April 23, 2015 LON-00010606-GE

Thames Village Joint Venture Ltd.
598 Upper Queen Street
London, Ontario
N6C 3T9

Re: **Response to EEPAC, Dr. C. Smart Comments**
Old Victoria East Subdivision
London, Ontario

Following the meeting at City Hall on April 14, 2015, and the circulation of the EEPAC comments which included comments provided by Dr. C. Smart, please find the following comments below for circulation to the approval authorities.

1. **Cartographic convention has not been followed, so a number of the maps and figures lack registration, scale and orientation or an adequate legend. This makes comprehension and interpretation difficult at times. Casual reference to locations makes it impossible to follow the analysis at times. For example "the Cline Residence", the "hydro corridor" and "1742 Hamilton Road" are not a standard geodetic expressions. Two boreholes were not identified on any map, so lack validity. (One may have been overwritten by the legend.)**

Response:

- Drawings are all named and show directionality (where appropriate), as well as scale. This information is provided in the titleblock of each drawing. A legend is present, where appropriate – and is in fact, referenced in the latter part of the above comment.

- For items which are referred to as 'Casual references' – these references are based on actual site characterization and site features. The municipal address (1742 Hamilton Road), existing residence (Cline Residence) and Hydro Corridor are all features which are present onsite, and referenced in various studies for the site, including the Geotechnical Investigation, Hydrogeological Assessment and Natural Heritage Report.

- Geodetic elevations are used for ground surface elevations at the borehole locations.

- Boreholes which are relevant to our analyses are included on the mapping. Boreholes which are excluded from the mapping are expected to provide redundant or unrelated information for the purposes of the analyses.

2. **Although the slope profiles have a brief field documentation, the analysis was performed using topographic data. The origin, reliability and resolution of these data is not specified. "Top of slope" is the key datum from which all offsets and profiles are defined. How is this line defined in uneven terrain? There is no indication of quantitative field verification of profiles, not surprising as the site was snow-covered in all the photographs; a condition unsuitable for assessment. A number of the sections show a convex lower profile that might indicate slope failure. There are indication of fairly massive slope failure along this section of the South Thames River, so this is not a trivial concern. The activity and risk of stream undercutting and incision is not investigated, instead an arbitrary set-back is provided. These streams can rapidly shift and incise, particular during development, so this is of concern.**

Response

- Section 2.3 provides specific reference to the source of the topographic data.

- Top of slope is defined in accordance with the MNR Guidelines – this is industry standard practice.

- Although the February 2013 photos show snow covered conditions, exp/Trow involvement at this site dates back to 2004. We have over 10 years of site review and data collection behind our engineering review and recommendations. The February 2013 photos were the most recent photographic record of the site conditions on file.

- A convex geometry is not a reliable means of determining slope failure. More often, it can be a simplistic indicator of surface erosion. Surface erosion is discussed within the report.

- The implied presence of a massive slope failure along the Thames River is not supported by the site reconnaissance information which has been collected by exp. Site reconnaissance work by exp has been carried out during various visits to the site over the past 10 years, and has been conducted by experienced and qualified technical field staff and project engineers.

- Toe erosion setback is not arbitrary. Determining the toe erosion setback involves having regard for the MNR guidelines, geotechnical review, erodibility factors and other site specific characteristics.

- Our analyses considers a 100-year planning time frame, and includes consideration for changes in water level and levels of saturation within the subgrade soils which can be reasonably anticipated as a result of the proposed site development. This analyses has been subsequently followed up with a water balance assessment which also looks at variations in pre-development and post-development infiltration rates.

3. **There is no tabulation of fundamental borehole data; i.e. easting, northing, surface elevation and water level. It is not clear why accurate field elevations were not determined. Astonishingly, many of the borehole reports lack water levels. A coherent analysis of the risk of saturation is not undertaken. A constructed storm water pond on these sites is likely to be challenging to seal and so may substantially alter groundwater patterns and increase risk of slope failure and erosion.**

Response:

- Borehole locations are shown on site plans, and were located with reference and measurements to existing site features. Summary of UTM coordinates has been provided below, to supplement the available information:

Boreholes Drilled 2012

Borehole	Zone	Easting	Northing
BH1	17 T	488426	4757123
BH2	17 T	488213	4757236
BH3	17 T	487955	4756865
BH4	17 T	488032	4756766

Boreholes Drilled 2007

Borehole	Zone	Easting	Northing
BH201	17 T	488227	4757507
BH202	17 T	488185	4757462
BH203	17 T	488388	4757433
BH204	17 T	488430	4757372

Boreholes Drilled 2006

Borehole	Zone	Easting	Northing
BH101	17 T	488367	4757420
BH102	17 T	488162	4757365
BH103	17 T	488223	4757151
BH104	17 T	488479	4757073

- Ground surface elevations and water levels (where present) are provided on the borehole logs. Field elevations have been verified through topographic survey – the statement that they are not accurate is not correct.

- Water levels are provided on the borehole logs, and tabulated in Section 3.3.

- Section 4.3 references variation in groundwater conditions being taken into consideration in our analyses

4. **The credibility of the slope analysis is compromised as drawings 8,10 and 11 appear identical, as do figures 7 and 9.**

Response:

- All cross sections are based on the topographic survey data provided to exp, and verified through site reconnaissance visits.

- It is not surprising to find similarities in overall slope height and inclination in cross sections which are deemed to be representative of the site conditions, and in close proximity to one another.

- The slope analyses, as well has the information provided in the site descriptions, MNR Slope rating charts, and throughout the report prepared by exp has been prepared by experienced and qualified staff, and subject to internal review by Senior staff and technical experts in the field of Geotechnical Engineering and Slope Stability Assesments.

We trust that the comment provided above are suitable for your review and consideration. If you have any questions or require anything further, please don't hesitate to contact our office.

Sincerely,

Rebecca Walker, P. Eng.
Geotechnical Discipline Manager
Earth and Environment

Botel Chiu, P. Eng.
Senior Discipline Manager
Earth and Environment