

MEMORANDUM



TO:	Christine Yee WO MW Realty Limited	PROJECT NO:	CO1004.02
FROM:	Yacouba Doro Meysam Najari	DATE:	Tuesday, September 29, 2026
RE:	Geotechnical Review of the Impact of the Proposed Service Connections on the Existing Backbone Watermain 3145 Conroy Road, Ottawa, ON		

Further to your request and authorization, Terrapex Environmental Ltd. (Terrapex) has prepared this memo to provide comments on the geotechnical impact of the proposed service connections on the existing backbone watermain.

This memo should be read in conjunction with Terrapex's Geotechnical Assessment Report – Project CO1004.02, dated March 18, 2026.

In preparing this memorandum, Terrapex reviewed the following drawings:

[1] Site Grading, Drainage, Erosion & Sediment Control Plan (Drawing No. C-101), Proposed Office/Industrial Building – 3145 Conroy Road, Ottawa, Ontario – Project No. CO-25-1505, dated June 9, 2026.

[2] Site Servicing Plan (Drawing No. C-102), Proposed Office/Industrial Building – 3145 Conroy Road, Ottawa, Ontario – Project No. CO-25-1505, dated July 29, 2026.

[3] Sanitary Sewer Plan and Profile (Drawing No C103), Proposed Office/Industrial Building – 3145 Conroy Road, Ottawa, Ontario – Project No. CO-25-1505, dated July 29, 2026.

According to [3], we understand that an existing 406 mm backbone watermain runs along Conroy Road. The pipe is a Class 52 ductile iron pipe and has an approximate invert elevation of 82 m where the proposed storm and sanitary laterals will cross the watermain.

According to [2], the proposed sanitary lateral will have a diameter of 200 mm and will be approximately 4 m deep, with an approximate invert elevation of 81 masl, where it connects to a proposed sanitary sewer that will run along Conroy Road.

According to [2], the proposed storm lateral will have a diameter of 750 mm and will be approximately 7 m deep, with an approximate invert elevation of 78 masl, where it connects to the existing 2.25 m-diameter concrete storm sewer that runs along Conroy Road.

According to the geotechnical investigation carried out by Terrapex in support of the sanitary sewer extension along Conroy Road (February 25, 2026), the overburden within the 5 m explored depth of the boreholes along the proposed sanitary sewer extension is generally expected to consist of surficial fill material underlain by soft to stiff silty clay. Based on the borehole investigation carried out within the property boundaries by Pinchin (2024), sand and silty sand till soils are expected to be encountered below the clay layer. These layers were found to extend from 6.1 m to 7.6 m below ground surface to borehole termination depths ranging from 11 m to 12.8 m.

Based on the above, excavation for construction of the proposed service laterals is expected to be carried out in surficial fill soils and native clay/silty clay soils. Sand and silty sand till may also be encountered below the clay/silty clay soils within the presumed excavation depths. Bedrock excavation is not expected to be required.

The proposed lateral watermain connection to the backbone watermain is expected to be installed through open-cut excavation. Given the depth of the backbone watermain, the trench is expected to be approximately 3 m deep. Based on the above, construction of the lateral watermain pipe is not expected to undermine or otherwise negatively impact the backbone watermain.

The construction of the sanitary and storm laterals will require trenching 4 m to 7 m below the existing grade. The trench(es) will be perpendicular to the backbone watermain and will extend approximately 1 m to 3 m below it. Based on the anticipated soil conditions, the excavation is not expected to pose any unusual difficulty in the overburden. Excavation of the overburden materials can be carried out using hydraulic excavators. Bedrock is not expected to be encountered within the presumed excavation depths. Since the backbone watermain will be exposed during trenching and backfilling, it is recommended that the exposed portion of the watermain be supported to avoid bending of the pipe under its own weight. The Contractor shall provide the means and methods to support the exposed pipe. A common method is to place a steel beam on the surface grade and brace the pipe to the beam. Backfilling of the trench within the road should be carried out in accordance with City of Ottawa requirements. The Contractor may backfill the trench with imported Granular B material compacted to at least 98% of the material's SPMDD. However, since it is not feasible to compact the fill beneath the backbone watermain, U-fill should be used to backfill the trench in the vicinity of the watermain up to at least the invert elevation of the watermain.

The trench excavation should be carried out in accordance with the OHSA. Trenches are expected to be excavated using vertical cuts supported by temporary shoring, such as trench boxes, to support the excavation sidewalls and any surcharge loads that may be applied during construction. Ground loss, ravelling, and/or loosening of soil may occur when using a trench box before its installation and while moving the box. To minimize the risk of trench sidewall collapse, caving, and significant undermining of the excavation, trench boxes should be installed expediently, and excavation should be carried out inside the box as the trench box is lowered.

Since rock excavation and blasting are not required, construction-induced vibration is not expected to have a negative impact on the backbone watermain and as such vibration monitoring is not required.

A limited settlement monitoring program is recommended and should include monitoring the horizontal and vertical movement of the exposed backbone watermain. It is recommended that at least five settlement monitoring targets be installed on the side of the watermain at equal spacing along the pipe and monitored daily while the pipe is exposed. The baseline reading should be taken when the trench excavation reaches the invert elevation of the watermain. The maximum allowable settlement should be limited to 5 mm. As such, a review limit of 3 mm and an alert limit of 5 mm are recommended. Once settlement reaches 3 mm, construction should be paused to assess the site conditions and modify the construction method, as necessary, to minimize further settlement. Once settlement reaches 5 mm, construction should be stopped for investigation and implementation of appropriate remedial measures.

The proposed sanitary sewer extension that runs along Conroy Street and parallel to the backbone watermain will have a minimum distance of 3.9 m to the watermain and will be approximately 1 m deeper than the watermain. The lateral distance between the two pipes will increase to approximately 11 m at the intersection of Conroy Road and Johnson Road. Based on the above, trench excavation for the construction of the sanitary sewer extension between the proposed MH1 and MH3 is not expected to undermine the backbone watermain.

Groundwater ingress from the clay/silty clay deposit is expected to be minimal and can be managed by passive pumping of water from filtered sumps. However, if non-cohesive deposits are encountered within the presumed excavation depths, active dewatering should be implemented to lower the groundwater level to at least 1 m below the base of the excavation to avoid base instability and flowing soil conditions.

Based on the above, provided that the trench walls are tightly supported to avoid caving and ground loss, and appropriate dewatering measures are implemented, the impact of the proposed trenching and backfilling on the backbone watermain is expected to be negligible.

Terrapex hereby authorizes WO MW Realty Ltd. to rely on the report listed above to the same extent and with the same effect, subject to the same limitations as the party for whom the report was prepared. Please be advised that the findings and conclusions presented in the report pertain strictly to the conditions at the time the work was reviewed by Terrapex. Please also note that the report is intended to be used in its entirety, and no excerpts may be taken as representative of the findings.

We trust this letter meets your requirements. Should you have any questions regarding the above, please contact our office.

Respectfully submitted,
TERRAPEX ENVIRONMENTAL LTD.



Meysam Najari, PhD., P.Eng.
Vice President, Geotechnical Services