

Proposed Milton Quarry East Extension JART COMMENT SUMMARY TABLE – Progressive & Final Rehabilitation

Please accept the following as feedback from the Milton Quarry Joint Agency Review Team (JART). Fully addressing each comment below will help expedite the potential for resolutions of the consolidated JART objections and individual agency objections. **Additional, new comments may be provided once a response has been prepared to the comments raised below and additional information provided.**

	JART Comments (December 2022)	Reference	Source of Comment	Applicant Response (January 2023)	JART Response
Report/Date: Progressive and Final Rehabilitation Monitoring Study December 2021					
MHBC					
1.	There is likely some modification to the pre-development bedrock aquifer due to extraction in the main quarry (which remains dry) as well as the North Quarry and West and East Cells. This has not been discussed in the documentation provided for the MQEE in terms of cumulative impacts, however some impact must be present (see comment #1 in Geology and Water Resources table).	Ecological Enhancement Plan and Progressive and Final Rehabilitation	Daryl W. Cowell	<p>The GWRA describes the fact that the existing quarry has resulted in some dewatering influence in the bedrock aquifer and that this has likely had an impact on Wetland U1 and Wetland W36. The present conditions, both groundwater and wetland, are described in the GWRA (Section 6, particularly Section 6.8) and ecological conditions are also described in the NRIA & EIA.</p> <p>The potential effects of the Milton Quarry are known as they are represented by the existing conditions. These conditions are a result of the approved extraction conditions and the influence will not increase as the current quarry configuration and mitigation measures will prevent further alteration.</p> <p>The proposed MQEE will maintain or enhance the existing (approved) conditions and therefore there will not be any increase in cumulative effect of the MQEE addition to the Existing Quarry.</p> <p>To be clear, the intent of a cumulative effects assessment is not to evaluate proposed conditions relative to a pre-development (natural) state but rather to evaluate the impact of the proposed development in combination with other developments that are already approved. In this area, there are no other land use developments in progress with accumulating negative effects to water resources.</p>	<p>Memorandum MEM-298 (March 3, 2023) prepared by GHD responds satisfactorily to this issue in regard to cumulative effects related to the MQEE.</p> <p>However, it would also be useful to describe the net effect of quarrying across the whole site as this will likely be the last application for the Milton Quarry. In general, the expansion quarries north of the main quarry have resulted in the replacement of a pre-development bedrock aquifer with an open lake system separated by relatively narrow bedrock walls. What remains of the site is not a bedrock aquifer per se.</p> <p>I think that it is reasonable for Dufferin to make some comment/assessment of the net effect of the development(s) on the original bedrock aquifer – i.e., net change to water levels; changes to overall groundwater flow direction; likely changes to surrounding receiving waters; changes in wetland catchments; etc.</p>
2.	In the absence of pre-extraction impact assessments, my primary concern is that existing groundwater conditions be restored to the extent possible. The rehabilitation of the MQEE (pending approval of the application) by lake filling supported by well injection recharge via the WMS is preferred to maintaining a dry quarry post-extraction. Although final levels and fracture flow probably won't exactly mimic pre-quarry conditions (pre all quarries and extensions in the area) it is preferable to dry quarry conditions. On-going post lake filling monitoring should ensure that "water bearing" fractures (see comment #1 in Geology and Water Resources table) are reactivated to the extent possible.	Ecological Enhancement Plan and Progressive and Final Rehabilitation	Daryl W. Cowell	<p>As indicated in the response to Comment #1 (above), it is neither the goal nor a reasonable requirement for the proposed MQEE to restore groundwater conditions to a pre-extraction state. Rather the goal of the mitigation and rehabilitation measures is to maintain or enhance water resources relative to their condition under current approved conditions. The proposed MQEE is appropriate to satisfy this goal.</p> <p>The AMP includes measures monitoring during and following lake filling to confirm that the long-term conditions are suitably protective of water resources conditions. These measures include extensive monitoring and assessment prior to,</p>	<p>I wasn't suggesting that pre-extraction groundwater conditions be restored. As noted in my comment #1 above, there is effectively no bedrock aquifer remaining especially after extraction of the MQEE.</p>

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				during, and following the completion of lake filling as described in the AMP (Part I, Section 3.2 and Section 3.3, Part II, Section A.3 and Section E.3.4).	
3.	Without long-term monitoring of non-native species in place, the forests, islands and wetlands in the proposed rehabilitation plan will become dominated by non-native invasive species, most likely Common Reed, Common and Glossy Buckthorn and Reed Canary-grass. A long-term monitoring plan should be outlined for all areas that will be restored as well as those that will be rehabilitated.	Progressive and Final Rehabilitation Monitoring Study	Sarah Mainguy, NSE	GEC prepared a <i>Proposed Invasive Species Monitoring and Mitigation Strategy</i> , which was included in Dufferin's July 22, 2022, response to objection letters from MNRF (May 9, 2022) and Region of Halton (May 6, 2022). Please see Tab C in the JART Natural Environment Comment Response Matrix for a copy of the <i>Proposed Invasive Species Monitoring and Mitigation Strategy</i> .	Response accepted.

4.	<p>It is not clear to what extent the mitigative measures for maintaining natural heritage features such as wetlands will be required following quarry operations and lake filling. These measures involve pumping of water into recharge wells and direct discharge into wetlands to maintain and enhance natural features and their functions during quarry operations up until site closure. It is understood that existing agreements are in place with agencies that will be assuming land ownership following site closure for the existing approved quarry operations</p> <p>For the MQEE, the issue of perpetual pumping requirements has not been fully addressed in terms of a) justification, b) the full extent to which this will be required, and c) the long term financial implications to the agency responsible for the long term management of this system. It is anticipated that these issues have been addressed in the agreements and approvals for the existing Dufferin quarry operations, although there is no discussion or resolution of these issues with respect to the MQEE.</p> <p>The Progressive and Final Rehabilitation Monitoring Study has identified various policies of The Niagara Escarpment Plan, The Provincial Policy Statement, Region of Halton Official Plan, and Town of Halton Hills Official Plan.</p>	Post Closure Conditions (Issues list item 4.1)	Norbert M. Woerns	<p>The GWRA clearly identifies that active mitigation measures (i.e., pumping and other forms of 'active control') will be necessary during quarry extraction and lake filling periods similar to the existing Milton Quarry.</p> <p>The Existing Quarry Extension approvals and the GWRA for the proposed MQEE also evaluated and presented the potential need for active mitigation measure under long-term rehabilitation conditions. This analysis was done in a conservative manner to ensure that appropriate protection would be available to meet the water resources objectives as described in Section 9.4 and Section 10.</p> <p>At a minimum, some active management will be required under long-term conditions to manage water storage and allocation, to discharge water to Hilton Falls Reservoir Tributary, to top up the rehabilitation lake levels, to transfer surplus water from the quarry lakes to the Reservoir, and to provide seasonal diffuse discharge to three East Cell wetlands. These requirements are presently approved, in place, and addressed through technical requirements, approvals, legal agreements, and financial assurances approved by all agencies, the Joint Board, and Cabinet. The only aspect that is not fully determined is whether some seasonal recharge well operation will be required in the long-term in the previously approved extension; however, any such need is addressed by the existing approvals, legal agreements, and financial assurance.</p> <p>These same measures are proposed to be extended for the MQEE and the addition of the MQEE would not materially affect the required mitigation measures or effort. The MQEE would require the addition of continued seasonal operation of diffuse discharges for two wetlands (Wetland U1 and Wetland W36) and, if necessary, selection of a slightly different subset of recharge wells for continued seasonal operation. Refer to GWRA Section 9.4 and Section 10.3.3.2.</p> <p>The corresponding amendments to the legal agreements and financial assurances for the MQEE are being addressed by CRH, Conservation Halton, Halton Region, and other agencies in parallel to the technical application reviews.</p> <p>From a planning context, it is MHBC's opinion that the referenced policies have been sufficiently addressed in the application and subsequent</p>	<p>See comment 50 in the JART Table for GWRA repeated below.</p> <p>Given the hydrogeological setting of the MQEE, the potential for reducing or eliminating the need for perpetual pumping in relation to the MQEE have not been fully explored. The Technical Memorandum (Memo 301), Evaluation of Passive MQEE Mitigation March 3, 2023 by Kyle Fritz and Richard Murphy provided an analysis of passive measures to support groundwater in the vicinity of the MQEE by reducing recirculating groundwater to the MQEE excavation.</p> <p>The parameters used in this analysis were not sufficiently explained or justified. The conclusions of this analysis were therefore not fully justified or supported.</p> <p>It is not clear what constitutes the 'approved conditions' beneath the MQEE in terms of groundwater levels.</p>
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<p>The following Halton Region Official Plan policies pertinent to quarry rehabilitation and closure do not appear to have been sufficiently addressed;</p> <p>Halton Region Official Plan (June 19, 2018) - Part III, Section 110 (8) (c.1) where the proposal to designate new or expanded Mineral Resource Extraction Areas is required to give consideration to 'cumulative impacts of the proposal and other extractive operations in the general area,' Existing quarry impacts have not been identified in detail with respect to the MQEE. See Comment 79 in <i>Geology and Water Resources Table</i> (Issues list item 1.33).</p> <p>The MQEE has not considered 'financial impact to Regional infrastructure', as per Halton Region Official Plan, Sections 110 (7.6), Sections 187(10)(q), and the 'risk of financial public liability during and after extraction where continuous active on-site management is required', Sections 110(8)(e). These policies may have been addressed as part of the existing agreements between Dufferin Aggregates and various agencies. However, the implications of these policies have not been addressed in the Progressive and Final Rehabilitation Monitoring Study for the MQEE.</p> <p>The requirement for ongoing pumping to maintain artificially low groundwater levels as part of the proposed rehabilitation plan, is contrary to Halton Region Official Plan policy 110 (8.2) which states 'Discourage the use of adaptive management plans or similar measures that will require continuous or perpetual active on-site management post rehabilitation'. Clarification is required of how this policy has been addressed.</p>			<p>discussions with JART.</p> <p>Regarding cumulative effects, MHBC has committed to provide the NEC a summary on how cumulative impacts have been taken into consideration. However, as noted in #1, the intent of a cumulative effects assessment is not to evaluate proposed conditions relative to a pre-development (natural) state but rather to evaluate the impact of the proposed development in combination with other developments that are already approved.</p> <p>Regarding the risk of financial public liability, this policy has been addressed in the MHBC Planning Report. In summary, CRH has committed to update the legal agreements to add the extension lands to ensure there is no financial public liability during and after extraction where continuous active on-site management is required.</p> <p>Regarding the policy that discourages perpetual active on-site management post rehabilitation, this policy was addressed in the Planning Report. In summary, this policy does not prohibit active on-site management post rehabilitation and it is already approved for the existing operation and Conservation Halton has agreed to take over responsibility of this system. The active management proposed for the east extension is a very minor addition to the existing system and is appropriate in the context of the existing approvals.</p>	<p>Additional information is provided in the GHD Memo 298, March 3, 2023, Cumulative Dewatering Influence in the MQEE Area. Although this analysis provides a reasonable estimate of groundwater level drawdowns from the existing approved quarry, it has not compared existing groundwater level data to simulated projected groundwater levels without mitigation. This would provide a means of evaluating the effectiveness of the WMS in mitigating groundwater level drawdowns and the degree of enhancements of the groundwater levels by the WMS.</p> <p>It is outside of the peer reviewer's scope to comment on the financial liability issue related to the existing quarries as no details were provided upon which to judge the adequacy of the arrangements.</p> <p>It is correct that this policy does not prohibit active on-site management post rehabilitation. It does however imply that for a quarry application, all reasonable and practical measures should be implemented to reduce or eliminate post rehabilitation active on-site management for the MQEE. The proposed rehabilitation plan was designed to restore or enhance ecological features and functions but does not address the need for reducing or eliminating post rehabilitation active on-site management.</p>
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5.	Include an invasive species monitoring plan for all areas identified for enhancement and/or rehabilitation.		CH	GEC prepared a <i>Proposed Invasive Species Monitoring and Mitigation Strategy</i> , which was included in Dufferin's July 22, 2022, response to objection letters from MNRF (May 9, 2022) and Region of Halton (May 6, 2022). Please see Tab C in the JART Natural Environment Comment Response Matrix for a copy of the <i>Proposed Invasive Species Monitoring and Mitigation Strategy</i> .	On January 1, 2023, Ontario Regulation 596/22 came into effect. As a result, technical review services for planning and development applications previously provided by Conservation Halton (CH) under Memorandums of Understanding with municipalities (e.g., technical reviews related to natural heritage and select aspects of stormwater management) can no longer be provided. However, to facilitate the transition of our review to other JART members, CH has reviewed and can confirm that this comment has been addressed.