



Hydrogeological Assessment

PRELIMINARY REPORT

Elite Bradley Developments Inc.

Project Name:

1944 Bradley Avenue
London, Ontario

Project Number:

KCH-22020173-A0

Prepared By:

EXP Services Inc.
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Date Submitted:

October 31, 2022

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Date Submitted:

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Executive Summary

EXP Services Inc. (EXP) was retained by **Elite Bradley Developments Inc.** to conduct a hydrogeological assessment relating to the proposed development to be located at 1944 Bradley Avenue in London Ontario, hereinafter referred to as the 'Site'. The Site has been separated into two parcels, designated as the 'North Parcel' and 'South Parcel', separated by a hydro-corridor transecting the Site. It is understood that the North Parcel will be developed first with development of the South Parcel to occur in the future. This hydrogeological investigation report is to support the Draft Plan Approval Application for the North Parcel only as additional investigations will be required for the South Parcel.

The objective of the hydrogeological assessment was to examine the hydrogeological characteristics of the Site, with emphasis on the North Parcel, by reviewing the Ministry of the Environment, Conservation and Parks (MECP) Water Well Records (WWR), reviewing the soils and groundwater information provided from a series of sampled boreholes and monitoring wells in the north portion of the Site, compiling a feature-based water balance, completing monthly groundwater monitoring for a period of twelve (12) months to assess seasonal fluctuations, and assessing the natural heritage features on the property. It is understood that the hydrogeological assessment will be submitted for review and approval by the City of London and the Upper Thames River Conservation Authority (UTRCA).

Based on the results of the hydrogeological assessment, the following preliminary findings are presented:

- The Site is located in the Dingman Creek sub-watershed. Map 5 (Natural Heritage) of the London Official Plan shows the northern portion of the property is located within the boundaries of the Meadowlilly Woods Provincially Significant Wetland (PSW) and a significant woodland;
- Regulated Lands of the UTRCA are located within the northern portion of the Site, associated with the Meadowlilly Woods PSW, and the southwestern corner of the Site, associated with the Hampton-Scott municipal drain located approximately 42 m southwest of the Site;
- The Meadowlilly Woods PSW is situated at a topographic high associated with the Ingersoll Moraine (UTRCA, 2005). Surface water runoff on Site is expected follow topography, flowing primarily from the PSW in the northern portion of the Site to the west and southwest toward the Hampton-Scott Municipal Drain. There is little to no surface runoff flowing from the proposed development area towards the PSW.
- The agricultural field on Site is primarily tile drained flowing west of the Site towards the Hampton-Scott Drain which is a recently reconstructed storm water drain;
- The shallow stratigraphy at the Site is relatively homogenous comprised predominantly of clayey silt till;
- Due to low permeability soils (clayey silt till), the monitoring wells were still recovering at the time of writing this report. Further discussion of groundwater levels on Site will be provided in the final hydrogeology report once the monitoring program is completed;
- The southern portion of the Site is mapped as a significant groundwater recharge area and a highly vulnerable aquifer;

- Based on the MECP WWR, there are no water supply wells within a 500 m radius of the Site that are installed into the shallow overburden (<10 m below ground surface);
- A total of three (3) grain size analyses were completed on samples of the clayey silt till. The hydraulic conductivity was up to 10^{-9} m/s for the saturated clayey silt till. Results of the single well response tests (SWRT) will be provided in the final report;
- The monitoring wells on Site will be maintained for the duration of the study. When the wells are no longer required, they should be decommissioned in accordance with O. Reg. 903;
- Short term impacts to the shallow groundwater may occur during construction, where excavations crossing the shallow groundwater require construction dewatering; and,
- A water balance assessment and construction dewatering considerations will be provided in the final report.

Groundwater elevation and water quality monitoring is on-going with additional hydrogeological interpretation to follow once the monitoring program is complete, estimated to be September 2023.