

GO Rail Network Electrification Transit Project Assessment Process

Study Summary: Preliminary Stormwater Management Assessment (Appendix K)

Scope of the Study

The Study Area for the preliminary Stormwater Management Assessment includes the proposed locations for the Tap and Traction Power Facilities.

A Preliminary Stormwater Management Assessment was undertaken for the GO Rail Network Electrification Project for all Tap locations and Traction Power Facility (TPF) sites. Information collected on each Tap/TPF site included but was not limited to: existing drainage pattern, drainage features inside or in the vicinity of the site area and potential outfall locations for the site runoff. An initial assessment of potential impacts related to building Tap/TPF infrastructure on each site was completed and recommendations for future study/work proposed.

Approach/Methodology

A Baseline Drainage Condition Assessment was undertaken for the property parcel associated with each of Tap/TPF sites, utilizing information from field investigations and from background information collection/review. The Baseline Drainage Condition assessment provided information regarding existing drainage pattern, existing drainage features, potential outfall locations for the minor and major flows from the site area, footprint area for future building and equipment area, existing land use, estimated runoff coefficient and soil type. Conservation Authorities were contacted to determine if any of the proposed TPF sites are within regulated areas.

The proposed footprint for the TPF electrical equipment and percentage of imperviousness area was determined for each site. As the area for the development sites is small, flows for the existing and the proposed conditions were established and increase in flow value was determined, to assess the requirements for mitigation measures.

Summary of Impact Assessment Results

A Baseline Drainage Condition Assessment was done for the property parcel of each Tap/TPF site, utilizing information from field investigations and from the background information review. Baseline Drainage Condition assessment provided information regarding existing drainage pattern, existing drainage features, potential outfall locations for the minor and major flows from the site area, footprint area for future building and equipment area (including proposed access roads), existing land use, estimated runoff coefficient and soil type. Conservation Authorities were contacted to determine if any of the proposed Tap/TPF sites are within the regulated areas. Detailed Stormwater Management Plans/Designs will be developed during detailed design in consultation with Conservation Authorities and other applicable review agencies, as appropriate.

Proposed footprints for the Tap/TPF electrical equipment and percent imperviousness were determined for each site. As the development areas for the proposed Tap/TPF infrastructure are relatively small, Rational Formula was utilized to compute flows for the existing and the proposed conditions, and increase in flow value was determined. Following this, mitigation measures and future work were identified and documented as appropriate.

For additional more detailed information, please refer to the Preliminary Stormwater Assessment Report (which is organized by rail corridor for easy reference) contained in Appendix K.

Mitigation Recommendations

Mitigation measures were proposed for each site for peak shaving (i.e., Controlling post development peak discharge rate to pre development level by providing temporary detention in a stormwater management facility such as a detention pond where water is held for some time to release slowly at pre development level), runoff quality enhancement (removal of harmful components from stormwater such as nutrients, sediment, hydrocarbons and suspended solids) and for the water balance (it is important to maintain the natural hydrological cycle as much as possible and to reduce the potential

for flooding and erosion. This is achieved by maintaining pre-development condition by infiltrating on-site a certain amount of runoff).

In general, these targets were met by infiltration in vegetated ditches and bio-swales.

Furthermore, additional studies/work will be carried out by Metrolinx during detailed design with respect to stormwater management as outlined below.

Next Steps/Future Work

The following additional studies/work will be carried out by Metrolinx during detailed design and future project phases with respect to stormwater management:

- A detailed stormwater management plan/design will be completed based on final site configurations, survey and municipal data, and will address: quantity control, erosion control, and quality control. Specifically:
 - A more detailed analysis for the quantity, quality, erosion control and water balance will be required at the detailed design stage.
 - The proposed development areas and their locations used in the preliminary SWM assessment were based on conceptual design; therefore reassessment of the drainage areas will be required at the subsequent detailed design stage.
- The stormwater management plan/design will be developed in consultation with Conservation Authorities, municipalities, and other applicable review agencies, as appropriate.
- Implement the final stormwater management plan/design prior to commencing operation of the GO Rail Network Electrification project.