PATERSON GROUP

memorandum

re: **Geotechnical Responses to MVCA Comments**
Proposed Residential Development
Brown Lands – Country Road No. 29 & Strathburn Street – Almonte, Ontario

to: Strathburn Almonte Regional Inc. – **Mr. Evan Garfinkel** – egarfinkel@regionalgroup.com

cc: Novatech – **Mr. Trevor McKay** – t.mckay@novatecheng.com

date: June 28, 2024

file: PG6260-MEMO.01

Further to your request, Paterson Group (Paterson) has prepared the current memo to provide our responses to the geotechnical-related comments from the Mississippi Valley Conservation Authority (MVCA) listed in the letter dated August 4, 2023 (File No. 09-T-23005) for the proposed residential development to be located at the aforementioned site. This memo should be read in conjunction with the current Geotechnical Investigation Report (Paterson Group Report PG6260-2 Revision 1 dated June 28, 2024).

Comment Responses

Comment i: *The site plan showing the Erosion Hazard Limit (in accordance with the Technical Guide on River and Stream Systems: Erosion Hazard Limit by the Ontario Ministry of Natural Resources and Forestry) (OMNRF Technical Guide) should be stamped. In addition, the plan is showing proposed development encroaching into the concluded Erosion Hazard Limit.*

Response: Drawing PG6260-1 – Test Hole Location Plan is stamped in the revised Geotechnical Investigation Report, referenced above.

Comment ii(a): *For the West Tributary Slope:*

For the slope segment (Section A-A), a total setback is calculated to be 15 m, measured from the top of the slope. The site plan shows the setback to be zero at two ends. Please clarify why the limit is not recommended at the same setback distance from the start to the end of this segment of the slope.

Response: At the specific location of Section A-A, the slope has a height of about 8 to 9 m, which is associated with the 15 m Limit of Hazard Lands setback at this location. However, to the east and west of Section A-A, the height of the slope decreases to approximately 4 to 5 m, and the factor safety under static and seismic conditions is over

1.5 and 1.1, respectively, such as shown at Section B-B. Therefore, in these areas adjacent to Section A-A, no Limit of Hazard Lands setback is required.

Comment ii(b): *For the West Tributary Slope:*

For the other segment of the slope (Section B-B), an erosion access allowance of 6 m was concluded. The erosion access allowance is expected to support the following:

- *emergency access to erosion prone areas:*
- *construction access for regular maintenance and access to the site in the event of an erosion event or failure of a structure; and*
- *providing protection against unforeseen or predicted external conditions.*

Please comment on the stability of top of the slope (in case of unforeseen or predicted external conditions) and the possibility of the overburden soils to become loose and its impact on the stability of the "surficial" overburden soils near the top of the slope.

Unless additional analyses (including, those recommended earlier regarding the risks associated with "surficial" shallow slope failures near the top of slope) and additional comments clarifying how 0 m setback is considered appropriate to support the erosion access allowance are provided, it is considered more appropriate to recommend a setback distance of 6 m.

Response: The boreholes in the vicinity of section B-B indicate a hard to very stiff silty clay within the height of this slope. Cohesive soils such as these will not become "loose" due to external conditions, and accordingly, impacts to the surficial overburden soils near the top of slope are not expected.

Comment ii(c): *For the West Tributary Slope:*

Please provide analysis and details to support a toe erosion allowance of 0 m. Otherwise, it is considered more appropriate to assume the minimum toe erosion allowances suggested in Table 3 of the OMNRF Technical Guide referenced above.

Response: At the time of our field investigations, which included spring conditions in May 2022, no water was observed in the area identified as the West Tributary. Further, as no water was observed here, no signs of erosion were observed. Accordingly, a toe erosion allowance is not considered to be required along this slope.

Comment iii: *For the North Tributary Slope, please provide analysis and details to support a toe erosion allowance of 0 m. Otherwise, it is considered more appropriate to assume the minimum toe erosion allowances suggested in Table 3 of the OMNRF Technical Guide.*

Response: The North Tributary was observed to be located more than 30 m away from the toe of the slope. Due to this setback, a toe erosion allowance is not considered to be required along this slope.

Comment iv: *For the Mississippi River Slope, please provide analysis and details to support a toe erosion allowance of 1 m. Otherwise, it is considered more appropriate to assume the minimum toe erosion allowances suggested in Table 3 of the OMNRF Technical Guide referenced above.*

Response: The boreholes at the top of slope along the Mississippi River slope have indicated shallow bedrock, and our observations along the toe of this slope indicated shallow bedrock with a thin layer of overburden, and no signs of active erosion.

In Table 3 of the Ontario Ministry of Natural Resources' Technical Guide – River & Stream Systems: Erosion Hazard Limit, these subsurface conditions are considered to correspond to the "Hard Rock" category. For "No evidence of Active Erosion" and "Bankfull Width >30 m" under the "Hard Rock" category, this corresponds to a toe erosion allowance of 1 m.

We trust that the current submission meets your immediate requirements.

Best Regards,

Paterson Group Inc.

Scott S. Dennis, P. Eng.

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cc: egarfinkel@regionalgroup.com
Novatech – **Mr. Trevor McKay** – t.mckay@novatecheng.com

date: June 28, 2024

file: PG6260-MEMO.02

Further to your request, Paterson Group (Paterson) has prepared the current memo to provide our responses to the comments from the Mississippi Valley Conservation Authority (MVCA) listed in the letter dated April 12, 2024 (File No. 09-T-23005) for the proposed residential development to be located at the aforementioned site. This memo should be read in conjunction with the current Geotechnical Investigation Report (Paterson Group Report PG6260-2 Revision 1 dated June 28, 2024).

Comment Responses

Comment 1: *The stamped site plan showing the Erosion Hazard Limit based on the existing slope conditions should be provided. MVCA's previous comment #1 remains outstanding.*

Response: The drawing indicating the Erosion Hazard Limit is now stamped in the current Geotechnical Investigation Report, referenced above.

Comment 2: *Please update the site plan to reflect the revised lot layout and confirm the slope stability of the revised lots (i.e., lots 87 to 95) and permissible grade raise restrictions from the slopes along the West and North tributaries.*

Response: The current Geotechnical Investigation Report, referenced above, indicates the revised lot layout on the drawings in Appendix 2. Additional commentary has been provided at the end of Section 6.9 – Slope Stability Analysis to confirm that the revised lots 87 to 95 are stable provided the permissible grade raise restrictions shown on Drawing PG6260-2 – Permissible Grade Raise Plan are followed.

Comment 3: *Please provide a Paterson's response letter or memo separately, signed and stamped by a Professional Engineer.*

Response: This memo, and the responses to Paterson's previous comments from the MVCA in PG6260-MEMO.01, are both stamped.

We trust that the current submission meets your immediate requirements.

Best Regards,

Paterson Group Inc.

Scott S. Dennis, P. Eng.