



1000989284 Ontario Inc. c/o R.W. Tomlinson Limited
**VL – Elmwood Drive
Sanitary Servicing Report**

Prepared by:

FOREFRONT Engineering Inc.
1329 Gardiners Road, Suite 210
Kingston, ON, Canada K7P 0L8

613.634.9009 tel

Date: May 2026

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3. may be based on information provided to Consultant which has not been independently verified;
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May 27, 2026

1000989284 Ontario Inc
c/o R.W. Tomlinson Limited
Jennifer Ailey, Land Development Manager
100 CitiGate Drive
Nepean ON K2J 6K7

**Regarding: VL – Elmwood Drive
Sanitary Servicing Report**

Dear Ms. Ailey,

The enclosed report details the existing sanitary infrastructure and our recommendations for sanitary services for the proposed Elmwood Subdivision located in the Town of Gananoque.

The proposed VL – Elmwood Drive Subdivision is located in the east end of Gananoque, south of Elizabeth Drive, Churchill Drive and Arthur Street and north of the St. Lawrence River. The site is approximately 11.59 ha and consists of approximately 66 single-detached units, 23 townhouse units and 14 cluster townhouse units for a total of 103 units. The subdivision will include the extension of Elmwood Drive, John Street, Arthur Street, two new streets, and proposed parkland.

It is recommended that sanitary sewers and sanitary sewer services be installed along the proposed streets with connections to Elmwood Drive and Arthur Street.

Two sanitary sewer connections are proposed, one connection to the existing sanitary trunk sewer on Elmwood Drive and one connection to the existing sanitary trunk sewer on Arthur Street.

Preliminary calculations find that existing downstream sanitary sewers and proposed sanitary sewers are capable of and will effectively service the proposed subdivision.

This Report demonstrates that adequate sanitary sewer servicing is available for the proposed subdivision.

If you have any enquiries or wish to discuss further, please contact this office.

Sincerely,

FOREFRONT Engineering Inc.



Jeff Homer, P.Eng.
Jeff.Homer@Forefronteng.ca

FOREFRONT Signatures

Report Prepared By:

Jeff Homer, P.Eng.



Report Reviewed By:

Kyle Nielissen, P.Eng.



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- Concept Plan
- Figure 2 – Sanitary Catchment Areas

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- Proposed Sanitary Sewer Design Sheet

1. Introduction

Forefront has assembled relevant supporting information for the proposed residential subdivision at Part of Lot 16, Concession 1, in the Town of Gananoque in the County of Leeds.

The proposed VL – Elmwood Drive Subdivision is located in the Town of Gananoque north of the St. Lawrence River, east of William Street South, and south of Arthur Street. The land to the east is undeveloped, zoned Residential and identified as Significant Woodlands in the Official Plan. The property is bounded by existing residential dwellings to the north and west. Refer to Figure 1: Site Location for reference.



Figure 1: Site Location

The subject site is currently zoned Residential within the Town of Gananoque. The property is currently vacant with no existing structures.

The proposed VL – Elmwood Drive Subdivision is approximately 11.59 ha. and consists of approximately 66 single-detached units, 23 townhouse units and 14 cluster townhouse units for a total of 103 units. The subdivision will include the extension of Elmwood Drive, John Street, Arthur Street, two new streets, and proposed parkland.

It is recommended that sanitary sewers and sanitary sewer services be installed along the proposed streets with two connections to the Arthur Street sanitary trunk sewer.

Development of the Elmwood Subdivision will result in an increase in sewerage discharge. This Sanitary Servicing Report proposes a plan to provide sanitary sewer services for the proposed subdivision.

Refer to **Appendix A, Concept Plan** for the proposed subdivision plan.

2. Sanitary Sewer

2.1 Existing Conditions

The existing subject site is currently vacant and is not serviced by a sanitary sewer.

Existing nearby sanitary infrastructure includes a 600 mm diameter trunk sanitary sewer located within an easement on the site, which continues along Arthur Street.

Sewage from the east end of Gananoque flows by gravity through a 600 mm diameter trunk sanitary sewer along Arthur Street toward the East End Pumping Station, where it is then pumped to the Gananoque Sewage Lagoons located north of Highway 401.

2.2 Proposed Development

The proposed VL – Elmwood Drive Subdivision is approximately 11.58 ha. and consists of approximately 66 single-detached units, 23 townhouse units and 14 cluster townhouse units for a total of 103 units. The subdivision will include the extension of Elmwood Drive, John Street, Arthur Street, two new streets, and proposed parkland.

Below are the proposed design parameters.

Design Flow Parameters

Average Residential Flow	350 L/cap/day
Peak Residential Factor	Harmon Formula
Infiltration Allowance	0.14 L/s/ha
Minimum Pipe Size Diameter	200mm Diameter

Population Density

Single Family	4.00 people/unit
Townhouse / multi-unit	2.38 people/unit

The proposed VL – Elmwood Drive Subdivision will generate an additional peak sanitary flow of 7.9 L/s, including inflow and infiltration. Refer to **Appendix B** for the **Sanitary Sewerage Design Sheet** for further details.

Preliminary calculations find that the proposed sanitary sewers are capable of and will effectively service the proposed Elmwood Subdivision.

The Town of Gananoque is to confirm that there is adequate downstream capacity available, including at the East End pumping station.

Residential lots are proposed with 125 mm diameter services and manufactured wye connections. It is proposed that all areas will be drained by gravity sewer. The sanitary sewers are proposed to extend along the centreline of the proposed road.

It is recommended that the proposed 200 mm diameter sanitary sewers connect to the existing 600 mm diameter sanitary trunk sewer on Elmwood Drive and Arthur Street.

A Consolidated Linear Infrastructure Environmental Compliance Approval (CLI-ECA) from the Town of Gananoque for the sanitary sewer system is required prior to construction.

Refer to **Appendix A: Figure 2 Proposed Sanitary Catchment Areas** for further details.

3. Conclusions

Preliminary calculations find that existing downstream sanitary sewers and proposed sanitary sewers are capable of and will effectively service the proposed subdivision.

Two sanitary sewer connections are proposed, one connection to the existing sanitary trunk sewer on Elmwood Drive and one connection to the existing sanitary trunk sewer on Arthur Street.

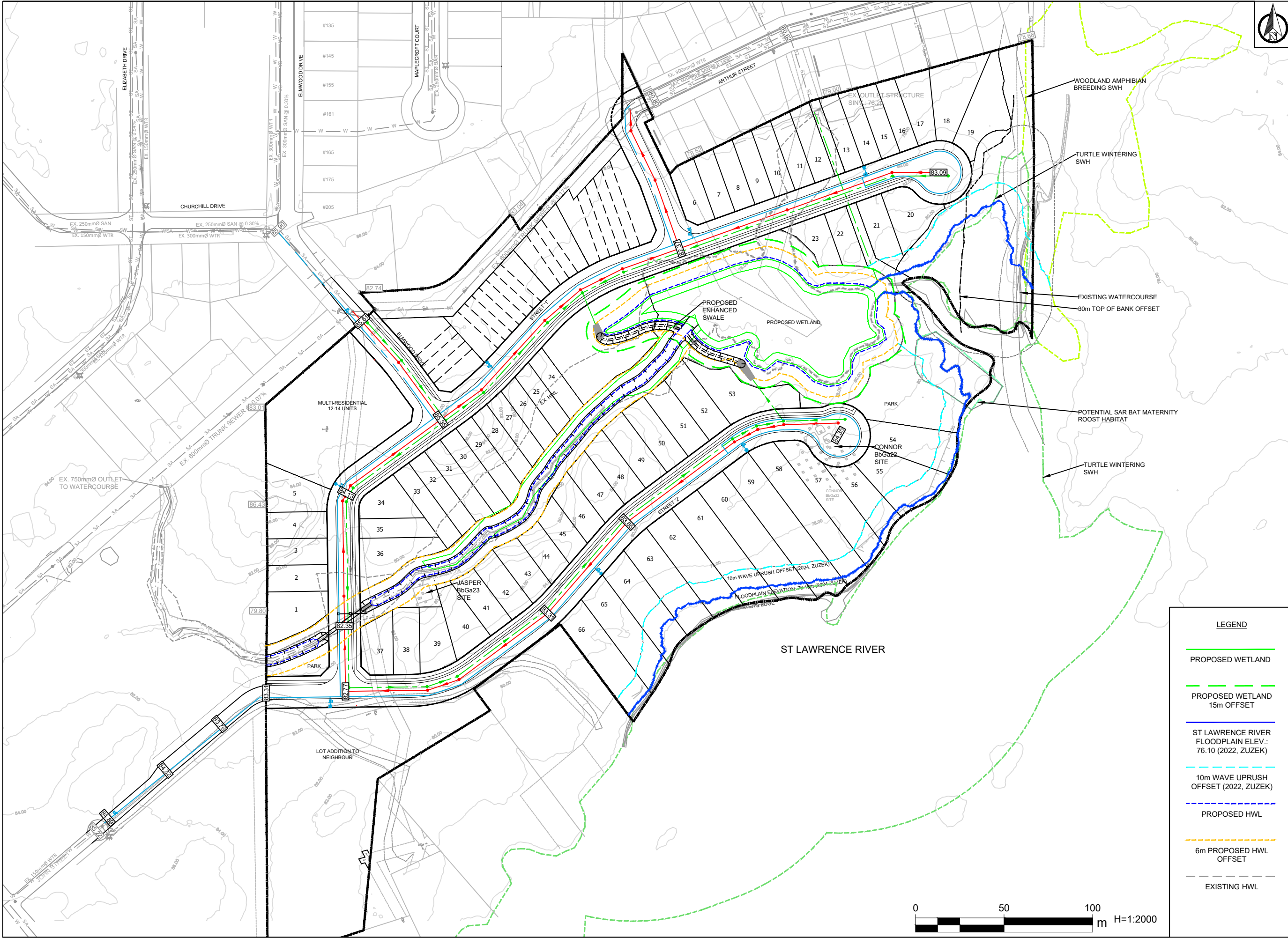
Sanitary sewers shall be designed in accordance with the Ministry of the Environment, Conservation, and Parks Guidelines.

A Consolidated Linear Infrastructure Environmental Compliance Approval (CLI-ECA) from the Town of Gananoque for the sanitary sewer system is required prior to construction.

Appendix A

Concept Plan

FIG.2 – Sanitary Catchment Areas



Benchmark		
No.	Revision/Issue	Date

1329 Gardiners Road, Suite 210
Kingston, ON, Canada K7P 0L8
613.634.9009 tel.
1.866.884.9392 fax.

Client

1000989284 ONTARIO INC.

Project

VL - ELMWOOD DRIVE

Drawing

CONCEPT PLAN

Drawn by:	Checked by:	Project No.
EP	JH	
Designed by:	Approved by:	Drawing No.
KMN	KMN	

Date:

MAY 2026

Scale:

1:2000
ANSI B (11x17)

CP

- LEGEND
- PROPOSED WETLAND

PROPOSED WETLAND
15m OFFSET

ST LAWRENCE RIVER
FLOODPLAIN ELEV.:
76.10 (2022, ZUZEK)

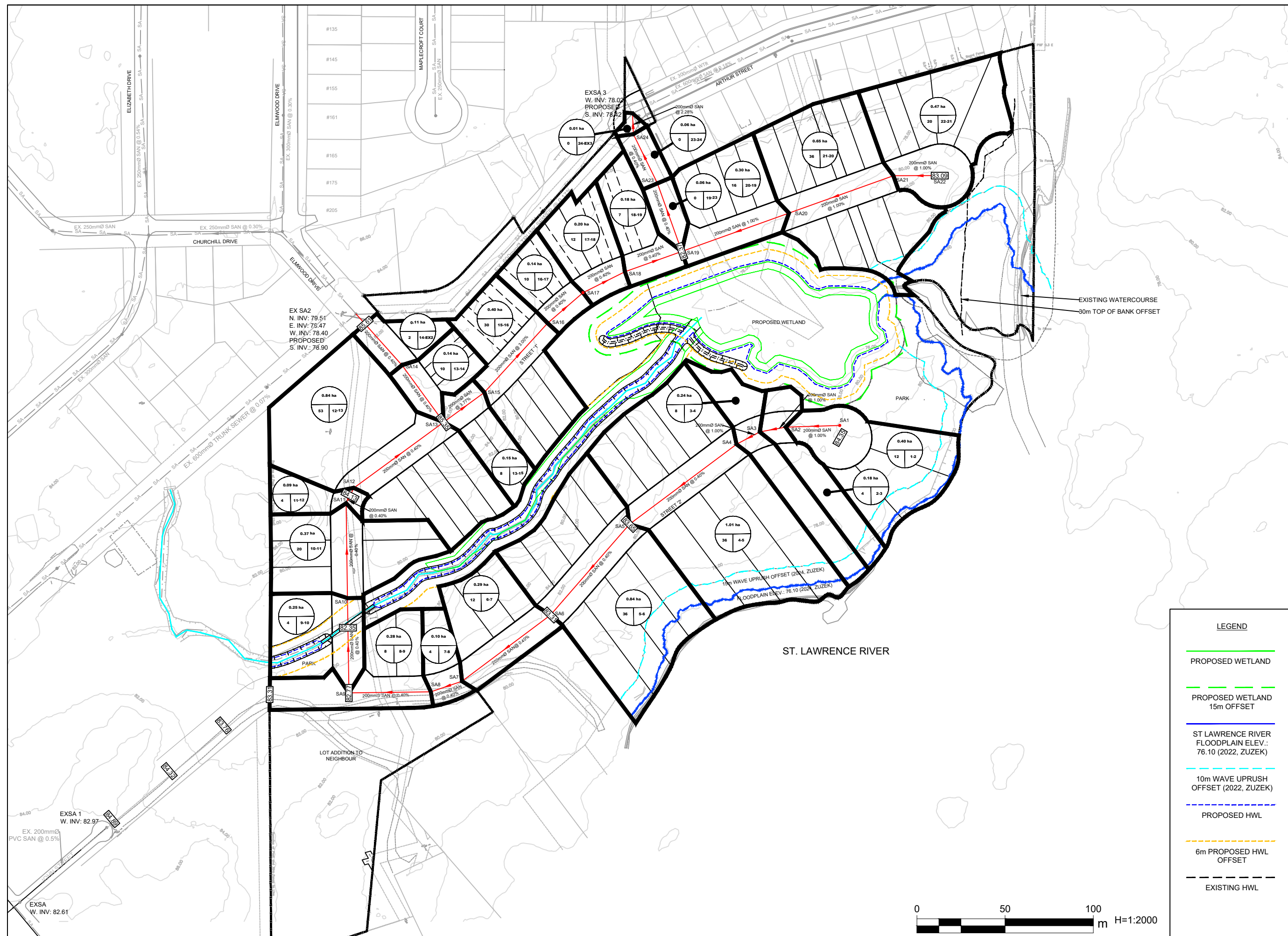
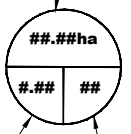
10m WAVE UPRUSH
OFFSET (2022, ZUZEK)

PROPOSED HWL

6m PROPOSED HWL
OFFSET

EXISTING HWL



CATCHMENT AREA
IN HECTARES

POPULATION ✓

ATTACHMENT

—EXISTING WATERCOURSE
—30m TOP OF BANK OFFSET

LEGEND

PROPOSED WETLAND

PROPOSED WETLAND
15m OFFSET

ST LAWRENCE RIVER
FLOODPLAIN ELEV.:
76.10 (2022, ZUZEK)

10m WAVE UPRUSH
OFFSET (2022, ZUZEK)

PROPOSED HWL

6m PROPOSED HWL
OFFSET

EXISTING HWL



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Client
1000989284 ONTARIO INC.

Project
VL - ELMWOOD DRIVE

Drawing
PROPOSED SANITARY CATCHMENT AREAS

Drawn by:
EP

Designed by:
KMN

Date: MAY 2026

Scale: 1:2000
ANSI B (11x17)

FIG.2

Appendix B

Proposed Sanitary Sewer Design Sheet



SANITARY SEWER DESIGN SHEET

VL - Elmwood Drive

Date: May 2026
Project: VL - Elmwood Drive

Municipality: Gananoque

Subdivision Catchment Area 7.76 ha.

q=average daily per capita flow (L/cap. d)	350
Maximum Pipe Capacity	85%
I=unit of peak extraneous flow (L/ha. s)	0.28
M=peaking factor $1+14/(4+(P/1000)^{0.5})$	4.0 MAX
Q(p)=peak population flow (L/s)	
Q(i)=peak extraneous flow (L/s)	
Q(d)=peak design flow	
capita per dwelling unit	
- Single Family detached	4.00 pop/unit
-Townhouse / Multi-Unit	2.38 pop/unit

PROPOSED SANITARY DRAINAGE PLAN																						
LOCATION			INDIVIDUAL				CUMULATIVE				Peak	Peak	PIPE DATA									
Description	FROM	TO	Dwelling Units		Pop.	Area A (hectares)	Pop.	Area A (hectares)	Peaking factor M	Pop. flow Q(p) (L/s)	Extraneous flow Q(i) (L/s)	design flow Q(d) (L/s)	Length (m)	Pipe size (mm)	Type of Pipe	Grade %	Capacity (L/s) n=0.013	Full flow velocity (m/s)	Actual velocity at Q(d)	Normal Depth (mm) (d)	Q(d)/Qcap % Capacity	d/D % Capacity
			Single	Townhouse / Multi-Unit																		
Street '2'	SA1	SA2	3		12	0.40	12	0.40	4.00	0.19	0.11	0.31	30.68	200	PVC	1.00	32.8	1.04	0.30	13	1%	7%
Street '2'	SA2	SA3	1		4	0.18	16	0.58	4.00	0.26	0.16	0.42	14.93	200	PVC	1.00	32.8	1.04	0.33	16	1%	8%
Street '2'	SA3	SA4	2		8	0.24	24	0.82	4.00	0.39	0.23	0.62	14.93	200	PVC	1.00	32.8	1.04	0.39	19	2%	9%
Street '2'	SA4	SA5	9		36	1.01	60	1.83	4.00	0.97	0.51	1.48	75.75	200	PVC	0.40	20.7	0.66	0.35	36	7%	18%
Street '2'	SA5	SA6	9		36	0.84	96	2.67	4.00	1.56	0.75	2.30	68.19	200	PVC	0.40	20.7	0.66	0.35	45	11%	22%
Street '2'	SA6	SA7	3		12	0.29	108	2.96	4.00	1.75	0.83	2.58	62.60	200	PVC	0.40	20.7	0.66	0.35	47	12%	24%
Street '2'	SA7	SA8	1		4	0.10	112	3.06	4.00	1.81	0.86	2.67	18.67	200	PVC	0.40	20.7	0.66	0.35	48	13%	24%
Street '2'	SA8	SA9	2		8	0.28	120	3.34	4.00	1.94	0.94	2.88	46.45	200	PVC	0.40	20.7	0.66	0.35	50	14%	25%
Street '1'	SA9	SA10	1		4	0.25	124	3.59	4.00	2.01	1.01	3.01	53.77	200	PVC	0.40	20.7	0.66	0.35	52	15%	26%
Street '1'	SA10	SA11	5		20	0.37	144	3.96	4.00	2.33	1.11	3.44	53.77	200	PVC	0.40	20.7	0.66	0.35	55	17%	27%
Street '1'	SA11	SA12	1		4	0.09	148	4.05	4.00	2.40	1.13	3.53	9.72	200	PVC	0.40	20.7	0.66	0.35	55	17%	28%
Street '1'	SA12	SA13	5	14	53	0.84	201	4.89	4.00	3.26	1.37	4.63	63.10	200	PVC	0.40	20.7	0.66	0.51	64	22%	32%
Elmwood Drive	SA13	SA14		4	10	0.14	211	5.03	4.00	3.42	1.41	4.82	40.03	200	PVC	0.40	20.7	0.66	0.00	65	23%	32%
Elmwood Drive	SA14	EX SA2		1	2	0.11	213	5.14	4.00	3.45	1.44	4.89	38.87	200	PVC	0.40	20.7	0.66	0.51	66	24%	33%
Street '1'	SA13	SA15	2		8	0.15	8	0.15	4.00	0.13	0.04	0.17	28.54	200	PVC	3.77	63.7	2.03	0.37	8	0%	4%
Street '1'	SA15	SA16	4	6	30	0.40	38	0.55	4.00	0.62	0.15	0.77	53.15	200	PVC	3.00	56.8	1.81	0.63	16	1%	8%
Street '1'	SA16	SA17		4	10	0.14	48	0.69	4.00	0.77	0.19	0.97	26.52	200	PVC	0.40	20.7	0.66	0.33	29	5%	15%
Street '1'	SA17	SA18		5	12	0.20	60	0.89	4.00	0.97	0.25	1.22	26.52	200	PVC	0.40	20.7	0.66	0.35	32	6%	16%
Street '1'	SA18	SA19		3	7	0.18	67	1.07	4.00	1.08	0.30	1.38	34.19	200	PVC	0.40	20.7	0.66	0.35	34	7%	17%
Street '1'	SA22	SA21	5		20	0.47	20	0.47	4.00	0.32	0.13	0.46	27.00	200	PVC	1.00	32.8	1.04	0.36	16	1%	8%
Street '1'	SA21	SA20	9		36	0.65	56	1.12	4.00	0.91	0.31	1.22	62.83	200	PVC	1.00	32.8	1.04	0.49	26	4%	13%
Street '1'	SA20	SA19	4		16	0.30	72	1.42	4.00	1.17	0.40	1.56	64.57	200	PVC	1.00	32.8	1.04	0.52	29	5%	15%
Service BLOCK	SA19	SA23			0	0.06	139	2.55	4.00	2.25	0.71	2.96	40.95	200	PVC	0.40	20.7	0.66	0.35	51	14%	25%
Service BLOCK	SA23	SA24			0	0.06	139	2.61	4.00	2.25	0.73	2.98	31.00	200	PVC	0.40	20.7	0.66	0.00	51	14%	25%
Service BLOCK	SA24	EX SA3			0	0.01	139	2.62	4.00	2.25	0.73	2.98	11.86	200	PVC	2.28	49.5	1.58	0.85	33	6%	17%