patersongroup memorandum

consulting engineers

re: **Geotechnical Responses to City Comments**
Proposed Commercial Development
46 Iber Road - Ottawa

to: Fotenn Consulting - **Mr. Matt McElligott** - mcelligott@fotenn.com
cc: DSEL - Robert Freel - rfreel@dsel.ca
date: September 10, 2018
file: PG4089-MEMO.05

The present memorandum has been prepared to address the geotechnical items noted in the City of Ottawa comments prepared for the aforementioned site. The relevant comments were part of the third round of review comments issued by the City of Ottawa. Our responses are summarized below:

Paterson has reviewed the following drawings provided by DSEL as part of the present memorandum response:

- ❏ Grading Plan - Project No. 16-900 - Drawing No. GP-1 - Sheet 2 of 4 - Revision 3 dated March 5, 2018.
- ❏ Site Servicing Plan - Project No. 16-900 - Drawing No. SSP-1 - Sheet 3 of 4 - Revision 3 dated March 5, 2018.

Comment 1 - Groundwater Levels

Comment: *The measured groundwater levels documented in Table 1 are above the proposed elevation of the bottom of the stormwater management area. The geotechnical engineer shall review and provide recommendations. The condition of the stormwater management area shall not remain saturated. The seasonally high water table shall be below the bottom of the stormwater management area.*

Response: The groundwater levels in the piezometers installed in the boreholes were recorded at ground surface or just below ground surface on March 30, 2017 (spring conditions). However, the following statement in section 4.3 of the geotechnical report should be noted: *"It should be noted that the water levels observed within the piezometers could be due to rain water or spring melt water trapped within the backfilled borehole. Long-term groundwater levels can also be estimated based on the observed colouring, moisture levels and consistency of the recovered soil samples. Based on these observations, it is estimated that the long-term groundwater table can be expected between **2.5 to 3 m** depth"*.

Based on the above noted drawings, the elevation of the bottom of the stormwater management area is as low as 103.7 m. Taking the actual groundwater level at 2.5 m below the ground surface at BH 4 (closest to the stormwater management area) the long term groundwater level is estimated at an elevation of 101.94 m which is significantly below the elevation of the bottom of the stormwater management area. Due to the low permeability of the underlying clay deposit, the seasonally high groundwater level can be considered to be 0.5 m above the long-term groundwater level, conservatively. Therefore, the condition of the stormwater management area is not anticipated to remain saturated and the design elevations are acceptable from a geotechnical perspective.

Comment 2 - Underground Storage Media

Comment: *A layer of underground storeage media is recommended to be installed within the SWMP area to limit the area from being saturated for extended periods due to the presence of underlying clay soil material and anticipated low percolation rate. It is acknowledged that saturation of the underlying clay soil is not detrimental to the soils along the SWMP sidewalls and base as stated by the geotechnical engineer. The concern is that the area will remain saturated for extended periods of time and the implementation of a granular layer below the landscaped surface would allow the base of the SWMP to remain dry after major storm events.*

Response: As noted in our response to comment 1 above, the area is not anticipated to remain saturated due to the groundwater table.

Since the area will not remain saturated and saturation of the underlying clay soil is not detrimental, it should be noted that the current design is acceptable from a geotechnical perspective. Therefore, an underground storage media is not required.

We trust that this information satisfies your immediate requirements.

Paterson Group Inc.

Colin Belcourt, P.Eng.

David J. Gilbert, P.Eng.

Paterson Group Inc.

Head Office and Laboratory
154 Colonnade Road South
Ottawa - Ontario - K2E 7J5
Tel: (613) 226-7381 Fax: (613) 226-6344

Northern Office and Laboratory
63 Gibson Street
North Bay - Ontario - P1B 8Z4
Tel: (705) 472-5331 Fax: (705) 472-2334

St. Lawrence Office
993 Princess Street
Kingston - Ontario - K7L 1H3
Tel: (613) 542-7381