

**re: Geotechnical Review – Site Servicing Plan**  
Proposed Mix-Use Development  
1131-1151 Teron Road - Ottawa

**to: Renfroe Land Management – Mr. David Renfroe – [davidrenfroe@outlook.com](mailto:davidrenfroe@outlook.com)**

**date:** September 20, 2021

**file:** PG5283-MEMO.03

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Further to your request and authorization, Paterson Group (Paterson) prepared the current memorandum to complete a site servicing plan and cross section review and provide recommendations from a geotechnical perspective for the proposed mix-use development at the aforementioned site. This memorandum should be read in conjunction with Paterson Geotechnical Report PG5283-1 Revision 1 dated September 20, 2021.

### **Site Servicing Plan Review**

Paterson reviewed the following drawings prepared by WSP for the proposed mix-use development to be located at the aforementioned site as part of the geotechnical assessment:

- Project No. 20M-01534-00 – Servicing Plan – Drawing No. C03 Revision 2, dated September 3, 2021.
- Project No. 20M-01534-00 – Proposed 250mm W/M Extension in Teron Road – Drawing No. C03A, dated September 3, 2021.

Based on our review, the majority of the design details are considered to be acceptable from a geotechnical perspective. However, additional geotechnical precautions are recommended for the following items:

#### **Proposed 250mm Watermain extension to Teron Road:**

The proposed watermain which runs parallel to the southwestern property boundary is to be connected to the existing 305mm diameter watermain running across the intersection between Teron Road and Steacie Drive. The proposed 250mm watermain was observed to cross below an existing storm pipe which runs from Teron Road towards March road, with a vertical separation of 0.5m. Furthermore, the proposed watermain was also observed to cross below a proposed storm pipe which connects the proposed storm chamber cistern located along the west corner of the 9 storey building to the existing storm pipe along Teron Road. The proposed watermain and proposed storm pipe will have a vertical separation of 0.94m. On the other hand, the proposed 250mm watermain was observed to cross above an existing 605mm watermain with a vertical separation of 0.35m.

## **Proposed 200mm Sanitary Sewer extension to Teron Road**

The proposed sanitary pipe which runs from the central portion of the south property boundary and runs perpendicular to Teron Road is to be connected to the existing sanitary pipe located along Teron Road at an invert level of 72.44m. The proposed 200mm sanitary pipe was observed to cross below an existing watermain and storm pipes with unknown invert levels running parallel to the near lane of Teron Road and an existing storm pipe with unknown invert level running parallel to the farthest lane of Teron Road.

## **Service Protection Plan**

The following service protection plan section provides details of our recommendations for the service alignment crossings.

- The side slopes of the excavation above the invert level of the existing service pipes can be cut back at acceptable slopes. Unsupported excavation side slopes, extending to a maximum depth of 3 m, should be cut back at 1H:1V, or shallower. For excavation below the invert level of the existing service pipes, an engineered trench box approved by a structural engineer is recommended to be in place at all times to support the sides of the excavation. A vertical cut could be completed safely in this manner.
- The placement of the trench box should be reviewed by Paterson personnel to confirm the supported slope face is stable until the sanitary sewer and watermain connection works are completed.
- It should be noted that if signs of soil sloughing are observed within the supported soil, unshrinkable concrete may be required to replace the impacted area prior to removing the trench box from the excavation. In these events, Paterson should be notified immediately to provide a detail to rehabilitate the impacted areas.
- Extra precautions should be taken during excavation around and below the existing services where the proposed watermain/sanitary pipes will be crossing below the existing storm sewer and watermain. It is suggested that hand digging or using a 'hydrovac' technique be used when excavating in close proximity to the existing storm sewer and watermain to avoid any potential damage to the existing mainline pipes. It is expected that pipe bedding below the proposed service alignments will be in accordance with the recommendations provided in Paterson Report PG5283-1 Revision 1 dated September 20, 2021.
- The excavated area below the existing storm sewer and watermain should be reviewed by the geotechnical consultant and backfilled with an unshrinkable fill (0.3 to 0.5 MPa - compressive strength). The unshrinkable fill should in-fill the excavated area adjacent to the installed watermain/sanitary sewer and extend vertically to the invert level of the existing storm sewer and watermain pipe and horizontally to the supported sides of the excavation. Furthermore, the unshrinkable fill shall extended horizontally beyond the face of the existing service pipes a minimum distance of 300 mm. The unshrinkable fill should be placed against a clean, excavation sidewall face to eliminate any voids that may cause settlement issues.
- Figures 1 attached present the service protection plan details for the unshrinkable fill at the service crossing areas. The remainder of the excavated trench outside the vicinity of the pipe crossing points can be backfilled with typical pipe backfill materials.
- Temporary support for the existing watermain will be required to protect the pipe from hanging without support for too long. Refer to the attached City of Ottawa Drawing

No. W28- Temporary Support for Existing Watermain. Likewise, the storm sewer should also be protected in a similar manner.

- A diesel plate compactor should be used for compaction of granular fill above 300 mm of the existing service obvert level at the service crossing locations. It is recommended that loose lift thickness not exceed 225 mm to ensure adequate compaction is met. Granular fill, such as Granular A or Granular B Type II, can be placed for subgrade backfill and compacted to at least 95% of its SPMDD.

The proposed watermain and sanitary sewer connection work will not impact the existing storm sewer and watermain provided the service protection plan is properly completed by the contractor and approved in the field by Paterson at the time of excavation.

### Reinstatement of the Pavement Structure

The reinstatement of the pavement structure should be completed as follows:

- A 300 mm wide section of the existing asphalt surrounding the excavation should be saw-cut from the existing pavement edge to provide a sound surface to abut the proposed reinstated excavated area.
- It is recommended to mill a 300 mm wide and 40 mm deep section of the existing asphalt.
- The new pavement granular base and subbase should be placed in maximum 300 mm thick lifts and compacted to a minimum of 98% of the material's SPMDD.
- If soft spots develop in the subgrade during compaction or due to construction traffic, the affected areas should be excavated and replaced with OPSS Granular A or Granular B Type II material.
- Clean existing granular road subbase materials can be reused upon assessment by the geotechnical consultant at the time of excavation (construction) as to its suitability.
- The minimum requirement for pavement structure for the subject reinstatement is presented in Table 1. Performance Graded (PG) 64-28 asphalt cement should be used for this project.
- A tack coat should be provided between the asphalt lifts to create an adequate bond.
- The above noted program abides with the City of Ottawa Drawing R10 - Standard Road Cut Reinstatement Attached.

<b>Table 1 – Teron Road</b>	
<b>Thickness mm</b>	<b>Material Description</b>
40	<b>Wear Course</b> - HL-3 or Superpave 12.5 Asphaltic Concrete
50	<b>Upper Binder Course</b> - HL-8 or Superpave 19.0 Asphaltic Concrete
50	<b>Lower Binder Course</b> - HL-8 or Superpave 19.0 Asphaltic Concrete
150	<b>BASE</b> - OPSS Granular A Crushed Stone
500	<b>SUBBASE</b> - OPSS Granular B Type II
<b>SUBGRADE</b> - Either in situ soil or OPSS Granular B Type II material placed over in situ soil.	

We trust that the current submission meets your immediate requirements.

Best Regards,

**Paterson Group Inc.**

Maha Saleh, M.A.Sc. P.Eng. (Provisional)



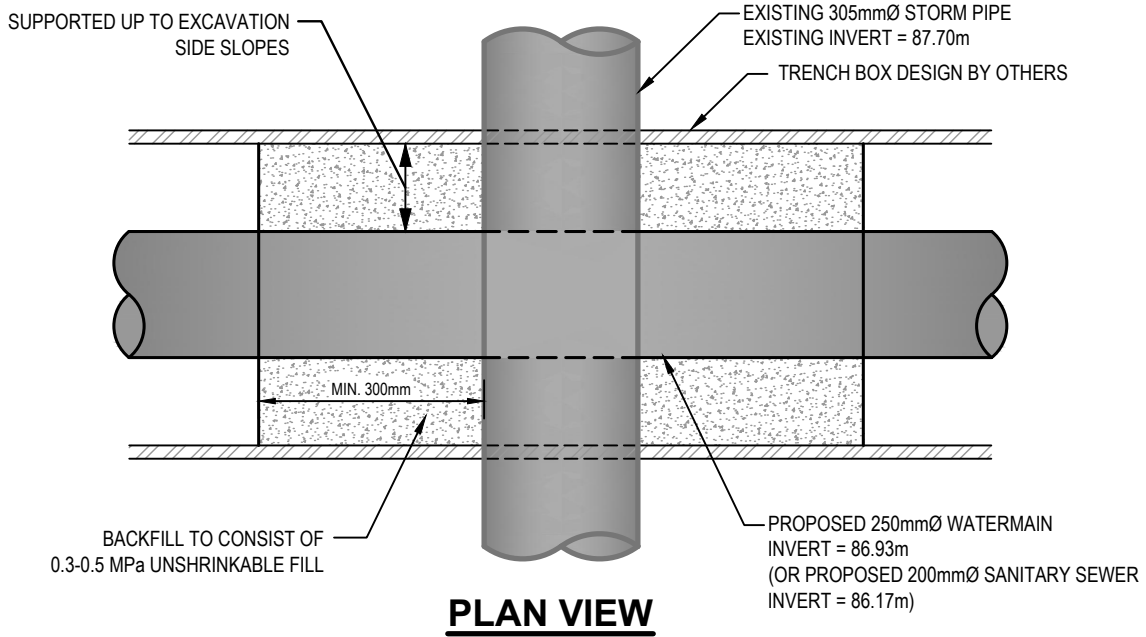
David J. Gilbert, P.Eng

## **Paterson Group Inc.**

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

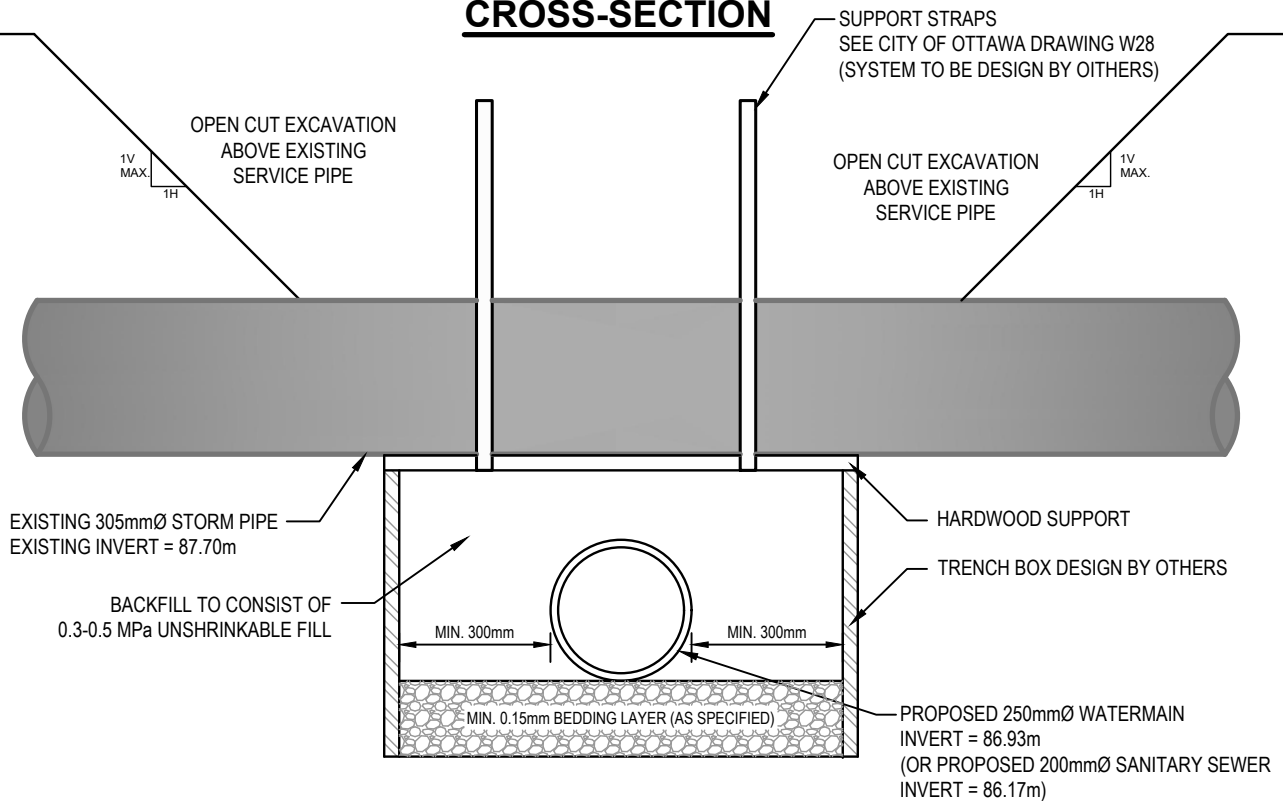
**Ottawa Laboratory**  
28 Concourse Gate  
Ottawa – Ontario – K2E 7T7  
Tel: (613) 226-7381 Fax: (613) 226-6344

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



**PLAN VIEW**

**CROSS-SECTION**



**patersongroup**  
consulting engineers

154 Colonnade Road South  
Ottawa, Ontario K2E 7J5  
Tel: (613) 226-7381 Fax: (613) 226-6344  
www.patersongroup.ca

11073656 CANADA INC.

PROPOSED MIXED-USE DEVELOPMENT  
1131-1151 TERON ROAD  
OTTAWA, ONTARIO

Title:

**SERVICE PROTECTION  
PLAN**

Date:

09/2021

Scale:

N.T.S.

Drawn by:

MPG

Checked by:

NP

Report No.:

PG5283-MEMO.03

Drawing No.:

PG5283-FIG1