



July 26, 2018
MTE File No.: 44483-100

Mr. Francis Reyes, P. Eng.
City of Waterloo
100 Regina Street South
P.O. Box 337
Waterloo ON N2J 4A8

Dear Mr. Reyes:

**Re: Request to Lift Holding Provision
256 Lester Street, Waterloo**

Please find the attached documents in support of the application to lift the holding provision for the proposed development at 256 Lester Street in Waterloo.

Fire Flow Analysis

The client has retained STUMPF Fire Protection Limited to complete an Ontario Building Code-3.2.5.7 Municipal Fire Flow Analysis Report. The fire flow analysis indicates that the required flow of 9,000L/min can be provided at 20.3PSI, satisfying the Ontario Building Code requirements for fire protection.

Sanitary Loading

The sanitary loading calculation was completed by MTE Consultants Inc. The flow rate, based on the proposed unit/bedroom count, was calculated to be 5.74L/s. The sanitary flow rate analysis is attached.

Stormwater Loading

As provided in the Functional Servicing and Stormwater Management Report, previously submitted on July 11, 2018, the expected flow rates from the site for the following storm events are: 2-year - 0.018m³/s, 5-year – 0.025m³/s and 100-year – 0.046m³/s.

We trust the above is satisfactory for your approval. If you have any questions, please contact the undersigned.

Yours truly,

MTE CONSULTANTS INC.

Jeff Lerch, P.Eng.
Design Engineer

cc. Simona Gojsevic, PGDS

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ONTARIO BUILDING CODE 3.2.5.7 MUNICIPAL FIRE FLOW ANALYSIS REPORT

1.01 BUILDING NAME: **Proposed Residential Complex**
 1.02 ADDRESS: **256 Lester Street, Waterloo**

1.03 ATTACHMENTS:

- N SITE PLAN C/W REQUIRED FIRE HYDRANT LOCATIONS (OBC 3.2.5.7 (2), 3.2.5.16 (1), 3.2.5.16 (2) AND THE WATER FLOW TEST AND RESIDUAL HYDRANT LOCATIONS.
- N WATER FLOW TEST (FLOW AND RESIDUAL DATA C/W GRAPH.)

1.04 BUILDING CODE CLASSIFICATION: **C, F3, E** TYPE OF CONSTRUCTION: **O.B.C 3.2.2# 42+73+57**

1.05 BUILDING AREA IN SQUARE METERS = **920.5m²**

1.06 BUILDING VOLUME IN CUBIC METRES = **31,297 m³**

N BUILDING WILL HAVE 100% SPRINKLER PROTECTION IN ACCORDANCE WITH THE ONTARIO BUILDING CODE AND REFERENCED N.F.P.A STANDARDS. ENGINEERED SPRINKLER DRAWINGS AND HYDRAULIC CALCULATIONS WILL BE SUBMITTED UNDER SEPARATE COVER TO THE BUILDING DEPARTMENT FOR APPROVAL WHEN COMPLETED. **(FIRE FLOW ANALYSIS NOT REQUIRED)**

N PRIVATE FIRE HYDRANT(S) AND SPRINKLER SYSTEM(S) TO BE CONNECTED TO THE MUNICIPAL WATER SYSTEM AND CALCULATED WITH A DEMAND LESS THAN THAT AVAILABLE.

PRIVATE FIRE HYDRANT(S) AND SPRINKLER SYSTEM(S) WILL BE CONNECTED TO AN INDEPENDENT WATER SOURCE FROM THE MUNICIPAL SYSTEM.

1.07 CALCULATION: $Q = K \times V \times Stot$ (Q=MINIMUM SUPPLY OF WATER IN LITRES, K=WATER SUPPLY COEFFICIENT FROM TABLE 1, V=TOTAL BUILDING VOLUME IN CUBIC METRES, Stot=TOTAL SPATIAL COEFFICIENT VALUES FROM PROPERTY LINE EXPOSURES ON ALL SIDES AS OBTAINED FROM FORMULA: $Stot = 1.0 + (SIDE1 + SIDE2 + SIDE3 + SIDE4)$. MINIMUM=1 MAXIMUM=2.0)

$$Q = K @ 10 \quad x V @ 31,297 \text{ m}^3 \quad x Stot @ 2 = 625,940 \text{ LITRES}$$

$$Stot = 1 + S1 (.5) + S2 (.5) + S3 (.29) + S4 (0) = (2.29)$$

1.08 TOTAL LITRES PER MINUTE REQUIRED IN THE MUNICIPAL WATER SYSTEM AS PER TABLE 2 = **9,000** LITRES PER MINUTE AT 140 KPA (20.3PSI).

1.09 TOTAL LITRES PER MINUTE AVAILABLE IN THE MUNICIPAL WATER SYSTEM = **11,541.073**, LITRES PER MINUTE AT 140KPA (20.3PSI).

1.10 TOTAL STORED LITRES REQUIRED ON SITE IF NOT SUFFICIENT MUNICIPAL WATER =
 1.8 - 1.9 -LITRES x 30 MINUTES = LITRES.

COMPLETED BY: **Jeff Hayhurst** (print)

Jeff Hayhurst (Signature)

DATE: July 18, 2018



256 Lester Street
City of Waterloo

SANITARY SEWER DESIGN SHEET
ENGINEERING AND PUBLIC WORKS

Project Number: 44483-100
Date: July 10, 2018
Design By: JPL
Checked By:
File: Q:\44483\100\44483-100 Sanitary Sewer Design Sheet Waterloo (SSMS) Rev5.xls

Design Parameters		
<u>Average Daily Flow</u>		
Residential	0.003 L/s/c	Mannings "n" 0.0130
Assume 1.77ppu per ROW Wastewater Treatment Monitoring Report, 2018		Min. Velocity 0.6 m/sec
		Max. Velocity 3.0 m/sec
		Residential Harmon Peaking Factor (F)
Commercial	0.95 L/s/ha	Residential Areas Infiltration 0.25 L/s/ha
Industrial	0.40 L/s/ha	
Inst. / School	0.25 L/s/ha	



LOCATION				RESIDENTIAL AREAS and POPULATION				SCHOOL, INSTITUTIONAL			COMMERCIAL			INDUSTRIAL			INFILTRATION			DESIGN										
STREET	AREA NO.	MANHOLE LOCATION		# UNITS	POPUL. 1000s	CUMUL POPUL. 1000s	PEAK FACTOR "F"	PEAK RES. FLOW L/sec	HECTARES AND FLOW OF EACH ZONING									TOTALS- C-I FLOW L/sec	AREA ha	CUMUL AREA ha	INFIL FLOW L/sec	TOTAL VOLUME FLOW L/sec	LENGTH m	SLOPE %	PIPE SIZE mm	CAPACITY L/sec	FULL FLOW VELOCITY m/s			
		FROM MH	TO MH						0.25 L/s/ha	0.95 L/s/ha	0.40 L/s/ha	AREA	CUMUL AREA	PEAK FLOW	AREA	CUMUL AREA	PEAK FLOW											AREA	CUMUL AREA	PEAK FLOW
		ha	ha						L/sec	ha	ha	L/sec	ha	ha	L/sec	ha	ha											L/sec	ha	ha
				122.00	0.216	0.216	4.135714	2.8425				0.0072	0.0072	0.0068				2.8494	0.205	0.205	0.0513	5.7431	13.0	2.00	200	46.3604	1.476			