

re: **Addendum to Landslide Hazard Assessment Report**
Proposed Multi-Storey Building Complex
1009 Trim Road – Ottawa, Ontario
to: Vuze Construction – **Martin Chénier** – chenierm@live.ca
date: June 2, 2026
file: PG5336-MEMO.11

Further to your request and authorization, Paterson Group (Paterson) prepared the following memorandum to provide an addendum to the previously provided Landslide Hazard Assessment report prepared by others for the subject site. This memorandum should be read in conjunction with the following documents:

- ❑ Geotechnical Report PG5336-1 Revision 6 dated March 9, 2026, prepared by Paterson Group
- ❑ PG5336-MEMO.07 Revision 1-Retaining Wall Global Stability Analysis, dated March 6, 2026, prepared by Paterson Group
- ❑ Landslide Hazard Assessment Addendum – Project No.125-1 dated July 6, 2023, prepared by McQuarrie Geotechnical Consultants Ltd.
- ❑ Tweddle Road Development – Grading Plan Review- Project No. OTT-00259629-AO-1015 Drawing No. C200 Revision 3, dated November 18, 2025, prepared by EXP Services Inc.

Technical Review Comments and Report Addendums

The following comments have been posed by the City of Ottawa in their technical review of the Geotechnical Report and aforementioned Landslide Hazard Assessment Addendum report. The responses are being prepared by Paterson and are considered addendums to the aforementioned Landslide Hazard Assessment report dated July 6, 2023.

Comment 1: *The addendum is based on two levels of underground parking and a final grade of 44.9 m, whereas current drawings indicate three levels of underground parking and a final grade of approximately 42.0 m. In addition, grading plans indicate existing grades along the southern property as high as 52 m, suggesting excavation depths greater than those assessed. The consultant should confirm whether the conclusions of the June 6, 2023 addendum remain valid or provide an updated landslide hazard assessment reflecting the latest project design.*

Response: While the increase in depth would result in a nearly 10 m high excavation, the short-term and long-term measures to mitigate increased risk would need to be planned to accommodate this condition such that the resultant hazard probability remains unchanged. In the short-term, stability of the in-situ subsoil excavation sidewalls and perimeter will be dependant on the implementation of the temporary shoring system design and construction.



The shoring design is expected to be designed in a manner that is consistent with the methodologies described in Section 6.4 of the current Geotechnical Report. In this regard it would consist of a cantilevered system embedded sufficiently to resist overturning and be provided with a series of tiebacks to adequately resist the retained earth and associated design pressures. It would therefore be required to extend beyond the depth of the excavation and to stabilize the retained subsoils. All elements of the temporary shoring system are expected to be sized appropriately to adequately support the overburden and associated loading in consideration of the proposed excavation depth to support three levels of underground parking.

To mitigate strains that could develop within the retained soil profile, the shoring design must mandate that all portions of retained overburden be in direct contact with either the shoring system surface or filler material, such as packed sand or other suitable filler material commonly used by shoring contractors for this purpose, to prevent voids to develop in the excavation sidewall soil face. Provided this measure is incorporated in the shoring design and implemented at the time of construction, the potential for lateral strains to develop within the clay soils would be minimized which would further mitigate the risk for a failure of the clay soils to be triggered.

In the long-term, the stability of the clay subsoils surrounding the structure will be resisted by the foundation structure and as explained in the aforementioned Landslide Hazard Assessment report. The structural design of the building's foundation should maintain the consideration of the design recommendations provided in the Geotechnical Report for resisting the earth pressure advised therein. This recommendation becomes more important in the scenario that the building depth increases since the pressures would also increase.

Based on the above, while the results of the hazard assessment and risk analysis remain valid, the recommendations pertaining to the short- and long-term stability of the clay excavation sidewalls become more important given the increase in excavation depth.

Comment 2: *The addendum recommends consultation with a river process expert to determine appropriate erosion protection measures. This study should be submitted for City review.*

Response: While the previous addendum advised of a river process expert (locally, this is expected to be consist of a geomorphologist) this would have been advised to offer an assessment of bank erosion. At this time, that is considered in the design of the grading and final slope conditions abutting into the river. At the time of completing our previous review of conditions at the base of the slope, active erosion (i.e., combination of bare soil and undercutting/oversteepening of banks) was not observed.

Active erosion is not expected to be a meaningful contributor to susceptibility in this area given the attenuation in flow energy resulting from the Tweddle Road embankment, and as noted in Section 4.3 of the aforementioned Landslide Hazard Assessment report. While water levels rise in response to spring-thaw conditions and results in temporary submergence of Tweddle Road, there are no signs of active erosion throughout the northern slope bordering the subject site resulting from this. The lack of active erosion is likely a result of the notable amount of mature and established vegetation present along the slope face in conjunction with the attenuated rate of fluctuations in water levels during spring-melt from normal levels.



Based on Paterson's review of the currently proposed landscape architecture plans prepared by Project Paysage, the majority of the proposed seedings within the floodline zone mix (i.e., Mix 1 noted on Landscape Plan Sheet No.: AP-10 dated March 2025) consists of tall grasses as are present in the existing condition. Establishing this type of vegetation, which is expected to perform adequately in occasionally submerged and marshy conditions, will continue to provide an equivalent amount of protection against active erosion in the post-development condition as exists in the current condition.

It is a requirement that all earth fill and grading undertaken in the sloped area be undertaken as described in Section 5.2 of the Geotechnical Report to ensure the earth fill is placed in a manner to resist erosional forces. Compacting and placement of appropriate fill will provide adequately durable soils to protect the underlying native soils from on-going erosion. At later stages of the project (i.e., in the near post-development stage) the slope will be covered with the aforementioned landscaping design which will serve to protect the slope area from active erosion and fluctuations in the Ottawa River levels.

Based on this, while a dedicated assessment of river action has not been undertaken for the subject site, the subject portion of the Ottawa River behaves more like a wetland than an active stream within a confined valley with high erosional forces. Since the changes in the water levels are not resulting in active erosion, the review of the waters impact on the stability of the subject slopes is considered geotechnical and is able to be assessed from this perspective for landslide susceptibility purposes. Provided the measures noted in the geotechnical report are taken during the earthwork's stages along the slope, landscaping is undertaken as noted in the landscaping drawings and establishes adequately, this recommendation is considered to be satisfactorily incorporated in the proposed design to satisfy the ALARP condition advised in the previous Landslide Hazard Assessment report.

Comment 3: *Once the addendum is updated, proper reference to it must be made in the geotechnical report.*

Response: Based on our review, no updates are required at this time since the report provides all necessary recommendations to maintain the ALARP mitigation strategies advised in the current and previous Landslide Hazard Assessment addendum.

We trust that this information satisfies your requirements.

Best Regards,

Paterson Group Inc.

Drew Petahtegoose, P.Eng.



Joey R. Villeneuve, M.A.Sc., P.Eng., ing.