

Geotechnical Investigations for Toronto's Eglinton West Subway Project

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Abstract:

Geotechnical investigations carried out for Toronto's planned Eglinton West Subway project are described in this paper. The 4.7 km long Eglinton Subway project included five stations, three cross-over track structures, two "we" connection tracks, 3.6 km of twin bored tunnels, and four tunnelled cross passages. The results of the investigations, particularly in relation to bored tunnelling, are discussed. The stratigraphy, consisting predominantly of glacially derived soils, is presented. Hydrogeological conditions were complex, with artesian conditions in the river valley and multiple aquifers with downward seepage in the higher areas. The results of some of the in-situ and laboratory tests are summarized, with a discussion of the effect of these on design. Soil and groundwater management strategy, and the chemical testing used to develop this strategy is discussed. A brief comparison is made between the planned and actual investigations, with a review of why changes were made.

Keywords: Phased Site Investigations; Drilling, Sampling, and Testing; Quaternary soil deposits; Ordovician Georgian Bay Formation shale; limestone and siltstone; Hydrogeology; Cohesive Soils; Granular Soils; Mixed Ground Conditions; Artesian Conditions.