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## What is it?

A Hydrogeological Report is a document that compiles a review of the subsurface hydrologic and geologic conditions in a study area to determine the quality and quantity of groundwater that may have an impact on a proposed development. These conditions may necessitate a temporary discharge to City or Region sewers during construction and/or mitigation measures in order to redirect any permanent groundwater flow affecting proper drainage around building foundations.

## Who prepares it?

A Hydrogeological Report must be prepared by qualified Hydrogeologists or Geoscientists with a Professional Engineer (P. Eng.) or Professional Geoscientist (P. Geo.) designation. The report must be stamped, dated and signed by the respective professional.

## Why is it required?

The Hydrogeological Report is required to assess groundwater conditions on a property to determine foundation construction and both temporary and permanent drainage requirements for development or redevelopment on a property, as well as identify the need for groundwater quality control measures.

## When is it required?

A Hydrogeological Report may be required in support of the following development application types:

- Consent to Sever
- Official Plan Amendment
- Plan of Subdivision
- Site Plan Control
- Zoning By-law Amendment

## How to prepare it

A Hydrogeological Report should include (but is not limited to) the following:

### INTRODUCTION and DESCRIPTION

- Description of the subject site and the proposed development including a context map;
- Outline of the scope of work;
- Description of the Hydrogeological guidelines/standards applied;
- The study area shall encompass, at minimum, the land area covering the largest possible zone of influence that could result from the proposed groundwater taking (where applicable);
- Proposed number of building structures;
- Proposed sub-grade depth of the development and sub-surface structure area;
- Land use classification of proposed building(s) (commercial, residential, etc.);

- Characterization of the hydrogeological and geological setting of the land area (description of the local and regional physiographic features, groundwater flow direction, seasonal water table elevations, etc.);
- Static water level analysis at installed groundwater monitoring wells (minimum of 3 wells) collected over a minimum period of 3 months for a minimum 3 measurements on a monthly basis;
- Pump test/drawdown analysis;
- Study Area Map showing locations of all identified on-site and off-site wells, boreholes, buildings, property boundaries, watercourses and drainage features within the study area;
- Hydrogeological cross-sections with geological strata, borehole locations and water level measurements; and,
- Delineation of any land that is part of the study, the boundaries of the development property, including any land to be dedicated to the City of Mississauga.

#### INVESTIGATION METHODS

- Installation of boreholes, monitoring wells and/or test pits (including rationale for the number and placement of test locations); a minimum of three (3) monitoring wells is normally required to determine groundwater flow direction, however, a qualified person may provide a rationale to justify the use of a fewer number of wells due to site constraints and use other available information sources to assess estimated groundwater flow direction in the area;
- Visual observation of subsurface conditions including soil and groundwater conditions to describe the soil classification layers identified in the boreholes and test pits, and the groundwater conditions found on site;
- Groundwater pumping tests and/or slug tests to determine hydraulic conductivity and transmissivity characteristics of aquifer(s); and,
- Groundwater quality laboratory test results (e.g., inorganic parameters, dissolved and total metals, SAR/EC, etc.); if dewatering discharge of groundwater to the City's storm sewers is proposed, water quality analyses must include and be compared to all chemical parameters listed in the City's Storm Sewer Use By-law 0046-2022.

#### CONCLUSIONS and RECOMMENDATIONS

Based on the findings, the report is to provide conclusions regarding the groundwater conditions on the property and provide recommendations including, but not limited to:

- Groundwater flow paths;
- General ground water quality;
- Construction dewatering requirements;
- Permanent groundwater discharge requirements for basement/foundation drainage;
- Groundwater control measures;
- Seasonal high groundwater table (temporary or permanent dewatering); and,
- Permits/approvals required to meet compliance with applicable provincial legislation, such as a Permit to Take Water (PTTW) and registration on the Environmental Activity and Sector Registry (EASR).

#### APPENDICES

- Figures and illustrations: Site Plan, Borehole Location Plan/Map, cross-section drawings;
- Borehole and test pit logs;
- Monitoring well construction logs;
- Groundwater elevation data; and,
- Lab test data.

Terms of Reference  
**Hydrogeological  
Report**



**City of Mississauga**  
Transportation & Works Department  
Infrastructure Planning & Engineering Services Division  
[www.mississauga.ca](http://www.mississauga.ca)

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## **Additional Information**

- The consulting firm will be responsible for obtaining the locations of all underground utilities prior to any subsurface investigation.
- The Report must be accompanied by a clause or separate letter that authorizes the City of Mississauga to make reliance of the findings and recommendations within the report in accordance with the City's approved reliance letter template, which can be found in the [Transportation and Works Development Requirements Manual, Section 5, Appendix 1](#).