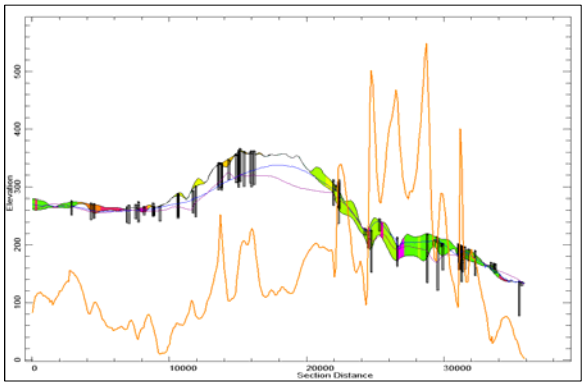
Project GROUNDWATER VULNERABILITY MAPPING – OAK RIDGES MORAINE

Client Ontario Ministry of the Environment (MOE)

Objectives

- Develop a defensible groundwater vulnerability mapping method for the Oak Ridges Moraine



Outcomes

- A defensible vulnerability map for policy development
- A comprehensive and automated vulnerability mapping method
- The method was used by the MOE in subsequent Terms of Reference documents for groundwater mapping across the province.

Key Aspects

- The method is based on merging MOE well logs and surficial geology maps
- Sophisticated logic was used to identify the primary aquifer at each well and the confined/unconfined condition of the aquifer

Project Description

The Oak Ridges Moraine is a geological complex that is hydrogeologically important from both a development and ecosystem perspective. To support revisions to the land-use planning policy, EarthFX was retained by the MOE to develop a groundwater-vulnerability mapping system that is appropriate for the conditions on the moraine. A review of current methods narrowed the assessment to DRASTIC, the method used by Holysh in the Grand River Conservation Authority, and an Aquifer Vulnerability Index (AVI) method optimized by the MOE. The three methods were compared over a section of the moraine, and a final method was selected based on the AVI and Holysh mehods.