

705 Kingston Road Ltd  
22 St. Clair Avenue East, Suite 1203  
Toronto, ON M4T 2S5

File No. 23-197  
October 25, 2024

Attention: Tom Bosnjak

**Subject: Hydrogeological Engineering Addendum Letter  
705 Kingston Road, Pickering, Ontario**

Grounded Engineering Inc. (Grounded) was retained to provide hydrogeological engineering advice for the site known as 705 Kingston Road, Pickering, Ontario. A Hydrogeological Review Report was prepared by Grounded and issued on October 24, 2024. This letter must be read in conjunction with the original report. The information in this letter does not necessarily replace that which already exists in the original report but serves to supplement it as necessary.

Per Grounded's Hydrogeological Report, available source water protection mapping indicates that the northern portion of the Property lies within a Highly Vulnerable Aquifer (score of 6) according to the TRCA and City of Pickering Official Plan (see Figure 1). The majority of the site does not fall within this HVA designation.

Highly Vulnerable Aquifers are characterized by higher permeability soils which allow for a relatively fast path for water to migrate from ground surface down to the underlying aquifer. As such, the faster the water is able to flow through the ground to an aquifer, the more vulnerable the area is to contamination.

Based on the subsurface investigations completed at the Property, the underlying soils observed at the site are not consistent with those typically found in HVA areas. From the boreholes advanced at the Property by Grounded and other consultants, and specifically the boreholes within the area designated as an HVA (CMB-BH103-21, BH104-S/D, BH106, CMB-BH104-21), the native soils at the site consist of a cohesionless sandy silt till, underlain by a cohesive deposit of clayey silt till (please refer to Section 2.9 of Grounded's Hydrogeological Report). Via in situ permeability testing (single well response tests) and grain size analyses performed on the soils and monitoring wells installed at the Property, the site soils were determined to be of moderate to low permeability with hydraulic conductivities ranging from  $1 \times 10^{-7}$  to  $1 \times 10^{-9}$  m/s. As such, the site soils are not considered to be significant in terms of groundwater recharge and will typically preclude the flow of groundwater.

The prevailing groundwater table at the site generally follows the site topography and slopes from Elev.  $103 \pm$  m at the west end of the site, to approximately Elev.  $96 \pm$  m at the east end of the site. The general direction of groundwater flow is to the east, which is consistent with local drainage patterns which run towards the nearest body of water, Amberlea Creek, located approximately 160 m northeast of the Property.

The proposed development will extend below the groundwater table and dewatering of the soils will be required in the short-term during construction. Dewatering of the soils will occur in the long-term as well as groundwater makes its way into the building's perimeter and sub-floor drainage system. Due to the low



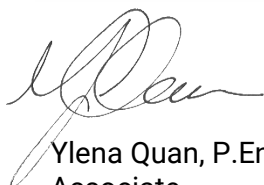
permeability nature of the soils, a minimal zone of influence with respect to groundwater will be generated during dewatering, as estimated in Section 3.5 of Grounded's Hydrogeological Report. However, given the soil's low permeability, large volumes of groundwater seepage are not anticipated, and dewatering of the soils are not expected to generate any long-term affects on the quantity of the underlying aquifer.

A Phase Two ESA has been prepared for the site (under a separate cover) and a Record of Site Condition has been filed (RSC#B-403-8290591592) and acknowledged by the MECP. The soil and groundwater at the site meets the applicable Site Condition Standards. The future use of the Property, as commercial and residential, is not anticipated to generate impacts to the soil or groundwater at the site.

Furthermore, given the low permeability nature of the underlying soils and the minimal ZOI generated during dewatering activities, the migration of potential contaminants from off-site is not anticipated.

The aquifer's vulnerability to contamination should be considered low given the low permeability nature of the site soils, the minimal ZOI generated, the current environmental condition of the soil and groundwater (as supported by the RSC), and the future low-risk use of the Property for commercial and residential purposes.

This letter has been prepared for the use of 705 Kingston Road Ltd and their retained design team. We trust that the information contained in this letter is sufficient for your present requirements. If we can be of further assistance, please do not hesitate to contact us.



Ylena Quan, P.Eng., QP<sub>ESA</sub>  
Associate



Matthew Bielaski, P.Eng., QP<sub>RA-ESA</sub>  
Principal

Enclosures

Figure 1 – Borehole and Monitoring Well Locations Plan – Existing Conditions

# ENCLOSURES





**GROUND**  
ENGINEERING

1 BANIGAN DRIVE, TORONTO, ONT., M4H 1G3  
www.groundedeng.ca

**LEGEND**

- APPROXIMATE PROPERTY BOUNDARY
- EXISTING BUILDING STRUCTURE BY GROUNDED
- MONITORING WELL/BOREHOLE BY GROUNDED
- MONITORING WELL/BOREHOLE DECOMMISSIONED DUE TO METHANE
- MONITORING WELL/BOREHOLE BY OTHERS
- GRAB SAMPLE LOCATION BY GROUNDED
- APPROX. EXTENT OF HIGHLY VULNERABLE AQUIFER (HVA)

Reference  
 Survey Drawing no. 220-0094  
 Prepared by SPEIGHT, VAN NOSTRAND & GIBSON LIMITED.  
 Date not listed.  
 Received - July 27, 2023

Source Water Protection Atlas. Ministry of Environment, Conservation, and Parks (MECP).

Project

**705 KINGSTON RD,  
PICKERING, ONTARIO**

Figure Title

**BOREHOLE AND MONITORING  
WELL LOCATIONS PLAN -  
EXISTING CONDITIONS**

North



Date

OCTOBER 2024

Scale

AS INDICATED

Job No

23-197

Figure No

**FIGURE 2**

