Environmental and Ecological Planning Advisory Committee Report

The 1st Meeting of the Environmental and Ecological Planning Advisory Committee
February 18, 2021
Advisory Committee Virtual Meeting - during the COVID-19 Emergency

Attendance

PRESENT: S. Levin (Chair), I. Arturo, L. Banks, A. Bilson Darko, S. Esan, P. Ferguson, L. Grieves, S. Hall, S. Heuchan, B. Krichker, I. Mohamed, K. Moser, B. Samuels, S. Sivakumar, R. Trudeau, M. Wallace and I. Whiteside and H. Lysynski (Committee Clerk)

ABSENT: E. Arellano, A. Cleaver and J. Khan

ALSO PRESENT: G. Barrett, C. Creighton, P. Lupton, C. Maton, B. Page, C. Saunders and M. Tomazincic

The meeting was called to order at 5:00 PM

1. Call to Order

1.1 Disclosures of Pecuniary Interest

That it BE NOTED that M. Wallace disclosed a pecuniary interest in clauses 5.8, 5.9, 5.10 and 5.12, having to do with the properties located at 1938 and 1964 Commissioners Road East; 6019 Hamlyn Street; 101 Meadowlily Road South and 14 Gideon Drive and 2012 Oxford Street West, by indicating that the proponents of the above-noted applications are members of the London Development Institute, his employer.

1.2 Election of Chair and Vice-Chair for the remainder of the current term

That the following actions be taken with respect to the election of Chair and Vice-Chair, until the end of the current term:

a) notwithstanding section 4.12 of the "General Policy for Advisory Committees", it BE NOTED that S. Levin was elected Chair; and,

b) notwithstanding section 4.12 of the "General Policy for Advisory Committees"; it BE NOTED that S. Hall was elected Vice-Chair.

2. Scheduled Items

2.1 905 Sarnia Road Wetland Compensation Monitoring

That, it BE NOTED that the Environmental and Ecological Planning Advisory Committee received the following information with respect to the wetland compensation monitoring relating to the property located at 905 Sarnia Road:

a) the Annual Post-Construction Monitoring Report (2020); and,

b) the presentation by S. Spisani, Stantec, as appended to the Added Agenda.

3. Consent

3.1 2nd Report of the Environmental and Ecological Planning Committee

That it BE NOTED that the 2nd Report of the Environmental and Ecological Planning Advisory Committee, from its meeting held on February 20, 2020, was received.

4. Sub-Committees and Working Groups

4.1 414 - 418 Old Wonderland Road - EEPAC Comments

That the Old Wonderland Road Working Group comments, as appended to the Agenda, relating to the properties located at 414-418 Old Wonderland Road BE FORWARDED to the Civic Administration for consideration.

5. Items for Discussion

5.1 Respectful Workplace Policy

That it BE NOTED that the Respectful Workplace Policy document, as appended to the agenda, was received.

5.2 EEPAC Terms of Reference

That it BE NOTED that the Environmental and Ecological Planning Advisory Committee (EEPAC) held a general discussion with respect to the EEPAC Terms of Reference document, as appended to the Agenda.

5.3 Advisory Committee Review

That it BE NOTED that the Environmental and Ecological Planning Advisory Committee held a general discussion with respect to the ongoing Advisory Committee Review; it being noted that a verbal update from C. Saunders, City Clerk, was received.

5.4 Service Area Work Plan for 2021

That it BE NOTED that the verbal presentation with respect to the Service Area Work Plan for 2021 from G. Barrett, Director, City Planning and City Planner, was received.

5.5 EEPAC 2020 Work Plan

That, the following actions be taken with respect to the Environmental and Ecological Planning Advisory Committee (EEPAC) 2021 Work Plan:

a) the 2021 Work Plan BE INCLUDED on the March EEPAC Agenda for further consideration; it being noted that the EEPAC held a general discussion with respect to its 2021 Work Plan; and,

b) the EEPAC 2020 Work Plan BE RECEIVED.

5.6 Environmental Impact Study for Long Term Water Storage Environmental Assessment

That it BE NOTED that the Long-Term Water Storage Environmental Impact Study was received; it being further noted that the Environmental and Ecological Planning Advisory Committee will review the Long-Term Storage EIS at the detailed design stage along with the compensation, restoration and enhancement plan.

5.7 3080 Bostwick Road

That, it BE NOTED that the Environmental and Ecological Planning Advisory Committee received the following information with respect to the property located at 3080 Bostwick Road:

a) the Storm Drainage and Stormwater Management Plan - Addendum; and,

b) Environmental Impact Study 2020 Addendum.

5.8 1938 and 1964 Commissioners Road East

That a Working Group BE ESTABLISHED consisting of S. Hall, S. Levin and I. Whiteside, with respect to the properties located at 1938 and 1964 Commissioners Road East; it being noted that the Environmental and Ecological Planning Advisory Committee (EEPAC) reviewed and received the following documents relating to these matters: Victoria on the River Phase 6 Environmental Impact Study; the Geotechnical Investigation - Slope Assessment and the Hydrogeological Assessment and Water Balance relating to the properties located at 1938 and 1964 Commissioners Road East; it being further noted that the attached "Response to UTRCA, City and EEPAC Comments", dated October 9, 2019 and updated December 15, 2020 from Sifton Properties Limited, was received.

5.9 6019 Hamlyn Street

That it BE NOTED that the Environmental and Ecological Planning Advisory Committee received the following information with respect to the property located at 6019 Hamlyn Street:

a) the Municipal Council resolution from its meeting held on December 18, 2018;

b) the Notice of Draft Plan of Subdivision and Zoning By-law Amendment dated February 10, 2021;

c) the July 29, 2020 Environmental Impact Study Addendum;

d) the final proposal report; and,

e) the revised Draft Plan and Zoning By-law Amendment.

5.10 101 Meadowlily Road South

That it BE NOTED that the Environmental and Ecological Planning Advisory Committee received the following information with respect to the property located at 101 Meadowlily Road South:

a) the Environmental Impact Study; and,

b) the communication from D. Riley, Natural Resource Solutions Inc., dated July 24, 2020, relating to the response to comments received from the City of London.

5.11 1697 Highbury Avenue North

That, it BE NOTED that the Environmental. and Ecological Planning Advisory Committee received the following information related to the property located at 1697 Highbury Avenue North:

a) the Scoped Environmental Impact Study dated January 18, 2021; and,

b) the preliminary screening for species at risk dated March 19, 2020.

5.12 14 Gideon Drive and 2012 Oxford Street West

That a Working Group BE ESTABLISHED consisting of S. Esan, S. Heuchan and S. Levin, with respect to the properties located at 14 Gideon Drive and 2012 Oxford Street West; it being noted that the Environmental and Ecological Planning Advisory Committee reviewed and received the following documents relating to these matters: a Notice of Draft Plan of Subdivision Official Plan and Zoning By-law Amendment dated February 10, 2021 and the Environmental Impact Study prepared by MTE Consultants, dated September 29, 2020.

5.13 (ADDED) 435-451 Ridout North

That a Working Group BE ESTABLISHED consisting of S. Hall and I. Arturo, with respect to the properties located at 435-451 Ridout Street North; it being noted that the Environmental and Ecological Planning Advisory Committee reviewed and received the following documents relating to these matters: a Notice of Official Plan and Zoning By-law Amendments dated December 18, 2019 and the attached Final Preliminary Environmental Impact Study.

6. Adjournment

The meeting adjourned at 7:12 PM.

Sifton Properties Limited
Response to UTRCA, City and EEPAC Comments Re: File No. 39T-19501/Z-9015 Application for Draft Plan of Subdivision & Zoning By-Law Amendment (dated May 23, 2019; July 8, 2019)
1938 & 1964 Commissioners Road East and Portion of 1645 Hamilton Road
RESPONSE DATE – OCTOBER 9, 2019
UPDATED RESPONSE TO COMMENTS FROM JANUARY 22, 2020 (COMMENTS AND RESPONSES PROVIDED IN RED) – DECEMBER 15, 2020

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
UTRCA COMMENTS – MAY 23, 2019					
Slope Assessment					
1)	On page 1, it is mentioned that the purpose of the investigation was to assess the physical conditions of the slope located along the Grenier property. The report considers the stable slope analysis to identify the development limit based on the natural hazard and only considers the local tributary rather than the physical conditions of the slope located on site. Please revise the purpose statement in the term of reference. It is also indicated that the report is provided based on the assumption that the design will be in accordance with the applicable codes and standards. The report should be in accordance with applicable codes and standards. Please confirm that the report has been prepared in accordance with the applicable codes and standards. **January 22, 2020 Comment:** UTRCA ok with comment, they have not received the updated report and assume it will be in the updates.	The physical conditions of the of the site slopes were considered, and are discussed in the report, to identify the development limit. The overall Erosion Hazard Limit (Development Setback) for the site slope is determined by evaluating the slope stability, considering surficial seepage and shallow failures, allowance for potential flooding hazards, and an erosion allowance. The report is being revised to confirm it has been prepared in accordance with applicable codes and standards. **December 2020 Response:** Updated report provided with December resubmission.	NA	NA	NA
2)	In Section 2.2 it is mentioned that exp acknowledges the potential seepage zones that can exist within the stratified deposits in localized area and the EIS prepared by AECOM also identified multiple seeps from an ecological perspective. Section 3.3. also reports on the local seeps however, the MNR rating charts for the cross-sections do not account for the seepage. The seeps may pose a threat to the stability of the slope irrespective of whether they are local seeps reported for ecological purposes or for a geotechnical investigation. They must be considered in the Factor of Safety (FOS) analysis for the stable slope. Please update the report and consider the local seeps and groundwater in the FOS analysis for the stable slope. **January 22, 2020 Comment:** Seepage is an issue for slope stability based on stable slope analysis. Linda/Tara mentioned the cross-section does not represent the geotech borehole and believe they weren't labelled correctly (boreholes don't	The MNR Rating Chart is a tool that is completed during a site reconnaissance survey. As noted in Section 2.2; *During our site reconnaissance, the slope condition was examined by EXP staff and did not reveal any noticeable seepage zones at the slope face.* However, local seeps and groundwater were considered in the FOS analysis as indicated in Section 4.2.2; *Local changes and variations in the groundwater level were also considered when carrying out the analyses, to examine possible post-development effects. Changes in the groundwater level may result from a number of causes, included (but not limited to) possible site grading activities, changes to site drainage, use of*	NA	NA	NA

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
	match). Hydro G and Geotech reports are not showing the same information on boreholes. Exp to revise report to ensure the vertical scale is the same (re-label).	*at-source infiltration, or types of surface cover.* **December 2020 Response:** BH logs have been revised so that the slope report and hydrogeological report use the same logs. Additionally, it is understood that LID systems will not be installed within the seepage zone and therefore not provide any addition volume.			
3)	Please submit the Slope/W cross-sections used in the software and provide details showing the Factor of Safety and slope failure surfaces. **January 22, 2020 Comment:** Need to provide cross-sections.	Slope/W output will be included in Appendix D of the revised report. The figure has been attached to this response table. **December 2020 Response:** Slope/W output for each cross section will be included in Appendix D of the revised report.	NA	NA	NA
4)	The provided cross-sections are mostly in the southern half of the valley and may not be representative of the creek slope characteristics in the northern portion of the site. The UTRCA recommends that the cross-sections be taken at critical locations along the creek from the northern limit of the site to the southern limit of the site in order to establish the development limit along the tributary. The UTRCA recommends adding cross-sections for the northerly portion of the site/valley where a crossing is being proposed. Also, the cross-sections should be considered at the critical locations on the east and west sides of the site slope to establish the development limit on both sides of the natural hazard. Please confirm that the cross-sections have been considered for the critical locations of the slope and are representative of the slope characteristics.	Two additional cross sections have been completed in the northen portion of the site, within 1645 Hamilton Road, and are included in the revised report. Additionally, a cross section (see attached) has been completed on the east side of the valley where the proposed crossing is being proposed. Site development is limited on the east side of the valley to the southern end, Lots 10 and 11. The valley slopes in this area exist with an inclination less than 10H:1V. Cross section D-D is provided in the vicinity of Lot 10 to show the development limit in this area as the valley slope inclincation increases.	NA	NA	NA

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UPDATED RESPONSE TO COMMENTS FROM JANUARY 22, 2020 (COMMENTS AND RESPONSES PROVIDED IN RED) – DECEMBER 15, 2020

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
	January 22, 2020 Comment: Explain in report re: additional cross-sections north. No additional issues east side cross-section.	**December 2020 Response:** Two additional cross sections have been completed in the northen portion of the site, within 1645 Hamilton Road, and are included in the revised report. Additionally, a cross section has been completed on the east side of the valley where the proposed crossing is being proposed. UTRCA had no additional issues with the east cross section.			
5)	Please resubmit Site Plan Drawing 1 supported by contour information. The plan should show all of the geotechnical features including the boreholes and be a full size 24" x 36" drawing having suitable scale and shall be signed, sealed and dated by a professional engineer. The plan must be georeferenced by using suitable datum and show the existing toe of the slope, existing top of the slope, toe erosion if any, stable top of the slope, the 6 m erosion access limit. The information shown on the site plan shall match the information shown on the cross-sections. **January 22, 2020 Comment:** Toe/top of slop in field confirmed. Spot survey/topo contours were interpolated with 3D modeling to represent the topo.	Interpolated contour lines were shown on Drawing 1 as provided by Trueline Services Inc. as part of their topographic survey. Full size (24" by 36") drawings have been provided as part of the revised report, as requested including the required components of our slope stability analysis. All components including: top of slope, stable slope, erosion hazard limit, toe of slope and toe erosion allowance are shown on the attached drawings were appropriate. **December 2020 Response:** Toe/top of slop in field confirmed. Spot survey/topo contours were interpolated with 3D modeling to represent the topo. Full size (24" by 36") drawings have been provided as part of the revised report, as requested including the required components of our slope stability analysis. All components including: top of slope, stable slope, erosion hazard limit, toe of slope and toe erosion allowance are shown on the attached drawings were appropriate.	NA	NA	NA

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
6)	The proposed 2 metre toe erosion component may not be sufficient given the reported seepage and erosion on the slope. Please consider a minimum 5 m toe erosion component for the reported silty clay/sand silt soils. **January 22, 2020 Comment:** Geomorphology to be confirmed by Maureen. Toe erosion refer to geotech report, confirm data.	The MNR Technical Guide specifies a value between 1 and 2 m being appropriate for the onsite native soils and a bankfull width of less than 5 m with no evidence of active erosion. Based on our interpretation of the site conditions the 2 m setback is appropriate. The indiscriminate use of a larger value is not supported at this time. Our recommended value for a toe erosion component of 2 m is supported by the Geomorphology work which has been done at the site (by others). **December 2020 Response:** The MNR Technical Guide specifies a value between 1 and 2 m being appropriate for the onsite native soils and a bankfull width of less than 5 m with no evidence of active erosion. Based on our interpretation of the site conditions the 2 m setback is appropriate. The indiscriminate use of a larger value is not supported at this time	NA	NA	NA
7)	Please account for the drainage features on the site such as gullies, swales etc. under the pre- and post-development conditions and their affects on the stability of the slope. **January 22, 2020 Comment:** Accepted.	When the Slope Stability report was prepared, the analyses for the site slopes allowed for variations in water level to reflect anticipated seasonal changes and the presence of perched water, and to allow for seasonal variations for the elevation at which seepage zones may be present in the slope face. It is expected that post-development conditions will reduce and/or control drainage features to the tributary as per the recommendations provided in Section 4.4 of the report; *Surficial erosion of the soil on the face of the slope could be caused by run-off water washing over the face of the slope, such as tile drains or redirected surface water which is directed onto existing slopes.*	NA	NA	NA

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
		Where possible, uncontrolled surface water flows over the face of the slope should be minimized, to reduce the risk of surface erosion. Erosion control measures may be required during construction, to reduce the risk of surface water flows from washing out non-vegetated surfaces.			
8)	Please resubmit all the cross-sections showing the toe of the existing slope, toe erosion, top of the existing slope, top of the stable slope and the 6 metre erosion access allowance on 11 x 17 paper signed and sealed by P.Eng. The various components of the slope shown on the cross-sections shall match with the survey info and the information shown on the Site Plan Drawing 1. The existing and proposed profiles of the slope shall be based on actual surveyed cross-sections. Also, the top of the slope and the toe of the slope shall be surveyed in the field and shall not be based on contour information. The top of the slope shall be established such that relatively flat ground exists after the top of the slope. As previously indicated, the location of the cross-sections shall be at critical locations of the site, for the entire ravine and simply the southerly limit and should be based on a site inspection. Justification for the location of the cross-sections should be provided in the report. A description of how the toe and top of slope have been established shall also be provided in the report. The cross-sections should have suitable horizontal and vertical scale and shall be extended to cover the entire floodplain. They must show the regulatory floodline, the bank of the watercourse, the toe of the bank and the depth of water as part of the stable slope analysis, where applicable. **January 22, 2020 Comment:** Accepted.	The drawings will be provided in the revised report on 11” x 17” paper signed, sealed and dated by a Professional Engineer. The existing slope, as well as the top and toe of slope, have been surveyed by Trueline Services Inc. There will be no change from the pre to the post development profiles. The following description of top/toe of slope delineation has been added to Section 4.2.2 of the revised report; *Top and toe of slope defined by the point where the slope inclination becomes gentler than 4H:1V.* Justification of cross section selection is provided in Section 2.3; *Consideration has also been given to incorporate potential slope sections which have a higher potential for slope instability which may be indicated by the presence of more steeply inclined slopes or the localized presence of seepage zones.*	NA	NA	NA
9)	Any external loading that may jeopardize the stability of the slope such as structures, traffic, fill etc shall be	External loading was considered and is referenced in Section 4.2.2.;	NA	NA	NA

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	analyzed and considered in the report. Any aspects or site work, particularly with respect to site drainage, which could impact the stability of the slope should be identified. **January 22, 2020 Comment:** Accepted.	*The stability of the slope profiles were investigated for a number of conditions. The examinations involve an assessment of the natural slope with and without the influence of perched groundwater and the effects of possible construction in proximity to the site slopes.* Site work, with respect to site drainage is addressed in Section 4.4; *Surficial erosion of the soil on the face of the slope could be caused by run-off water washing over the face of the slope, such as tile drains or redirected surface water which is directed onto existing slopes. Where possible, uncontrolled surface water flows over the face of the slope should be minimized, to reduce the risk of surface erosion. Erosion control measures may be required during construction, to reduce the risk of surface water flows from washing out non-vegetated surfaces.* and *Water from downspouts and perimeter weeping tile etc. must also be collected in a controlled manner and re-directed away from the slope.*			
10)	Soil erosion is a naturally occurring process and commonly the agents of soil erosion include water and wind, each contributing a significant amount of soil loss. Soil erosion may be a slow process that continues relatively unnoticed, or it may occur at an alarming rate causing serious loss of topsoil, which may cause slope failure. The loss of soil due to erosion from a site may be reflected in lower surface water quality, damaged drainage networks, slope failure and loss of property and life. Please consider the soil erosion in the stable slope analysis. **January 22, 2020 Comment:** Accepted.	This item is covered within Section 4.2.1.1 Consideration of Surface Erosion and Piping.	NA	NA	NA
11)	Please correct the page numbering in the report. **January 22, 2020 Comment:**	Page numbering has been corrected in the revised report.	NA	NA	NA

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	Accepted.				
12)	On page 18 of the Final Proposal Report (December, 2018) it is indicated that the watermain will be extended through the proposed pathway block and strapped under the proposed pedestrian bridge spanning the ravine. The geotechnical analysis must evaluate the most appropriate location for the bridge. As indicated in Comment 4, further geotechnical analysis is required for the northerly portion of the ravine where a bridge is being contemplated. **January 22, 2020 Comment:** Pedestrian crossing geotech condition being proposed.	EXP has reviewed the proposed pedestrian bridge location and completed an additional cross section to confirm the development setback in the area. This information is provided in the revised report. The figure has been included with this response table. **December 2020 Response:** A Pedestrian Bridge Foundation section has been included within the report.	NA	NA	NA
13)	The geotechnical investigation report for development at 1938 Commissioners Road East (exp, May 29, 2017) and for 1964 Commissioners Road East (exp, April 2018) were not reviewed as they are intended for the site development and should be reviewed by the City of London. **January 22, 2020 Comment:** Accepted.	No comment required.	NA	NA	NA
Hydrogeological Assessment					
1)	Please include updated quantity and quality (quality includes temperature) data in the final report. The submitted report provided limited water quantity data. a. Please provide continuous water quantity data. Analyze the water quantity data for additional information that can infer the recharge on Site (Healy & Cook, 2002) as an additional tool to corroborate estimates using single well response tests. b. Please include water temperature analysis collected in continuous data: temperature range, differences between wells etc. **January 22, 2020 Comment:** UTRCA will require a minimum of 5 months of continuous monitoring.	NA	a. At the time the project was initiated in 2017 there was not a requirement for installing dataloggers to collect continuous water quantity data. It is our opinion that the collection of manual water levels for the past 1.5 years (Sept. 2017 to April 2019) has been sufficient in assessing the groundwater conditions. The Healy & Cook reference (Using Water Levels to Estimate Recharge) will be used to estimate recharge in the final report. We do not have continuous data therefore there is no water temperature data to present. However, there were manual measurements collected during water quality sample collection which can be presented in the updated report.	NA	NA

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
			December 2020 Response: a. Continuous water quantity data is now provided for selected monitoring wells on site. The reference to Healy and Cook (2002) is specifically for estimating groundwater recharge by the water-table fluctuation (WTF) method and is applicable only to unconfined aquifers. Due to the site being overlain by till, the aquifers on site are considered confined and therefore the reference to Healy and Cook (2002) does not apply. b. Water temperature analysis is included on each of the hydrographs in Appendix G.		
2)	Determine the hydroperiod and provide discussion. Water table presented is from November 3, 2017 which is the lowest groundwater period. A high water table is required. **January 22, 2020 Comment:** SW program is to continue until summer 2020.	NA	Based on the extended manual water levels collected to April 2019, the hydroperiod for the four (4) monitoring wells on 1964 Commissioners Road (BH102, BH105, BH108, and BH109) range from a minimum hydroperiod of 0.66 m in monitoring well BH105 to a maximum hydroperiod of 0.81 m in monitoring well BH102. A surface water/shallow groundwater monitoring program was initiated in September 2019 and will provide more results on the hydroperiod of the surface waterbody. **December 2020 Response:** Section 4.6.1 in the report is titled 'Hydroperiod'. This section details the water levels fluctuations observed within Tributary 3 throughout the monitoring period.	NA	NA
3)	Incorporate a discussion of the natural heritage features; describe their groundwater dependent status	NA	The natural heritage feature on site is considered an Unevaluated Vegetation	NA	NA

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	as outlined in the background material (Toronto and Region Conservation Authority, 2017) and what to focus on in the assessment. **January 22, 2020 Comment:** EXP to conduct a wetland risk assessment for the final, updated hydrogeological report. Linda would like EXP to use Cook reference in updated assessment.		Patch with a water course and not a Provincially Significant Wetland (PSW). The TRCA 2017 document *Wetland Water Balance Risk Evaluation* (2017), is typically used for discussions related to wetlands. However, a Risk Evaluation for this property can be conducted since alteration to the surface water catchment is to be expected during development of the area based on construction of impervious areas (i.e. roadways, concrete, roofs, etc.). By using the pre-development and post-development catchment model in the Water Balance, a Risk Evaluation will be conducted in the updated report. To support the assessment of the natural feature, a shallow groundwater and surface water field program was initiated in September 2019 in order to identify changes in water levels, assess water chemistry, and identify areas of groundwater upwelling or discharge (seepage areas). **December 2020 Response:** Section 3.2 of the updated Hydrogeological Report is titled 'Ecology and Natural Heritage'. This section describes the ELC as well as groundwater indicator plants observed within Tributary 3. The seepage areas are described in further details throughout the reports in the Surficial Geology section (3.3.4) as well as the Groundwater and Surface Water Quality section (4.8). A wetland risk assessment has been completed and is included in the updated HydroG report.		

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			As mentioned above, the reference to Healy and Cook (2002) is specifically for estimating groundwater recharge by the water-table fluctuation (WTF) method and is applicable only to unconfined aquifers. Due to the site being overlain by till, the aquifers on site are considered confined and therefore the reference to Healy and Cook (2002) does not apply.		
4)	Improve the quality of Figures 10 and 11. The scale is inappropriate to provide clarity to the interpretation on Site. The text and fonts are difficult to read. **January 22, 2020 Comment:** EXP to update figures in final updated report.	NA	Acknowledged. Will edit figures 10 and 11 in updated report. **December 2020 Response:** The Site Physiography drawing (previously Drawing 10 and now Drawing 13) and the Quaternary Geology drawing (previously Drawing 11 and now Drawing 14) have been updated and are now included in the updated report, Appendix A.	NA	NA
5)	Cross-sections - a. The fill is continuous across a large portion of cross-section B-B and is likely over-represented across the Site. It appears that the fill is largely sandy silt. Does this represent local materials on Site? The fill likely does not act as a confining layer and should be evaluated in the water budget. b. Describe the aquifer/ aquitard relationship on Site. For example the water table is in a sand aquifer below the till; the till pinches out towards the drain. c. Describe the interaction of the groundwater and surface water with emphasis on the natural heritage features and catchment. d. The northern portion of the Site is a designated vulnerable area. Do the boreholes and monitoring wells adequately capture this transition?	NA	a. Bottom surface of fill in cross-section B-B will be modified to lessen fill material and increase the sandy silt layer. According to borehole logs BH105 and BH108, this fill is likely representing local onsite materials. EXP agrees that the fill likely does not act as a confining layer, however, the instructed method for compiling water budgets has been to use the MNR soil mapping reference. The soils identified for the site were C-type soils (clayey silt) therefore this soil type was used in the water balance. b. Monitoring wells were installed into the overlying till, silty sand, as well as the confined sand unit. Phreatic surfaces were observed in both sand units with capillary barriers	NA	NA

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	e. The water levels on the three geological layers are very different- how does this impact the natural heritage? Install piezometers in seep area and compare and contrast water quality and quantity. **January 22, 2020 Comment:** • Linda would like to see three (3) additional monitoring wells installed within this stratigraphic upper aquifer in order to identify GW flow direction and GW quality. Linda would like to see water quality sampled from these wells in addition to water quality sampled from the ravine – dissolved water quality parameters for both surface water and groundwater quality in order to facilitate direct comparisons • Linda would like to see at least 2 seasons captured in these new monitoring wells (if wells are installed in February, she would accept monitoring until summer 2020). • Linda mentions that the water quality within the lower aquifer and the surface water sample collected in the northern portion of the ravine both show signatures of septic system impacts – Linda suggests this is because the intermediate till layer is likely permeable. • Linda would like to know why there are catch basins on site and how deep they are installed.		measured between the sand units and the overlying till. c. The interaction of groundwater and surface water is presented in Cross Sections A-A' and B-B'. As discussed above in comment response 5.b., phreatic surfaces were observed in the overlying till (as perched conditions) as well as within the sand units. Cross Section A-A' shows the water tables within the till and sand units seeping into the Tributary 3. These seepage locations have been confirmed by on site mapping by AECOM and EXP. The surface topography and drainage of the Site is characterized primarily by the topographic divide in the southwest potion of the Site which drops in elevation towards the Unnamed Drain which then drains north into the Thames River. Any precipitation which is not infiltrated on Site will be directed as surface runoff towards the Unnamed Drain. d. The northern portion of the Site is classified as a vulnerable area because it has been previously mapped as glaciofluvial deposits, which typically contain coarser grained sediments capable of high levels of surface infiltration. During the drilling at the Site, the most northern borehole advanced was BH103 which encountered compact SILT with trace fine sand and trace clay at surface. There were no coarse grained sediments encountered at surface in the northern portion of the Site, therefore it is suggested that		

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			the designation of 'vulnerable area' is not appropriate for the northern portion of the Site. e. As discussed in response to comment 5b above, phreatic surfaces were observed in both sand units with capillary barriers measured between the sand units and the overlying till. The underlying phreatic surface found within the underlying sand unit does not have any interaction with the natural heritage feature and does not contribute to the surface water quantity. Shallow groundwater piezometers and surface water monitoring locations were installed along the Unnamed Drain in September 2019 in order to measure and characterize the surface water and shallow groundwater interactions. Surface water elevations and water chemistry will be collected during this updated monitoring. **December 2020 Response:** On February 3, 2020 an additional three (3) monitoring wells (BH201, 202, and 203) were installed into the upper/shallow aquifer located to the west (upgradient) of the ravine and seepage area. These 3 new monitoring wells were incorporated into the monthly monitoring which occurred on site until August 2020, which was the monitoring period previously approved by the UTRCA during the January 22, 2020 meeting. Dataloggers were installed into monitoring wells BH201 and BH203 with daily water levels and temperature collected until August 2020. These hydrographs are included in the updated		

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			report. Additional manual measurements have been included in the updated report until November 2020. Water quality samples were collected on February 18, 2020 and April 6, 2020 from old and new monitoring wells, as well as from each of the three (3) surface water stations established within the ravine. Details pertaining to the water quality results and interpretations are included in the updated report. The 3 catch basins located on the property were further investigated by Development Engineering (DevEng) and subsequently named CB1, CB2 and CBMH3. DevEng discovered that there is a 300mm culvert and a 150mm drain connected to a DICB on Commissioners Road that outlets to a 375 dia. Boss HDPE sewer coming into the site. The Boss pipe connects to CBMH3 and then outlets to the ravine to the north. The existing catch basins west of the ravine (CB1 and CB2) are connected and outlet to the ravine through a 300 dia. Blue Brute watermain pipe. Catch basin invert details include: CB1 invert = 0.7m (terminated in till); CB2 invert = 0.7m (terminated in till); CBMH3 invert = 5.5m (terminated in upper sand aquifer).		
6)	The final development has the potential to significantly impact the water balance as indicated in Section 6.2 on P. 15-17. The loss of infiltration and increased runoff have potential to affect the natural heritage feature. The evaluation needs to review the seasonal and long term variations of the natural heritage, based on species, habitat and water level variation. **January 22, 2020 Comment:**	NA	The development engineering design has recently been updated with a modified drainage plan. The updated drainage plan includes the design of rear yard infiltration galleries with overflow outlets within areas A2 and A4. These overflow outlets will direct overland flow towards the Unnamed Drain.	NA	**December 2020 Response:** An O&M manual is enclosed for the private LID system. The condo corporation will be responsible for the long-term maintenance of the LID, just as they will be for the on-site sewer systems, oil/grit separator and the roadways.

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	• UTRCA (Imtiaz) questioned the 94% infiltration capture and where this value came from. EXP (Heather) clarified and Imtiaz accepted the calculation. • The UTRCA is not happy with how the water balance is essentially the only basis for post-development remediation. What if the LIDs do not work? UTRCA does not like having LIDs designed for private property. How will Sifton be able to enforce maintenance of these features into the future? • EXP reminded UTRCA that the water balance completed is to the exact requirements as outlined by the Conservation Authority document and they agreed. • Add a section in updated report on LIDs and long-term maintenance strategies. • Tara would like to see much more integration of the EIS and Hydrogeology with regards to evaluating the ravine. Tara wants to see EIS comments and drawings embedded within the updated hydrogeology report		Based on the updated water balance, the pre-development infiltration and runoff rates towards the Unnamed Drain is presently 11,567 m^3/year and 16,508 m^3/year, respectively. In the post-development scenario with infiltration galleries and mitigation features installed, the water balance suggests infiltration and runoff will be approximately 8,377 m^3/year and 15,579 m^3/year, respectively. The post-development scenario is estimating a reduction in site runoff and a slight reduction in infiltration with 94% of infiltration being captured on site. These values are typically deemed acceptable by the Conservation Authority Guidelines. This hydrogeological assessment of the water balance only considers changes to water quantity and does not consider potential long term variations of the natural heritage feature based on species and habitat. Typically those impact assessments are completed by ecologists. **December 2020 Response:** The water balance has been updated with more recent changes to the SWM and LID strategies, as well as more details regarding the current drainage pathways located on site (i.e. existing catch basins and outlets to the ravine). Section 6.2 in the updated report speaks to the LID practices proposed for the site as well as the Operation and Maintenance strategies.		
7)	Groundwater indicator species are present in FOD9-5, FOD 7-4 and SWT2 communities. Seeps are present on	NA	Seeps have been identified on the site through field investigations by AECOM	NA	NA

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	Site. The interpretation of the interaction of groundwater and surface water is inadequate in part because the data is incomplete. **January 22, 2020 Comment:** EXP to confirm whether Linda has seen (and approved) the additional surface water program.		ecologists as well as EXP hydrogeologists. The locations are now mapped. Piezometers and surface water stations were installed around the seeps in early September 2019 in order to better identify the groundwater-surface water interactions throughout the Site and specifically around the seepage areas. **December 2020 Response:** Since the installation of additional monitoring wells within the upper aquifer, a much more clear understanding has been provided with regards to the geology of the site and the interaction of the upper sand aquifer with the seepage areas within the ravine. This interaction has been described in detail within the updated report.		
8)	Indicate the natural heritage features/system on the cross-sections and illustrate the correlations to natural heritage. For example, are the seeps associated with the aquifer located at approximately 258-259 m asl where the water table is included on Drawing 14? The interpretation of the Site is incomplete and description of the relevance of the various figures means. Glacial fluvial sediments are indicated on the northern portion of the Site (Figure 12) and not correlated on the cross-sections. **January 22, 2020 Comment:** UTRCA has requested additional data be collected on the upper aquifer and the seepage area. The correlation between the aquifer layers requires more data collection.	NA	Additional details regarding the natural heritage features (i.e. creek and seepage areas) will be included in the updated cross sections. A shallow groundwater and surface water assessment was initiated in September 2019 to better identify the natural heritage feature. As mentioned above, during the drilling at the Site, the most northern borehole advanced was BH103 which encountered compact SILT with trace fine sand and trace clay at surface. There were no coarse grained, glaciofluvial sediments encountered at surface in the northern portion of the Site, therefore it is suggested that the mapping compiled by the Ontario Geological Survey is more regional in extent and does not define the sediments found on Site. **December 2020 Response:**	NA	NA

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			The installation of the three (3) new monitoring wells into the upper aquifer, as well as shallow monitoring stations installed within the ravine has clarified the geology of the site and the interactions of the shallow aquifer and sepeage areas within the ravine. Updated cross sections are included in Appendix A within the updated report, as well as more extensive descriptions of the site geology and hydrogeological systems.		
9)	Only the water quality of surface water and MW 102 were discussed. MW 105 and 109 may be influenced by current and/or past septic systems. **January 22, 2020 Comment:** UTRCA wants to see dissolved metals analyzed of the surface water moving forward as well as arsenic (septic system indicator).	NA	Discussions on the water quality results from MW105 and MW109 will be included in the updated report. **December 2020 Response:** Water quality samples were collected on February 18, 2020 and April 6, 2020 from old and new monitoring wells, as well as from each of the three (3) surface water stations established within the ravine. Details pertaining to the water quality results and interpretations are included in the updated report. Dissolved metals were collected for the surface water samples and arsenic was also analysed. All results are discussed in the updated report.	NA	NA
10)	LIDs are proposed but locations and how their development will maintain the natural heritage are not described. **January 22, 2020 Comment:** Provide a more thorough discussion on proposed LIDs in updated hydrogeo report, including long-term maintenance plan (i.e. information packages to future residences).	NA	The LIDs proposed during development include rear yard infiltration galleries and overflow outlets which will promote recharge and infiltration to Tributary 3 within areas A2 and A4. The exact design parameters of the LIDs have not been identified at this stage, however, additional on site test pits and grain size analyses have been completed to identify areas of higher infiltration	NA	LID features are shown on Fig 2.0 of Appendix B of the Functional Servicing Report. Block 44 contained sand units with factored infiltration rates ranging between approximately 20 mm/hour to 70 mm/hour which is sufficient for the use of the proposed infiltration system.

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			rates. This test pitting program and resulting infiltration assessment will be included in the updated report. **December 2020 Response:** Section 6.2 in the updated report speaks to the LID practices proposed for the site as well as the Operation and Maintenance strategies.		**December 2020 Response:** A more thorough description of the LID and an O&M manual is enclosed in the Functional SWM Report for the private LID system.
11)	Please include additional impact assessment and comprehensive recommendations to maintain the natural heritage features on and proximal to the Site. **January 22, 2020 Comment:** UTRCA would like to see more of a discussion in the final updated Hydrogeology report.	NA	Recommendations to maintain the natural heritage features on and proximal to the Site includes: - During the site grading work, suitable sedimentation controls will be required to help control and reduce turbidity of run-off water which may flow towards the surface water feature - Maintain an appropriate buffer from the natural feature during construction - Maintaining the natural vegetation within the buffer area during and post-construction - Re-establishing any vegetative cover in disturbed areas following the completion of construction work - Limit the use of commercial fertilizers in landscaped areas which border the natural feature Limit the use of salts or other additives for ice and snow control on the roadways during and post-construction **December 2020 Response:** Additional details regarding the existing on site drainage features are included in the updated report (Section 3.2 – Topography and Drainage). The proposed SWM and LID designs have been updated to enhance the existing conditions drainage pathways as well as provide	NA	NA

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			clean runoff and infiltration to the natural feature on site.		
12)	Please include a discussion of proper abandonment of septic systems. (wells and septic systems exist according to well survey Appendix F). **January 22, 2020 Comment:** • UTRCA mentions that septic system impacts are seen in the deeper aquifer and in the surface water quality (the northern SW station) likely because the stratigraphy is scoured, and the upper aquifer sand is pinched out to the north. Need more evidence with water quality • Are septic systems still being used to the south? • How deep are the catch basins on site?	NA	In the City of London, the following is done for abandonment of septic systems: - Pump out tank by a hauler who has a license (Sewage License) - Hire a back hoe in the drainage business that either pulls tank out or fills it in. Materials must be deposited appropriately if removed - 'Septic decommissioning' paperwork needs to be submitted to the City of London No requirement by the MOECP for removal **December 2020 Response:** Section 4.4 (Local Septic System) has been included in the updated report which describes local septic systems and proper abandonment. Only one (1) door to door survey response included a comment regarding the use of a 'septic tank'. Address is 1798 Hamilton Road (approximately 500m to the east of the site). The 3 catch basins located on the property were further investigated by Development Engineering (DevEng) and subsequently named CB1, CB2 and CBMH3. DevEng discovered that there is a 300mm culvert and a 150mm drain connected to a DICB on Commissioners Road that outlets to a 375 dia. Boss HDPE sewer coming into the site. The Boss pipe connects to CBMH3 and then outlets to the ravine to the north. The existing catch basins west of the ravine (CB1 and CB2) are connected and outlet to the ravine through a 300 dia. Blue Brute watermain pipe.	NA	NA

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			Catch basin invert details include: CB1 invert = 0.7m (terminated in till); CB2 invert = 0.7m (terminated in till); CBMH3 invert = 5.5m (terminated in upper sand aquifer).		
13)	Please include an estimate of on site recharge based on (Healy & Cook, 2002). **January 22, 2020 Comment:** Should use Healy & Cook (2002) reference in updated report.	NA	This will be completed for the updated report. **December 2020 Response:** The reference to Healy and Cook (2002) is specifically for estimating groundwater recharge by the water-table fluctuation (WTF) method and is applicable only to unconfined aquifers. Due to the site being overlain by till, the aquifers on site are considered confined and therefore the reference to Healy and Cook (2002) does not apply.	NA	NA
Water Balance					
1)	The area contributing currently to the ravine/woodland is 6.282 ha as shown on Figure 1 in Appendix I and will be reduced to 3.582 ha under the proposed conditions as shown on Figure 2 in Appendix I. The reduction in the contributing area to the ravine/woodland will result in less runoff under the proposed conditions as shown by water balance analysis. Please provide details of how runoff and infiltration to the ravine/woodland will be maintained under the proposed conditions. **January 22, 2020 Comment:**		The water balance has been updated and the post-development drainage to the ravine/woodland is now estimated to be 5.004 ha. Post development runoff is planned to be captured in Low Impact Development design features throughout the site. Although not specifically designed at this stage, it is proposed that LID features to be implemented will include rear yard infiltration galleries as well as overflow outlets to the water body. **December 2020 Response:** The water balance has been recently updated to include the (now understood) surface drainage contributing to the runoff volumes to Tributary 3. Updated water balance Figures and calculations are included in the updated HydroG report, Appendix J. Updated SWM and	NA	LID features shown on Fig 2.0 of Appendix B of the Functional Servicing Report. Block 44 contained sand units with factored infiltration rates ranging between approximately 20 mm/hour to 70 mm/hour which is sufficient for the use of the proposed infiltration system.

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			LID designs have also been included in the updated water balance calculations.		
2)	Figure 2 in Appendix I shows two SWMF namely SWMF 1 and SWMF 2. Will the runoff from the site be collected in the two SWM ponds and discharged to the Tributary (Area 3.582 ha) as point flow discharging into the ravine/woodland? The UTRCA encourages that the pre-development runoff pattern to the ravine/woodland be mimicked. Also, the post-development areas shown in the water balance calculations in Appendix I do not match with the post-development areas shown on Figure 2. The post-development areas in the water balance calculations in Appendix I are shown as SWMF2a, SWMF2b etc while Figure 2 shows area as SWMF1 and SWMF2 etc. Please match the areas so that it is easy for comparison under the post-development conditions. **January 22, 2020 Comment:**	NA	No, in the post-development scenario, the runoff to the stormwater facilities SWMF 1 and SWMF 2 will not discharge into the ravine. The SWM facilities are offsite and no discharge is expected to return to the site. The water balance figures have been updated and the pre and post-development areas now match up in size as well as in nomenclature. We apologize for the oversight. **December 2020 Response:** Please refer to the updated water balance and Figures in Appendix F in the updated Hydrogeological Report.	NA	SWM Pond locations are identified on Fig 5.0 of Appendix B the cover and in the Functional Servicing Report. **December 2020 Response:** Updated locations are provided in the SWM Report.
3)	The LID measures being proposed for the site to compensate for the infiltration etc on site under the proposed conditions should be provided to the stormwater engineer who will design the storm system for the site to make sure that the recommendations of the water balance analysis are considered. **January 22, 2020 Comment:**	NA	This comment is noted and the LID measures proposed for the site will be provided to the stormwater engineer during site design. **December 2020 Response:** This comment is noted and the LID measures proposed for the site will be provided to the stormwater engineer during site design.	NA	The LID location was proposed in a location where the sand was suitable for infiltration. Dev Eng has been working closely with exp regarding the infiltration system. Dev Eng will continue consultation with exp during the detailed design of the LID features to incorporate the water balance recommendations.
4)	The UTRCA suggests undertaking an infiltration test on the site and to use the actual infiltration capacity measured on the site. **January 22, 2020 Comment:**	NA	The method used for the water balance infiltration rate has been the UTRCA previously approved method of using the soil conditions as mapped by the Ministry of Natural Resources and Forestry. **December 2020 Response:**	NA	NA

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
			The method used for the water balance infiltration rate has been the UTRCA previously approved method of using the soil conditions as mapped by the Ministry of Natural Resources and Forestry.		
5)	The deficit in infiltration to Tributary 3 under the proposed conditions is approximately 8559 m3. Please provide details of how the deficit in the infiltration and runoff will be maintained to Tributary 3 under the proposed conditions. **January 22, 2020 Comment:**	NA	The updated water balance suggests that infiltration in the post-development scenario will be 94% of the pre-development infiltration. This updated water balance will be included in the updated report. **December 2020 Response:** The updated water balance suggests that infiltration in the post-development scenario will be 91% of the pre-development infiltration (or a volume of 1,351 m3/yr). Conservation Ontario Guidelines (Conservation Ontario, 2013) suggest a target of 80% of the pre-development infiltration being maintained in the post-development conditions. This updated water balance satisfies this recommendation by exceeding the 80% infiltration target. This updated water balance will be included in the updated report.	NA	NA
Environmental Impact Study					
1)	Section 1.6.3 - the regulation limit which applies to the subject lands includes riverine flooding and erosion hazards and although not shown on the Regulation Mapping, there are also regulated wetland features located on the property. In this regard, the UTRCA's regulation is "text-based". In the case of a discrepancy between the mapping and what is actually observed in the field, the text of the regulation shall prevail over the areas shown as being regulated on the mapping. **January 22, 2020 Comment:** Accepted.	NA	NA	Noted. We have inserted the following additional text into Section 1.6.3 to clarify: "While UTRCA maintains mapping showing regulation limits and regulated features, features must be investigated and mapped in the field to confirm the presence of features. In the case of a discrepancy between the mapping and what is actually observed in the field, the text of the	NA

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				regulation shall prevail over the areas shown as being regulated on the mapping." AECOM has confirmed and mapped the presence of wetland areas within the subject lands during project field investigations. See below.	
2)	In Section 2.2.4, please include a description of the groundwater indicator species that are found in FOD 9-5, FOD 7-4 and SWT2 communities. **January 22, 2020 Comment:** Accepted.	NA	NA	Report **Section 2.2.1.3** (note that report formatting has been revised) identifies the groundwater indicator plants within the ravine. The following groundwater indicator species were observed within the study area: - Watercress (FOD7-4, SWT2) - Skunk Cabbage (FOD7-4, SWT2) - Jewel weed (FOD7-4, FOD9-5, SWT2) The populations of these plant species were mapped during field investigations conducted on July 22, 2019. **Figure 5** (attached and in the revised report) shows the extent of the groundwater indicators and the locations of seepage areas.	NA
3)	The ecological consultant must coordinate its findings with the consultant of the hydrogeological assessment in Section 4.1. For example: a. Bullet 2 states that "there is potential for seepage to occur", yet the ecological work has demonstrated definitively that seepage does occur on the ravine slopes. Please revise/strengthen the language in this section. b. Section 5.3.3 states that "through the use of LIDs, it is anticipated that the proposed development plan will not result in a reduction of groundwater contribution to the watercourse". This statement contradicts bullet 4 in Section 4.1 which states that there will be a	NA	NA	Section 4.1 of the EIS report has been revised based on an up-dated water balance prepared by exp. The up-dated water balance demonstrates that there will be a minimal reduction in infiltration resulting in post-development infiltration estimated at 94% of pre-development infiltration rates. **December 2020 Response:** The most recent up-dated water balance indicates 91% of pre-development infiltration rates, with	**December 2020 Response:** There are multiple stages of surface water treatment including catchbasins with deep sumps and goss traps, an oil-grit separator, and a potential vegetated strip prior to runoff discharging into the LID. The LID's must be located within the site and cannot be located within the hydro corridor, the final location to be determined during the Site Plan stage.

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	significant reduction in post-development infiltration and a decrease in runoff for the area. c. Table 10 states that post vs pre-development groundwater levels and flows within the receiving area are similar. This statement contradicts bullet 4 in Section 4.1 that states that there will be significant reduction in post-development infiltration and a decrease in runoff for the area. **January 22, 2020 Comment:** Water balance is ok. UTRCA would like to see water balance significant to minimal, LID's (DevEng). It is cautioned about LID's lifespan and maintenance of them. They don't want LID's on private land (i.e. back yards), as it's hard to control or maintain. They would like them in common spaces or multi-family blocks. It was mentioned to place them along the hydro corridor.			the implementation of mitigation measures. This level of infiltration should maintain the seepage to indicator plants and wetland communities in the ravine.	
4)	Sub-bullet 2 of bullet 7 in Section 4.1states that the use of BMPs will "enhance post development infiltration" and Table 10 lists some mitigation / compensation measures for a change in water regime. Please provide more information on the proposed LIDs to demonstrate that there will be no net effect on post verses pre development surface and ground water levels and flows to the natural features. Please include: a. What is meant by "enhance" in sub-bullet 2 of bullet 7 in Section 4.1. b. Data that demonstrates how these measures will achieve no net effect. **January 22, 2020 Comment:** Accepted.	NA	NA	exp has prepared an up-dated water balance based on natural infiltration being maintained. The up-dated water balance demonstrates that there will be a minimal reduction in infiltration resulting in post-development infiltration estimated at 94% of pre-development infiltration rates. Section 4.1 will be revised to provide clarification regarding enhancement.	The detailed design of the site grading, SWM features, and LID features will incorporate recommendations of the water balance to mimic pre development surface and groundwater levels as closely as possible.
5)	Bullet 4 in Section 4.1 states that there will be significant reduction in post-development infiltration of 68% and a decrease in runoff (no value given) for the area. Recognizing that the area is located in an HVA and a SGRA, and that there will be a further 40% reduction	NA	NA	exp has prepared an up-dated water balance based on natural infiltration being maintained.	NA

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	of infiltration from the adjacent Tridon lands, please explain the following: a. How will the change in infiltration and runoff cumulatively impact the groundwater dependent ecosystems and watercourse within the subject lands? b. How will increasing topsoil increase the amount of recharge given the change in amount of pervious to impervious area from pre to post development? Section 5.4 and Appendix I (SWH criteria for seeps and springs) should be considering the loss of infiltration area and incorporating measures to protect the source of groundwater that helps maintain the SWH for seeps and springs. c. Is the SWH for seeps and springs sustainable given the proposed reduction in infiltration? d. Is the size of the buffer adequate to protect the amount (quantity) of groundwater given the change in pervious to impervious area from pre to post development? **January 22, 2020 Comment:** Accepted but mentioned that water balance needs to work.			The up-dated water balance demonstrates that there will be a minimal reduction in infiltration resulting in post-development infiltration estimated at 94% of pre-development infiltration rates. We do not anticipate significant impacts to the groundwater dependent plant species or the seepage areas that support them. The estimated 94% maintenance of pre-development infiltration is not expected to affect the Significant Wildlife Habitat status of the seepage areas. Based on the infiltration rates, we expect that the seepage areas are sustainable within the post-development context. **December 2020 Response:** The EIS has been up-dated based on the up-dated waterbalance prepared by exp.	
6)	Section 5.3.3 states that "the use of LIDs within the subject lands will be required to maintain the post-development water balance to the watercourse and wetland". Please demonstrate how the pre-development water balance to the watercourse and wetland will be maintained. **January 22, 2020 Comment:** Requested that the mapping includes the block numbering as well (overlay).	NA	NA	exp has prepared an up-dated water balance based on natural infiltration being maintained. The up-dated water balance demonstrates that there will be a minimal reduction in infiltration resulting in post-development infiltration estimated at 94% of pre-development infiltration rates.	LID features shown on Fig 2.0 of Appendix B of the Functional Servicing Report. Block 44 contained sand units with factored infiltration rates ranging between approximately 20 mm/hour to 70 mm/hour which is sufficient for the use of the proposed infiltration system. The detailed design of the site grading, SWM features, and LID

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				The use of LIDs is, therefore, expected to enhance the above-noted infiltration rate. **December 2020 Response:** The block numbering has been added to Figures 6 and 7 of the EIS report.	features will incorporate recommendations of the water balance to mimic pre development surface and groundwater levels as closely as possible.
7)	Table 10 in Section 5.6 states that "post vs pre-development groundwater levels and flows within the receiving area are similar". Please demonstrate how post vs pre-development groundwater levels and flows to the natural areas will remain similar. **January 22, 2020 Comment:** Accepted.	NA	NA	exp has prepared an up-dated water balance based on natural infiltration being maintained. The up-dated water balance demonstrates that there will be a minimal reduction in infiltration resulting in post-development infiltration estimated at 94% of pre-development infiltration rates.	NA
8)	Recommendation 6 in Section 6.3 states that an updated water balance should be completed as part of final design. The water balance to the features must be completed now as part of the application process and must demonstrate that post vs pre-development surface and groundwater levels and flows to the natural areas are in fact similar as stated. **January 22, 2020 Comment:** Accepted.	NA	NA	exp has prepared an up-dated water balance based on natural infiltration being maintained. The up-dated water balance demonstrates that there will be a minimal reduction in infiltration resulting in post-development infiltration estimated at 94% of pre-development infiltration rates.	NA
9)	In Appendix C, the UTRCA provided a recommendation in 2017 that "once the hydrogeological assessment and water balance analysis have been accepted, the information is then handed off to the ecologist to incorporate into the EIS analysis". Since that time, the UTRCA has gained more experience with working with consultants and evaluating the natural heritage features. Based thereon, the UTRCA has learned that these studies must be much more integrated and that the professionals working on the project must communicate continuously with one another in developing the supporting technical reports. The ecologist, hydrogeologist and water resources engineer	NA	NA	Noted	NA

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
	must work together to identify which natural features and functions are important to maintain on the subject property; ii) the pre-development quality and quantity of surface and ground water that maintains those features; iii) how much variation the features and functions can tolerate; and iv) how acceptable surface and groundwater quality and quantity will be maintained in the post development scenario. **January 22, 2020 Comment:** Accepted.				
10)	Section 2.3 mentions that Candidate Bat Habitat exists on site while Section 2.4 mentions that Candidate Significant Wildlife Habitat exists on site for Bat Maternity Colonies. Please discuss how much buffer is needed to protect these habitats given the proposed development type and location. **January 22, 2020 Comment:** Larger buffer is contemplated.	NA	NA	No impacts to either candidate habitat are anticipated based on the protection of the ravine and its forest communities and the establishment of buffers around the forest communities. The standard best management practice for potential and confirmed bat maternity habitat is to protect the trees and the feature providing the habitat. In addition, the protection of foraging habitat, such as the wetland areas within the Significant Woodland, should be protected. There are no prescribed buffer requirements established under the *Endangered Species Act* for bat maternity habitat. **December 2020 Response:** As previously stated, the proposed buffers are considered sufficient to protect the candidate bat habitat on site.	NA
11)	Section 3.3 mentions the presence of a locally significant wetland. Please confirm if all SWT2 vegetation communities are considered locally significant. Please discuss how much buffer is needed to	NA	NA	Since the wetland communities do not meet the criteria of a Provincially Significant Wetland (PSW) they are	NA

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
	protect these communities given the proposed development type and location. **January 22, 2020 Comment:** Larger buffer wetland/water balance groundwater contribution to maintain skunk cabbage and other plants and wildlife habitat. Trees falling - 'rooting zones'.			then considered to be "locally significant". These wetland communities (SWT2) are considered wetlands under Section 1333 of The London Plan and are provided protection under Section 1334 of the plan. **December 2020 Response:** The proposed buffers and maintenance of 91% of pre-development infiltration will provide sufficient protection to the wetland communities within the natural feature. The primary concern with regard to protection of the wetland communities and their respective plant species is the maintenance of groundwater and surface water contributions from adjacent lands. Based on the revised water balance we believe that this concern is addressed.	
12)	Section 3.3 states that the woodland features on site are considered significant according to the City of London Evaluation Guidelines. Please discuss how much buffer is needed to protect these communities given the proposed development type and location. **January 22, 2020 Comment:** Additional buffer bump out. Hydro corridor restoration area, larger buffer for larger wetland. SWT2 community more critical for groundwater. Add heights of trees for the woodland min. setback.	NA	NA	The buffer zones were established to protect the trees within the natural feature and their rooting zones. Based on the tree heights of edge trees, their critical rooting zones (within the dripline) and the estimation of their feeder rooting zone, a 10m buffer is considered to be sufficient protection. The 10-12m woodland buffer is consistent with the City of London's Buffer Guidelines. **December 2020 Response:** The proposed buffers and maintenance of 91% of pre-development infiltration will provide sufficient protection to the wetland	NA

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
				communities within the natural feature. The primary concern with regard to protection of the wetland communities and their respective plant species is the maintenance of groundwater and surface water contributions from adjacent lands. Based on the revised water balance we believe that this concern is addressed.	
13)	Section 4 and Figure 5 reference a "potential footpath"/"pathway" located within the buffer on the east side of the natural feature that also crosses the ravine near the north end of the subject lands. The UTRCA does not support development (including pathways and trails) in the buffer and requires adequate consideration of the impact and of buffer size. We offer the following comments: a. Recommendation 2 in Section 6.2.1 states that "buffers may include multi-use trails", yet no justification or rationale is provided for this statement. Please clarify whether this reference is to the City's multi-use paved pathway rather than a trail. Please address. b. As stated in Appendix C (p.4), the UTRCA expects an analysis of the pedestrian bridge/ trail crossing now so that we can confirm whether the necessary Section 28 approvals could be issued. The analysis shall consider a location where the crossing would have the least amount of impact and is properly evaluated in the geotechnical assessment and the EIS. Ensure that the specifications and maintenance activities of the multi-use path (3 m wide and lighted bridge crossing according to Appendix C) are considered when evaluating crossing locations and path footprint. c. The UTRCA requires compensation for the trail crossing to demonstrate a net environmental			After further discussion with Parks Planning, it has been decided that the trail along the east side will be a pedestrian trail, not a multi-use trail. Minor adjustments to Lots 6 and 7 can be made to bring the trail outside of the buffer for the majority of its length. A revised conceptual trail alignment will be provided. The proposed trail crossing of the ravine is a City of London initiative and has only been included in the proposed development plan to indicate a future crossing. A Scoped EIS will likely be required to specifically address the proposed crossing at the time that the proposed works are being planned. **December 2020 Response:** As previously stated by Planning and Engineering, the trail alignments shown are conceptual and do not represent the final trail design. It is recommended that the final trail setback and location be determined at the detailed design stage. All efforts will be made to reduce associated impacts by locating the	Further discussions have been held with Parks Planning, and the trail on the east side of the ravine will not be a multi-use path. Instead, it will be a pedestrian trail that is not hard surfaced. The draft plan has also been revised at the rear of lots 7 and 8 to bring the trail outside of the buffer. As a result, there is only a very minor encroachment of the trail into the buffer, primarily where it would cross the ravine. This area is impossible to avoid. It should also be noted that any trail alignments shown are conceptual in nature. Final alignment would be determined at the detailed design stage in consultation with Parks Planning and the consulting team.

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
	benefit. Appropriate mitigation measures must be developed for the preferred alternative. d. Please provide a discussion regarding the potential for hazard trees to impact the multi-use trail (path?) and the road. **January 22, 2020 Comment:** Figure all setbacks on one drawing. Work to confirm the location of trail, as it spans the entire valley (no scope rationale).			trail at a maximum distance from the forest and wetland features.	
14)	Recommendation 2 in Section 6.2.1 states that the recommended buffers will include a 12 m buffer along the eastern edge of the natural feature and a 10m buffer along the western edge of the natural feature. This is not consistent with the buffers which were proposed by Tridon for the lands to the east which included a 10m woodlot constraint, a 30m watercourse constraint and a 30m wetland constraint. The UTRCA does not support the location of the two lots shown southeast of the feature in Figure 5, nor the road alignment at the southern tip of the feature, as these encroach into the outermost constraint boundary. Please apply the Tridon constraint limits on a map and show a proposed lot fabric that respects those constraint boundaries. What compensation will be provided for the road encroachment? **January 22, 2020 Comment:** Infiltration through water balance. Tara wants to reduce the building envelope and add to the detailed design as part of the draft plan conditions.	NA	NA	Our understanding is that NRSI, on behalf of Tridon, did not conduct investigations of the ravine and its features. The proposed buffers that Tridon applied were simply standards for common features. We do not agree with the application of those buffers in this case. The wetland communities observed in the study area did not meet the criteria to be considered Provincially Significant and therefore were not provided a buffer of 30 m. The proposed buffers and maintenance of 91% of pre-development infiltration will provide sufficient protection to the wetland communities within the natural feature. The primary concern with regard to protection of the wetland communities and their respective plant species is the maintenance of groundwater and surface water contributions from adjacent lands. Based on the revised water balance we believe that this concern is addressed.	No reason has been provided by the UTRCA regarding their opposition to Lots 10 and 11 in the southeast portion of the plan. These lots are outside of all buffers and are sufficiently large to provide a suitable building envelope. It is acknowledged that the dwellings will likely need to be custom designed to meet the zoning setbacks that have been requested. **December 2020 Response:** As previously noted, all proposed buildings and zoning setbacks are outside of the buffers. The lots are very large and provide ample space for a custom-designed dwelling. There is no reason to sterilize them.

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
				The application of a 10 m buffer on the west and a 12 m buffer along the eastern edge of the natural feature are sufficient to mitigate any impacts from the development to the natural feature (woodland and wetland) and provide opportunities for restoration within the buffer zone. The current buffer zone also provides a 25 to 35 m separation to the intermittent watercourse that flows through the middle of the feature. Both southeast lots shown on Figure 5 respect the woodlot boundary provided by AECOM. Restoration within the established buffers through the planting of native shrubs and herbaceous species will compensate for the loss of 0.01 ha worth of buffer area from the road encroachment. Furthermore, additional restoration will be provided within the block under the hydro corridor and other non-development blocks within the subject lands.	
15)	Section 6.2.2 indicates that the implementation of buffers will provide opportunities for habitat enhancement. How will the habitat in the buffer be enhanced if the buffer contains a multi-use paved pathway? **January 22, 2020 Comment:** Accepted.	NA	NA	Of the 0.86 ha of natural buffers provided by the subdivision design, 0.11 ha (13%) are currently committed to the construction of a pathway in the buffer. The pathway now being proposed, however, will be a pedestrian footpath, reducing the potential impacts within this buffer area. The remaining 0.75 ha will be planted with native shrubs and herbaceous species including milkweed.	After further discussion with parks Planning, the proposed trail on the east side of the ravine will not be a multi-use paved path. It will be a pedestrian trail.

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
				Additionally, lands under the hydro corridor are proposed for restoration as meadow habitat.	
16)	In Section 7, please explain the difference between the first two bullets. Are the areas proposed for restoration different than the naturalized buffer areas? Please show on a map. **January 22, 2020 Comment:** Accepted.	NA	NA	The naturalized buffer area will be established as part of the development with restoration activities taking place within the established area. In addition to the buffers, areas under the hydro corridor are proposed for meadow habitat restoration. This will provide substantial restoration within the subject lands. **Figure 7** (attached) indicates where the restoration is to be implemented.	NA
17)	In Section 1.4, please include all relevant information collected for the Tridon lands on the east side (Old Victoria East Subdivision for 1691, 1738 and 1742 Hamilton Road) by NRSI (July 2015) including the following: • 10m buffer for east side of woodland • 30m buffer for wetland • 30m buffer from high water mark • cumulative impact of infiltration reduction by 40% from the Tridon lands • transplant location of Hairy Aster **January 22, 2020 Comment:** Water balance mitigation. Confirm with Tridon where their Hairy Aster was relocated on Sifton property.	NA	NA	As noted above, our understanding is that NRSI, on behalf of Tridon, did not conduct investigations of the ravine and its features. The proposed buffers that Tridon applied were simply standards for common features. We do not agree with the application of those buffers in this case. **December 2020 Response:** We have consulted with NRSI regarding the location of the hairy aster transplant. The hairy aster was transplanted in 2016 to a location outside of Sifton's project limits. A figure showing the location is attached to this table.	NA
18)	Section 2.1.1 mentions that critical habitat for several SAR species was identified in the Thames River, of which the on-site stream is a tributary. Please discuss how this site is being serviced, and whether any outlets are entering the on-site tributary or the Thames River.	NA	NA	On-site stream connectivity to the Thames River is discussed in section 2.1.3 of the EIS report. Limited property access downstream of the study area prevented AECOM staff	Refer to Section 5 of the functional servicing report, there are no proposed outlets to Tributary 3 or the Thames River.

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
	January 22, 2020 Comment: No impacts.			from confirming how the on-site stream outlets to the Thames River. However, after the completion of roadside investigations and aerial photo interpolation it is assumed that the stream flows underground from the pond downstream of the study area to where it eventually outlets into the Thames River.	
19)	Section 2.3.3 mentions that a Barn Swallow structure was installed prior to May 1, 2017. Please provide the location of this structure and whether it has been successful in compensating for the loss of 12 Barn Swallow nests located in a structure at 1938 Commissioners Road East. **January 22, 2020 Comment:** Accepted.	NA	NA	The barn swallow structures are located within the Victoria by the River lands north of Block 153 along the Thames River. To-date we have not observed barn swallows nesting in the structures. For this reason, we are proposing to MECP that the structures be modified to improve the potential for nesting.	NA
20)	Appendix G recommends that milkweed be included in seed mixes used during post construction vegetation restoration. Please include this in recommendations 4 and 8 in Section 6.7. **January 22, 2020 Comment:** Recommendations not included, include in the end of document (all recommendations).	NA	NA	Milkweed will be proposed for the vegetation restoration within the established buffer zones and the restoration areas indicated on **Figure 7.** Milkweed is currently included in the Recommended Plantings table within the Buffer Planting areas on Figure 7s of the EIS report. **December 2020 Response:** Recommendations in the EIS report have been updated to include the recommendation that milkweed be included in the proposed seed mixes.	NA
21)	Appendix G recommends exclusion fencing for snapping turtles. Please include this as a recommendation in Section 6.7, and ensure that this fencing is permanent and will remain in the post development scenario. **January 22, 2020 Comment:**	NA	NA	Fencing of the development site will be addressed during the site plan approval process. Fencing is generally a requirement of the City of London site plan approval	NA

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
	Recommendations not included, include in the end of document (all recommendations).			process and will likely be a requirement in the Development Agreement. **December 2020 Response** Section 6.7 has been updated to include the recommendations for exclusionary fencing for snapping turltes. A recommendation to consider permanently fencing the development limit of the vegetation patch has also been included.	
22)	In Section 6.7 please include all recommendations about when vegetation removal should occur, given the potential for sensitive species and Significant Wildlife Habitat. **January 22, 2020 Comment:** Recommendations not included, include in the end of document (all recommendations).	NA	NA	Vegetation removal shall occur outside of sensitive wildlife timing windows (i.e., breeding bird season April 1 – August 31, bat maternity roosting season (March 30 – October 1). No in water work is anticipated. **December 2020 Response:** Section 6.7 has been updated to include the sensitive wildlife timing windows.	NA
23)	In the beginning of the second paragraph of Section 2.2.1.3 it states that two site visits for amphibians were conducted, yet data is provided for three site visits. **January 22, 2020 Comment:** Accepted.	NA	NA	Three surveys were completed during the spring of 2017. We will correct the text of the report.	NA
24)	Please ensure that consistent terminology is used. Is a multi-use trail or multi-use paved pathway which is being proposed in the buffer? **January 22, 2020 Comment:** Accepted.	NA	NA	After further discussion with Parks Planning, it has been decided that the trail along the east side will be a pedestrian trail, not a multi-use trail. Terminology in the report will be revised accordingly.	The trail along the east side of the site will not be a multi-use trail.
25)	Why can't a pedestrian connection be accommodated on a sidewalk along Constance Avenue rather than in the buffer along the east side of the ravine? **January 22, 2020 Comment:**	NA	NA	An alternate pedestrian connection will be discussed with Parks Planning.	**December 2020 Response:** If the City / Parks Planning would prefer to have the trail overlap with the sidewalk in certain sections, we have no issue with that. The precise alignment of the trail would be

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
	Accepted. City has requested sidewalk outside of the buffer. Larger buffer would be ok to include the trail/path. Further discussions with Parks to confirm this is required.				determined at the detailed design stage.
Comments on the Draft Plan of Subdivision					
	Please provide a revised draft plan which clearly delineates the top of slope, the stable top of slope and the 6 metre erosion access allowance as well as the ecological buffer. Please identify these lines in different colours or more legible/distinguishable markings.	NA	NA	NA	Refer to the proposed Draft Plan in Appendix A and Figure 3.0 in Appendix B of the Functional Servicing Report. The feature lines are also transposed to cross sections on Figure 4.0. **December 2020 Response:** The revised draft plan includes all slope and buffer delineations in different colours.
	The plan includes a line labelled "recommended boundary". What does this line represent? Does it include the 6 metre erosion access allowance? The ecological buffer?	NA	NA	NA	The "recommended boundary" reflects the outermost constraint, whether it is ecological or geotechnical, and includes the buffers and/or 6 metre erosion allowance.
	Street B encroaches into the buffer. What compensation is being provided? **January 22, 2020 Comment:** DP Subdivision, functional report? (UTRCA requested). No relocation of feature, unless it has a similar function to compensate appropriately. (Encroachment compensation of this feature with buffer).	NA	NA	NA	Street B encroaches into the buffer less than 2 metres, at the most, in the area that would be part of the treed boulevard. Any compensation area required could be provided at various locations on the plan in the park blocks. **December 2020 Response:** The area of the incursion is 8.1 sq.m. in total and it projects into the ROW 1.65m. This is extremely minimal and would be part of the boulevard which would be grassed and planted. If desired, this boulevard area could be naturalized.
	The UTRCA does not support Lots 10 and 11. Please revise the plan.	NA	NA	NA	No reason has been provided by the UTRCA regarding their opposition to Lots 10 and 11 in the southeast portion of the plan. These lots are

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
					outside of all buffers, and are sufficiently large to provide a suitable building envelope.
Comments on the Final Proposal Report					
	The Table of Contents indicates that Appendix G is the Stormwater Management Plan but the provided version of the report only includes figures. Is there a stormwater management plan? If so, please provide a hard copy and an electronic copy to the UTRCA. **January 22, 2020 Comment:** Accepted. It was noted that the SWM 1 and 2, VOTR not on site but in the subdivision.	NA	NA	NA	The FPR document was originally being utilized to describe the servicing/SWM approach but Dev Eng has since prepared the enclosed functional servicing report dated September, 2019, to assist in addressing comments.
	Please ensure that the infiltration gallery is located outside of the natural hazard and natural heritage features including the buffer. Please provide more details about the proposed overflow outlets including information on energy dissipation measures, sediment and erosion and confirm that the outlets will not impact the slope.	NA	NA	NA	LID features are proposed outside of the natural hazard and natural heritage features as shown on Figure 2.0. The proposed overflows from the LID system will include engineered slope reinforcement, energy dissipation measures, and sediment and erosion protection at the detailed design stage as required to safely convey the major flows down the slope to Tributary 3.
	P.14 – it is noted that there is a minor incursion of Street B into the buffer and that additional information is provided in the EIS. The list of recommendations in the EIS does not appear to include compensation for the incursion. Please address.	NA	NA	NA	The incursion is extremely minor (8.1 sq. m.), and would be part of the grassed / treed boulevard. Opportunities could be considered for a more naturalized boulevard, or equivalent compensation could be provided in one of the park / open space blocks, if necessary.
	P.15 – Subdivision Design – does not make reference to the ravine crossing.	NA	NA	NA	The crossing is referenced in Section 5.0, 8.4 and 9.3.
	P.18 –It is stated that *the watermain is anticipated to be extended through the proposed pathway block and strapped under the proposed pedestrian bridge spanning the ravine onto Street A* (Oriole Drive?) *of the adjacent Old Victoria East development*. Adequate analysis has not yet been completed for a location for the proposed ravine crossing/pedestrian bridge.	NA	NA	NA	Refer to Section 5.3.1 of the functional servicing report. The water connection is required to loop the low-pressure system from Victoria on the River to the Oriole Drive in adjacent development to the east.

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
	Accordingly, please evaluate other options for extending the water servicing.				
	P. 18 – Stormwater Management Plan – please provide a copy of the stormwater management plan if there is one.	NA	NA	NA	The FPR document was originally being utilized to describe the servicing/SWM approach but Dev Eng has since prepared the enclosed functional servicing report dated September, 2019, to assist in addressing comments.
CITY DEVELOPMENT SERVICES COMMENTS – JULY 8, 2019					
Detailed Comments on the EIS					
1. Section 2.2.4 Results and Discussion (Vegetation)	This section does not accurately represent the full extent of the groundwater dependent plants located throughout the Woodland/ Valley. A site walk by the DS Ecologist identified skunk cabbage through the feature and in relatively high numbers in a couple locations. However the description found in this section of the EIS implies that it was just noted with a couple individuals. Identify the extent of ground water indicator species throughout the various polygons. **Action: Revise section accordingly and clearly indicate the location/extent of the groundwater indicator species.** **January 22, 2020 Comment:** Accepted.	NA	NA	Report Section 2.2.1.3 (note that report formatting has been revised) identifies the groundwater indicator plants within the ravine. The following groundwater indicator species were observed within the study area: - Watercress (FOD7-4, SWT2) - Skunk Cabbage (FOD7-4, SWT2) - Jewel weed (FOD7-4, FOD9-5, SWT2) The populations of these plant species were mapped during field investigations conducted on July 22, 2019. **Figure 5** (attached and in the revised report) shows the extent of the groundwater indicators and the locations of seepage areas.	NA
2. Section 2.2.9 & 2.2.11 Breeding Birds	AECOM identifies that they completed breeding bird surveys during the 'spring/summer 2017', however the report identifies that the surveys were carried out on July 6, 2017 and July 9, 2017. This is not acceptable and does not represent a complete breeding bird survey for the subject lands. Standard breeding bird surveys should be carried out a minimum of 2 dates separated by at least 10 days. It is possible that multiple species that are breeding within the subject lands were not identified. Therefore, an assumption of species	NA	NA	Agreed. The report section will be revised. As the vegetation patch has been identified as a Significant Woodland, the habitat for breeding birds will be protected by virtue of protection of the feature with associated ecological buffers.	NA

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
	presence must be taken due to lack of data (i.e. Eastern wood-pewee). Greater sensitivity of this feature for more sensitive breeding birds must be afforded in the Environmental Management Plan section of this EIS. **Action: Update this section to identify that complete breeding bird surveys that represent the breeding bird window were not carried out for the subject site.** **January 22, 2020 Comment:** Gary to confirm bird survey timing on when it was conducted, may have been reported incorrectly in terms of dates. Normally 10-15 days apart.			**December 2020 Response:** The original date of the breeding surveys was correct. As such, the report has been updated to list both Eastern Wood-pewee and Wood Thrush as candidate SOCC within the study area. However, as stated previously in the original response, the vegetation patch has been identified as a Significant Woodland and the habitat for these species will be protected by virtue of protection of the feature with associated ecological buffers.	
3. Section 2.4 Significant Wildlife Habitat	DS Ecologist identified during the site visit multiple Terrestrial Crayfish Chimneys located adjacent to the SWT2 Community towards the north end of the subject site. This confirms SWH for Terrestrial Crayfish is associated with this features as well. Based on the breeding bird survey (see comment above), update this section to identify SAR/ SC bird species that have suitable habitat present within the study area and now have to be assumed to be present. **Action: Update this section and other sections accordingly to identify confirmed SWH for Terrestrial Crayfish and update the SWH for Breeding Bird Species.** **January 22, 2020 Comment:** Sufficient habitat/setback.	NA	NA	Noted This feature is being treated as a Significant Woodland and appropriate mitigation is being applied. The report section will be revised.	NA
4. Section 4.0 Proposed development	Update Figures to better identify the single family homes (lot #s), and the medium density block locations. **Action: Update figures accordingly.** **January 22, 2020 Comment:** Accepted.	NA	NA	An updated development plan has been prepared and will be incorporated into the EIS report figures.	NA
5. Section 4.1 Hydrogeological Assessment / Water Balance	This section does not thoroughly address the protection of the groundwater features associated with this significant Natural Heritage Feature. This does not demonstrate that the feature and its function are	NA	NA	exp has prepared an up-dated water balance based on natural infiltration being maintained.	NA

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
	protected as a result of this proposed draft plan. Further detail and connection to the Hydrogeological Study/ Water Balance is needed. The City also defers to the UTRCA for additional comments regarding the Hydrogeological Assessment and Water Balance for these features and functions. **Action: Update this section and any other relevant sections accordingly.** **January 22, 2020 Comment:** Accepted.			The up-dated water balance demonstrates that there will be a minimal reduction in infiltration resulting in post-development infiltration estimated at 94% of pre-development. Section 4.1 will be revised to reflect the up-dated water balance.	
6. Section 5.6 Net Environmental Impacts	This section does not adequately identify and address all of the potential effects the development could have and the natural heritage features and functions. Please review Section 1.0 of the EMG (Table 1), that identifies potential impacts and their expected effects. Update the table to consider all of these components and properly identify the low/med/high potential impacts have and how mitigation measures may (or may not) reduce these potential impacts over the short/ long-term. As it currently stands, with the current AECOM proposed mitigation strategy (only 10-12m buffers) that the overall impacts on this feature will likely be negative over the long-term and not positive as AECOM has proposed. **Action: Review and revise this section accordingly.** **January 22, 2020 Comment:** Effects long term, more analysis buffer function. Smaller buffer setback, higher failure rate, function to protect feature.	NA	NA	We will review and up-date the Net Effects Section and table. We disagree, however, that the net effects will be negative over the long-term. **December 2020 Response:** The net effects table has been updated to better address potential long-term effects.	NA
7. Section 6.2, 6.2.1, 6.2.2, and 6.3 Buffer Zone Establishment and Management	These sections do not provide for adequate protection using buffers for the natural heritage features and their associated functions/ sensitivities. AECOM also has not provided the buffer calculation from Section 5.0 of the EMG. This calculation would show that much larger buffers (minimum/ maximum) are needed for this feature and its ecological functions. This calculation is to be provided and discussed as part of this section. The woodland feature scored four high criteria, three medium and zero low, in addition to the other sensitivities (i.e. seeps/springs, wetlands, SWH) identified and lack of sufficient breeding bird data. Minimum buffers for wetlands is 30m. Additional	NA	NA	The buffer section of the EIS report has been revised to provide further rationale for the proposed buffers. **December 2020 Response:** The wetland communities observed in the study area did not meet the criteria to be considered Provincially Significant and therefore were not provided a buffer of 30 m. The proposed buffers and maintenance of 91% of pre-	NA

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
	buffers are needed for the feature and additional rationale provided if a reduction (in some locations) in the minimum buffers is proposed. Perhaps discussing and showing buffers for different sections (i.e. 5-6 sections) along the feature would be helpful. **Action: Revise section and update all Figures accordingly. Provide the buffer calculation from the EMG Section 5.0 and further discussion on the protection of highly sensitive features and functions.** **January 22, 2020 Comment:** Calculation required. Expected to see development limit, discuss with Gary and James.			development infiltration will provide sufficient protection to the wetland communities within the natural feature. The primary concern with regard to protection of the wetland communities and their respective plant species is the maintenance of groundwater and surface water contributions from adjacent lands. Based on the revised water balance we believe that this concern is addressed. The application of a 10 m buffer on the west and a 12 m buffer along the eastern edge of the natural feature are sufficient to mitigate any impacts from the development to the natural feature (woodland and wetland) and provide opportunities for restoration within the buffer zone. The current buffer zone also provides a 25 to 35 m separation to the intermittent watercourse that flows through the middle of the feature. Additional buffer capacity is provided in restoration areas adjacent to the wetland community SWT2 on the east side (Block 46) providing up to 40m and on the west side (Blocks 47 and 52) providing 15m to >30m. On the southeast side Block 48 provides additional buffer capacity ranging from 12m to 30m.	
8. Section 6.0 Environmental Management Plan	AECOM has placed the proposed pathway location inside of an already relatively small buffer. This is not consistent with the EMG, which identifies that pathways/ trails are to be located outside of the buffer. While it is recognized that a pathway will need to cross into the buffer in order to cross the feature, running the length of the pathway on the east side within the buffer is not acceptable, unless a much larger buffer is	NA	NA	Note that: the trail and the trail crossing of the ravine are a City of London initiative. After further discussion with Parks Planning, it has been decided that the trail along the east side will be a pedestrian trail, not a multi-use trail.	The pathway on the east side will be a pedestrian trail, not a multi-use trail.

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
	provided where it could then be acceptable to have the pathway inside of the buffer. In this particular case, the pathway along the east side is to run parallel to the existing roadway (i.e. where the sidewalk would be). **Action: Review and update this section accordingly.** **January 22, 2020 Comment:** Accepted.			A pedestrian trail with a wood chip or other low-impact surface will significantly reduce impacts.	
9. Section 6.7 Recommendations	This section is required to better reflect the protection measures needed for the subject site during pre-constructing, active construction, and post construction. The recommendations are taken directly from the EIS and translated to future development stages. Further detail is needed and referral in the recommendations to the implementation of the Environmental Management Plan section 6.0 is needed. The EMP needs to identify the extensive construction mitigation measures needed, hydrogeological monitoring for the seeps and springs, restoration objectives etc. Furthermore, no reference to London Plan policies are provided. Consideration of London Plan Environmental Policies are required as part of the EIS and recommendations/ conclusions. **Action: Revise section and provide additional details on protection measures, restoration measures, and monitoring requirements.** **January 22, 2020 Comment:** Detailed recommendations. Additional details will be provided.	NA	NA	The EMP section of the report will be reviewed and revised to provide greater detail regarding recommendations. However, a certain degree of detail will need to be provided as part of the Detailed Design in order to more accurately reflect the site-specific requirements. **December 2020 Response:** The EMP section of the report has been revised to include greater detail and provide additional recommendations. However, as stated previously a degree of detail will need to be provided as part of the Detailed Design.	NA
EEPAC COMMENTS					
Theme 1 – Buffer Surrounding the Ravine					
1.	Prepare a site plan that indicates both the erosion hazard limit and the buffer from the Significant Woodland to clearly delineate the limiting factor for the development limit. The limiting factor should be the wider of the two. **January 22, 2020 Comment:** To include on drawings, recommendations.	NA	NA	A revised Subdivision Plan has been prepared (see attached) and indicates the erosion hazard limit, top-of-slope and the ecological buffer. **December 2020 Response:** Applicable EIS figures have been update to show the erosion hazard	Please see the attached plan which delineates various constraints by colour.

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
				limit, top-of-slope, ecological buffer and the site development.	
2.	Incorporate post-development site conditions/ ravine flow regime into the slope stability report and re-evaluate whether the proposed erosion hazard limit is sufficient to address post development site conditions. **January 22, 2020 Comment:** No comments.	NA	NA	exp has prepared an up-dated water balance based on natural infiltration being maintained. The up-dated water balance demonstrates that there will be a minimal reduction in infiltration resulting in post-development infiltration estimated at 94% of pre-development. As part of the above, exp has confirmed the erosion hazard limits.	NA
3.	The Clean equipment protocol be followed during construction to reduce the possibility of phragmites and other invasive species spreading in an area close to the Significant Woodland and the Meadowlily Woods ESA. **January 22, 2020 Comment:** No comments.	NA	NA	The "Clean Equipment Protocols" will be included as part of the Construction Mitigation Plan. Also, invasive plant species management will be addressed.	NA
Theme 2 – Development within the Buffer					
4.	Relocate the proposed pathway outside of the buffer and use the roadway to the east as the connection to the TVP. Ensure that any footings for the proposed bridge are located outside of the buffer and the erosion hazard limit. **January 22, 2020 Comment:** No comments.	NA	NA	Note that: the trail and the trail crossing of the ravine are a City of London initiative. After further discussion with Parks Planning, it has been decided that the trail along the east side will be a pedestrian trail, not a multi-use trail. A pedestrian trail with a wood chip or other low-impact surface will significantly reduce impacts.	After further discussions with Parks Planning, the trail corridor on the east side of the ravine will be a pedestrian only path, not a paved multi-use trail.
Theme 3 – Post Development Stormwater Management					
5.	Redesign the stormwater management system such that it meets the minimum requirement of achieving an 80% post-development infiltration rate. This is also recommendation 5, page 48 of the EIS. **January 22, 2020 Comment:**	NA	NA	exp has prepared an up-dated water balance based on natural infiltration being maintained. The up-dated water balance demonstrates that there will be a minimal reduction in infiltration	NA

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
	Confirming the 94% pre-development, UTRCA were questioning the data and Gary and Heather explained.			resulting in post-development infiltration estimated at 94% of pre-development. Section 4.1 will be revised to reflect the up-dated water balance. **December 2020 Response:** Section 4.1 has been up-dated with the reviesed water balance prepared by exp. As stated in the comment above, The up-dated water balance demonstrates that there will be a minimal reduction in infiltration resulting in post-development infiltration estimated at 94% of pre-development.	
6.	As recommended on page 48 of the EIS, an updated water balance be completed as part of the final design. **January 22, 2020 Comment:** MF Blocks, clean runoff (OGS filter water). Not fully supported.	NA		See the response above. The water balance will be up-dated to reflect the specifics of the Detailed Design.	**December 2020 Response:** There are multiple stages of surface water treatment including catchbasins with deep sumps and goss traps, an oil-grit separator, and a potential vegetated strip prior to runoff discharging into the LID.
7.	Should the revised stormwater management plan include LID systems, these systems be placed on public property, as the eventual homeowner may lack the desire or skill to maintain the LID measures and run-off may consequently increase over time as the efficacy of the LID measures wane. **January 22, 2020 Comment:** Location of LID's in MF Block or Hydro corridor not adjacent to public road or private site (back yards).	NA	NA	NA	The City of London has insisted that LID features be outside of the municipal road allowance and on private property, a monitoring and maintenance document will be provided to the homeowners/condo corporation where these features are located similar to other underground infrastructure. **December 2020 Response:** LID's cannot be located in the hydro corridor, final location to be confirmed at Site Plan Stage.
Theme 4 – Butternut Tree Preservation					

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
8.	Given the tree will be retained, ensure that the proposed buffer zone is at least 25m to protect the tree. **January 22, 2020 Comment:** Health assessment completed not able to protect butternut tree.	NA	NA	The butternut tree will be protected within the Significant Woodland feature. However, given that it has been determined to be a non-retainable tree, a 25m buffer is not required.	NA
Theme 5 – Environmental Management Plan					
9.	An Environmental Management Program to the satisfaction of the City be included as a condition of development. **January 22, 2020 Comment:** No comments.	NA	NA	A detailed Construction Mitigation Plan, including Species at Risk and Wildlife Handling Protocol will be prepared as part of the Detailed Design Stage.	NA
Theme 6 – Construction Impacts					
	EEPAC is concerned that the EIS leaves open (p. 39) that construction will take place within the buffer. This should not occur even if it means redesigning the development. **January 22, 2020 Comment:** No fuel staging 30 m away.	NA	NA	The intent was not to allow construction within the buffer; it was identified as a potential impact. The buffer will be considered a "no development" area and protected as part of the feature.	NA
Theme 7 – Post Construction Impacts					
10.	The homeowner brochure recommended in the EIS include information on why homeowners should limit their use of fertilizers as well as salt and other additives for snow removal because they will disrupt the natural feature and its functions because water will run into the ravine because of the use of LID measures. **January 22, 2020 Comment:** Include pool information package for drainage, natural areas package and cat/dog brochure.	NA	NA	Noted. This can be included in the Homeowners brochure. **December 2020 Response:** Noted. Information on the adjacent natural areas and pets is typically included in a Homeowners brouchure. Information regarding pools can also be added to the brochure.	NA
11.	Signage be posted at both ends of the proposed bridge explaining the significance of the feature and the nearby Environmentally Significant Area. The text should be to the satisfaction of the City and the requirement be included in the development agreement. **January 22, 2020 Comment:** No comments.	NA	NA	Noted.	This can be included by the City as a draft plan condition.

Comment #	Comments	Geotechnical Response (exp)	Hydrogeological Response (exp)	Environment Response (AECOM)	Planning / Engineering Response
12.	Prior to assumption, the proponent deliver to each residence a copy of the City's "Living with Natural Areas" brochure. This requirement is to be included in the development agreement. **January 22, 2020 Comment:** No comments.	NA	NA	Noted. This will be recommended.	This can be included by the City as a draft plan condition.

435-451 Ridout Street, London Ontario

Final Preliminary Environmental Impact Study

Prepared for: Farhi Holdings Corporation, 484 Richmond Street, Suite 200 London, ON N6A 3E6

Prepared by: Natural Resources Solutions Inc.

Project No. 2161 – July 2019

Reviewed for EEPAC by: Ian Arturo and Susan Hall, 14 May 2020

General Comments: A proposed multi-use development is planned on a, roughly rectangular in shape, approximately 1.4ha plot of land, bordered by Harris Park to the north, Ridout Street North to the east, Queens Avenue to the south, and a small access road to the west, which borders the North Thames River. The property contains parking lots, existing heritage buildings with established businesses, manicured lawn, and small cultural natural areas. A large portion of the subject property is identified as being within the floodplain and regulated area by the Upper Thames River Conservation Authority (UTRCA).

"The primary objective of the Environmental Management and Monitoring Plan is to restore the function and structure of features which are removed and to enhance any areas on-site. It is proposed that this brownfield site be remediated, as well as the non-natural fill materials be excavated from the bank. There is opportunity to stabilize the bank and re-naturalize it with native species through new landscaping." (p. 37).

Recommendation 1: Support the Landscape plan described on p. 24 and the process that is outlined to identify what to plant as well as the removal of invasive species while following all applicable City, Provincial, and Federal regulations if this is indeed a Brownfield site. Ontario Records of Site Condition regulations are here: https://www.ontario.ca/laws/regulation/040153.

"Stormwater management will need to consider the Thames River and the floodplain, as well as the One River Environmental Assessment (if finalized at the time)." (p. 24).

Specific Comment 1: The subject property is within floodplain lands considered for the "Back to the River" conceptual plan: https://backtotheriver.ca/sites/default/files/DIL1501_Back-to-the-River_Final-Book_DIGITAL%20%281%29.pdf and is also part of the Thames Valley Corridor. "The majority of the study area falls within the significant valleyland corridor" (p. 20). A 100 m buffer is suggested on p. 7, citing the Thames Valley Corridor Plan from 2011.

Recommendation 2: Even if the One River Environmental Assessment has not been finalized at the time of writing, concepts in the One River Environmental Assessment and the Back to the River plan must be accommodated.

"Specific to the subject property, and just beyond, included Redbud and Canada Yew (Taxus canadensis), both species believed to be associated with landscaping of the subject property and the adjacent Eldon House." (p. 13).

"Canada Redbud, which is considered Extirpated from Ontario (SX), was noted growing within the Cultural Woodland Inclusion. This species has escaped from the gardens at Eldon House, so this observation is also not considered significant. " (p. 14).

Specific Comment 2: These statements offer varying degrees of certainty. Is the presence of Redbud and Canada Yew naturalized from nearby landscaping the opinion of NRSI? Cite source if not.

Recommendation 3: "The Tree Inventory Data" table in Map 3 doesn't indicate which species are invasive. Indicate which species are invasive/non-invasive, perhaps as an asterisk in the native/ non-native column.

Recommendation 4: More discussion should take place regarding management of invasive vascular plants. There should be a clear differentiation between non-native species which are not considered invasive (such as London Plane-Tree (*Platanus X acerifolia*)) and those that are (such as Norway Maple (*Acer platanoides*)).

Three onsite surveys were completed (Sept., Oct. and Nov.). The timing was acknowledged as possibly accounting for a very low species diversity (total of 4 bird species observed within the subject property) of birds, no sightings of herpetofauna (p.16) nor Lepidoptera or Odonata species (p.18).

Eastern Wood-pewee (SCC): In 2013 UTRCA indicated that habitat for Eastern Wood-pewee should be protected regardless of whether the species was observed or not. Habitat for Eastern Wood-pewee was identified in Harris Park as candidate SWH (Eastern Wood-pewee), which extends onto the subject property as part of the northern cultural woodland (p.21).

Specific Comment 3: The same holds true for the common nighthawk which is considered special concern provincially and the flat top roof on the heritage buildings.

Recommendation 5: Disturbance to wildlife should consider bird impacts from the completed building. Building design should use the City of London's Bird Friendly Skies guidelines: http://www.london.ca/business/Planning-Development/Pages/Bird-Friendly-Skies.aspx.

"It is expected that once detailed designs, grading plans, and servicing information is known, that an addendum will be required to this EIS in order to update the impact analysis and identify further mitigation measures." (p. 1).

Recommendation 6: EEPAC should be invited to give feedback at this point and to review the monitoring plan.