Winter temperature triggers could be utilized but they should be should be minimum values rather than maximums.
  - If conservative trigger values are developed for protection of base flow, then the use of temperature trigger values may be unnecessary, given that a reduction in groundwater yield (i.e. base flow) would provide the mechanism for an increase in summer stream temperatures.
  - Absolute flow triggers proposed by proponent are too liberal and would not ensure long-term productivity of coldwater fisheries habitat. NVCA recommends the use of 7Q2 as absolute red trigger. Yellow would be 7Q2 plus 20%. If climate conditions change, reassess red trigger in context of regression relationship with off-site reference station, and actual test flows less than 95% C.I. of flow predicted using reference station and established flow regression line.
- Surface water decision steps (page 11): Under yellow- please outline the proposed frequency of the dissolved oxygen/temperature recording.
  - Surface water flow (page 12): One background location would be ideal to this component of the AMP. Also, how do the yellow/red thresholds fit into the requirements to sustain coldwater fisheries habitat?
  - Section 6: Results (page 15): The AMP should address reporting requirements to all agencies involved including the production of an annual monitoring report which includes the monitoring data, threshold/trigger actions taken and an interpretation of the monitoring program to summarize the environmental conditions. The report can also make recommendations to adapt the plan to maintain the required level of environmental protection.

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**SUMMARY:**

The NVCA requests satisfactory additional details addressing the above outlined matters in order to complete our review and further comment on the proposal. Thank you for the opportunity to comment on this application and please feel free to contact the undersigned should you have any questions regarding the above comments.

Regards,



Chris Hibberd, MCIP, RPP  
Director of Planning

Copy: County of Simcoe, Ms. Gail White  
Township of Clearview, Mr. Jim Uram  
Ministry of Natural Resources (Midhurst), Mr. Craig Laing  
Ministry of Environment, Mr. Bill Armstrong  
Grey Sauble Conservation Authority, Mr. Andrew Sorenson  
MHBC, Mr. Brent Clarkson  
File