



July 28, 2015

Via: Email

Ms. Kimberley Wingrove
Township of Guelph/Eramosa
P.O. Box 700
Guelph ON N1G 5B4

Dear Ms. Wingrove:

**Re: Harden Response Letter Dated June 12, 2015
Project No.: 300032475.0000**

R.J Burnside & Associates Limited (Burnside) has reviewed the Harden Environmental Services Ltd. (Harden) letter of June 12, 2015 which provides a response to the two Burnside letters of April 24, 2015. One of the Burnside letters (referenced here as Letter 1) responded to the December 9, 2014 Harden letter which addressed comments provided by Burnside on October 6, 2014. The second Burnside letter (Letter 2) provided comments to the well contingency plans provided by Harden in a January 8, 2015 memorandum.

1.0 Response to Letter 1

The majority of the Burnside comments acknowledged agreement with the Harden responses. As a result, there were only a few Burnside comments that required a Harden response. These are found below.

4.11 Private Well Sample

Harden agreed to collect additional water quality samples in advance of any quarry activities. Harden indicated that the average nitrate concentration upgradient of the quarry is 3.89 mg/L vs. 1.39 mg/L elsewhere.

Burnside Response

There are a number of existing domestic wells that are located downgradient of the proposed quarry site and as a result, it is possible that future changes in water quality may be attributed to quarry activities by the homeowners. A number of domestic wells downgradient of the proposed quarry have been sampled and some have elevated nitrate. As indicated in Letter 1, it will be important that the probable cause of the elevated nitrate be established prior to the onset of quarrying activities.

4.2 Recent Research and Susceptibility of Local Wells to Contamination

Harden indicates that on-site monitor M2 is upgradient of the proposed quarry activities and will be used to monitor nitrate impacts from agricultural activities.

Burnside Response

Burnside recommends that new well M17 be used in conjunction with M2 to monitor nitrate impacts from upgradient agricultural activities. Similarly, M3 (following reconstruction) should be used as a part of the monitoring network for upgradient agricultural impacts. These wells should be added to the monitoring plan.

4.4 Water Quality and Early Warning and Mitigation

Harden agreed to Burnside's recommendations for testing and completion of wells M16 through M19.

Burnside Response

No response needed.

7.0 Brydson Spring and Blue Springs Creek

Harden has begun monitoring of SW3, SW4, SW5, SW8 and Brydson Spring and has provided flow results for two dates in 2015.

Burnside Response

On-going monitoring of SW3, SW4, SW5 and SW8 will allow for the current relationships of flow in Tributary B to Brydson Spring flows to be quantified under current conditions.

8.0 Rock Extraction Water Level Change Monitoring

Harden has agreed to deepen M3 in advance of any quarry activities.

Burnside Response

M3 will provide important water level and water quality information following reconstruction. And as a result, water quality/quantity monitoring should begin as soon as possible.

8.1 Historic Low Water Level

Harden indicates that James Dick Construction Limited (JDCL) will conduct additional investigations in upgradient wells post approval including pumping tests. The data will be used to update the well-specific contingency plans.

Burnside Response

Additional Investigations will establish baseline conditions and will assist in ensuring that wells that may be impacted due to water level declines are identified. The data will be used to update the preliminary and well specific contingency plans that have been prepared.

8.2 Monitoring Plan Revisions

Harden indicates that JDCL has agreed to a detailed private well monitoring program.

Burnside Response

A detailed private well monitoring program will allow for an expedited resolution to any future well interference claims. Specific wells cannot be identified in the proposed monitoring program until the land owners agree to have their wells included. However, the monitoring program should be updated to indicate that private off site wells will be included.

2.3 Trigger Levels for Sinking Cut

Harden indicates that JDCL will provide data from the automatic water level recording device to the Township on a bi-weekly basis until data indicates that water levels are remaining consistently above the trigger level.

Burnside Response

No comment necessary.

9.0 Additional Work

Harden has agreed to conduct testing of M16 through M19 in the manner recommended by Burnside.

Burnside Response

Testing and completion of M16 through M19 as recommended by Burnside will provide additional information on the bedrock and will assist in providing an “early warning” of domestic well impacts.

2.0 Response to Letter 2 – Well Specific Contingency Plans

1. Status of W7

Harden indicates that they have not been allowed to access the well which is located on the Ball property.

Burnside Response

The MOECC database does not indicate a well on the Ball property. It appears that Harden has made a number of attempts to investigate the well. Ideally this well will be included in the

monitoring program; Burnside recommends that JDCL obtain written confirmation from the Ball family that they do not wish to have their well monitored.

2. Wells W2 and W3 on the Mushroom Farm Property

Harden has provided detailed information for wells W2 and W3.

Burnside Response

W2 is being used as an injection well for cooling water. W3 appears to be the main well supplying the mushroom farm and should be included in the monitoring program.

3. Short Term Tests for W2, W3, W4, W5, W6, W7 and W8

Harden indicates that short term tests will be conducted post approval for W3, W4, W5 and W8. Harden indicates that short term tests cannot be conducted in W2, W6 and W7 for the following reasons:

- W2 is a shallow well as indicated above and is often dry. W6 is a dry well that has not been used for decades and was dry in November 2014.
- The owners did not allow access to W7 for safety reasons.

Burnside Response

It may be possible to access W7 if the property is sold in the future. Short term tests at W3, W4, W5 and W8 will be helpful in finalizing contingency plans for these wells.

4. Source Water for W31

Harden provides significant detail regarding well W31 (located on the DeGrandis property) and suggests that the springs that feed the well and ponds on site are derived from permeable overburden deposits that are underlain by silt till deposits. Harden suggests that flow in the overburden is primarily lateral and the source area for the unconfined overburden aquifer is somewhere to the north.

Burnside Response

W31 has limited available drawdown and therefore is susceptible to changes in water levels. If the well obtains some of its water from the bedrock, the predicted change in bedrock water levels as a result of the quarry could have a significant impact on the well.

Harden has visited the DeGrandis property on numerous occasions and it is their opinion that W31 and the nearby ponds are fed from a shallow overburden aquifer with a source to the north. However, the wells and spring may also be fed from a bedrock fracture which comes to the top of the rock and is accessed by fractures in the till.

Burnside recommends that on-site investigations be completed to confirm the source of water for W31 and the ponds on the DeGrandis property. Since the well reportedly supplies water for

a number of livestock it is important that the contingency plan be able to maintain the water supply.

5. Additional Information for Wells W20, W35, W38, W42 and W43

Harden indicates that JDCL will provide additional information on the wells as a condition of the development.

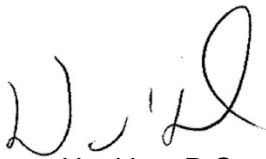
Burnside Response

No comment necessary.

Should you have any questions regarding the above, please contact the undersigned.

Yours truly,

R.J. Burnside & Associates Limited



Dave Hopkins, P.Geol.
Senior Hydrogeologist
DH:mp

cc: Mr. Stan Denhoed, Harden Environmental Services Ltd. (Via: Email)
Mr. Greg Sweetnam, B.Sc., James dick construction (via: Email)
Ms. Liz Hawson, Macaulay Shiami Hawson Ltd. (Via: Email)

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