

EEPAC Review of:

Thames Village Joint Venture Hydrology and Water Balance Report

Located at Hamilton Road and Commissioners

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The usual pro-forma report with no attempt to identify or assess site specific conditions. Although deep and intermediate (main) aquifers are deep, the static water levels are within the domain of expected site excavation. Some leakage (and possibly a lot) could occur up from the aquifer into the storm drains.

The reported "minimal impact expected on the Thames River" (5.2) is gratuitous, given the size of the site and the magnitude of the Thames River catchment and flows. However, the local ravines and streams (a number of which surround and pass through the site) gain their base flow from the local aquifers, with the shallow aquifer being the likely dominant source. There is likely to be a substantial reduction in this base flow component in response to reduced infiltration and enhanced drainage of the site. This will have a significant impact on the stream ecology.

In addition, the significant increase in surface runoff post-development will likely carry water of poor quality and at warm temperature, plus increase erosion. This will certainly impact the streams having a cold water thermal regime, plus the riffle habitat at the confluence with the river could be destroyed with a change in volume flow and increased sediment flux.

RECOMMENDATION: All measures should be taken to decrease the potential for substantial runoff and increased sediment, and to promote infiltration wherever possible.

RECOMMENDATION: Impact on base flows must be minimized.

Most of the site is located in a significant groundwater recharge area and identified as a highly vulnerable aquifer (p. 8-9). The shallow aquifer encountered in test boreholes is well within range of excavation and sanitary sewers. The groundwater will drain through these and lower the shallow water level. What is the anticipated impact of this drainage, given that reduced infiltration is predicted?

The shallow (and likely intermediate and possibly deep) aquifer presumably discharge locally. The potentiometric surfaces/water tables of these aquifer should be mapped using available MOECC water well data which is reported but not analysed in the report. From this map the likely groundwater flow directions, gradients and rates can be estimated, highlighting surface sites where groundwater discharge is significant. How much water will drain in each tributary? What impacts will the construction and post-construction have on these

tributaries? Dewatering is likely to have an impact on the tributaries, since water will be diverted to sanitary sewer.

RECOMMENDATION: The report be considered incomplete until the impact of a lower shallow water level on the wetlands is determined. There must be no negative impact on the feature or their function.

RECOMMENDATION: Groundwater flow directions, gradients and rates should be estimated.

RECOMMENDATION: Salt for winter road maintenance should not be used at all.

RECOMMENDATION: Construction and post construction impacts of the subdivision and the SWM facility must demonstrate no negative impact on tributary functions or on the wetland features and functions.

RECOMMENDATION: An assessment under the Ontario Wetland Evaluation System be undertaken to determine if these wetlands are Provincial Significant or complexed as part of the Provincially Significant wetlands to the west.

MISCELLANEOUS

Table 1 data units are in feet, but data in text expressed in meters. Best to keep to same units for better comprehension.

The fact that "there are no known groundwater contaminant plumes on the subject site" (5.4) is probably because no water quality samples were taken or observations made. Rejection of a risk in the absence of any reported investigation is dubious practice.