

What is it?

A Geotechnical Report is a document that compiles the results of surface and sub-surface investigation, soil sampling, and laboratory analysis to obtain information such as soil characteristics (including bedrock), ground water to determine the soil characteristics and/or load bearing capacity based on in-situ conditions. The report shall provide recommendations for construction including but not limited to earthworks, drainage works, landscaping, sewers and other below grade utilities, road and pavement design to ensure that works constructed by others are built to City and other applicable Standards.

Who prepares it?

A Geotechnical Report is required to be prepared by a licenced Civil or Geotechnical Professional Engineer or Licenced Geologist with a Professional Engineer (P. Eng.) or Professional Geoscientist (P. Geo.) designation, licenced in Ontario. The report must be stamped, dated and signed by the respective licenced professional qualified to complete such work.

When is it required?

A Geotechnical Report **may** be required in support of an Official Plan Amendment, Rezoning, Draft Plan of Subdivision / Condominium, Site Plan Control, and/or Consent to Sever development application. A geotechnical report may also be required or requested whenever underground works are proposed within the City's Right-of-way.

How to prepare it?

A Geotechnical Report should include, but not be limited to the following:

INTRODUCTION and DESCRIPTION

- Description of the subject site and the proposed development including a context map of the site;
- Description of geotechnical and/or engineering guidelines/standards applied;
- Delineation of any land that is part of the study, including any land to be dedicated to the City of Mississauga
- The Report shall be accompanied by a clause or separate letter that authorizes the City of Mississauga to make reliance on the report.

INVESTIGATION METHODS

- Installation of Boreholes, monitoring wells and/or test pits (including rationale for the number and placement of test locations)
- Visual observation of subsurface findings including soil and groundwater conditions;
 - To describe the soil characteristics, classification by their respective layers identified in the boreholes and/or test pits
 - To describe the groundwater conditions found on site;
- Geotechnical Laboratory Test Results (e.g., sieve analysis, standard penetration test, Atterberg limits, load bearing ratio, direct shear test, hydrometer, compaction test, etc.).

RECOMMENDATIONS and CONCLUSIONS

Based on the findings, provide applicable recommendations on (but not limited) the following based on the appropriate City and OPSS Standards:

- Soil Management - Cut and Fill, Sewer bedding and backfill
- Sewer Frost protection
- Pipe Bedding and Cover material
- Road pavement design
- Slope stability recommendations may include erosion protection, berm construction materials and compaction
- Bedrock characteristic (elevation and hardness) if encountered
- Ground water level and dewatering (temporary or permanent)
- Shoring Design considerations

Appendices

- Figures and illustrations: Site plan, borehole location plan/map, cross-section drawings
- Borehole and/or test pit logs
- Monitoring well construction logs
- Groundwater elevation data
- Lab test results

Additional Considerations

Soil testing shall be carried out for road and other construction (i.e. retaining walls) on current or future City-owned property.

- Obtaining the locates and clearances of all underground utilities prior to any subsurface investigation
- Additional studies such as Slope Stability studies or investigations may be required if the proposed work involves or is influenced by the existing presence or proposed construction of a slope or watercourse
- Environmental assessment of the soil based on past and current use of the land based on lab testing
- Test pits or boreholes are required in the location of all storm water management BMPs including low-impact development. The following testing and discussion of the results should be included when applicable:
 - Infiltration testing (to obtain soil infiltration, percolation, or permeability rates), seasonal groundwater level, and depth to bedrock (if applicable).
 - Discussion of the field results and their impact on proposed BMPs.