WALTERFEDY

Kitchener | Hamilton | walterfedy.com

2018-0547-10

January 14, 2020

Mr. Aaron Inrig
Development Coordinator
City of Hamilton
Planning and Development Department
Development Division – Engineering Section
71 Main Street West, 6th Floor
Hamilton, ON L8P 4Y5

Dear Mr. Inrig,

RE: 73-89 Stone Church Road West & 1029 West 5th Street, Hamilton (Ward 1)
UHOPA-19-008, ZAC-19-029
Response to First Submission Development Engineering Comments

WalterFedy has been retained by Valery Homes to prepare a servicing and grading plan for the proposed development at 73-89 Stone Church Road West and 1029 West 5th Street. As part of this work, service connections to the municipal storm and water infrastructure within the Stone Church Road West right-of-way, service connection to the municipal sanitary infrastructure within the West 5th Street right-of-way, grading modifications, retaining walls, and new curb are proposed. Further to your correspondence of July 23, 2019, regarding the subject application, we provide below our responses to the comments made during your review.

1) In accordance with Section 4.1 Sanitary Servicing, a total count of 948 persons are expected on the subject lands. **a. There is no hydraulic calculation provided to demonstrate that the existing municipal system has capacity to support the proposed intensification.** **b. Our office has no clear understanding of the impact on the existing municipal system and until the proponent submits additional information to demonstrate that the existing municipal sanitary sewer downstream of the subject site up to the existing junction at Stonepine Crescent has capacity to support the proposal, we cannot support the proposed Zoning By-law and Urban Hamilton Official Plan Amendments.**
A hydraulic analysis of the existing municipal sanitary system has been completed in support of the proposed development. Hydraulic design sheets and supporting drawings, detailing catchment areas and contributing populations for the analysis, can be found in Appendix A of the Functional Servicing Report. Based on the completed hydraulic analysis, the existing municipal sanitary infrastructure can support the proposed intensification.

2) **The peak domestic water usage for the site has been calculated based on the approximate fixture units approach for the development. Please note that OBC Table 7.4.10.5 uses units of imperial gallons per minute rather than US gallons per minute. Therefore, the estimated 3555 fixture units corresponds to a water demand of 30.1 L/s rather than 25.1 L/s, as stated in the report. A value of 30.1 L/s is acceptable. The current report is acceptable for the ZAC and UHOPA submission but should be updated as part of the Site Plan Approval submission.**	
Water demand has been updated from 25.1 L/s to 30.1 L/s	
3) Required Fire Flow: **a. The RFF has been calculated as 18000 L/min (300 L/s).** **i. This calculation was based on non-combustible construction materials (i.e. C=0.8), exposure charges of 30%, limited combustible contents (15% reduction) and a 50% credit for a fully supervised sprinkler system.** **ii. The gross floor area used appears to be reasonable and can be confirmed during site plan approval.** **b. The current report is acceptable for the ZAC and UHOPA submission. The fire flow calculations shall be confirmed and resubmitted as part of the Site Plan Approval submission.** **c. The City's hydrant testing at the closest municipal hydrants (HC57H022 and HC57H018, dated October 30, 2017) resulted in theoretical available flows of 4996 IGPM (378 L/s) at 20psi for both hydrants.** **d. As such, we have no concerns with the Zone Change and UHOPA applications. At the time of Site Plan Approval, updated domestic and fire flow calculations shall be provided for review.**	
Domestic flow calculations have been updated as per the updated water demand mentioned above.	
4) Sanitary Sewer Servicing: **It is noticed that 20.23L/s sanitary flow will be discharged to the 250mm sanitary sewer on West 5th Street. The proposed flow accounts for 40% of the sewer capacity. The subject land is located in a catchment area with a designated population density of 60ppha. We have a concern with the proposed significant intensification. Considering the municipal sewer capacity, we cannot support the proposed development.**	
A hydraulic analysis of the existing municipal sanitary system has been completed in support of the proposed development. Hydraulic design sheets and supporting drawings, detailing catchment areas and contributing populations for the analysis, can be found in Appendix A of the Functional Servicing Report. Based on the completed hydraulic analysis, the existing municipal sanitary infrastructure can support the proposed intensification.	
5) Minor Storm Servicing: **We do not have comments on the Stormwater Management Plan.**	
No response required.	

6)	**Borehole logs show wet conditions at 1.5 metres below ground surface, and water level measurements were taken in October, typically the lowest time of year for groundwater levels in an annual cycle. As a result, Source Water Protection recommends that groundwater level monitoring continue to better characterize dewatering needs onsite. This can be deferred to Site Plan stage to allow for more groundwater information to be collected.**
The owner has engaged a geotechnical consultant to perform groundwater monitoring in support of the proposed development.	
7)	**The applicant shall also confirm that waterproof membranes or other design will be implemented for subsurface foundations, as this has significant implications on ongoing dewatering to municipal infrastructure, after construction. The applicant should be aware that Hamilton Water would not support ongoing dewatering to the sanitary sewer system post-construction.**
This item shall be addressed when additional information regarding the existing groundwater conditions are better understood.	
8)	**More refined information (peak dewatering rates in L/s, discharge locations) will be needed in order to successfully apply for a Temporary Sewer Discharge Permit from Hamilton Water if required. It is recommended to consult with the Superintendent of Environmental Monitoring and Enforcement Group within Hamilton Water as early as possible in the approval process, given that additional review may be required by Hamilton Water to verify the wastewater system could accept the quantity and/or quality of the discharge. Email sewerusebylaw@hamilton.ca to better understand water discharges to City infrastructure. If dewatering is expected to exceed 50,000 L/day, registration with the Environmental Activity Sector Registry or a Permit to Take Water from the Ministry of Environment, Conservation, and Parks may be required**
No response required at this time.	
9)	**Stormwater Management Quantity Control:** **The municipal storm sewer system is designed for 5-year (minor storm) flows, not 100-year. In addition, as per recommendations of the West Central Mountain Drainage Assessment Study, 25 to 100-year flows should be controlled to the lesser of post to pre-development flows, or the un-surcharged capacity of the existing receiving storm sewer system; with no overland flow contribution to the existing arterial roads. Therefore, target flows to the Stone Church Road existing storm sewer (the proposed outlet) should be re-established based on the following. Onsite storage requirements and outlet configuration should also be revised accordingly.** **a. As per the FSR, the subject site is draining towards West 5th and Stone Church Road West. Please establish the 5-year pre-development flow rate from the site, contributing to the Stone Church Road storm sewer, which is the proposed municipal storm outlet for the site.**
The 5-year, pre-development flow rate to the proposed outlet on Stone Church Road West is 0.068 m^3/s. Stormwater Management design calculations and storm design sheets have been updated based on the controlling 5-year, pre-development flow rate. See Section 4.3 and Appendix C for updated design calculations and storm design sheets.	

10) 100-year post-development flows should be controlled to the lesser of 100-year unitary target flows based on West Central Mountain Drainage Assessment (i.e. 0.142 m3/s/ha) and the 5-year pre-development flow rate to the proposed outlet. It appears that the 5-year pre-development flow rate will be lower and therefore will govern.
The 5-year, pre-development flow rate to the proposed outlet on Stone Church Road West is 0.068 m^3/s, which is less than the 100-year unitary target flows based on West Central Mountain Drainage Assessment of 0.112 m^3/s. Therefore, the 5-year, pre-development flow will govern. Stormwater Management design calculations and storm design sheets have been updated in the Functional Servicing Report. See Section 4.3 and Appendix C for updated design calculations and storm design sheets.
11) Outlet structure details should be provided with a cross-section on the servicing plan.
Drawings have been updated to include the cross-section of the proposed outlet structure. Refer to Details and Notes Plan C5-1.
12) Please submit the stage-storage-discharge calculation.
The stage storage discharge calculation has been included in this submission.
13) As per MOE and City standards, minimum recommended orifice size is 75mm to avoid potential clogging. If the proposed orifice size is smaller than 75mm, then an alternative design such as a vortex regulator should be considered.
The potential for clogging of the orifices within the cistern has been minimized by treating the stormwater runoff, or controlling the potential for items to enter the system, upstream of the cistern. Therefore, only clean water shall enter the cistern which minimizes the potential for clogging the orifices. To avoid potential clogging all outlet pipes on all proposed catchbasins will have a trash rack installed as per the detail on drawing C5-1. This will prevent any floatable items that could potentially clog the orifice from entering the system via the catchbasins. The runoff from within the surface parking area will pass through the proposed OGS, capturing items that may potentially clog the orifices, and the stormwater runoff from the roof can be considered to be clean. The proposed cistern also has an external access port to allow for maintenance and cleaning of the cistern in the case that the system does become clogged.
14) Underground Cistern: **a. Mechanical drawings showing the connectivity of roof drains, CBs, parking lot drainage to the underground cistern should be provided.** **b. Please clarify how surface parking drainage will be treated by the OGS and drain through the cistern.** **c. Mechanical drawings of the cistern should clarify the emergency overflow mechanism.**
The mechanical requirements requested above require detailed design, which is beyond the scope that shall be reasonably required for a zoning application. These requests shall be addressed during the site plan submission.

15)	**Emergency Overland Flow Route:** **Please confirm and demonstrate emergency overland flow route (for events larger than 100-year storm or system failure) from the site to municipal streets, on the grading plan.**
Grading Plan C2-1 has been updated to show the emergency overland flow routes.	
16)	**Stormwater Management Quality Control: The OGS sizing calculations should be provided to demonstrate Level 1 (Enhanced) quality treatment. The proposed OGS should be ETV certified and should be sized using ETV Canada particle size distribution.**
The OGS sizing has been included in this submission. A Downstream Defender, DD8, by Hydro International has been specified.	
17)	**External Drainage: Based on the grading plan, it appears that the site will receive external drainage from east and south. The proposed storm servicing design should accommodate the external drainage. The grading plan should clearly label the existing grades at east and south property lines.**
Grading Plan C2-1 has been updated to show the existing grades along the eastern and southern property lines. An additional 0.06 hectares has been added to the overall area contributing to stormwater runoff based on the existing survey. It should be noted that a new development is currently under construction south of the proposed site, which may reduce the contributing area in the post-development condition.	

We trust that the responses provided herein will allow you to continue the approval process for our submission. Should you have any other questions or concerns, please do not hesitate to contact the undersigned.

All of which is respectfully submitted,

WALTERFEDY

Melissa Ostrowercha, P.Eng.
Project Manager, Civil

mostrowercha@walterfedy.com
289.799.3547, Ext. 261
MO:ajw

Encl.

CC: Zivko Panovski, Senior Project Manager