FUNCTIONAL SERVICING REPORT

PROJECT:

WEST MEADOW PH.2 BLOCK 44 APARTMENTS

LOCATED IN PICTON,

THE CORPORATION OF THE COUNTY OF PRINCE EDWARD

DATED: November 2024

REV 01 May 2025

REV 02 Sept 2025

REV 03 Jan 2026

PREPARED FOR:

1083953 Canada Ltd.

INSITE PROJECT CONSULTING INC.

TABLE OF CONTENTS

1.0 INTRODUCTION 1

1.1 Overall Development Phasing 1
1.2 Background Studies 2

2.0 DESIGN GUIDELINES 2

3.0 EXISTING SERVICES 2

4.0 WATER SUPPLY 2

4.1 System Pressure Requirements 3
4.2 Fire Flow Requirements 3
4.3 Domestic Water Demand 4
4.4 Hydraulic Modeling Results 4

5.0 WASTEWATER 4

5.1 Design Criteria 4
5.2 Sewage Flow Rates and Downstream Capacity Assessment 5

6.0 STORM SEWERS 5

7.0 PUBLIC UTILITIES 5

8.0 CONCLUSIONS 5

APPENDICES

APPENDIX A: Required Fire Flow (RFF) and water modeling results by Jewell Engineering

APPENDIX B: Sanitary Design Sheet

APPENDIX C: Preliminary Sanitary Analysis by JFSA

1.0 INTRODUCTION

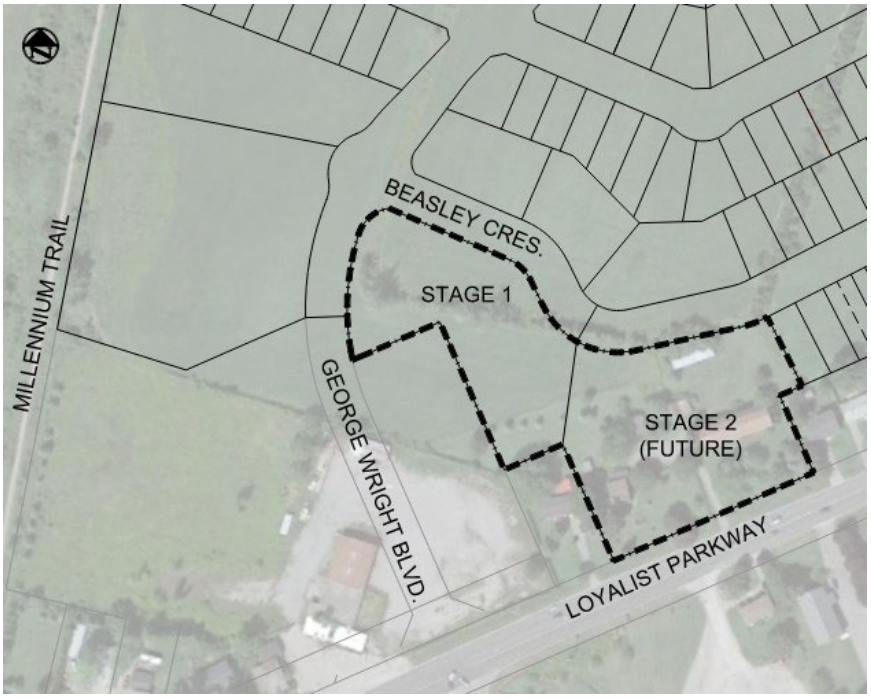
This Report has been prepared to support zoning amendment and site plan approval to construct two apartment buildings in Picton within the Corporation of the County of Prince Edward. The site to be developed is within Block 44 of the West Meadow Phase 2 Subdivision. The proposed development includes a parking lot, and each apartment building will be 3-storeys with thirty-six units each.

The site area is 0.72 hectares and is generally located to the northeast of Loyalist Parkway and George Wright Boulevard. Road access will be provided from Beasly Crescent to the north of the site. There are no significant features to be removed from the site for construction, including buildings, trees, or natura/heritage features.

1.1 Overall Development Phasing

The West Meadow Subdivision development is intended to include two high density developments. This Report is for the purpose of approvals related to Stage 1 of the two high density blocks. The engineering design has been prepared in consideration to both stages of development, as they will be serviced by the same infrastructure. The first stage (the first two apartment buildings forming part of the current application for approval) is anticipated to commence construction in 2026.

Property Location Map



The purpose of this Report is to demonstrate how the proposed development will be serviced, including water, sanitary and storm, connections to existing municipal infrastructure, and availability of capacity in the municipal system to accommodate additional capacity of the proposed development. The Report will also address all impacts on downstream infrastructure that could require system upgrades.

1.2 Background Studies

This Report considers the following Studies previously completed in support of Subdivision Registration of the West Meadow Subdivision development:

- Stormwater Management Report for West Meadow Subdivision, dated December 2021prepared by Ainley Group.
- Geotechnical Investigations Report for West Meadow Phase 2, dated November 8, 2023, prepared by Cambium. Report recommendations include servicing excavation methods and proposed pavement structure for the detailed design of the parking lot.

Based on the borehole investigation completed, depth to groundwater is anticipated to be approximately 2.5m to 4.5m below existing ground and bedrock was encountered approximately 4.0m to 5.5m below existing ground.

2.0 DESIGN GUIDELINES

Water and sanitary servicing for the proposed development has considered the following Guidelines:

- Prince Edward County Engineering Design Guidelines and Technical Standards (currently in draft version)
- Ontario Building Code

3.0 EXISTING SERVICES

Based on the approved West Meadow Subdivision Phase 2 engineering drawings and the topographic survey completed in 2023, municipal services and public utility services will be readily available at the boundary to service the proposed buildings and parking lot drainage. The existing services are illustrated on the Servicing Plan.

4.0 WATER SUPPLY

The proposed design conforms with the MECP Design Guidelines for Drinking-Water Systems and the Municipality's Design Manual. Layout of the proposed water services is illustrated on the Servicing Plan.

Each apartment will be serviced with a 200mm dia. water service. The proposed building fronting George Wright Boulevard will connect to the existing 200mm dia PVC watermain. The development will include a new 300mm dia watermain to loop the existing 300mm watermain on Beasly Cr. to the existing 250mm watermain on Loyalist Parkway. The easterly building will connect to the 300mm watermain on Beasly Cr.

The proposed watermain system will include mechanical restraints at all hydrants and fittings (if pipe length is less than 6.1m) to prevent pipe movement and subsequent joint failure. Thrust blocks will be positioned at all plugs, tees and bends deflecting 22.5 deg or more. The watermain system is designed to meet the following Guidelines:

- Minimum depth of cover of 1.8m (measured from centreline of road)
- Pipe material specification PVC DR18 for pipes 300mm dia and smaller)
- Minimum separations between watermain and sewer; 2.5m horizontal and 0.5m vertical

Watermain chlorination and testing procedures will be completed in accordance with the municipal guidelines.

4.1 System Pressure Requirements

In accordance with MECP and municipal Guidelines, the system should be designed to maintain a minimum pressure of 140 kPa (20 psi) under maximum day demand plus fire flow conditions. The normal operating pressure in the distribution system should be 350 to 480 kPa (50 to 70 psi) and not less than 275 kPa (40 psi).

4.2 Fire Flow Requirements

In accordance with MECP and municipal Guidelines, fire flow requirement calculations shall be based on the Fire Underwriters Survey (FUS) document Water Supply for Public Protection 2000. The estimated amount of water required for fire protection in a building has been calculated using the Fire Underwriters Survey Formula for Required Fire Flow (RFF), and is provided in *Appendix A*.

RFF (l/s) = 220 C $\sqrt{A}$, where:
C = Construction Coefficient
A (sqm)= total effective floor area

Based on the FUS formula, the Required Fire Flow (RFF) for each 3-storey building is 117 L/s (7000 L/min).

4.3 Domestic Water Demand

The domestic water demand has been calculated in accordance with MECP Design Guidelines for Drinking-Water Systems Peaking Factors Table 3-1, based on the population of Prince Edward County of 25,000.

- Maximum Day Factor: 1.90
- Peak Hour Factor 2.85

The proposed development density for the two 3-storey buildings has been assumed as a High-Density development, including thirty two-bdrm 2.1 persons/unit and six one-bedrm 1.4 persons/unit. The domestic water demand calculations are provided in *Appendix A*.

4.4 Hydraulic Modeling Results

A hydraulic water model has been completed by Jewell Engineering to confirm adequacy of the existing and proposed municipal watermain system (see *Appendix A*). Based on the modeling results, the availability of capacity in the municipal watermain will be adequate to meet the pressure and flow requirements of the proposed development.

It should be noted that the calculations are based on the building design parameters provided by the project architect (Alexander Wilson Architects) including the construction type and sprinkler protection, which should be reconfirmed at the time of building permit applications.

5.0 WASTEWATER

The proposed development will be serviced by the existing municipal wastewater system. Individual 150mm dia service connections will discharge to the existing 200mm dia PVC sanitary sewers on George Wright Boulevard and Beasly Crescent fronting the property. Layout of the proposed sanitary services is illustrated on the Servicing Plan.

5.1 Design Criteria

The Rational Method calculation was used to design the proposed sewage flow rates with the following municipal parameters:

- Residential (q) : average daily per capita flow (L/day/person) = 350
- Extraneous (i) : Unit of peak extraneous flow (L/s/ha) = 0.28
- Population density: Person per unit:
  High Density: one bdrm PPU : 1.4, two bedrm: 2.1 PPU

The sanitary system is designed to meet the following Guidelines:

- Minimum depth of cover of 2.5m (measured from centreline of road)
- Minimum pipe Slope: 2% for service laterals
- Pipe material specification PVC DR35 for mainline and PVC DR28 for service laterals

5.2 Sewage Flow Rates and Downstream Capacity Assessment

The proposed flows are provided on the sanitary sewer design sheet in *Appendix B*. The sanitary sewer design sheet includes the comparison of flows assumed with the West Meadow Ph.2 Subdivision design and illustrates that the proposed connections of the future stage 2 buildings to Loyalist Parkway will reduce the flows on George Wright Boulevard so that its capacity will be reduced to a maximum 80%.

As requested by County staff during pre-consultation, the municipal sanitary model has been updated to include the proposed sanitary flows. The modeling results were prepared by JFSA and are included in *Appendix C*.

Based on the modeling results, the existing downstream system is adequately sized to accommodate the proposed development, concluding there is no known impact due to the proposed development and no need for expansions or upgrades. *Appendix C* includes the HGL analysis under the ultimate condition. From this figure, it can be shown that no pipes are surcharged.

6.0 STORM SEWERS

Stormwater will be captured on-site through a system of swales and catchbasins and directed to various existing storm sewer outlets. The project Stormwater Management Report prepared by INSITE details how the stormwater drainage conforms with the available capacity of offsite stormwater management controls.

7.0 PUBLIC UTILITIES

The proposed apartments will be serviced with public utilities including Canada Post, underground electrical power by Hydro One Networks, natural gas by Enbridge and telecommunications by Tenacity. Providers will design the proposed infrastructure.

8.0 CONCLUSIONS

- The proposed High Density residential Site Plan is 0.72 hectares and generally located to the northeast of Loyalist Parkway and George Wright Boulevard. The development will consist of two apartment buildings each 3-storeys and a total of seventy-two units, with a parking lot.

- The apartment buildings will be serviced with 200mm dia water connections; one will connect to the existing 200mm watermain on George Wright Boulevard and the other to the 300mm watermain on Beasly Cr.
- A 300mm municipal watermain will be constructed along the east side of the site, which will loop the West Meadow Subdivision distribution watermains to Loyalist Parkway.
- Based on the water modeling results, the municipal system will be adequate to meet the proposed development's flow demands and pressure requirements.
- The apartments will be serviced with individual 150mm dia laterals and connect to the existing 200mm dia sanitary sewer system fronting the property on George Wright Boulevard and Beasly Crescent.
- Based on the sanitary modeling results, the existing downstream system is adequately sized to accommodate the proposed development, concluding there is no known impact due to the proposed development and no need for expansions or upgrades.
- The site development will necessitate the addition of a catchbasin manhole in the boulevard of Beasly Cresent to capture parking lot runoff which will connect to the existing storm sewer. The project Stormwater Management Report prepared by INSITE details how the proposed site stormwater drainage conforms with the available capacity of offsite stormwater management controls.
- Public utility providers will design subdivision servicing for Canada Post, underground electrical power by Hydro One Networks, natural gas by Union Gas and telecommunications.

9.0 REPORT LIMITATIONS

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This Report has been prepared by:

Nancy Dionne, P. Eng,
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APPENDIX A

Required Fire Flow Calculations and Water Modeling results by Jewell Engineering

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May 6, 2025

Attn: Nancy Dionne, P.Eng.
Insite Project Consulting Inc.

Re: West Meadow Subdivision – Phase 2 Apartments
Water Modeling Results
Jewell Engineering File Number: 230-5392

Dear Ms. Dionne,

Port Picton Homes is looking to construct Phase 2 Apartments of the West Meadow subdivision. Jewell was requested to review water servicing that would be required to ensure adequate flow and pressure for this phase. It is known that there is low pressure in the location and that future looping is anticipated to improve water pressures.

Two scenarios were modeled and tested against the minimum tolerable pressures:

1. Peak Hour — Minimum 40 psi
2. Max Day + Fire Flow — Minimum 20 psi

Domestic demands were provided by Insite for two buildings, one with 36 units and one with 32 units each using 320 L/person/day and 1.4 persons per 1-bedroom units and 2.1 persons per 2-bedroom units. A summary of the domestic demands is in Table 1. The Insite demand calculations are attached.

Table 1: Domestic Demand Summary

Domestic Demands	Flow per Building (L/s)
Average Day Demand	0.2
Peak Hour Demand (Factor = 2.85)	0.6/0.7
Max Day Demand (Factor = 1.9)	0.4

Analysis

Scenario 1 – Peak Hour

Peak hour demand of 0.7 L/s per building (for a total demand of 1.4 L/s) was applied at Nodes J2280 and J2284. The model indicates system pressures would be more than 50 psi based on the design conditions supplied by Insite. This is greater than the 40 psi minimum requirement; therefore, there is no concern with meeting the domestic demands for peak hour (see Table 2).

Scenario 2 – Max Day + Fire Flow

Fire flow for the two buildings was calculated by Insite using the 2020 Fire Underwriters Survey. The required fire flow is calculated to be 117 L/s for Phase 2.

A 300mm watermain is needed to create a loop from Loyalist Parkway to the 300mm watermain in front of the new apartments to supply the fire demand. The watermain modification is illustrated in Figure 1.

A fire flow of 117 L/s and a max day demand of 0.4 L/s was applied to Node J2284, and a max day demand of 0.4 L/s was applied to Node J2280. The resulting residual pressures with the looped watermain were greater than 20 psi (see Table 2).

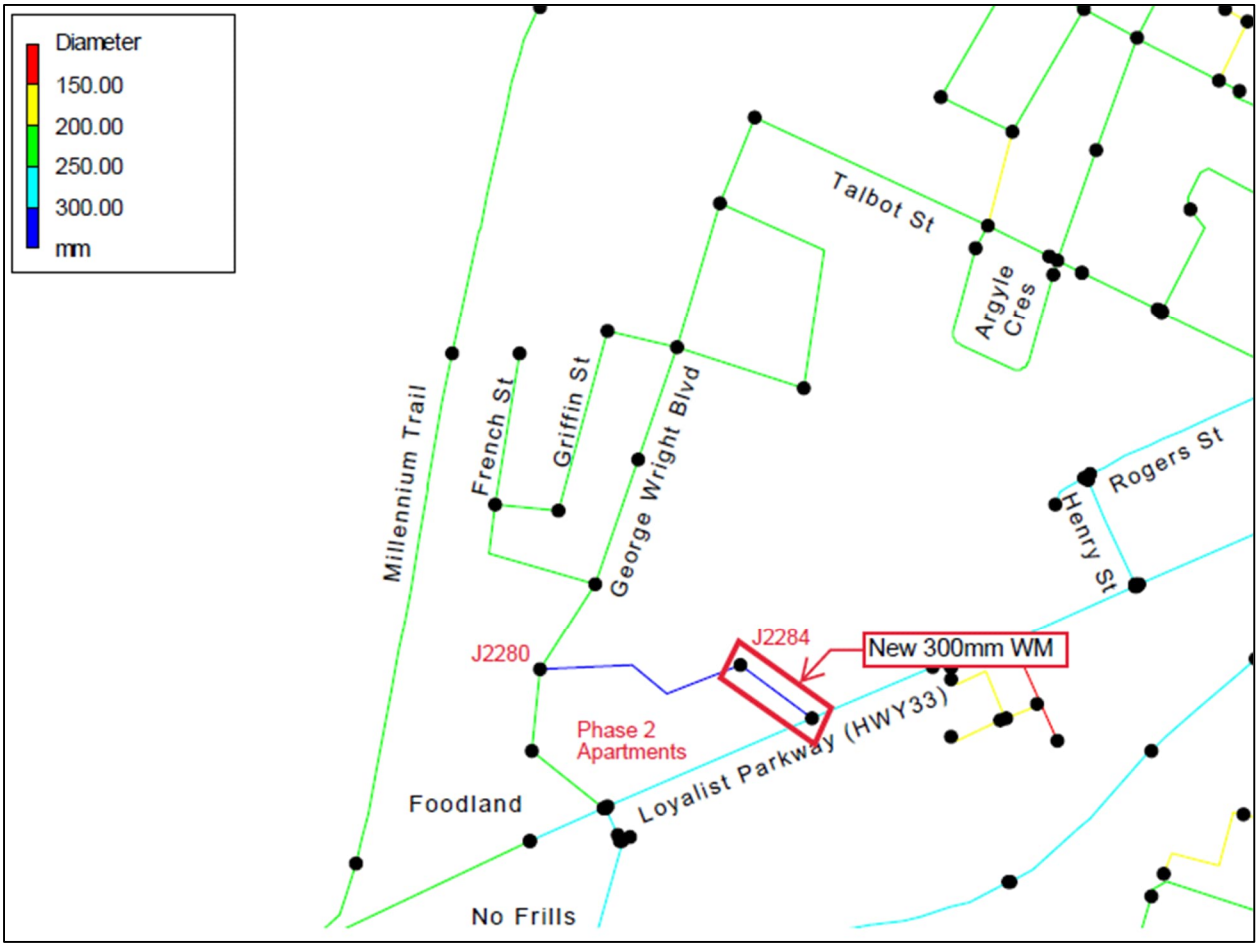

Figure 1: Water Model Map

Table 2: Water Model Results

Water Model Results							
Building	Juntion ID	Elevation (m)	Base Demand (L/s)	1 - Peak Hour		2 - Max Day + Fire Flow	
				Demand (L/s)	Pressure (psi)	Demand (L/s)	Pressure (psi)
1	J2280	103.50	0.6	0.7	52.0	0.4	33.1
2	J2284	104.50	0.6	0.7	50.6	117.4	31.2
	Designed: Julie Humphries, C.E.T. Checked: Bryon Keene, P.Eng.			Note: Fire flow event at J2284	Project:	West Meadows Phase 2 Apartments	

Summary

Jewell found the existing dead-end watermain is not adequate to provide the required fire flow. A 300 mm watermain (approximately 85 metres in length) is required to loop the dead-end watermain to the existing 250 mm watermain on Loyalist Parkway. With the 300 mm watermain loop, the Picton water system is adequate to meet peak flow demands for all of Phase 2 while maintaining a minimum pressure of 50.6 psi, which exceeds the minimum allowable of 40 psi. Furthermore, we found that a fire flow of 125 L/s will be available, which will be sufficient to meet the projected fire flow requirement of 117 L/s. The max day and fire flow demands can be met during maximum day usage while maintaining a minimum pressure more than 20 psi in the system.

If you have any questions, please feel free to contact the undersigned.

Sincerely,

Julie Humphries, C.E.T.
Jewell Engineering Inc.

Bryon Keene, P.Eng.
Jewell Engineering Inc.

1. FIRE FLOW REQUIREMENT CALCULATIONS
West Meadow Subdivision - Phase 2 Apartments
Municipal Criteria: The Corporation of the County of Prince Edward

INSITE PROJECT CONSULTING INC.

Prepared by: Nancy Dionne, P.Eng
Date: January 29th, 2026

Fire flow requirements per Fire Underwriters Survey Water Supply for Public Fire Protection, 2020

RFF (l/s) = 220 C √A, to the nearest 1,000 LPM, where:

C = Construction Coefficient

A (sqm)= total effective floor area

	OPTION 3; Two fire separations	
PARAMETERS	**Building 1**	**Building 2**
A. Determine Construction Coefficient (C)		
1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior) 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls) 0.6 for fire resistive construction (fully protected frame, floors, roof)	1.0	1.0
B. Determine Total Effective Floor Area (A)		
Construction Type of Exposed Building Face (per Architect)	protected openings	protected openings
Largest floor area divided with 2hr fire wall (m2)	290.0	290.0
Number of stories	3.0	3.0
For C < 1.0 : a) two largest adjoining floors plus 50% of each of any floors immediately above them up to eight, when the vertical openings of enclosure walls are inadequately protected (less than one hour rating). OR b) only the area of the largest floor plus 25% of each of the two immediately adjoining floors, when the vertical openings are properly protected (per NBC Div B, Sec 3.5 Vertical Transportation).		
For C = 1.0 : All floor areas	**870**	**870**

PARAMETERS	Building 1	Building 2
C. Calculate Required Fire Flow (LPM)		
Fire Flow Equation:	6489	6489
C1 - Fire Flow (Rounded to nearest 1,000 LPM)	**6000**	**6000**
D. Determine Occupancy Content Adjustment Factor:		
D1 - Residential (Limited Combustible)	**-15%**	**-15%**
E. Determine Automatic Sprinkler Protection:		
E1 - % Reduction for Sprinkler Credit (per Architect)	**0%**	**0%**
F. Determine Total Exposure Adjustment Charge (max 75%):		
a) Exposure distance: Unpierced 2hr fire rated party wall	0.0	0.0
Table 6 Max. Exposure Adjustment Charge	10%	10%
b) Exposure distance: Interior distance between Bldgs 1 and 2	32.0	32.0
Table 6 Max. Exposure Adjustment Charge	5%	5%
c) Exposure distance: Distance to north THs	30.0	30.0
Table 6 Max. Exposure Adjustment Charge	5%	5%
d) Exposure distance: Distance to south commercial buildings	22.0	32.0
Table 6 Max. Exposure Adjustment Charge	10%	5%
F1 - Total Max. Exposure Charge = a + b + c	**30%**	**25%**
G. Final Required Fire Flow (nearest 1000 LPM):		
Adjusted Fire Flow (L/min) = C1+C1*(D1+E1+F1)	6900	6600
Adjusted Fire Flow, rounded to nearest 1000 (L/min)	7000	7000
Required Fire Flow (L/s)	**117**	**117**
Max Available (L/s)	**125**	**125**

2. DOMESTIC WATER DEMAND CALCULATIONS

West Meadow Subdivision - Phase 2 Apartments

Municipal Criteria: The Corporation of the County of Prince Edward

Prepared by: Nancy Dionne, P.Eng
Date: January 29th, 2026

INSITE PROJECT CONSULTING INC.

* Peaking Factors shall be based on MECP Design Guidelines for Drinking Water

DESIGN DENSITIES (POP)		
Low Density: Singles, semis / duplex PPU :	3.0	
Med Density: Triplex, Fourplex, THs PPU :	2.5	
High Density: Apartments (54 to 300 units/Ha) PPU :		
	1 bdrm: 1.4	3 bdrm: 2.4
	2 bdrm: 2.1	4 bdrm: 3.0

BUILDING 1

Average day per capita (L per person/day)	320	A
Number of Units (Apartments)	36	B
PPU Density (Number of Person /unit) 30 2-bdrm unit / 6 1-bedrm	1.98	C
* Maximum Day Factor:	1.9	D
* Peak Hour Factor	2.85	E
Required Fire Flow (RFF) L/s	117	F

FLOW REQUIREMENTS	**L/day**	**L/min**	**L/sec**
Average Day Demand ADD Qave = A x B x C	22,848.0	15.9	0.3
Max Day Demand MDD Qmdd = Qave x D	43,411.2	30.1	0.5
Peak Hour Demand PHD Qphd = Qave x E	65,116.8	45.2	0.8
Total Demand TD Qtd = Qmdd + RFF		7,030.1	**117.2**

BUILDING 2

Average day per capita (L per person/day)	320	A
Number of Units (Apartments)	36	B
PPU Density (Number of Person /unit) 30 2-bdrm unit / 6 1-bedrm	1.98	C
Maximum Day Factor:	1.9	D
Peak Hour Factor	2.85	E
Required Fire Flow (RFF) L/s	117	F

FLOW REQUIREMENTS	L/day	L/min	L/sec
Average Day Demand ADD Qave = A x B x C	22,848.0	15.9	0.3
Max Day Demand MDD Qmdd = Qave x D	43,411.2	30.1	0.5
Peak Hour Demand PHD Qphd = Qave x E	65,116.8	45.2	0.8
Total Demand TD Qtd = Qmdd + RFF		7,030.1	**117.2**

APPENDIX B

Sanitary Design Sheet

SANITARY SEWER DESIGN SHEET
West Meadow Subdivision - Ph.2 Apartments
Municipal Criteria: The Corporation of the County of Prince Edward

Prepared by: Nancy Dionne, P.Eng
Insite Project Consulting Inc.
Date: January 28 2026

INSITE PROJECT CONSULTING INC.

RATIONAL METHOD: Qd = Qp + Qi
Q(p) = peak population flow (L/s)
Q(i) = peak extraneous flow (L/s)
Q(d) = peak design flow (L/s)

Q(p) = P * q * M / 86.4 (L/s)
Q(i) = i * A (L/s)

P = Population in thousands = POP/1000
q = average daily per capita flow (L/day/person)
i = Unit of peak extraneous flow (L/s/ha)
A = Gross Tributary Area (Ha)

M = Harmon's Peaking Factor Formula:
M = 1 + 14 / (4 + (POP/1000) ^ 0.5)
Min M Permissible per MECP: 2
M = 2.75 for maximum flow and 4.0 for minimum flow

MUNICIPAL GUIDELINES
Residential (q) : **320** (225 to 450 L/cap.d)
Extraneous (i) : 0.28 (0.1 to 0.28 L.s.ha)

DESIGN DENSITIES (POP)
Low Density: Singles, semis / duplex PPU : 3.0
Med Density: Triplex, Fourplex, THs PPU : 2.5
High Density: Apartments (54 to 300 units/Ha) PPU :
1 bdrm: 1.4 3 bdrm: 2.4
2 bdrm: 2.1 4 bdrm: 3

Commerical and Industrial: Per municipal Guidelines
Per MECP Sewage Works Guidelines

Velocity: Min: 0.6 m/s (for pipe flow above pipe depth of 0.3 of pipe dia.)
Max 3.0 m/s
Min Slope: 1% min for first leg of sewer
Max full flow capacity: 80%

MANNING EQUATION FOR FULL PIPE FLOW:

Qcap (cum/s) = 1/n * A * R^2/3 *S^1/2
1/n * ((π D^2)/4) * (D/4)^2/3 *S^1/2
Mean Velocity (m/s) = Q / A

D = Pipe Diameter (m)
R = Hydraulic radius (m) = A / Pw = D / 4
A (sqm) = Cross sectional flow area = (π $D^{2)}$/4
Pw = Wetted Perimeter = π * D
S = slope (grade) of pipe (m/m)

n = Manning's roughness coefficient
Concrete, PVC and HDPE:
n = 0.013

LOCATION				RATIONAL METHOD FLOWS											SEWER CHARACTERISTICS			MANNING'S EQUATION		
				INDIVIDUAL						CUMULATIVE		PEAKING	PEAK FLOWS							
Street	AREA ID	FROM MH	TO MH	PPU	Total Units	PPU	Total Units	AREA (ha)	POP (persons)	POP (persons)	AREA (ha)	FACTOR (M)	POP Qp (L/s)	EXTRAN Qi (L/s)	DESIGN Qd (L/s)	DIA. (m)	SLOPE (m/m)	LENGTH (m)	PIPE VELOCITY Vcap (m/s)	PIPE CAPACITY Qcap (L/s)	Qd/Qcap (%)
Total Flows Approved from West Meadows Subdivision (all Phases) to GWB																					
Assumed from 2023 WM Ph.2 Subdivision Agreement SSDS by Ainley.										908.5	15.32	3.83	12.88	4.29	**17.17**	0.200	0.004	17.6	0.66	20.7	83%
Including assumed Flows from West Meadows Apartment Site Plan to GWB:																					
Stage 1 from 2023 WM Ph.2 S.A.				2.5	79.0			0.79	197.5	197.5	0.79	4.15	3.04	0.22	3.26						
Stage 2: from 2023 WM Ph.2 S.A.				2.5	54.0			0.86	135.0	135.0	0.86	4.21	2.10	0.24	2.34						
Total Assumed for Stage 1 and 2:										332.5	1.7	4.06	5.00	0.46	**5.46**						
Proposed Flows from West Meadows Apartment Block 44 Site Plan to GWB:																					
Stage 1: PPU Density (Number of Person /unit) 6 1-bedrm / 30 2-bdrm unit																					
Building 1				1.4	6.0	2.1	30.0	0.36	71.4	71.4	0.36	4.28	1.13	0.10	1.23	0.150	0.020	17.6	1.22	21.5	6%
Building 2				1.4	6.0	2.1	30.0	0.36	71.4	71.4	0.36	4.28	1.13	0.10	1.23	0.150	0.020	17.6	1.22	21.5	6%
Total Proposed for Stage 1 :										142.8					**2.47**						
1. Revised Flows from WM Subdivision to GWB :																					
Revise flows from WM Apartment Stage 1, and remove flows from WM Apartment Stage 2 which will connect directly to Loyalist Pkway:																					
										718.8	14.4	3.89	10.35	4.03	**12.04**	0.200	0.004	17.6	0.66	20.7	**58%**
Therefore, the flows to GWB have been reduced from the approved West Meadow Subdivision 17.17 L/S to 12.04 L/s																					
2. Additional Flows from WM Apartment Future Stage 2 with new connection to Loyalist Pkwy:																					
Future Stage 2 : Site Plan:				2.1	200.0			0.86	420.0	420.0	0.86	4.01	6.24	0.24	**6.48**						
3. TOTAL ADDITIONAL FLOWS FROM WM APARTMENTS TO LOYALIST PARKWAY:																					
Stage 1 (Current Site Plan Application): 2.46 L/s from Proposed SP minus 3.26 L/s from Stage 1 2023 WM Ph.2 S.A.															-0.79						
Stage 2 (Future Site Plan Application) 6.48 l/s from Proposed SP minus 2.34 L/s from Stage 1 2023 WM Ph.2 S.A.															4.14						
Total															**3.35**						

ON TALBOT SUBDIVISION
22 SINGLE LOTS,
50 TOWNHOUSE UNITS

EXT.A
2.10

0.3m RESERVE
BLOCK 74

SA-F1

69.08m - 200mmØ
SAN @ 1.00%

201
0.49

SA-A6

203
0.26

202
0.35

306
0.49

44.56m - 200mmØ
SAN @ 1.00%

SA-E1

SA-D3

30.41m - 200mmØ
SAN @ 0.40%

304
0.16

39.19m - 200mmØ
SAN @ 0.40%

SA-D4

2 STOREYS
16 UNITS

0.3m RESERVE
BLOCK 75

204
0.45

49.01m - 200mmØ
SAN @ 0.40%

BLOCK 104

SA-E2

STREET E

307
0.76

30.84m - 200mmØ
SAN @ 0.40%

305
0.19

BLOCK
90

SA-A7

BLOCK
65

205
0.28

49.08m - 200mmØ
SAN @ 0.40%

BLOCK
66

SA-E3

42.71m - 200mmØ
SAN @ 0.40%

55.40m - 200mmØ
SAN @ 1.00%

SA-E4

77.99m - 200mmØ
SAN @ 0.40%

SA-E5

7.90m - 200mmØ
SAN @ 0.40%

61.24m - 200mmØ
SAN @ 0.40%

SA-D5

308
0.17

SA-G1

SA-A8

42.17m - 200mmØ
SAN @ 0.40%

206
0.08

51.13m - 200mmØ
SAN @ 0.40%

208
0.61

210
0.11

207
0.39

209
0.41

213
0.02

47.92m - 200mmØ
SAN @ 0.40%

102.00m - 200mmØ
SAN @ 1.00%

211
0.91

309
0.25

BLOCK
94

310
0.62

SA-D7

BLOCK
100

STREET F

SA-F2

SA-F3

9.97m - 200mmØ
SAN @ 0.40%, SA-A9

SA-G3

STREET G

98.71m - 200mmØ SAN @ 0.40%

212
0.92

15.31m - 200mmØ
SAN @ 0.40%

SA-G2

BLOCK
86

BLOCK
85

BLOCK
84

63.80m - 200mmØ
SAN @ 0.40%

BLOCK
92

SA-D8

62.75m - 200mmØ
SAN @ 0.40%

214
0.09

BLOCK
82

BLOCK
83

311
0.89

54.48m - 200mmØ
SAN @ 0.40%

SA-A10

99.26m - 200mmØ
SAN @ 0.40%

WM PH4:
22 lots @ 3 PPU +
107 TH @ 2.5 PPU
POP 333.5
Area: 4.8 Ha
Design Flows: 6.83 l/s

215
0.07

PARKLAND
BLOCK
60

38.55m - 200mmØ
SAN @ 0.40%

BLOCK
67

317
0.42

18.85m - 200mmØ
SAN @ 0.40%

312
0.14

318
0.03

BLOCK
68

65.89m - 200mmØ
SAN @ 0.40%

CRESCENT B

SA-D14

315
0.12

BLOCK
101

38.95m - 200mmØ
SAN @ 0.40%

SA-D9

29.81m - 200mmØ
SAN @ 0.40%

SA-D10

SA-D12

SA-D11

23.08m - 200mmØ
SAN @ 0.40%

20.22m - 200mmØ
SAN @ 0.40%

313
0.91

216
0.06

217
0.43

316
0.46

BLOCK
98

314
0.11

4 STOREY BUILDING
48 UNITS

SA-A13

SWM
FACILITY
BLOCK
59

34.88m - 200mmØ
SAN @ 0.50%

UNIT 1
5 STOREYS BUILDING
78-79 UNITS

BLOCK
96

Stage 1 (Buildings 1 and 2):
2023 Ph2 Subd. Agmt Assumption:
POP = (79 units@2.5ppu) = 197.5
Area = 0.79 Ha
Design Flows = 3.26 l/s
Current Site Plan
POP: 70 units (50% 1 bdrm @ 1.4ppu & 50% 2 bdrm @ 2.1ppu) = 119
Area = 0.72 Ha
Design Flows = 2.10 l/s (1.16 l/s less than assumed)

Future Stage 2 (Buildings 3 and 4) :
2023 Ph2 Subd. Agmt Assumption:
POP: 54 units@ 2.5ppu = 135,
Area: 0.86 Ha
Design Flow: 2.34 l/s
Conceptual Site Plan :
POP: 200 units (2 bdrm) @ 2.1ppu = 420
Area: 0.86 Ha
Design Flow: 6.48 l/s (4.14 l/s more than assumed)

APPENDIX C

Preliminary Sanitary Analysis by JFSA

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February 09, 2026 Project Number: 2093(02)

INSITE Project Consulting Inc.
72 Richardson Drive
Kingston, Ontario
K7M 2T1

Attention: **Nancy Dionne, P.Eng**

Subject: **West Meadow Block 44 Apartment Development – Preliminary Sanitary Analysis**

Introduction

JFSA Canada Inc. (JFSA) has been commissioned by INSITE Project Consulting Inc. (INSITE) to complete a preliminary sanitary analysis for the future West Meadow Block 44 Apartment development located north of Loyalist Parkway, east of George Wright Boulevard and south of Beasley Crescent, in Picton, Ontario. This study intends to determine the sanitary hydraulic grade line (HGL) impacts from the proposed preliminary West Meadow Block 44 Apartment development to the existing sanitary sewer system, without adversely impacting existing properties. The following analysis builds on Prince Edward County's PCSWMM model of the Picton sanitary system. The County's Ultimate Conditions sanitary PCSWMM model has been used as the base model for this analysis.

PCSWMM Model Updates

The County's ultimate-conditions PCSWMM sanitary model was updated to incorporate the most recent preliminary design information for the West Meadow Block 44 Apartment development, based on materials provided by INSITE during the preparation of this memo. These updates included adding the preliminary internal sanitary sewer network and assigning the peak sanitary inflow values for the Block 44 development. The servicing design sketch from INSITE containing these sanitary inflows are provided in **Attachment A**.

Before incorporating the latest Block 44 preliminary sanitary design information, the Block 44 development was fully removed from the model to allow for a comparison of the modeled sanitary flows at conduit **358** (from **MH SA-A11** to **MH SA-A12**) with the approved West Meadow development design flows (located adjacent and to the north of the Block 44 site). Based on this comparison, INSITE directed revisions to several sanitary inflows within the approved West Meadow development so that the modeled flows would better align with the previously approved design flows. The specific inflow adjustments made in the model are summarized below:

- MH 3 inflow revised from 0.00547 m^3/s to 0.00169 m^3/s
- MH SA-A10 revised from 0.0014 m^3/s to 0 m^3/s (no inflow)
- MH J31 revised from 0 m^3/s to 0.00146 m^3/s
- MH SA-D1 revised from 0 m^3/s to 0.00029 m^3/s
- MH SA-A11 revised from 0.00052 m^3/s to 0 m^3/s (no inflow)

With the inflow revisions above, the preliminary sanitary design information for the West Meadow Block 44 Apartment development was incorporated into the model.

The modifications to the County's ultimate-conditions model were localized to the West Meadow Block 44 Apartment development area (as shown on the INSITE servicing sketch) and to the sanitary inflows at the specific manhole locations within the approved West Meadow development described above. No other components, parameters or sanitary inflows in the County's ultimate-conditions model were altered.

Sanitary HGL Analysis

The sanitary flow for the West Meadow Block 44 Apartment development was determined by INSITE to be **1.23 L/s** for **Buildings 1** and **2**, and **6.48 L/s** for future **Buildings 3** and **4** combined. **Building 1** will connect to an internal sanitary sewer network before connecting to existing sanitary manhole (MH) **SA-A12** on George Wright Boulevard, **Building 2** will connect to an internal sanitary sewer network before connecting to existing sanitary MH **SA-D12** on Beasley Crescent and future **Buildings 3** and **4** will connect to an internal sanitary sewer network before connecting to existing sanitary MH **PROP-SA-204** on Loyalist Parkway.

Table 1 below shows a comparison between the sanitary HGL elevations from the original PEC ultimate conditions model and the updated analysis, at the respective MHs mentioned above.

Table 1: Sanitary Hydraulic Grade Line (HGL) Comparison

Junctions	Invert Elev. (m)	Ultimate Scenario Original PEC PCSWMM model		Ultimate Scenario PEC PCSWMM model with WM Blk44 Apt. Dev.		Difference (m)
		Rep. Max. Depth (m)	Max. HGL (m)	Rep. Max. Depth (m)	Max. HGL (m)	
SA-D10	100.67	0.07	100.74	0.06	100.73	-0.01
SA-D11	100.51	0.07	100.58	0.06	100.57	-0.01
SA-D12	100.40	0.07	100.47	0.07	100.47	0.00
SA-D13	100.28	0.08	100.36	0.08	100.36	0.00
SA-D14	100.18	0.07	100.25	0.07	100.25	0.00
SA-D15	99.89	0.08	99.97	0.08	99.97	0.00
SA-A11	99.76	0.16	99.92	0.12	99.88	-0.04
SA-A12	99.62	0.14	99.76	0.11	99.73	-0.03
SA-A13	99.40	0.14	99.54	0.12	99.52	-0.02
SA310	99.16	0.23	99.39	0.15	99.31	-0.08
SA309	98.85	0.14	98.99	0.12	98.97	-0.02
SA308	98.42	0.26	98.68	0.19	98.61	-0.07
PROP-SA-206	98.38	0.20	98.58	0.16	98.54	-0.04
PROP-SA-205	98.25	0.28	98.53	0.24	98.49	-0.04
PROP-SA-204	98.05	0.20	98.25	0.19	98.24	-0.01
PROP-SA-203	97.85	0.21	98.06	0.20	98.05	-0.01
PROP-SA-202	97.64	0.15	97.79	0.15	97.79	0.00
PROP-SA-201	97.47	0.10	97.57	0.10	97.57	0.00

Based on this preliminary analysis, the existing sanitary sewers along Beasley Crescent, George Wright Boulevard and Loyalist Parkway have sufficient capacity to convey the West Meadow Block 44 Apartment development flows without surcharging the existing sanitary network. Therefore, it is concluded that the sanitary contributions from the Block 44 Apartment development will not adversely impact existing developments that also use this system. **Figure 1** outlines the location and ID of the MHs within the study area. **Figure 2** compares the ultimate sanitary HGL along Beasley Crescent (from **MH SA-D10** to **MH SA-A11** at the intersection with George Wright Boulevard), **Figure 3** compares the ultimate sanitary HGL along George Wright Boulevard (from **MH SA-A10** to **MH PROP-SA-206** at the intersection with Loyalist Parkway) and **Figure 4** compares the ultimate sanitary HGL along Loyalist Parkway (from **MH SC20_MH1A** to **MH PROP-SA-201** at the intersection with Cold Storage Road). The original PEC ultimate conditions model is shown in red, and the updated JFSA analysis, including flows from the West Meadow Block 44 Apartment development, is shown in blue.

Conclusion

The intention of this preliminary analysis is to confirm that the proposed sanitary flow contributions from the West Meadow Block 44 Apartment development can be safely conveyed via the existing sanitary network under ultimate conditions. Note that the exact sanitary flow contributions from the Block 44 Apartment development will be determined at a later stage. However, from this preliminary analysis, it was determined that there is sufficient capacity in the existing sanitary sewer network along Beasley Crescent, George Wright Boulevard and Loyalist Parkway to safely convey the sanitary contributions from the proposed West Meadow Block 44 Apartment development.

Yours truly,
JFSA Canada Inc.

Paulo Pickart, B.Eng, P.Eng
Senior Water Resources Engineer

Jonathon Burnett, B.Eng, P.Eng
Senior Water Resources Engineer

Tables

Table 1: Sanitary Hydraulic Grade Line (HGL) Comparison

Figures

Figure 1: Sanitary Model Overview
Figure 2: Sanitary HGL along Beasley Crescent
Figure 3: Sanitary HGL along George Wright Boulevard
Figure 4: Sanitary HGL along Loyalist Parkway

Attachments

Attachment A: Block 44 Apartment - Preliminary Sanitary Servicing Design Sketch and Sanitary Inflows from INSITE

Modelling Files (Provided Electronically):

Ultimate Scenario-Sept2024.inp (Original ultimate-conditions PEC PCSWMM model)
Ultimate Scenario-Sept2024-WM_Blk44Apt_Feb2026-Sc1_v01.2.inp (Updated ultimate-conditions PCSWMM model)

Legend

- Junctions
- Outfalls

Storages

- Proposed SPS
- Existing SPS
- Proposed Storage Tank

Conduits

- Proposed Gravity
- Existing Forcemain
- Existing Gravity
- Proposed Forcemain
- Pumps
- Orifices
- Outlets

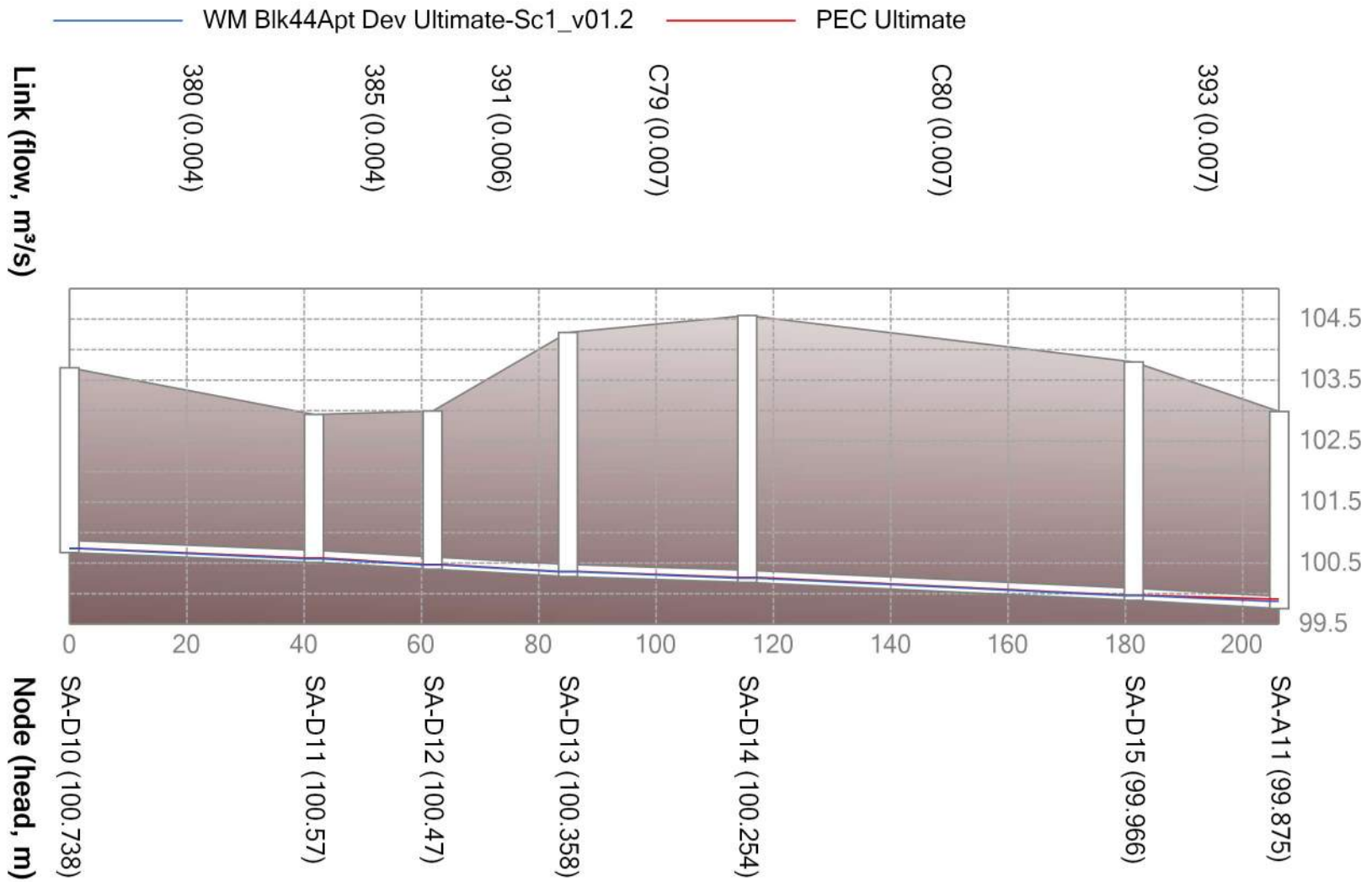
Figure 1 - Sanitary Model Overview

N

100 m

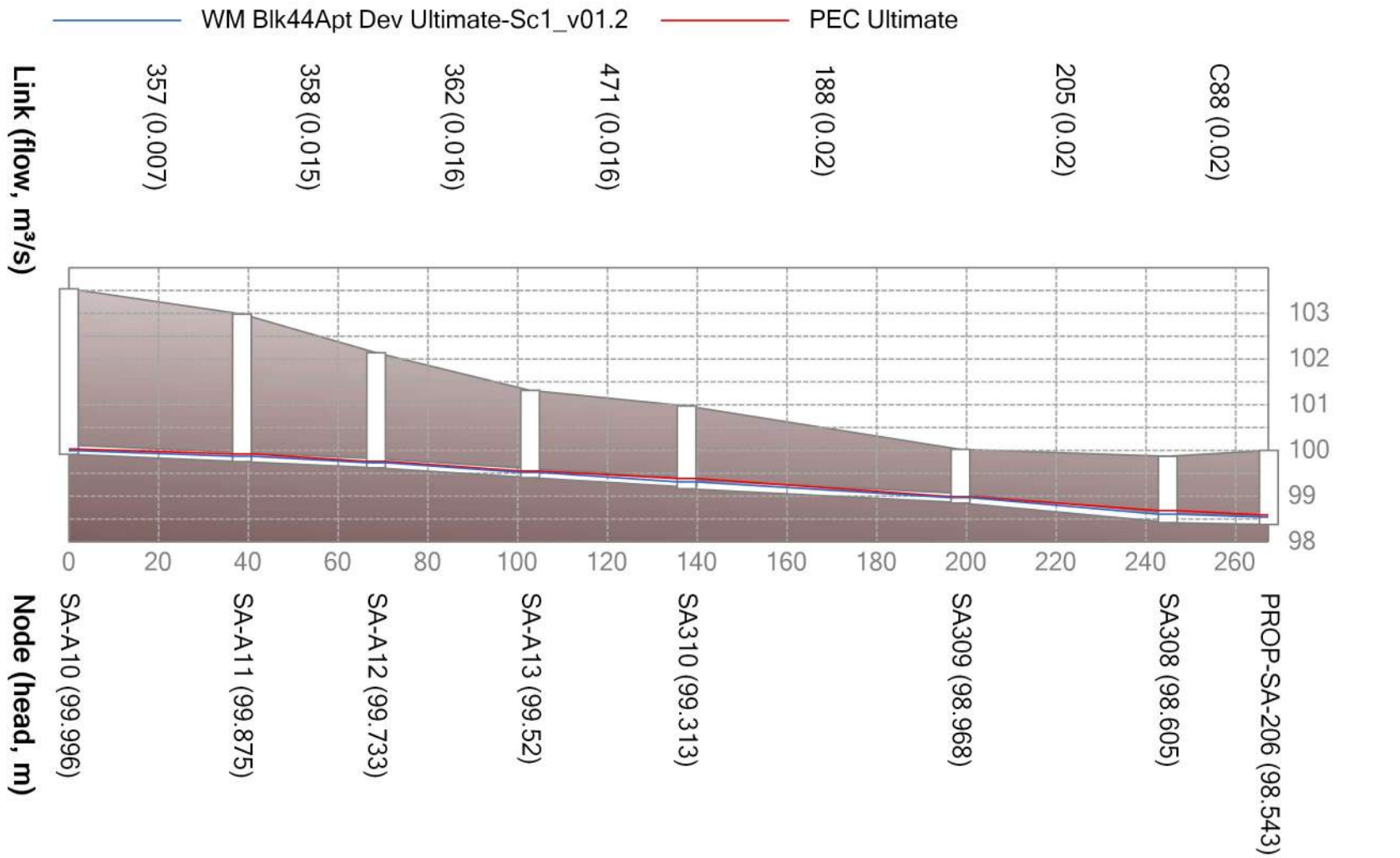
Peak values

Figure 2 - Beasley Crescent Profile



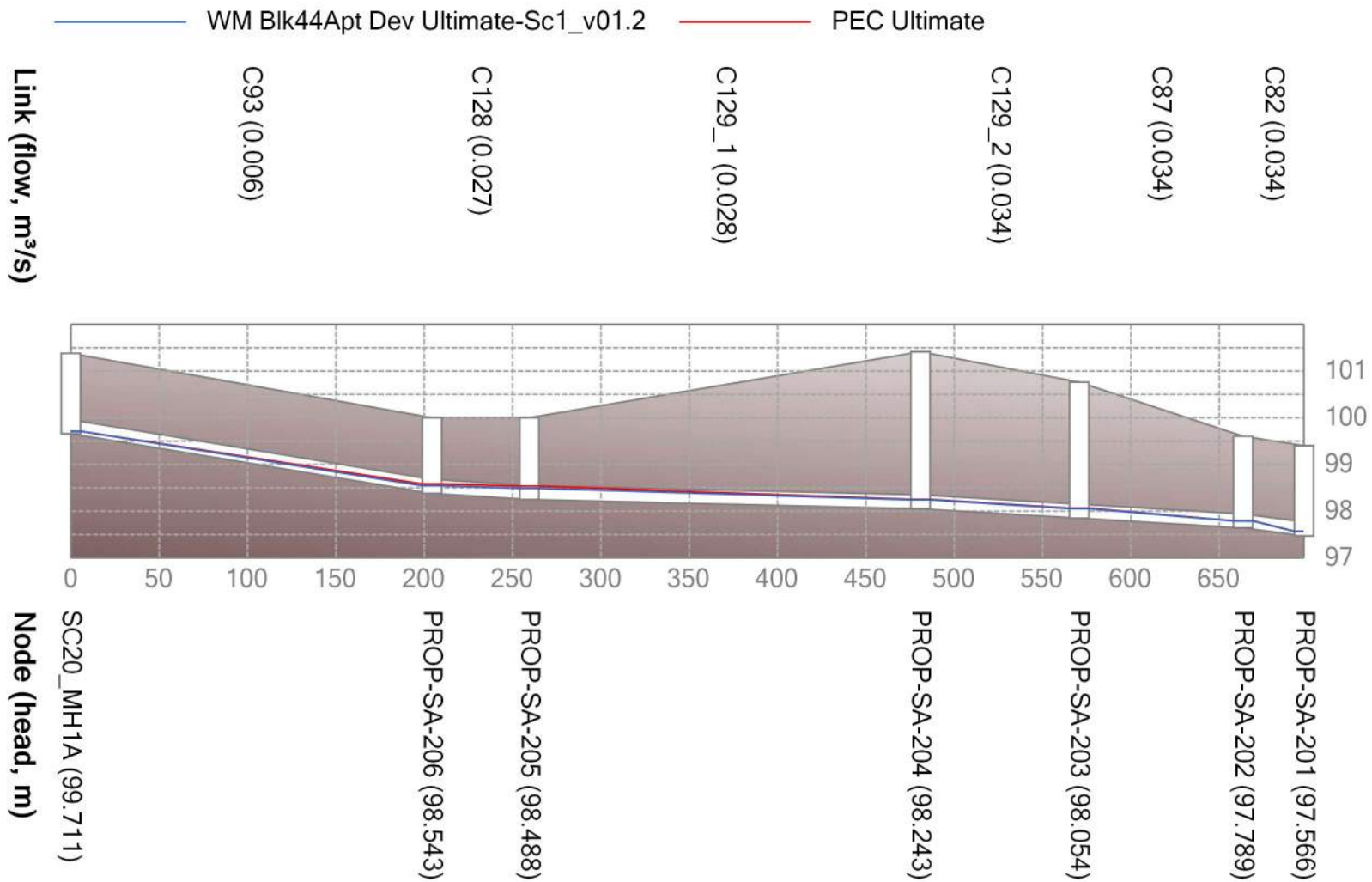
Peak values

Figure 3 - George Wright Boulevard Profile



Peak values

Figure 4 - Loyalist Parkway Profile



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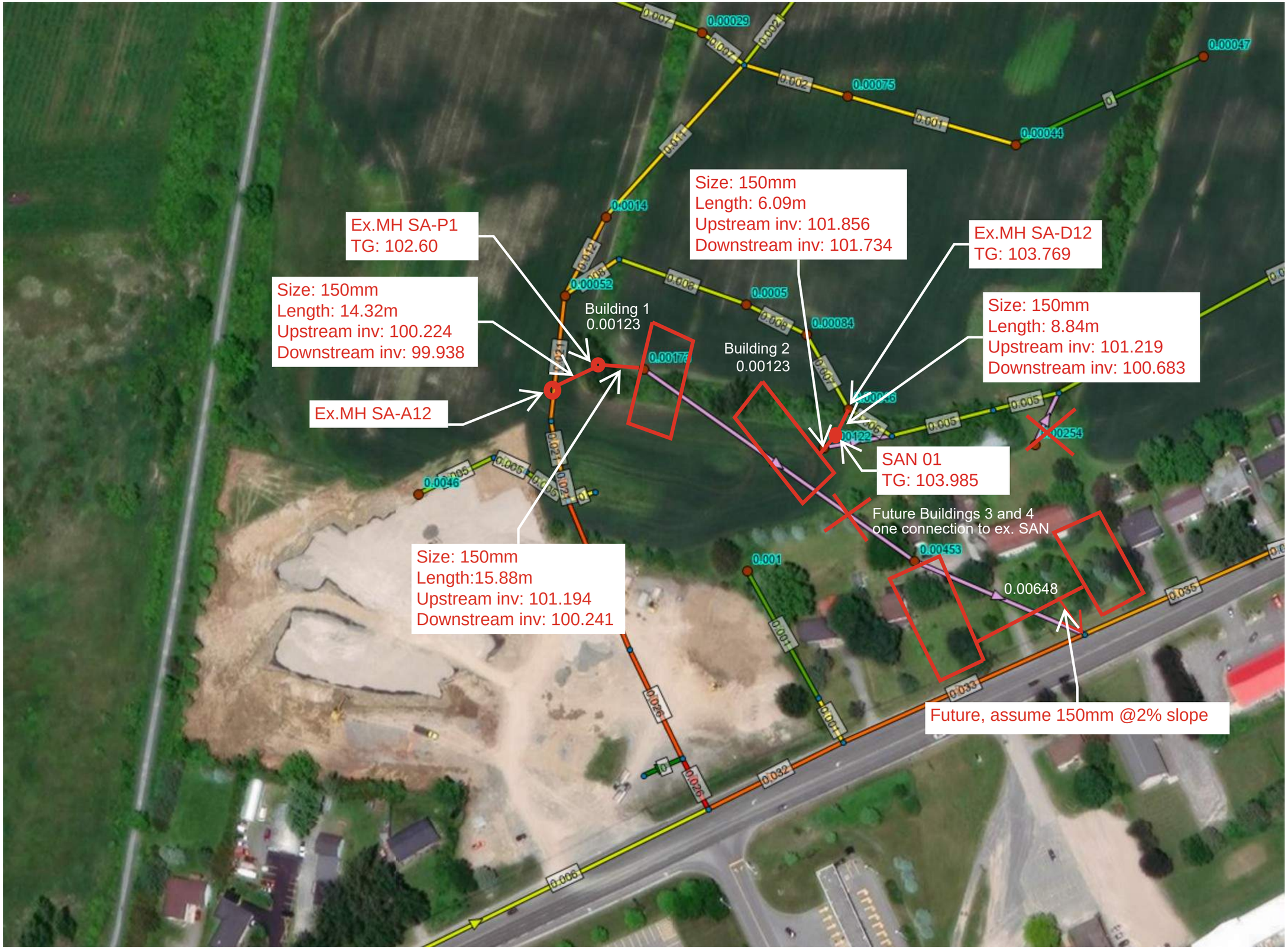
Attachment A

Block 44 Apartment - Preliminary Sanitary Servicing Design Sketch
and Sanitary Inflows from INSITE


Ex.MH SA-P1
TG: 102.60
Size: 150mm
Length: 14.32m
Upstream inv: 100.224
Downstream inv: 99.938
Size: 150mm
Length: 6.09m
Upstream inv: 101.856
Downstream inv: 101.734
Ex.MH SA-D12
TG: 103.769
Size: 150mm
Length: 8.84m
Upstream inv: 101.219
Downstream inv: 100.683
Building 1
0.00123
Building 2
0.00123
Ex.MH SA-A12
SAN 01
TG: 103.985
Future Buildings 3 and 4
one connection to ex. SAN
0.00453
0.00648
Size: 150mm
Length:15.88m
Upstream inv: 101.194
Downstream inv: 100.241
Future, assume 150mm @2% slope