Memorandum

DATE: July 23, 2014

TO: Natasha Rea – City of Brampton

COPY TO: Jason Balsdon – ResEnv Consulting Limited

FROM: Lloyd Lemon, M.Sc. Senior Project Geoscientist

SUBJECT: Response to August 2013 Technical Update
Prepared by Golder Associates
Proposed Norval Quarry
Project No. 111-53308-00

WSP Canada Inc. (previously GENIVAR) is pleased to provide you with the following brief review comments for the above-noted undertaking as prepared by Jason Balsdon per your request.

A summary of concerns/clarification/information requirements is listed below.

- Regarding the three main issues identified in the GENIVAR Peer Review document of March 2013:
  - Short-term contingencies were commented on and it was noted by Golder that operational contingencies could be implemented in response to findings from the AMP. However, Golder did not provide a water balance assessment for the contingency pond to address the contradiction that: 1) no winter/spring/fall trigger flow rates are proposed for the MT as all of the surplus water will be directed to the MT, versus 2) the contingency pond will be filled and maintained with the water surplus. Furthermore, no details on the contingency pond design were provided for review, although the contingency pond should be installed before the AMP indicates that it is needed.
  - The municipal water supply issue appears resolved from a hydrogeological perspective. It is noted that Golder indicated that Brampton Brick is not proposing to cover the cost for connections to municipal water.
  - The storage pond comments provided by GENIVAR were reasonably addressed.

WSP Canada Inc.
126 Don Hillock Drive. Unit 2
Aurora, Ontario
L4G 4G9
www.wspgroup.com

- Figure G-1 of the Golder response, that was to present the water level records for CRT-3 for review, was still not provided. In addition, the surface water quality data provided for review was incomplete.
- The AMP is an important component of the operation and on-going evaluation of the hydrogeological predictions for the proposed quarry. The City of Brampton needs to ensure that the Golder commitments (and items for consideration) are included in the revised AMP. A few recommendations provided previously by GENIVAR require resolution, which include:
    - Trigger concentrations for surface water should include metals and consider Policy 2 for PWQOs (use of background concentrations).
    - It will be difficult to assess the hydroperiods and to evaluate the hydroperiods in relation to the impact assessment findings. Therefore, staff gauges in shallow sumps or standpipes should be used for monitoring of the wetlands and trigger levels established. Existing piezometers will not be effective as the proposed trigger levels for most of these piezometers are below the base of the piezometer.
    - Data download frequency for monitoring wells for an enhanced monitoring program should be increased to allow for the evaluation of contingency measures.
    - Alternate discharge points into the MT should be noted as a contingency.
    - Identification of engineering criteria for sideslopes to maintain the low hydraulic conductivity should be provided.
- A number of issues were reasonably addressed from a hydrogeological perspective, but require input/determination as part of the Natural Environment Assessment by MMM (Ecoplans), including:
    - Need for monitoring of CRT-2 to assess on-site conditions.
    - Proposed use of a low value only as a trigger for CRT-CR flow rates.
    - Need for winter/spring/fall flow triggers for the MT to maintain seasonal conditions.
    - Proposed use of 5 mm (10% of low flow) to define hydroperiod.
    - Proposed use of a high concentration trigger for boron.
    - The need for a chloride trigger concentration.
    - MT effects (erosion etc.) from extra flow at the upstream site boundary as a result of QWM discharge.
    - Timing for construction and use of the Contingency Pond to protect the MT after a trigger exceedance.

LAL:nah