November 29th, 2024 Project No. ALL-00251531-A3

John Kisneris, Development Project Manager
Region of Halton
1151 Bronte Road
Oakville, ON L6M 3L1

Project:	4103 Palladium Way (2669006 Ontario Inc. c/o Better Life Living)
Subject:	Water and Wastewater Usage Report – Revision for Retirement Home

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Dear Mr Kisneris:

We are pleased to provide the proposed water and wastewater demands for the proposed development located at 4103 Palladium Way in the City of Burlington.

The site is approx. 1.5 ha in area where the proposed development consists of a five-storey Long Term Care Facility containing 256 beds (128 single occupant rooms and 64 double occupant rooms) within 17,345 m^2 of Gross Floor Area (GFA), and a eight-storey Retirement Home containing 147single bedroom units within 12,696 m^2 of GFA. Maximum staff present during a typical 8-hour shift is approx.100 persons for both buildings.

This report has been updated to incorporate site plan changes specially for the Retirement Home, adding two additional stories and increasing the number of residential units. Please note that the development site has already received Official Plan and Zoning By-Law Amendment and Site Plan approvals where the Owner wishes to resubmit the Official Plan and Zoning By-Law Amendment application to address these updates to the site plan.

The proposed water and wastewater demand have been calculated in accordance to the Region of Halton criteria outlined in the Water and Wastewater Linear Design Manual (dated April 2019 Version 4.0) and the Ontario Building Code.

Water:

Using Table 2-1 and after discussing with Region staff, the equivalent population density of 200 person per hectare was assumed to be appropriate for the type of development and using the entire site area. Therefore, the equivalent population is calculated as follows:

Equivalent Density: 200 persons per ha x 1.5 ha = 300 persons
Total Equivalent Population = 300 persons

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Using Section 2.4.2, and the demand of 275 L/cap/day the average daily demand was calculated as follows:

Average Day Demand: 275 L/cap/day x 300 persons = 82,500 L/day
Gives an Average Day Water Demand = **0.95 L/s**

A peaking factor of 2.25 was then deemed appropriate as outlined in Section 2.4.2, which gives the following calculation for the maximum daily demand:

Maximum Day Demand = 2.25 x 0.95 L/s

For a Maximum Day Water Demand = **2.14 L/s**

Wastewater:

As per Section 3.2.1, the design wastewater flow is calculated as follows:

Wet Peak Wastewater Flow = (Average Dry Weather Flow) * (Average Peak Flow Factor)
+ (Inflow/Infiltration Allowance)

Considering the equivalent population calculated previously for the water demand and using Table 3-2, the following average dry weather flow was calculated:

Average Dry Weather Flow: 275 L/cap/day x 300 persons = 82,500 L/cap/day
Gives an Average Dry Weather Flow = 0.95 L/s

Using Section 3.2.3 for peaking factors and the corresponding land use and populations,

Keeping K_{av} = 1.0 as conservative approach (residential)
Peaking Factor: $M = 1.0*(1 + 14/(4 + (0.300)^{1/2}))$
Gives a Peaking Factor: M = 4.08
Therefore, the Average Peak Wastewater Flow = 4.08 x 0.95 L/s = 3.88 L/s

Using Section 3.2.4 for applying the allowance for infiltration of 0.286 L/ha/s,

Gives an Inflow/Infiltration Allowance: 0.286 L/s/ha x 1.50 ha = 0.43 L/s

Therefore, the Wet Peak Sanitary Design Flow = 3.88 L/s + 0.43 L/s = **4.31 L/s**

An additional check on the sanitary demand was calculated using the OBC where Table 8.2.1.3.B shows the following demands:

Long Term Care: 450 Litres per bed = 450 L x 256 = 115,200 L/day
Retirement Home: 275 Litres per person = 275 L x 147 = 40,425 L/day

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Sanitary Demand using OBC = 115,200 L/day + 40,425L/day = 155,625 L/day or 1.80 L/s

Therefore, we recommend the higher demand of **4.31 L/s** from using the Region of Halton criteria be used for the proposed wet peak sanitary design flow for the site. Following the changes to the Retirement Home, it has been confirmed that the domestic water and fire demand remains the same at 118.8 L/s, and the peak sanitary demand remains the same at 4.31 L/s, with no changes to the previously approved configurations.

We trust this information meets your requirements. As always, should you have any questions or comments, please do not hesitate to contact the undersigned directly.

Sincerely,

EXP Services Inc.



Scott W. Passmore, P.Eng.
Vice President, Land Development

cc. Kim Harrison-McMillan – Better Life Living
Steve Park, Woo Hyun Kim - EXP