

## **19-59 Lowes Road Zoning By-Law Amendments (ZC1615) & Draft Plan of Vacant Land of Condominium Subdivision**

### **City of Guelph Comments**

#### **Notes**

The application is for a Zoning By-law Amendment and Draft Plan of Vacant Land of Condo to permit the development of a thirty-six (36) unit vacant land of condominium development where there are currently six (6) single detached dwellings.

The comments below are in response to the review of the following plans & reports:

#### ***Circulated October 25, 2016***

- Phase 1 & Phase 2 Environmental Site Assessment (ESA) – MTE Consultants Inc. (June 2016).

#### ***Circulated June 14, 2016***

- Draft Plan of Vacant Land of Condominium – Astrid J. Clos Planning Consultants (May 24, 2017);
- Functional Servicing Report – Stantec Consulting Ltd. (May 30, 2017);
- Scoped Environmental Impact Study – Aboud & Associates Inc. (May 31, 2017);
- Geotechnical Investigation Report – Englobe Corporation (May 24, 2017);
- Scoped Hydrogeology Study – Englobe Corporation (May 24, 2017).

#### ***Circulated January 10, 2018***

- Soil Infiltration Letter – Englobe Corporation (November 13, 2017);
- Groundwater Mounding Assessment Letter – Englobe Corporation (November 13, 2017);
- Revised Infiltration and Water Balance Calculations Letter – Stantec Consulting Ltd. (November 14, 2017);
- Environmental Impact Study Addendum – Aboud & Associates Inc. (November 17, 2017);
- Phase 1 and 2 Environmental Site Assessment Reliance Letter – MTE Consultants Inc. (January 26, 2017).

High-level Engineering staff comments were provided to the applicant on November 10, 2016 as preliminary feedback based on the previous site layout of a cluster townhome development. As such, this is the first formal staff review of the current application with single family homes being proposed.

For ease and clarity, this memorandum will use the same headings as organized in the peer review letter dated December 22, 2017 prepared by Cole Engineering Group Ltd.

#### **Comments dated February 16, 2018 - Michael Witmer, Development and Environmental Engineering**

#	C/R	Description
<b>Hydrogeology Report</b>		
1.0	C	The public meetings held for this application and the previous application (townhomes) had a large turnout of concerned neighbours in the vicinity that currently have ongoing issues with flooding. The City has also responded to multiple complaints of both basement flooding and surface ponding in this area. Shallow groundwater within the area is likely a cause of these ongoing issues. Considering this is a localized question, Engineering staff support the recommendation in the peer review response by Cole Engineering, that the depth to groundwater be confirmed with monitoring during the upcoming freshet.
	R	Given neighbour concerns, infiltration is designed to match existing rates. No enhanced recharge is proposed.
	R	Monitoring continued through Spring 2018

#	C/R	Description		
2.0	C	Once the groundwater depth is confirmed, the separation from the groundwater is to be a minimum distance of 0.5m from the basement as per the City of Guelph's Development Engineering Manual (DEM) and 1.0m from the underside of the stormwater management pond and infiltration galleries as per the MOECC SWM Planning & Design Manual.		
	R	Refer to drawings SSP-1 and GP-1; basements, infiltration galleries and SWM facility all set at 1.0 m above high groundwater.		
Groundwater Mounding				
1.0	C	Clarify and update the analysis of the calculated groundwater mounding as per the direction of Cole Engineering.		
	R	Englobe completed a second round of infiltration testing in May, 2018. As a result the design infiltration rates utilized a 3.5 safety factor. The design infiltration rates were then applied in the groundwater mounding calculations and described in Englobe Reference P-0010233-0-08-305-HD-L-0002-00, June 2018		
Infiltration Testing				
1.0	C	On-site infiltration testing shall be updated to confirm the underlying soil below the proposed locations of the galleries. Direction from Mary Angelo, P.Eng, Supervisor, Development Engineering, was provided to both Englobe and Stantec on June 22, 2017 as a reminder to what specific testing protocols were required to complete the permeameter tests as per the City's DEM.		
		<table><tr><td>Is additional permeameter testing required at test location GP-03-17?</td><td>Refer to DEM – exact location of GP-03-17 relative to proposed infiltration galleries cannot be clearly determined.</td></tr></table>	Is additional permeameter testing required at test location GP-03-17?	Refer to DEM – exact location of GP-03-17 relative to proposed infiltration galleries cannot be clearly determined.
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	R	A second round of insitu infiltration testing was completed on May 9, 2018. The results of this including the location of GP-03-17 relative to the proposed clean water collection system is identified within Englobe Report No. P-0010233-0-07-304-HD-L-0002-00, June 2018		
2.0	C	It has been the City's practice that the safety factor applied to determine the design infiltration rates utilizes the methodology outlined in the Toronto Region Conservation Authority and the Credit Valley Conservation Authority (TRCA/CVC) "Low Impact Development Stormwater Management Planning and Design Guide" Appendix C.		
	R	A second round of insitu infiltration testing was completed on May 9, 2018 and a safety factor of 3.5 was applied to determine the design infiltration rates. We refer you to Englobe Report No. P-0010233-0-07-304-HD-L-0002-00, June 2018		

#	C/R	Description
<b>Water Budget</b>		
1.0	C	The water balance criteria used for the site should follow the City's DEM – refer to section 5.7. Best management practices should be utilized to mimic pre development recharge rates.
	R	The water balance criteria from the City's DEM have been followed and existing infiltration rates have been mimicked where possible. LID features such as enhanced grassed swales and the Clean Water Collection system have been incorporated to match pre-development infiltration rates as required. See Sections 3.3 and 3.4 of the revised Stantec SWM report (2018) for details. The Thornthwaite and Mather methodology has also been followed. Overflow from the Clean Water Collector spills to the surface and ultimately reaches the SWM facility. In-situ Guelph permeameter testing was completed by Englobe staff in spring 2018.
2.0	C	The water balance identifies increased runoff rates and lower evapotranspiration rates on the site under the proposed conditions. Comments provided by both April Nix and Cole Engineering have indicated a concern with increased runoff to the receiving lands. Furthermore, the total recharge that is identified shows a marked increase from existing conditions which is not in keeping with guidelines provided by the City of Guelph. As discussed at the meeting held on January 19, 2018, the applicant is strongly encouraged to reduce the proposed impervious areas on the site and provide opportunities for on-site evapotranspiration in order to better reflect the existing site conditions for recharge, runoff and evapotranspiration.
	R	Refer to revised Site water balance and Feature based water balance calculations and discussion in Stantec SWM report (2018)
<b>Storm Water Management (SWM)</b>		
1.0	C	Confirm how the external drainage areas were determined – provide project references and/or topographical plans within the SWM Management Design Brief where necessary. The provided figure 2.0 within the report is very small and the minimum contour interval should be 0.25m as this site is fairly flat. This additional information (specifically the roadside ditch grading/topographical information) was requested with Engineering Services preliminary comments dated November 10, 2016.
	R	Contours have been added to Figure 2 (SWM report).
	R	A large size version of Topographic Survey has been provided in FSR (EX1-Appendix C). In addition overland flow routes were reviewed in detail to confirm (among other things) whether any flow from east of Gordon would flow over the centreline of Gordon Street confirming the external drainage areas on Figure B2 and B3 - Appendix B.

Reference: 19-59 Lowes Road Zoning By-Law Amendment ZC1615 - Submission Comment Responses

#	C/R	Description
2.0	C	In the SWM Design brief, provide clarity around the existing and proposed drainage areas contributing to both outlets 1 & 2. These combined drainage areas (Catchment 201 – 208) and existing external catchments are larger than the original drainage area, identified as Catchment 500, in the Conservation Estates Subdivision. Only a portion of the subject property was designed to be captured and drained through the provided outlets. This additional drainage area under the proposed redevelopment conditions for this site is contributing to an increased runoff volume than original intended for this catchment and has been identified as an issue for the receiving lands. Please refer to Environmental Planning's memorandum.
		<div>Does this comment mean the City will not accept a design for this site that does not follow the existing design areas approved for the adjacent property?</div> <div>City of Guelph provided a SWM Criteria (August 11/16) establishing allowable outlet rate utilizing existing outlets designed during Conservation Estates Subdivision (Drainage Area 500). Design should follow criteria. City will accept a design that includes a larger drainage area provided design meets allowable outlet rates.</div> <div>Annual runoff volumes from the site exceed existing volumes. City staff will not support a design that exceeds existing runoff volumes from the site.</div> <div>Rate needs to meet City issued SWM criteria and volume needs to meet "Hanlon Creek Subwatershed Study".</div>
		<p>We have several concerns with the statement "City staff will not support a design that exceeds existing run off volumes from the site" from item 3 attached, as follows:</p> <ol style="list-style-type: none"> <li>1. The above statement when coupled with the DEM requirement to match recharge volume results in total restriction of any development on the site</li> <li>2. We question the source/basis of this requirement as from a purely engineering standpoint, restriction of runoff rate is typical not volume</li> <li>3. If run off volume is truly a concern the Hanlon Creek Subwatershed study will identify specific restrictions or the environmental analysis will identify the appropriate restrictions</li> </ol> <p>We therefore respectfully request that you reconsider the statement "City staff will not support a design that exceeds existing run off volumes from the site".</p> <p>The City has consistently voiced concerns regarding proposed increases in volume due to the associated potential negative impacts to the ecological and hydrological functions of the Provincially Significant Wetland (PSW). No increase in volume will be accepted by the City unless it can be demonstrated that there is no negative impact to the ecological and hydrological functions of natural heritage features and area. This is to include a natural feature water balance as has been discussed.</p> <p>Stormwater Management (SWM) rates needs to meet City issued SWM criteria, and volume needs to meet the "Hanlon Creek Subwatershed Study". In addition the City has consistently encouraged utilization of various forms of Low Impact Development (LID) for both quantity (i.e., storage) and water quality (filtration). LID tools can also contribute to the overall amount of evapotranspiration in the post development scenario which can also contribute to reducing increases in run off volumes post development.</p>
	R	SWM flow rates meet all targets per Section 3.3 of Stantec SWM Report (2018)
	R	Monthly impact of runoff volume increase discussed in Section 4.0 Feature Based Water Balance for Tributary E of PSW. Expected to have no impact as falls within variation of runoff volume that occurs naturally due to variation in precipitation.
	R	Section 1.2 of Stantec SWM Report (2018) confirms HCSW does not place any restrictions on urban drainage to the headwaters of Tributary E or F since the site has a positive outlet.
	R	Section 2.2 of the EIS Addendum (AA, 2018) addresses the increase in surface runoff and analyzes the ecological effect of the additional flow on the existing vegetation communities.
	R	LID features of development are presented in Section 3.3 of Stantec SWM Report (2018)

#	C/R	Description
3.0	C	As indicated within the SWM brief, it appears that the drainage within the ROW is currently infiltrating within shallow ditches. As discussed at both the Development Review Committee (DRC) meeting on December 16, 2015 and confirmed in an email to Peter Fitzgerald, P.Eng on March 15, 2016, low impact design (LID) practices should be explored further to manage the road drainage within the right-of-way. It is desirable to mimic the existing conditions, infiltration within the right-of-way, if possible. This could reduce the size of the proposed swales located on the east and west property lines if they are no longer conveying the stormwater drainage from within the right-of-way.
	R	Refer to Section 3.3 of Stantec SWM Report (2018)
4.0	C	The City does not desire easements onto private property, for either the proposed swales on the east and west property line or for road drainage that is proposed to be collected in a storm pipe located within private property. Staff comments provided to Astrid Clos on February 17, 2016 in response to the DRC meeting specifically mentioned that "the City will not consider outletting road drainage into a private pond/SWM structure".
		<div>Does this comment mean the City will not accept a design including post development drainage flow through the site?</div> <div>The City will not accept a design including post development drainage flows (stormwater conveyance) from the municipal right-of-way through the site.</div>
	R	Grading, Servicing and SWM revised to ensure Lowes Road does not drain from the municipal right of way through the site. Analysis of overland flow under existing and proposed conditions is presented in Appendix B of the Stantec FSR (2018)
5.0	C	The proposed design of the on-site storm water management will need further evaluation and does not meet the design criteria of either the MOECC SWM Planning & Design Manual nor the City of Guelph's DEM.
		a) The contributing drainage area outletting to the proposed dry pond is less than the minimum criteria of 5 ha and is considerably smaller than the desired criteria of 10 ha. The MOECC manual does suggest that a smaller drainage area can be considered provided that there is an effective treatment train
		b) In order to provide an effective treatment train and quality control at an enhanced level the dry pond will not only require the propose oil-grit separator (OGS unit) but will additional need the additions of a forebay for settlement of the suspended solids as indicated in the DEM. The OGS unit operating alone is assumed to only operate at 50% efficiency.
		c) The length of the flow path from inlet to outlet is to be maximized as the currently proposal shows only a mere 7m of separation. 0.3m freeboard above the maximum peak flow flood level should also be provided.
	R	Infiltration at the SWM pond has been eliminated. Pond provides quantity control and some polishing as part of the treatment train for the runoff.

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#	C/R	Description		
6.0	C	Clarify the emergency overland flow route from the dry pond ensuring that the route is designed to safely convey the 100 year event and the Hurricane Hazel overland flow. This should be directed to the right-ofway as indicated in the City issued SWM criteria. Provide cross sections in the report as necessary.		
	R	Overland flow and Cross-section under is presented in Appendix B of the Stantec FSR (2018). As the 100 year event is higher than the regional event it was determined to be the worst case.		
7.0	C	The Clean Water Collection (CWC) system is to have an overflow bypass for each trench as per the City's DEM and the MOECC SWM Planning & Design Manual.		
	R	There is an overflow at each connection per SSP-2.		
8.0	C	The information within the Stormwater Management Design Brief – Section 4.0 Existing Conditions – incorrectly identifies this site as part of catchment 1210 & 1215, part of Tributary D, within the Hanlon Creek Watershed Study. Please refer to Environmental Planning's memorandum.		
	R	Section 2.1 of Stantec SWM Report (2018) has been updated confirming catchment denotation.		
9.0	C	The SWM Brief should be corrected to remove the statement "the City of Guelph water quantity design criteria are based on a single outlet for the site". The City's SWM criteria as provided in the attachment section of the report does not identify an outlet for the site nor the number of outlets that are available. Instead it clearly states that if a site doesn't have a positive outlet, that the site is to be designed for twice the five year design storm runoff volume.		
	R	The Stantec SWM report (2018) has been revised, see Section 1.2. It is understood the City targets relate to the total flow rate to all outlets to the north.		
10.0	C	As both sump pumps and roof runoff is to be captured in a storm pipe, the 100 yr hydraulic grade line (HGL) of the pipe should be determined. The basement slab elevation of the homes are to be set a minimum 0.5 m above the 100 yr HGL to avoid basement flooding.		
		<table><tr><td>Is the 100 year HGL calculation for the infiltration trenches required given that basement elevations can be set 0.5m above the seasonal high ground water elevation per DEM?</td><td>Staff can confirm that the 100 yr HGL will <u>not</u> be required as per our current review processes for CWC. Please note that an overflow bypass is still required for each infiltration trench.</td></tr></table>	Is the 100 year HGL calculation for the infiltration trenches required given that basement elevations can be set 0.5m above the seasonal high ground water elevation per DEM?	Staff can confirm that the 100 yr HGL will <u>not</u> be required as per our current review processes for CWC. Please note that an overflow bypass is still required for each infiltration trench.
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	R	Noted		

## Environmental Impact Study

#	C/R	Description
1.0	C	The peer review provided by Cole Engineering and Environmental staff review by April Nix has identified a number of concerns with this provided study. These comments are supported by Engineering staff and should be addressed through a future updated submission.
	R	Noted

### Closure:

Engineering staff recommend that the plans and reports be updated, consolidated and resubmitted prior to final comments and conditions being prepared for City Council.