PATERSON GROUP

memorandum

re: **Geotechnical Review – Grading and Site Servicing Plan Review**
Proposed Residential Building
1146 Snow Street, Ottawa

to: **M. David Blakely Architect Inc. -** Jonathon Blakely - mdblakely_jon@bellnet.ca
date: January 20, 2026
file: PG7295-MEMO.03

Paterson Group Inc. (Paterson) prepared the following memorandum to provide geotechnical review regarding the site grading and servicing plans for the proposed residential building as it relates to Paterson's geotechnical recommendations. This memorandum should be read in conjunction with the following:

- ❑ Paterson Geotechnical Report PG7295-1 dated October 31, 2025
- ❑ Project No.160402005-Drawing No. GP-1 - Site Grading Plan, Revision 1 dated October 24, 2025, prepared by Stantec Consulting Ltd.
- ❑ Project No.160402005-Drawing No. SP-1 - Site Servicing Plan, Revision 1 dated October 24, 2025, prepared by Stantec Consulting Ltd.
- ❑ Project No. 19361-Drawings A1 to A7, Revision 3, dated November 12, 2025, prepared by M. David Blakely Architect Inc.

1.0 Site Grading and Servicing Plan Review

Based on the findings of the geotechnical investigation of the above referenced report, no permissible grade raise restrictions are applicable to this site due to the absence of a sensitive below the marine clay deposit. Therefore, the proposed grading plan is considered acceptable from a geotechnical perspective. No additional measures such as lightweight fill or settlement monitoring programs will be required to accommodate the proposed finished grades as noted on the aforementioned grading plan.

The above-referenced grading plan is in general conformance with our geotechnical recommendations.

The site servicing plan is also considered acceptable from a geotechnical perspective.

2.0 Foundation Design

Based on our review of the above referenced architectural drawings – Project No. 19361-Drawings A1 to A7, Revision 3, dated November 12, 2025, the USF elevations of the building will vary between 69.845 m to 70.975 m and the USF elevation for the elevator shaft will be located at 69.62 m.

Conventional spread and pad foundations placed on the undisturbed loose to dense silty sand or sandy silt can be designed using a bearing resistance value at serviceability limit states (SLS) of **100 kPa** and a factored bearing resistance value at ultimate limit states (ULS) of **150 kPa.**

Conventional spread and pad foundations placed on the undisturbed compact to dense glacial till can be designed using a bearing resistance value at serviceability limit states (SLS) of **200 kPa** and a factored bearing resistance value at ultimate limit states (ULS) of **350 kPa**.

Footings placed entirely on the bedrock can be designed using a service compression strength value (serviceability limit states, SLS) of **500 kPa** and an ultimate compression strength value (ultimate limit states, ULS) of **750 kPa**.

A geotechnical resistance factor of 0.5 was applied to the above noted bearing resistance value at ULS.

Based on our review, the development plans comply with the recommendations made in the geotechnical report.

3.0 Frost Protection

3.1 Frost Protection of Footings

The underground basement level as well as the fitness room level are expected to be heated. Thus, perimeter footings of the underground basement structures are required to be insulated against the deleterious effects of frost action. A minimum of 1.5 m of soil cover alone, or a minimum of 0.6 m of soil cover, in conjunction with adequate foundation insulation, should be provided. Based on our review of the above-referenced architectural drawings, all the building footings were noted to have a minimum 1.5 m of soil cover.

Exterior unheated footings, such as those for isolated exterior piers, are more prone to deleterious movement associated with frost action than the exterior walls of the structure and require additional protection, such as soil cover of 2.1 m or an equivalent combination of soil cover and foundation insulation.

3.2 Frost Protection – Service Pipes

As per the City of Ottawa standards, all the storm and sanitary service pipes should be provided with a minimum of 2.0 m of soil cover for frost protection. Based on our review of the above-reference site servicing plans, all the stormwater and sanitary pipes were noted have minimum 2.0 m of soil cover.

As per the City of Ottawa standards, all watermain pipes are recommended to be provided with minimum 2.4 m of soil cover. Based on our review, it was noted that the existing watermain connection may have less than 2.4 m of soil cover. where insufficient soil cover (i.e.- less than 2.0 m) is available, the following frost protection criteria outlined in Table 1.

Table 1 – Frost Protection for Watermain

Soil Cover Provided (mm)	Insulation Thickness (mm)
1800 to 2400	50
1500 to 1800	75
1200 to 1500	100

The rigid insulation should be installed in accordance with City of Ottawa Drawing W22. The rigid insulation should be placed 150 mm above the pipe on top of a compacted Granular A backfill and should have a minimum of 150 mm of Granular A or Granular B Type II backfill above the rigid insulation. The rigid insulation should extend a minimum of 150 mm horizontally beyond the edge of the pipe and vertically down to the bottom of the pipe bedding.

Rigid insulation placed underneath roadways should consist of minimum HI-40 or equivalent.

4.0 Remarks/ Commentary

All bearing surfaces should be reviewed and approved by Paterson personnel and at the time of excavation/prior to placing the footings. Where a looser material is identified at the time of excavation, a proof roll should be completed, and any poor performing soils should be excavated and replaced with OPSS Granular A compacted to minimum 98.0% of its SPMDD. Refer to the geotechnical report referenced for above for additional recommendations for fill placement.

We trust that this satisfies your immediate requirements.

Best Regards,

Paterson Group Inc.

January 20, 2026

Pratheep Thirumoolan, P.Eng.

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