



# ALEO ASSOCIATES INC.

## CONSULTING ENGINEERS

October 3, 2023

Corporation of the City of Windsor  
Engineering Department – Development Division  
350 City Hall Square West, Room 210  
Windsor, Ontario, N9A 6S1

**ATT: MR. ROBERT PERISSINOTTI, DEVELOPMENT ENGINEER**  
**RE: SANITARY SEWER STUDY FOR THE PROPOSED RESIDENTIAL DEVELOPMENT AT**  
**0 HOWARD AVENUE, WINDSOR, ONTARIO**

Dear Mr. Perissinotti,

We were retained by Architectural Design Associates Inc. to conduct a sanitary sewer study for the proposed residential development at 0 Howard Avenue which is required at this time for a zoning by-law amendment.

The property is currently an undeveloped open grass area and is a zoned commercial district. Proposed are three multi-unit buildings each with 6 units for a total of 18 units.

The existing municipal sanitary sewer system has been assessed to determine if there is capacity available to accept the increased sewage flow from the proposed medium density residential development. The sewer analyzed is the 250 mm diameter PVC sanitary sewer along Howard Place. This sanitary sewer transitions to a 900 mm diameter sanitary trunk sewer at the Howard Avenue & North Talbot intersection.

The existing 250 mm diameter sanitary sewer along Howard Place has a gradient of 0.41% and a total capacity of 38 L/s. The sewer currently provides drainage solely for the fourteen (14) single family dwellings along Howard Place.

The peak sewage flow rate from these existing dwellings to the municipal sewer is approximately 1.4 L/s based on a population density of 3.5 persons per household. The proposed medium density residential development will have 18 units for a total population of 38 persons based on a 2.1 person per unit population density. This corresponds to a peak domestic sewage flow rate of 0.8 L/s. Therefore, the total peak sewage flow rate in the proposed condition would be approximately 2.2 L/s.

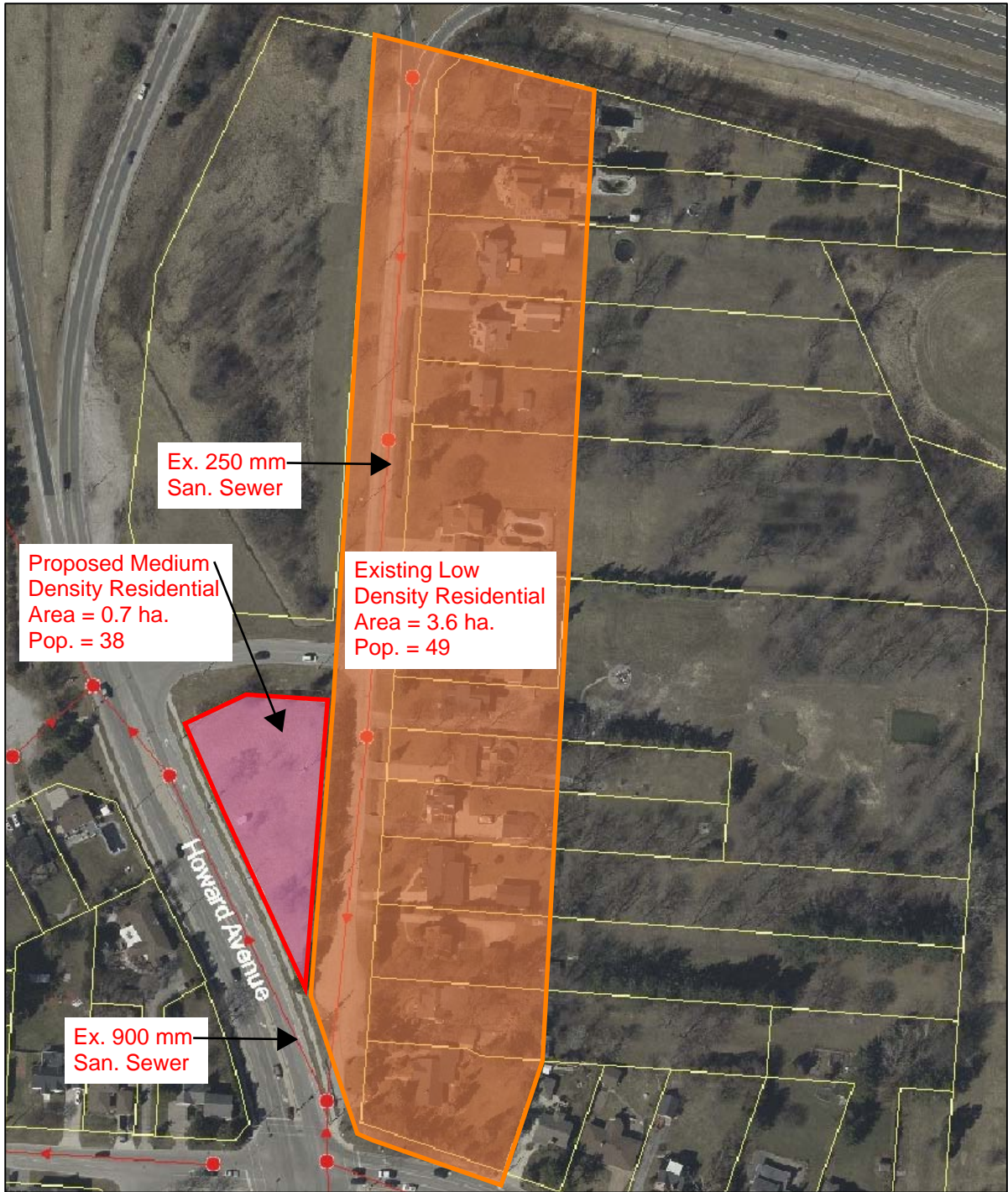
As indicated, the existing municipal sanitary sewer has a capacity of 38 L/s and will therefore only have 6% of its capacity utilized. Please refer to the sanitary sewer capacity assessment enclosed. The assessed municipal sanitary sewer has substantial capacity available to support the proposed development.

If you have any questions or concerns, please contact me.

Yours Very Truly

John-Paul Aleo, P.Eng.  
**ALEO ASSOCIATES INC.**





**SANITARY SEWER DRAINAGE AREA PLAN**



**ALEO ASSOCIATES INC.**  
CONSULTING ENGINEERS

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DATE	OCT. 3, 2023
SCALE	NTS
DRAWN BY	JPA
AUTOCAD REF.	8225.dwg

PROJECT TITLE	PROPOSED RESIDENTIAL DEVELOPMENT O HOWARD AVENUE, WINDSOR, ONTARIO
SHEET TITLE	<b>SANITARY SEWER DRAINAGE AREA PLAN</b>

SHEET No.	1 of 1
PROJECT No.	8538

**ALEO ASSOCIATES INC.**  
Consulting Engineers

Prepared By: J.P.A.  
Project Name: Howard Residential Development  
Project Address: 0 Howard Avenue  
Project No.: 8538  
Date: 2023.09.26

**SANITARY SEWER CAPACITY ASSESSMENT**  
**250 mm DIAMETER SANITARY SEWER FROM MH 7S3173 TO MH 7S3174**  
**ASSESSMENT OF PROPOSED CONDITION**

LOCATION			POPULATION				SEWAGE FLOW			SEWER DESIGN					
Area No.	DEVELOPMENT TYPE	AREA (HEC.)	# OF UNITS	PER UNIT	POP.	PEAKING FACT.	INFIL. l/sec	SEW. l/sec	TOTAL l/sec	SIZE (mm)	n	SLOPE (%)	CAP. l/sec	VEL. m/s	CAPACITY UTILIZED (%)
1	SINGLE-FAMILY DWELLINGS (LOW DENSITY RESIDENTIAL)	3.6	14	3.5	49	4.3	0.6	0.9	1.4	-	-	-	-	-	-
2	PROPOSED 6 PLEX DEVELOPMENT (MEDIUM DENSITY RESIDENTIAL)	0.7	18	2.1	38	4.3	0.1	0.7	0.8	-	-	-	-	-	-
	TOTAL	112.0		-	87	-	0.7	1.6	2.2	250	0.013	0.41	38	0.78	5.9

Design Criteria:

- 1) Residential Sewage Flow Rate = 0.0042 sec/cap
- 2) Infiltration = 0.1560 l/s/ha
- 3) Peak Wastewater Flow Factor, M =  $1+14/(4+P^{0.5})$
- 4) Manning's Coefficient = 0.013
- 5) Minimum Velocity = 0.76 m/s
- 6) Maximum Velocity = 3.0 m/s