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MEMORANDUM

October 4, 2024

TO: Glenn Rutherford
Sr. Environmental Officer
Peterborough District Office
Eastern Region

FROM: Nick Battye
Hydrogeologist
Technical Support Section
Eastern Region

RE: Proposed Amendments to ARA, Carden Quarry, Ferma Aggregates Inc.

Purpose

The Ministry Natural Resources (MNR) is responsible for the administration of the Aggregate Resources Act (ARA); however, overlaps with the Environmental Protection Act (EPA) and the Ontario Water Resources Act (OWRA) occur that are the purview of the Ministry of the Environment, Conservation and Parks (MECP). According to the MNR/MECP ARA Protocol, the role of the MECP hydrogeologist is to review the hydrogeological report(s) and related material to assess potential impacts from the proposed operations to water well supplies (i.e., impacts to drinking water supplies and local domestic wells as a part of the impact to the groundwater system as a whole) and nearby surface water features (i.e., wetlands, ponds, lakes, rivers). Potential impacts, if any, are assessed to ensure that adverse impacts to supplies, and the quality and flow of receiving water bodies are mitigated.

With respect to the ARA Protocol, and specifically, in relation to the Carden Quarry, which is owned and operated by Ferma Aggregates Inc., the MNR has requested confirmation that the MECP, as part of the review and issuance of the Permit to take Water (PTTW #1238-BBLKNE), is aware and has no concerns with the proposed water level elevation changes as they relate to the triggers for mitigation of domestic well #1 and #2 as outlined in Condition 4A on the operations page of the ARA site plans.

To answer this question, I have reviewed the following documents:

1. Re: Ferma Aggregates Inc. – Carden Quarry Zone of Influence Assessment, Category 3 PTTW Application, Lot 6-10, Concession 9, Carden Township, City of Kawartha Lakes, ON. MTE Consultants Inc. January 5, 2018.
2. Zone-of-Influence Assessment – Addendum Report, Re: 10 Year Permit to Take Water Application, Carden Quarry. MTE Consultants Inc. December 21, 2018.

3. Response to MECP Comments, May 23, 2019, Re: PTTW Application Ref#4708-B8MLTR. MTE Consultants Inc. June 19, 2019.
4. Amended Permit To Take Water, Surface Water and Groundwater, Number 1238-BBLKNE. MECP. Issued July 17, 2019.
5. Carden Quarry, Hydrogeological Assessment Report. MTE Consultants Inc. June 3, 2024.

Proposed Changes

Condition 4A in the Site Plans – Trigger Mechanism and Contingency Measures – Domestic Wells, currently states the following:

“A drop in minimum static level at BH1A by 2.0 metres (to approximately 270 m asl), and a corresponding drop of greater than 2.0 m in static water level at proposed observation wells WD and / or WE, shall initiate contingency measures for water supply of domestic well W1 upon confirmation that W1 supply is inadequate. Similarly, a drop in minimum static water level of proposed monitoring well WF of 2.0 m (i.e., approximately 265 m asl), and a corresponding drop in static level at proposed monitoring well WD and / or WE of greater than 2.0 m, shall initiate contingency measures for water supply at domestic well W2 upon confirmation that W2 supply is inadequate. The operator will maintain a potable water supply source to surrounding wells adversely affected by dewatering operations.

Contingency measures include, but are not limited to, the use of holding tanks, the construction of a new well(s) within the upper bedrock aquifer at a location(s) unaffected by quarry dewatering, and the delivery of water from the new wells by pressurized pipe system to each affected residence. Dewatering mechanisms will be shut down failing the resolution of water supply problems caused by quarry dewatering.”

The suggested amendment (italicized) is as follows:

“A drop in minimum static level at BH1A by 3.0 m (to approximately 264.8 m asl), and a corresponding drop of greater than 10.0 m in static water level at proposed observation wells WD and / or WE, shall initiate contingency measures for water supply at domestic well W1 upon confirmation that W1 supply is inadequate. A drop in minimum static water level at proposed monitoring well WF of 3.0 m (to approximately 260.8 m asl), and a corresponding drop in static level at proposed monitoring well WD and / or WE of greater than 10.0 m, shall initiate contingency measures for water supply at domestic well W2 upon confirmation that W2 supply is inadequate. The operator will maintain a potable water supply source to surrounding wells adversely affected by dewatering operations.

Contingency measures include, but are not limited to, the use of holding tanks, the construction of a new well(s) within the upper bedrock aquifer at a location(s) unaffected by quarry dewatering, and the delivery of water from the new wells by pressurized pipe system to each affected residence. Dewatering mechanisms will

be shut down failing the resolution of water supply problems caused by quarry dewatering.

Conclusions and Recommendations

I offer the following conclusions and recommendations:

1. The original elevations listed in Condition 4A were erroneous, and the proposed changes correct them.
2. The proposed changes in static groundwater levels are based on more recent hydrogeological data and are considered to be more realistic and representative of actual conditions. Notably, significant off-Site impacts are not forecasted to occur, and conditions exist in PTTW 1238-BBLKNE that require an annual report be produced with assessment of ongoing hydrogeological data by a qualified person to determine if significant deviations in predicted groundwater impacts beyond that established in support of the PTTW (Condition 4.5, 4.6, 4.7), and if so, that the local District Office be contacted (Condition 4.8), along with the standard requirement to investigate and address any complaints received (Condition 5.2).
3. I have no concerns with the proposed changes regarding the hydrogeological aspects; however, in the second paragraph of Condition 4A, I recommend the removal of the term 'holding tanks'. The MECP does not accept holding tanks as a permanent solution due to the potential problems associated with freezing, bacteria, as well as other logistically onerous issues for the well owner.

Should you have any questions, please feel free to contact me.

A handwritten signature in black ink, appearing to read 'Nick Battye', with a long horizontal flourish extending to the right.

Nick Battye, MSc, PGeo

ec: John Crouter
Victor Castro
Christina Klein

c: ECHO Ref # 1-577143242