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April 4, 2022

via email: cascaden@middlesexcentre.on.ca

Rob Cascaden, P.Eng.
Director of Public Works and Engineering
Middlesex Centre
10227 Ilderton Road, RR#2
ILDERTON, ON N0M 2A0

Dear Mr. Cascaden:

**22447 KOMOKA ROAD
STORMWATER MANAGEMENT PEER REVIEW**

Further to your request, we have completed a peer review of the following information regarding a proposed development at the above noted address.

- A letter from LDS to the Municipality of Middlesex Centre “Stormwater Management for Proposed Development, MN 22447 Komoka Road, Komoka, Ontario”, dated February 11, 2022, with the following appended document:
- “Conceptual Stormwater Management Strategy, Proposed Senior’s Apartment Development, MN 22447 Komoka Road”, prepared by LDS, dated January 2022.

We provide the following comments on the report:

1. The modelling for the SWM has taken into consideration only the drainage area for the proposed development (2.6ha) into the receiving pond. This is acceptable for this Conceptual SWM report in order to determine the effects from only the new development itself, however at the detailed design stage all external areas should be considered when determining effects of water level changes within the existing pond including the pond itself.
2. As noted in the municipality’s previous comments it would be beneficial to include a summary of the stormwater approach used for the adjacent Bella Lago site to the south and the commercial site to the west and how those sites were designed to utilize the existing pond. These sites should be labelled on a plan. The report should review how the current function varies from the design function. This might help support the projected impacts from the proposed development.
3. The report notes that the external drainage will be re-routed through the site via open channels or closed pipes. It is suggested that the SWM brief include how the existing drainage easements on the site will be dealt with when the site is developed. A comment will be required whether an amendment will be required

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to the existing ECA's and if a new ECA will be required for the SWM measures proposed for the development area.

4. IDF parameters are to be taken from "SWM Policy Manual, Municipality of Middlesex Centre" (June 2011) (Section 4.4.2.5, Table 4.2), rather than from the City of London requirements. A 24 hour storm event will be required to be modelled as well.
5. Imperviousness factors require confirmation. Table 9 shows a TIMP of 43% and Section 3.5 notes 50% imperviousness.
6. The report notes that there is only a 1mm increase in the pond water level for the development, however it is unclear how this was determined. The last sentence in Section 3.5 seems to indicate that all runoff ultimately ends up in the pond due to the hydraulic connection to the surrounding soils. Has this been accounted for in the calculation? Please clarify.
7. Further to the point above, please clarify the intent of the hydrologic modelling. The report notes that SWM will be provided by infiltration galleries/LID's and that post-development flows are to be restricted to pre-development levels. The modelling does not seem to account for infiltration. Is the intent for excess volume to be retained, restricted and then released into the existing pond or is a portion/all the runoff to be infiltrated? What values have been used to determine the increase in the pond level, noting that there is a comment in the letter that the current pond directly connects with the shallow groundwater.

Regarding the storage requirements shown in Table 10, the modelling seems to assume that flows are restricted to each storm event pre-development level. Please confirm. If this is the case, it may be difficult to achieve this variation of restrictions with a smaller drainage area such as this. It may be necessary to over-restrict the larger storm events to the 2-year level in order to obtain a feasible design. If infiltration is used for some discharge, this should also be reflected in the stage-storage modelling. Please clarify. A conceptual design may be required to better determine this.

8. LID's/Infiltration Features: We note that a Geotechnical Investigation report was prepared in March 2021 providing theoretical infiltration rates. It is suggested that prior to the submission of the SWM report with the detailed site plan, an update be prepared to confirm infiltration rates and groundwater elevations in the areas of any proposed Infiltration Galleries and LID's. The sizing of any infiltration gallery and LID's should be confirmed/designed with an appropriate safety factor based upon measured infiltration rates.
9. Directions are to be made consistent throughout the report. In one section the pond is noted to be east of the development and in another section it is noted to be south of the development. A plan labelling the pond outlet location would be helpful as well as showing the location of the previously constructed/removed "dam". It is suggested that the pond outlet be relocated to the south corner away from the existing home.

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10. Further conceptual information is requested on Figure 3 (Post Development Conditions). It would be helpful to understand:

- a. How/where SWM controls are to be provided for the site (location of infiltration galleries/LID's etc.);
- b. How the SWM for the overall external areas currently function and how they will function post development; and
- c. How/where external drainage areas will be routed,

11. UTRCA review and approvals will ultimately be required for the stormwater management.

We trust this review is of assistance in the Municipality's review of this development. Should you have any questions or concerns, please do not hesitate to contact the undersigned.

Yours truly,
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Sandra Hayman, P. Eng.
Associate, Manager Civil Engineering

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