

Hydrogeological Desktop Study – Sunningdale Court (Corlon Properties Inc.)

Dated February 8, 2018 and received at EEPAC April 27, 2018

Reviewer: I. Whiteside and B. Krichker

The main issues identified in this report were as follows:

1. Quantification of flows to Medway Creek during a Major and Minor Storm event.
2. Long term efficacy of LID measures used to increase infiltration/ reduce overland flow to Medway Creek.

Theme #1 – Flows to Medway Creek

The water balance presented in the report calculates that the run-off to Medway Creek (including run-off via the Wonderland Tributary, which drains directly into Medway Creek) will increase by ~25% if LID measures are implemented (from the existing 39,522 m³/yr to 49,355 m³/yr), and by 208% (to 82,257 m³/yr). While the report highlights that the overall flow volumes are small relative to Medway Creeks overall (less than 0.01% with LID measures implemented), the increase in percentage terms is substantial. That said, our chief concern is that the report presents these as annual average increases in run-off, but does not indicate what will happen during major and minor flows; run-off from the subdivision will mostly occur during storm events, and the report does not evaluate the impact of elevated storm water run-off on Medway Creek as a result of these storm events. Our concern is that this increase in run-off could have an adverse impact on the creek via increased erosion (resulting in increased sediment flow) and water quality (flows above a certain level will bypass the oil-grit separator).

Recommendation:

Evaluate the impact from increase in surface water flow from the site to Medway Creek/ Wonderland Tributary during major and minor flow events. If the evaluation fails to demonstrate that overall water quality in Medway Creek will be improved or at minimum maintained to pre-development conditions, additional mitigation measures should be considered.

Theme #2 – Long Term Efficacy of LID Measures

The water balance management strategy is also predicated on the successful implementation of LID measures that are reliant on the eventual home owner of the site maintaining them. Given the low permeability of the underlying soils, these LID measures are critical to stormwater retention and thus, reducing peak flows to Medway Creek. Our concern is that the eventual homeowner may lack the desire or skill in maintain the LID measures (e.g. rain barrels, downspouts directed to swales, etc), and as such, run-off to Medway Creek (and the Woodland Tributary) may increase over time as the efficacy of the LID measures wane.

Recommendation:

Evaluate the use of LID measures on public property that can more easily be maintained in the longer term to ensure that their function is maintained.