APPENDIX J

PRELIMINARY WATER CALCULATIONS

Project: 1401
Date: August 2025

WATER DEMANDS

RESIDENTIAL

Population (Residential)

Unit Type	No. of Units	People/Unit	Population (Res)
Single	398	4.20	1670
Semi-detached	481	4.20	2020
Townhouses	1725	3.40	5865
Residential Population			**9555**

Water Demands

Demand Type	Population	Demand Rate
Average Day (Residential)	9555	270 L/capita/day
Average Day Water Demand Residential		2,579,850 L/day
		29.86 L/s

Water Demands (Residential)

Demand Type	Peaking Factor (Res)	Water Demands (Res)
Average Day		29.86 L/s
Maximum Day	1.8	53.75 L/s
Peak Hour	3.0	89.58 L/s

INSTITUTIONAL AND COMMERCIAL

Population (ICI)

Unit Type	No. of Schools	People/School	Population (ICI)
Institutional	3	450	1350
ICI Population			**1350**

** Student population assumed to be 1/2 x 900 students (Junior/Senior Public School) from Linear Wastewater Standards (rev March 2023)

Water Demands

Demand Type	Population	Demand Rate
Average Day (ICI)	1350	250 L/capita/day
Average Day Water Demand ICI		337,500 L/day
		3.91 L/s

Water Demands (ICI)

Demand Type	Peaking Factor (ICI)	Water Demands (ICI)
Average Day		3.91 L/s
Maximum Day	1.4	5.47 L/s
Peak Hour	3.0	11.72 L/s

TOTAL

Population

Total Population	10905

Total Demands

Demand Type	Demand (L/s)
Average Day	33.77
Maximum Day	59.22
Peak Hour	101.30

For Fire Flows please see the attached memo from Municipal Engineering Solutions dated January 2025.

Municipal Engineering Solutions

January 29, 2025 Project No. 17001-36

Sent via email
Ms. Rebecca Auerbach
David Schaeffer Engineering Ltd.
600 Alden Road, Suite 606
Markham, ON L3R 0E7

Subject: Solmar Wildfield Village Development
Preliminary Water Calculations
Town of Caledon, Region of Peel

Dear Ms. Auerbach,

Municipal Engineering Solutions ("MES") was retained by David Schaffer Engineering Ltd. (DSEL) to calculate the preliminary water demands for Solmar portion of the Wildfield Village Development in the Town of Caledon (Region of Peel). As part of this assignment MES was requested to estimate the water demand requirements for the proposed development using Region of Peel, Fire Underwriters Survey, provincial and industry design standards.

Development Background

The development site is located south of the future Highway 413 (north of Mayfield Road) between Centreville Creek Road and The Gore Road in the Town of Caledon. The development is primarily residential, with an elementary school. The development will have a total of 2022 detached and semi-detached houses, 1240 townhouses, and an elementary school (2.91 Ha).

The development is located within water Zone 6. The water connection to the development will be from the proposed 400 mm watermain on Centreville Creek Road (Water Development Charges 2024 project 29-1199). The watermain along Centreville Creek Road will need to be extended approximately 350 m to the north before connecting into the development. It is assumed that the Centreville Creek watermain will be completed prior to the construction of the proposed development.

Equivalent Population Serviced

To calculate the equivalent population for the proposed development MES used population densities outlined in the Region of Peel "*Water and Wastewater Modelling Demand Table, August 2024*" and "*Linear Wastewater Standards, March 2023*". **Table 1** summarizes the residential and institutional population densities.

Table 1 – Equivalent Population Density

Type of Development	Equivalent Population Density
Single/Semi-detached	4.20 People/unit
Townhouse	3.40 People/unit
School	½ x number of students, 900 students minimum

Source: Region of Peel Water and Wastewater Modelling Demand Table (August 2024) and Region of Peel Linear Wastewater Standards (March 2023)

The equivalent population for the site was calculated to be 13,158 people total; 12,708 residential population and 450 institutional (ICI) population. Detailed calculations are attached.

Domestic Water Usage

The domestic water demands for the development were calculated using the design criteria outlined in the Region of Peel "*Water and Wastewater Modelling Demand Table, August 2024*". **Table 2** summarizes the average daily demand and peaking factors used for this analysis.

Table 2 - Water Design Factors

Type of Development	Average Daily Demand	Maximum Daily Demand Peaking Factor	Peak Hourly Demand Peaking Factor
Residential	270 L/capita/day	1.8	3.0
Institutional	250 L/capita/day	1.4	3.0

Source: Region of Peel Water and Wastewater Modelling Demand Table (August 2024)

Utilizing the equivalent population data from Table 1 and the corresponding Maximum Day and Peak Hour data from Table 2 the water demands for this development were calculated. The calculated demands for the development are summarized in **Table 3**. Detailed water demand calculations are attached.

Table 3 – Water Demand for the 12580 and 12552 Torbram Road Development

	Average Day Demand (L/s)	Maximum Day Demand (L/s)	Peak Hour Demand (L/s)
Water Demands (Residential and ICI)	41.01	73.31	123.04

Fire Flow Demands

Typical fire demands for the development were estimated based on typical values for the Fire Underwriters Survey ("FUS"). The estimated minimum required fire flow for each area of the development is shown in **Table 4**. These minimum fire flow requirements are estimates only as the buildings have not yet been designed.

Table 4 - Fire Flow Requirements

Type of Development	Fire Flow (L/s)
Townhouses	333
School	250

Source: Typical Values for the Fire Underwriters Survey, 2020

The required fire flows for this development must be calculated and confirmed once the buildings have been designed. Once the detailed design data (specifics) for these building(s) are finalized the FUS calculation must be reviewed and confirmed by the appropriate designer and any design/criteria changes required are to be reported to MES.

Watermain Hydraulic Modelling

This report includes water demand calculations only and does not address or comment on the adequacy of the water supply to the proposed development. Detailed water hydraulic modelling will be required to ensure that adequate domestic and fire flows are available at the required pressures to service the proposed development.

Minimum fire flow requirements are estimates only until a detailed plan of each area of the development and building designs have been finalized. Hydraulic modelling will be required ensure that the required fire flows, once finalized, are met at the proposed hydrants within the development.

This development is in early design stages and hydrant tests have not yet been completed. The Region's Water and Wastewater Modelling Demand Table will be completed in the future once more information is available.

Conclusions/Recommendations

Once the building designs have been finalized the required fire flow for each building will need to be calculated to determine the minimum required fire flow for the development as per the Fire Underwriters Survey. The required fire flows for this site must be discussed and confirmed by the Region. Regardless, buildings will need to be designed to suit the fire flow available to the site.

Watermain hydraulic modelling will be required for the internal watermains to ensure that the minimum required fire flows can be met at each of the hydrants within the development.

We trust you find this report satisfactory. Should you have any questions or require further clarification, please call.

Yours truly,

Municipal Engineering Solutions

LICENSED PROFESSIONAL ENGINEER
K. E. ST-JEAN
100161507
Jan 29/25
PROVINCE OF ONTARIO

Kristin St-Jean, P.Eng.

/KS

Attachments:

Development Plan (KLM Planning, Jan 2025)
Region of Peel Design Criteria
Domestic Water Usage Calculations

SOLMAR UNIT STATISTICS (FREEHOLD WHOLE LOTS NOT INCLUDING PART LOTS):

SYMBOL	TYPE	LOTS/BK	UNITS
■	11.0m SINGLE	701	701
✦	SPECIAL DESIGN SINGLE	3	3
●	13.7m DUAL-PURPOSE	659	659–1318
	6.1m STREET TOWNHOUSE	198	1227
♦	6.1m STREET TOWNHOUSE (REDUCED DEPTH)	3	13
	TOTAL	1564	2603–3262

WILDFIELD VILLAGE

PRELIMINARY DEVELOPMENT CONCEPT

(SOLMAR LOTTING LAYOUT - 6)

ALL LOTTING STATISTICS SUBJECT TO REVISION AND CONFIRMATION.

BOUNDARY LINES FROM RPE, SUBJECT TO CONFIRMATION.

ENVIRONMENTAL FEATURES ARE UNEVALUATED WETLAND + BUFFERS AS PER GEORGE BUCKTON.

CONCEPT SUBJECT TO REVISION.

3210ADES55–LOTTING6 (xref: 3210AMAS3)
1:2000 JAN. 15, 2025

Region of Peel Design Criteria

Equivalent Population by Unit

Type of Development	Equivalent Population Density *(Person/Unit)*
Single/Semi-detached	4.20
Townhouses	3.40
Large Apartments	3.10
Small Apartments	1.70

Source: Region of Peel Linear Wastewater Standards, March 2023

Equivalent Population by Area

Type of Development	Equivalent Population Density *(Persons/Ha)*
Senior Public School	1/2 x number of students (900 students minimum)

Source: Region of Peel Linear Wastewater Standards, March 2023

Water Design Factors

Residential	
Average Daily Demand (L/person/day)	270
Maximum Day Factor	1.8
Peak Hour Factor	3.0
Industrial, Commercial and Institutional (ICI)	
Average Daily Demand (L/person/day)	250
Maximum Day Factor	1.4
Peak Hour Factor	3.0

Source: Region of Peel Water and Wastewater Modelling Demand Table, August 2024

Municipal Engineering Solutions

RESIDENTIAL

Population (Residential)

Unit Type	No. of Units	People/Unit	Population (Res)
Single	704	4.20	2957
Semi-detached	1318	4.20	5536
Townhouses	1240	3.40	4216
Residential Population			**12708**

Water Demands

Demand Type	Population	Demand Rate
Average Day (Residential)	12708	270 L/capita/day
Average Day Water Demand Residential		3431160 L/day
		39.71 L/s

Water Demands (Residential)

Demand Type	Peaking Factor (Res)	Water Demands (Res)
Average Day		39.71 L/s
Maximum Day	1.8	71.48 L/s
Peak Hour	3.0	119.14 L/s

INSTITUTIONAL AND COMMERCIAL

Population (ICI)

Unit Type	Site Area (Ha)	People/Ha	Population (ICI)
Institutional		450	450
ICI Population			**450**

** Student population assumed to be 1/2 x 900 students (Junior/Senior Public School)
from Linear Wastewater Standards (rev March 2023)

Water Demands

Demand Type	Population	Demand Rate
Average Day (ICI)	450	250 L/capita/day
Average Day Water Demand ICI		112500 L/day
		1.30 L/s

Water Demands (ICI)

Demand Type	Peaking Factor (ICI)	Water Demands (ICI)
Average Day		1.30 L/s
Maximum Day	1.4	1.82 L/s
Peak Hour	3.0	3.91 L/s

TOTAL

Population

Total Population	13158

Total Demands

Demand Type	Demand (L/s)
Average Day	41.01
Maximum Day	73.31
Peak Hour	123.04