TATHAM ENGINEERING

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File 118197

March 22, 2023

Ryan Davidson
Founder + Chief Executive Officer
RDL Export
7401 Pacific Circle
Mississauga, Ontario L5T 2A4
ryan@tradexport.com

Re: 655 Hurontario Street, Town of Collingwood
FSR Addendum

Dear Ryan:

The following is provided to address the sanitary and water servicing for the proposed 50-unit apartment building at 655 Hurontario Street in the Town of Collingwood. This letter is prepared as an addendum to the previously submitted FSR, dated March 22, 2019, which should be read concurrently with this addendum.

PROPOSED DEVELOPMENT

The proposed development will consist of a four-storey residential apartment building with a total of 50 units. A 200 mm diameter sanitary sewer will be provided to the site from the existing 300 mm diameter sanitary sewer on Lockhart Road. A 200 mm diameter water service will be provided to the site via connection to the existing 200 mm diameter watermain on Lockhart Road. The water service will be split to provide a 200 mm diameter fire service and a 75 mm domestic service for the apartments.

WATER SUPPLY & DISTRIBUTION

The Collingwood Water Treatment Plant has a rated capacity of 31,140 m^3/day during the summer and 24,019 m^3/day during the winter per the Town of Collingwood Semi-Annual Water and Wastewater Uncommitted Hydraulic Reserve Capacity Update (September 2022). The 2022 Capacity Update showed an average maximum day demand of 15,279 m^3/day during the summer and 9,707 m^3/day during the winter, along with 10,750 m^3/day of municipally committed flow during the summer and winter. This results in a hydraulic reserve capacity of 5,111 m^3/day during the summer and 3,562 m^3/day during the winter. When factoring in Planning Applications, Committed Servicing Capacity Allocation and a Factor of Safety, the remaining uncommitted hydraulic reserve capacity was determined to be 1,830 m^3/day during the summer and 1,263 m^3/day during the winter.

Water Demands Assessment

The Town of Collingwood Development Standards (2007) and Town of Collingwood Semi-Annual Water and Wastewater Uncommitted Hydraulic Reserve Capacity Update (September 2022) were used to determine the water consumption demand for the site. The average water demand is assumed at 260 L/cap/day and the persons per unit (PPU) has been assumed at 1.90 PPU. Peak usage factors for maximum day demand and peak hour demand were determined to be 1.77 and 4.5, respectively. The maximum daily demand was calculated to be 0.51 L/s and the peak hour demand is 1.29 L/s. The maximum daily demand equates to 33 SDU using the Town's single detached unit equivalent calculation for an apartment building. The supporting calculations are attached.

Fire Water Demands Assessment

Existing fire hydrants are located at the southeast corner of the site, southwest corner of Lockhart Road and Hurontario Street and approximately 30 m northwest of the site on Hurontario Street. An internal fire hydrant is proposed in the northeast corner of the property to provide water supply for fire department connection. The Town requested that Fire Underwriter's Survey (FUS) calculations be completed to determine the required fire flow for the apartment, and that confirmation be provided that the existing watermain can provide the requisite fire flow.

The Town provided modelling results for the surrounding watermain on October 20, 2020, which confirmed the available fire flows of 148 L/s and 186 L/s at the Lockhart Road and Hurontario Street hydrants, respectively. Based on the FUS calculations, the required fire flow for the proposed apartment building is 150 L/s. The model results indicate that available fire flows are adequate to provide the required fire flow calculated using the FUS.

Further to the Town modelling, Vipond completed flow testing on the hydrant at the Hurontario Street / Lockhart Road intersection on April 21, 2021. At a static pressure of 50 psi, the available flow was determined to be 1306 GPM (82.3 L/s). Based on the Vipond flow testing, the available fire flow was calculated at a residual pressure of 20 psi in accordance with Town Standards and NFPA 291. The available fire flow was determined to be 202 L/s, which exceeds the required fire flow calculated using the FUS. Supporting calculations, Town modelling results and Vipond testing results are attached for reference.

Details of the water servicing are included on the attached site servicing drawings (SS-1).

SANITARY SEWAGE

The sewage treatment plant has an average day flow rated capacity of 24,548 m^3/day and a maximum day flow rate capacity of 17,706 m^3/day based on a review of the Town of Collingwood Semi-Annual Water and Wastewater Uncommitted Hydraulic Reserve Capacity Update (September 2022). The Capacity Update notes the Hydraulic Reserve Capacity of 6,842 m^3/day. When factoring in Planning Applications,

Committed Servicing Capacity Allocation and a Factor of Safety, the remaining uncommitted hydraulic reserve capacity was determined to be 4,427 m^3/day.

Sanitary Demands Assessment

The average sewage expected to be generated by the proposed site was calculated to be 0.38 L/s using the attached sanitary design sheet. The peak extraneous infiltration of 0.23 L/ha/s was used in accordance with the Town of Collingwood Development Standards. The peak flow was calculated to be 1.31 L/s. Supporting calculations are attached for reference.

SUMMARY

Based on the preceding analysis, the development has adequate water and sanitary servicing available to support the proposed site. The site will be serviced by the existing 300 mm diameter sanitary sewer and the existing 200 mm diameter watermain on Lockhart Road.

Yours truly,
Tatham Engineering Limited

Andrew Schoof BASc., MASc.
Intern Engineer
AS:

Randy Simpson P.Eng.
Director, Manager - Land Development

copy:

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TATHAM ENGINEERING	Project: 655 Hurontario Street	Date: March 2023
	File No.: 118197	Designed: AS
	Subject: Water Supply Calculations - ICBL	Checked: JRC

Town and MECP Standards Water Supply Calculation

Sewage Generation for Domestic Water Demand:	260	L/cap/day	As per Town of Collingwood Semi-Annual Water and Wastewater
High Denisty Persons Per Unit:	1.90	PPU	Uncommitted Hydraulic Reserve Capacity Update (Septmber 2022)

Multi-Storey High Density Residential Building (50 units)

Total Units	=	50	
Number of Persons	=	95	
Average Daily Flow	=	24700 L/day	
Average Daily Flow	=	24.7 m^3/day	
Maximum Day Factor	=	1.77	As per Town of Collingwood Semi-Annual Water and Wastewater Uncommitted Hydraulic Reserve Capacity Update
Peak Hour Factor	=	4.50	As per MOE Design Guidelines for Drinking Water Systems (2008)

Maximum Day Demand: 0.51 L/s = 44 m^3/day / 1.33 = **33** **SDU**

Peak Hour Demand: 1.29 L/s

Town of Collingwood Semi-Annual Water and Wastewater Uncommitted Hydraulic Reserve Capacity Update (Septmber 2022) - Appendix A

Assumptions:

ADD/ Capita Consumption (L/day):	260
Residential Peaking Factor (ADD:MDD Ratio):	1.77
ICI Peaking Factor (ADD:MDD Ratio):	2.5
Commercial Area ADD (m3/ha/day)	28
Industrial Area ADD (m3/ha/day)	35
Institutional Area ADD (m3/ha/day)	28

Residential Types Legend	MDD (m3/d)
Residential - Single Detached Home (2.9 ppl/unit)	1.33
Residential - Semi Detached (2.7 ppl/unit)	1.24
Residential - Townhouse/ Row-House (2.4 ppl/unit)	1.10
Residential - Condo/ Apartment (1.9 ppl/unit)	0.87

Residential Types Legend	SDU-E
Residential - Single Detached Home (2.9 ppl/un	1.00
Residential - Semi Detached (2.7 ppl/unit)	0.93
Residential - Townhouse/ Row-House (2.4 ppl/u	0.83
Residential - Condo/ Apartment (1.9 ppl/unit)	0.66

TATHAM ENGINEERING

Project:	655 Hurontario	Date:	Feb 2023
File No.:	118197	Designed:	AS
Subject:	Fire Flow Calculations - FUS	Checked	JRC
Revisions:			

PROPOSED APARTMENT BUILDING

Fire Underwriters Survey Fire Flow Calculations
Long Method

Calculation Based on 2020 Publication "Water Supply for Public Fire Protection" by Fire Underwriters Survey (FUS).

Step	Description	Term	Options	Multiplier Associated with Option	Choose	Value used	Unit	Total Fire Flow (L/min)
		Framing Material						
1	Frame Use for Construction of Unit	Coefficient related to type of construction (C)	Wood Frame	1.5	Ordinary Construction	**1**	-	N/A
			Ordinary Construction	1				
			Non-combustible construction	0.8				
			Fire resistive construction	0.6				
		Floor Space Area						
2	Type of Occupancy	Type of Occupancy	Single Family				Units	N/A
			Townhouse / Apartment- inform # of units	1	50			
			Other (Comm. Ind., etc.)					
2.1	Number of Storeys	Number of Floors / Storeys in the unit (do not include basement)				**4**	Storeys	N/A
3	Floor Area	Total Floor Area (A) - for all storeys excluding basement			m^2	5223	m^2	N/A
		Measurement Units	Square Feet ft^2	0.093	1	**5223**		
			Square Metres m^2	1				
			Hectares ha	10000				
4	Required Fire Flow without Reductions or Increases	Required Fire Flows without Reductions or Increases per FUS): ($FF= 220 \times C \times A^{0.5}$)					L/min	16,000
5	Factors Affecting Burning	**Reductions / Increases Due to Factors Affecting Burning**						
5.1	Combustibility of Building Contents	Occupancy content hazard reduction or surcharge	Non-combustible	-0.25	Limited combustible	-0.15	N/A	13600
			Limited combustible	-0.15				
			Combustible	0.00				
			Free burning	0.15				
			Rapid burning	0.25				
5.2	Reduction Due to Presence of Sprinklers	Sprinkler reduction	Complete automatic sprinkler protection	-0.3	Complete automatic sprinkler protection	-0.50	N/A	-8000
			Standard hoses for both system & Fire Department	-0.10				
			Surpervised system	-0.10				
5.3	Separation Distance Between Units	Exposure distance between units	North Side	20.1-30	0.04	0.2	N/A	3520
			East Side	3.1-10	0.14			
			South Side	20.1-30	0.04			
			West Side	>30	0.00			
					Total Required Fire Flow, rounded to nearest 1000 L/min, with max/min limits applied:			9000
6	Required Fire Flow, Duration and Volume				Total Required Fire Flow (above) in L/s:			150
					Required Duration of Fire Flow of 9,000 L/min (hrs):			2
					Required Volume for Fire Flow of 9,000 L/min (m^3):			1,080

TATHAM ENGINEERING

PROJECT	655 Hurontario	FILE	118197
		DATE	March 2023
SUBJECT	Available Flow at 20 psi Based on Hydrant Test	NAME	AS
		PAGE	1 OF 1

Available Fire Flow At 20 PSI

Flow Test Completed By: Vipond Fire Protection Inc.

Date of Test: April 21, 2021

Test Location: Town of Collingwood

Static Pressure 50 PSI

$$QA = QT\left(\frac{ha}{ht}\right)^{0.5}$$

From Town of Collingwood Design Guidelines, AWWA Manual M17, and NFPA 291

Where

QA = Flow at 20 PSI

QT = Flow at Test (U.S. GPM)

ha = Pressure Drop Available (PSI) (Static - 20)

ht = Pressure Drop at Test (PSI) (Static - Residual)

Test #1

QT =	998	U.S. GPM		QA =	2,445	U.S. GPM
ha =	50-20	= 30 psi		QA =	154	L/s
ht =	50-48	= 2 psi				
		= 5 psi	*To provide 10% pressure drop			

Test #2

QT =	716	U.S. GPM		QA =	1,754	U.S. GPM
ha =	50-20	= 30 psi		QA =	110	L/s
ht =	50-48	= 2 psi				
		= 5 psi	*To provide 10% pressure drop			

Test #3

QT =	1,306	U.S. GPM		QA =	3,199	U.S. GPM
ha =	50-20	= 30 psi		QA =	**202**	**L/s**
ht =	50-48	= 2 psi				
		= 5 psi	*To provide 10% pressure drop			

**AWWA and NFPA recommend a minimum 10% residual pressure drop to accurately calculate the theoretical expected flow available. Because the pressure drop was less than 10%, an artificial pressure drop of 10% has been assumed to calculate the theoretical available fire flow.*

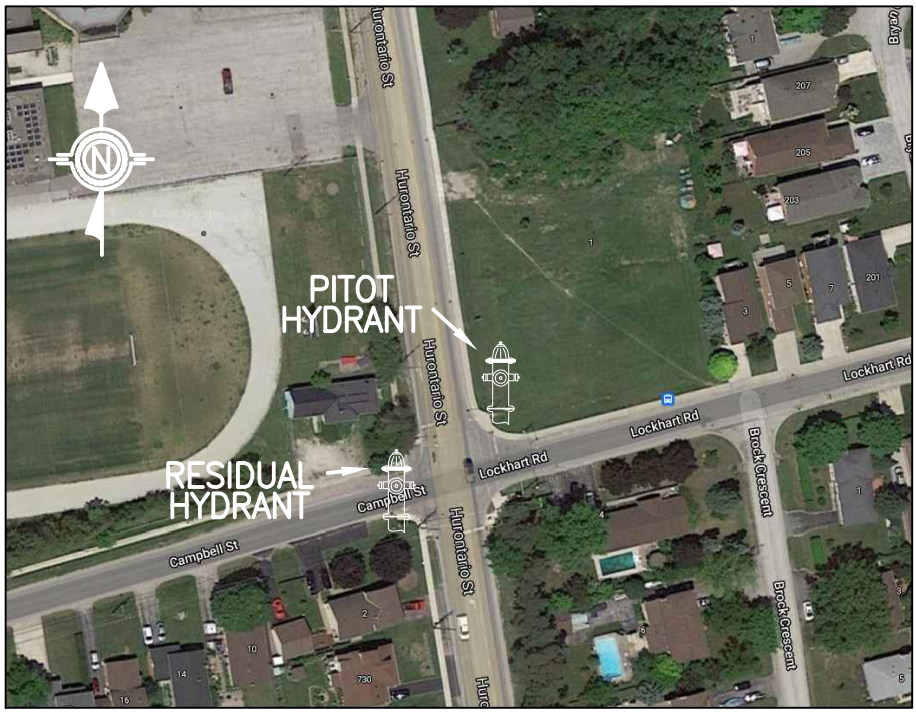
FLOW TEST RESULTS

FIRST FOR FIRE, LIFE SAFETY & SECURITY
VIPOND INC
est. 1945

DATE : APRIL 21, 2021 TIME : 1:30 PM

LOCATION : LOCKHART RD & HURONTARIO ST
COLLINGWOOD
ONTARIO

TEST BY : VIPOND FIRE PROTECTION AND LOCAL PUC



STATIC PRESSURE : 50 PSI

TEST NO.	NO. OF NOZZLES	NOZZLE DIAMETER (INCHES)	DISCHARGE CO-EFFICIENT	RESIDUAL PRESSURE (PSI)	PITOT PRESSURE (PSI)	DISCHARGE (U.S.GPM)
1	1	1-3/4	0.995	48	35	998
2	1	2-1/2	0.90	48	18	716
3	2	2-1/2	0.90	48	15	1306

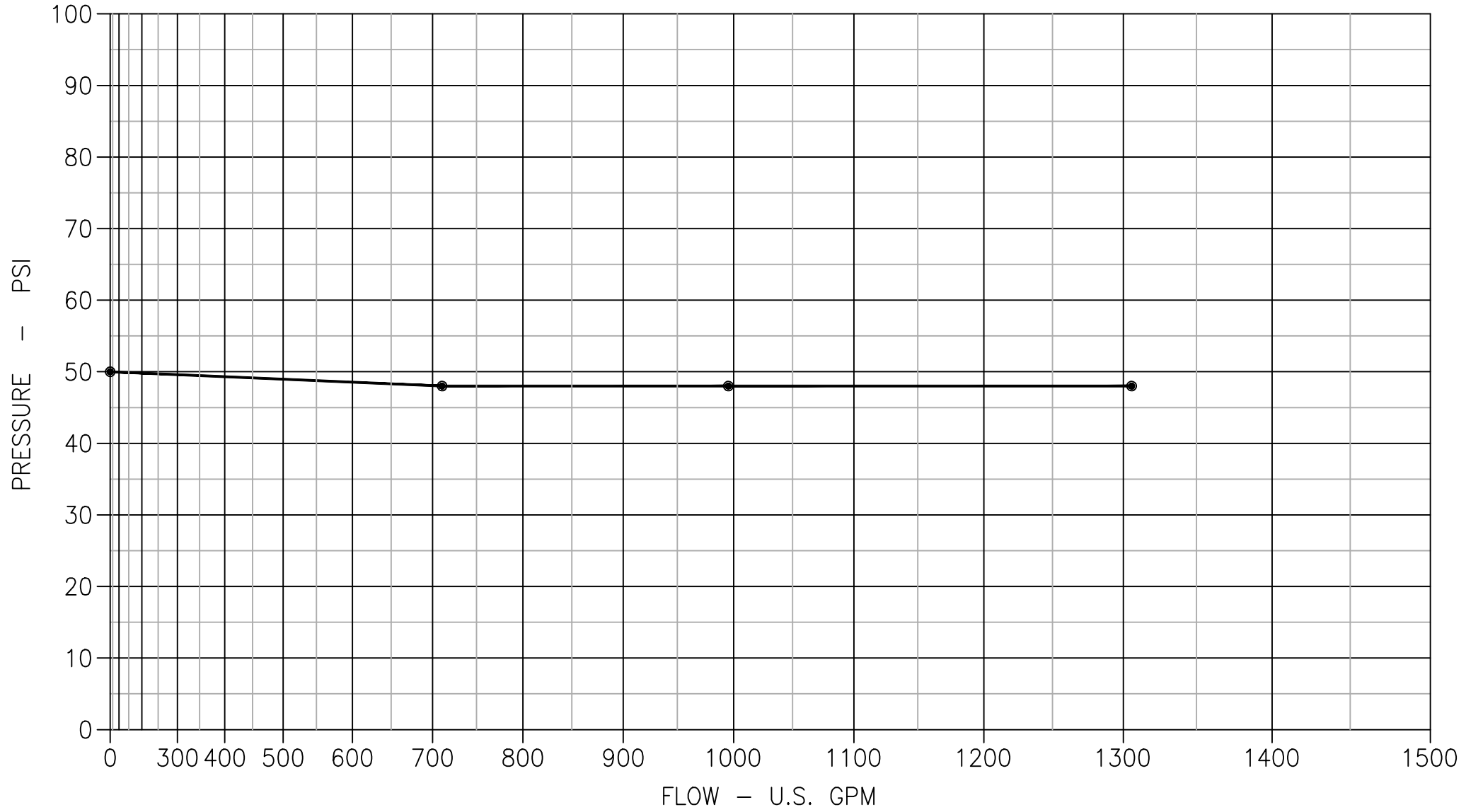
FIRST FOR FIRE, LIFE SAFETY & SECURITY

VIPOND INC est. 1945

LOCKHART RD & HURONTARIO ST.	BY : LEN K./RILEY P.
COLLINGWOOD	OFFICE : BARRIE
ONTARIO	TEST BY : VIPOND & PUC
	DATE : APRIL 21, 2021

STATIC: 50 PSI

	RESIDUAL:		FLOW:
TEST#1	48 PSI	@	998 GPM
TEST#2	48 PSI	@	716 GPM
TEST#3	48 PSI	@	1306 GPM



TECHNICAL MEMORANDUM

To:	**Ken Kaden, P.Eng.** **Project Coordinator, Environmental Services**	Company:	**Town of Collingwood**
From:	**Emma Thompson, P.Eng.**	Project Ref. #:	**75-41-171235**
Copy:		Date:	**October 20, 2020**
Subject:	**Watermain Hydraulic Assessment of the 655 Hurontario Street Development**		

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TOWN OF COLLINGWOOD

Watermain Hydraulic Assessment of the 655 Hurontario Street Development

C3 WATER INC.

October 20, 2020

VERSION	DATE	DESCRIPTION OF REVISIONS	REVISED BY	REVIEWED BY
1	October 15, 2020	Draft #1	Michelle Scott Alexandra Laleva	Emma Thompson Sam Ziemann Ken Kaden
2	October 20, 2020	Final	Michelle Scott	Emma Thompson Sam Ziemann

SIGN OFF

This document, entitled "***Watermain Hydraulic Assessment of the 655 Hurontario Street Development***", was prepared by C3 Water Inc. for the **Town of Collingwood**.

C3W certifies that the information contained in this report is accurate, complete and in accordance to the terms of our engagement. This assessment is based, in part, on information provided by others. Unless specifically noted, C3W has assumed that this information is correct, and has relied on it in the development of conclusions.

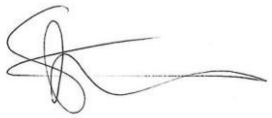
The material herein reflects C3 Water's best judgement based upon the information available at the time of preparation. Any use which a third party makes of this report or any reliance on or decisions made based on it, are the responsibilities of such third parties. C3 Water Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based upon this report.

DATE: October 20th, 2020

SEAL

Prepared by: **Emma Thompson, P. Eng.,**
Project Engineer – Water Systems

SEAL



Reviewed by: **Sam Ziemann, P. Eng.,**
Vice President

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1.0 INTRODUCTION AND BACKGROUND

C3 Water (C3W) has been requested to conduct a watermain hydraulic assessment of the proposed 655 Hurontario Street development and its impacts on the existing distribution system. Figure 1-1 below provides an overview of the proposed development area. A servicing plan developed by Tatham Engineering (Tatham) is included in the Functional Servicing Report (FSR) in Appendix A.

The proposed development is located in pressure Zone 1, encompassing an area of approximately 0.42 ha. The subject lands are located northeast of the intersection of Hurontario Street and Lockhart Road and are bounded by residential lots to the north and east. The development plan consists of a proposed four-story residential apartment building with 50 units. The area is proposed to be serviced by a new 150mm watermain connection to the existing 200mm ductile iron watermain on Lockhart Road. Additionally, there is a proposed 150mm fire servicing connection to the building sprinkler system and to a proposed private fire hydrant on the north east end of the development property.

Figure 1-1 Proposed Development Area Site Overview (NTS)

1.1 Design Standards

The Town of Collingwood Development Standards (Town Standards) provide design criteria for assessing the impact of proposed developments. The Town Standards recommend that watermains be designed to provide maximum day demands plus fire flows according to the land use type. The Town Standards also outline minimum pressure requirements, as shown in Table 1.1.

Table 1.1 Town of Collingwood Design Standards

	Minimum	Preferred
Fire Flow Requirements		
Single-Family Residential	57 L/s	76 L/s
Institutional/Convenience/Commercial	91 L/s	114 L/s
Industrial/Commercial Subdivisions	136 L/s	154 L/s
Downtown Commercial	136 L/s	189 L/s
Pressure Requirements		
Maximum Day Demands + Fire Flows	20 psi	
Standard Operating Conditions	40 psi (Peak Hour)	50 - 80 psi

1.2 Demand and Fire Flow

Water demand calculations for the proposed development were completed by Tatham and are provided in Appendix A. The calculations are based on a population density of 1.43 persons/unit based on the Development Charge Background Study and an average demand of 450 L/day per person from the Town Standards. A demand of 450 L/day per person is considered conservative and was updated through the Collingwood Water and Sanitary Sewer Systems Master Plan (Master Plan, 2019). The official Town Standards are expected to be updated accordingly, but at this time the developer's demand calculation was used. The Maximum Day Demand (MDD) and Peak Hour Demand (PHD) were based on the average flows, and Tatham recommended peaking factors of 4.9 for MDD and 7.4 for PHD. This was selected based on the MECP Design Guidelines for Drinking Water Systems and is different from the peaking factors of 2.0 for MDD and 4.5 for PHD as per the Town Standards. The domestic demands for the proposed development are summarized in Table 1.2 below.

Table 1.2 Demand Calculated Values

Scenario	Demand (L/s)
ADD	0.37
MDD	1.84
PHD	2.78

The Tatham FSR stated a development fire flow requirement of 57 L/s, based on the minimum requirement for residential single-family streets. As the proposed development is a 50-unit apartment building, it is not considered a single-family residential development. Fire Underwriters Survey (FUS) and Ontario Building Code (OBC) fire flow requirement calculations have not been provided in the FSR at this time. A building specific FUS calculation should be completed to determine the required fire flow. The available fire flows as calculated by the model have been included.

1.3 Model Development

The proposed watermains were added to the existing Town model based on Tatham's servicing drawing. C-factors were applied to the proposed watermains based on the MECP guidelines as specified in Table 1.3 below. The required demand for each scenario was applied to the model node representing the building service connection. Elevations were assigned to each node according to the servicing drawing. Figure 1-2 below shows an overview of the proposed development area.

Table 1.3 MECP Guidelines for C-Factors

Pipe Diameter (mm)	C-Factor
150	100
200-250	110
300-600	120
> 600	130

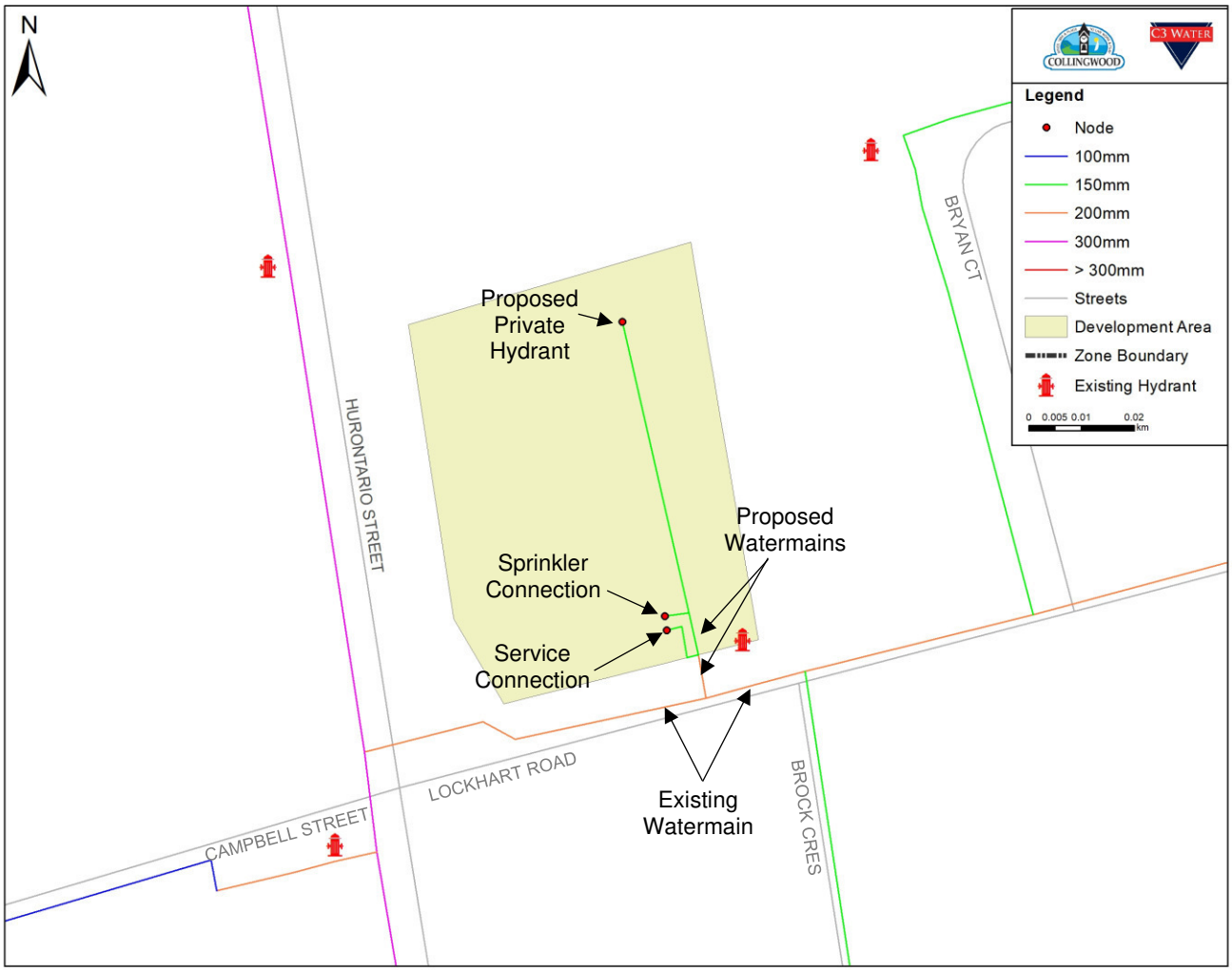


Figure 1-2 Proposed Development

2.0 MODELLING RESULTS

2.1 Pressure Results

The proposed development area was assessed in the Town's existing InfoWater model using the (2016) Average Day Demand (ADD) and Maximum Day Demand (MDD) scenarios. Under each scenario, the model was run for a 48-hour period.

The ground elevation within the development area is approximately 188 mAMSL. The target hydraulic grade line (HGL) for pressure Zone 1 is approximately 227 mAMSL. Therefore, the pressure at the development is expected to be approximately 39 m or 55 psi. Figure 1-2 shows the existing minimum pressures of the development under MDD conditions.

The 200mm watermain at the Lockhart Road was assessed to determine the existing, pre-development, pressure in the development area and results are presented in Table 2.1 below. Under current conditions, the pressure was found to range from 53 – 57 psi. The existing pressures in the development area were found to be within the Town's preferred operating standard of 50 – 80 psi.

The calculated demands for the development were added to the model and pressures in the development were tested in the ADD and MDD scenarios under current conditions. The pressure results are summarized in Table 2.1 and Table 2.2 below. The proposed development demands were found to reduce the pressure on Lockhart Road by less than 1 psi. The development pressures were found to range from 53 – 57 psi, within the Town's preferred operating criteria of 50 – 80 psi. The minimum pressure of the development and surrounding area under MDD is shown in Figure 2-1.

Table 2.1 Lockhart Road Pressures (psi)

Scenario	Average	Min	Max
Pre-Development			
ADD 2016 Existing	55	54	56
MDD 2016 Existing	53	51	55
Post-Development			
ADD 2016 Existing	55	54	56
MDD 2016 Existing	55	53	57

Table 2.2 Development Pressures (psi)

Scenario	Average	Min	Max
Post-Development			
ADD 2016 Existing	55	55	57
MDD 2016 Existing	55	53	57

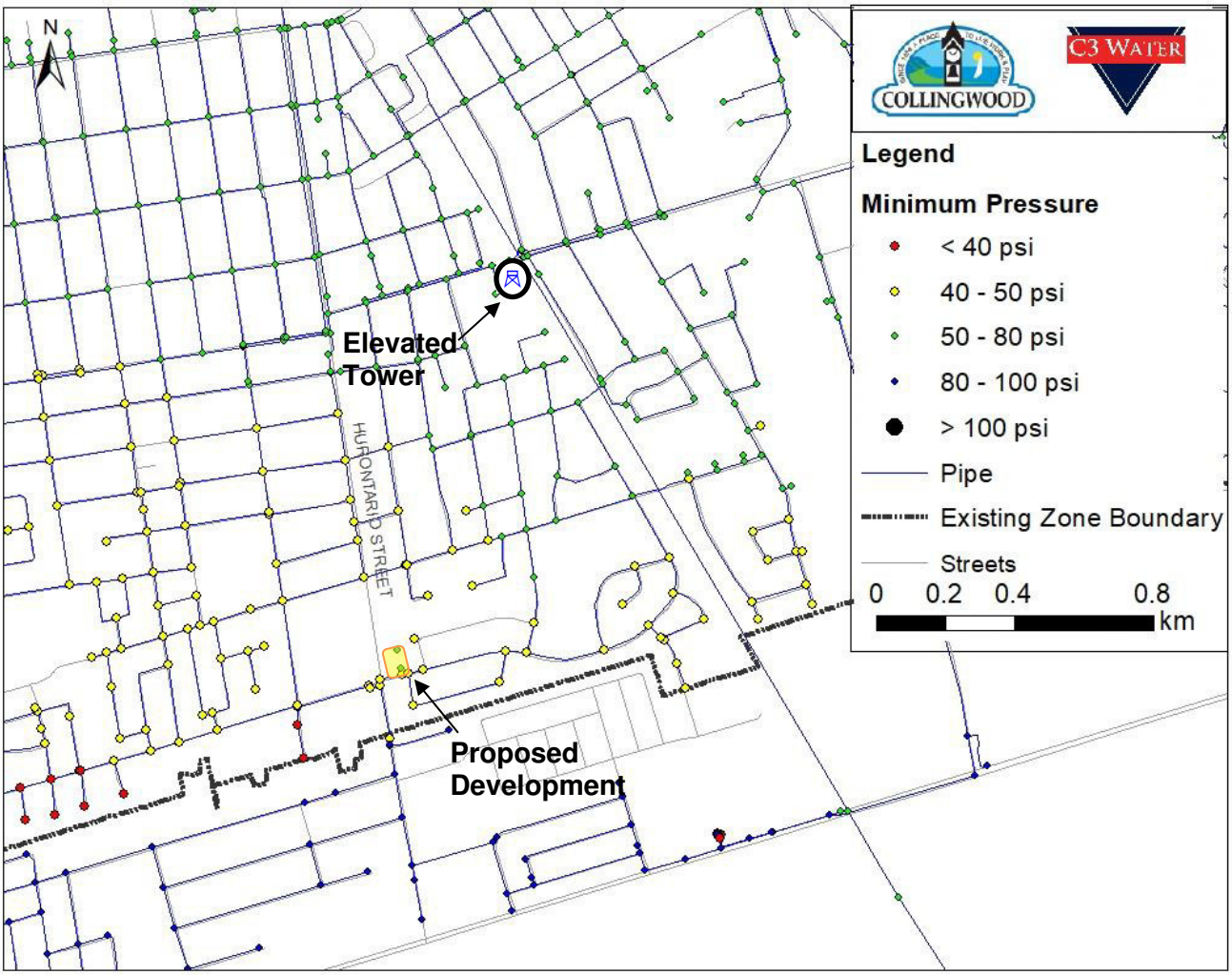


Figure 2-1 Existing Conditions MDD - Minimum Pressure

2.2 Fire Flow Results

Modelling was conducted to determine the available fire flows at a residual pressure of 20 psi at 12:00 PM under MDD conditions.

The fire flow results predicted by the model are representative of the amount of water available in a watermain and not the extent of flow available from a hydrant. Several hydrants may need to be operated to provide the desired fire flows.

Tatham's plans included a 150mm fire connection to the proposed development building and to a proposed hydrant located in the northeast corner of the property. Fire flow results for the proposed private hydrant, and model nodes near existing hydrants are summarized in Table 2.3 and Figure 2-2 below.

The available fire flow at the proposed private hydrant was found to be 87 L/s. Available fire flows surrounding the development area were found to range from 87 L/s to 186 L/s.

Table 2.3 Fire Flow Modelling Results

Hydrant ID	Location	Watermain Size (mm)	Available Fire Flow (L/s)
Development Area			
N/A	Proposed Hydrant	150	87
Surrounding Area Existing Hydrants			
FH-I11-6	Bryan Dr	150	90
FH-I11-14	Hurontario St	300	186
FH-I11-7	Lockhart Rd	200	148

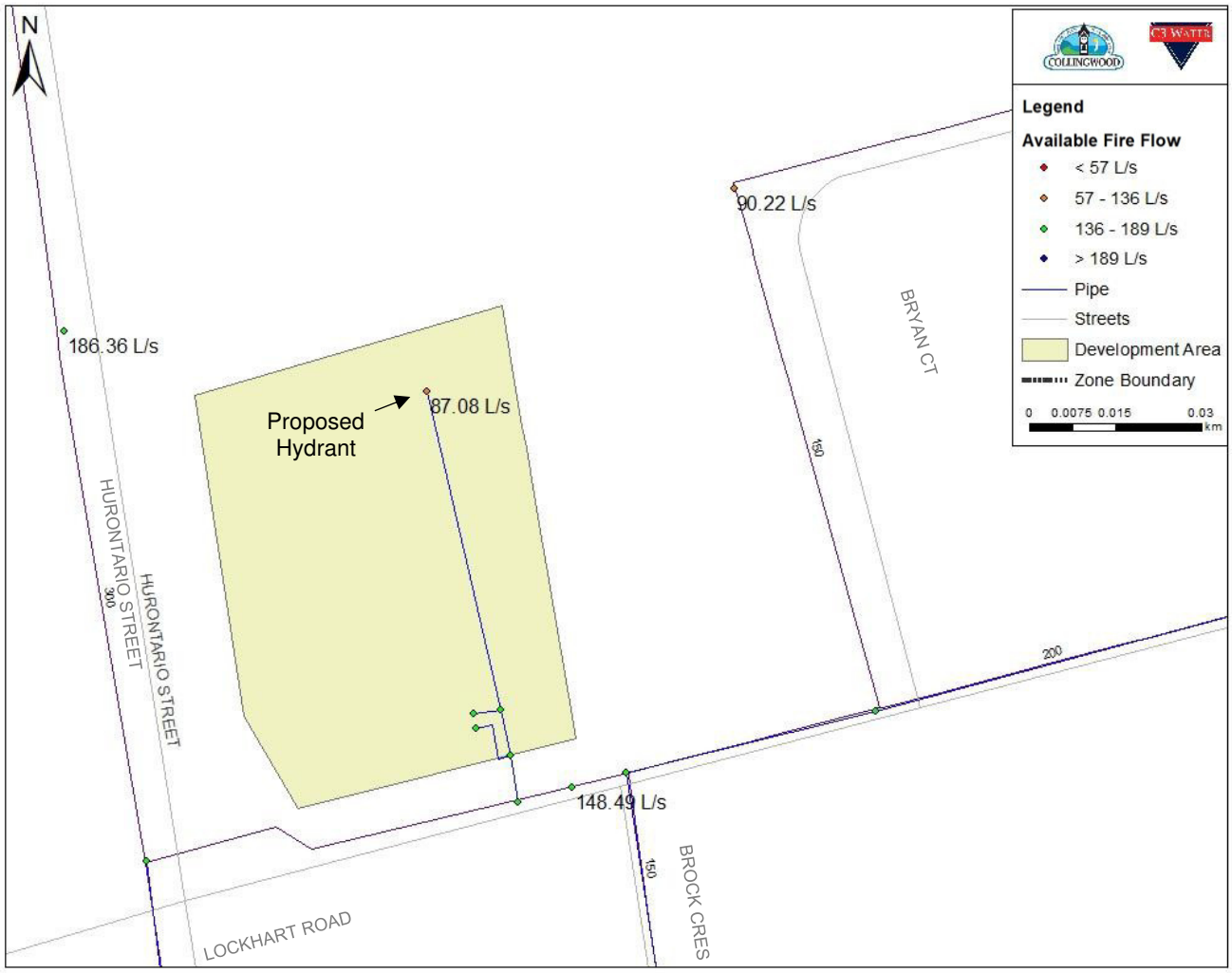


Figure 2-2 Development Fire Flows

3.0 SUMMARY AND RECOMMENDATIONS

1. Under existing ADD and MDD conditions, the development pressures are expected to range from 53 – 57 psi, which is within the Town's preferred operating range of 50 – 80 psi.

2. Under existing MDD conditions, the available fire flow at the proposed private hydrant was found to be 87 L/s. Available fire flows surrounding the development area were found to range from 87 L/s to 186 L/s.

3. It is recommended that FUS calculations be completed by the developer to determine the fire flow requirement for the proposed 50-unit building.

    a. The required FUS fire flow should not exceed the available flows for the development, otherwise alternate construction options should be considered.
    b. The developer should also complete local fire flow tests in coordination with the Town to confirm available flow.

APPENDIX A –

Functional Servicing Report

(Tatham, 2020)

TATHAM ENGINEERING

Sanitary Sewer Design Sheet

Project Information

655 Hurontario Street	118197

Drawing Reference

Site Servicing Plan	SS-1

Prepared By

Andrew Schoof	March 2023

Reviewed By

Randy Simpson	March 2023

Municipality

Town of Collingwood

Population Density

Capita per Unit	Low	Medium	High
	-	-	1.90

Infiltration

Infiltration (L/s/ha)	0.23

Manning's Coefficient

Pipe Material	Value
Concrete	0.013
PVC	0.013
Applied	0.013

Flow

Development Type	Average (L/cap/day)	Peaking Factor
Residential	260	Harmon
Development Type	**Average (L/ha/day)**	**Peaking Factor**
Institution	-	-
Commercial	-	-
Industrial (High)	-	-
Industrial (Low)	-	-

Notes

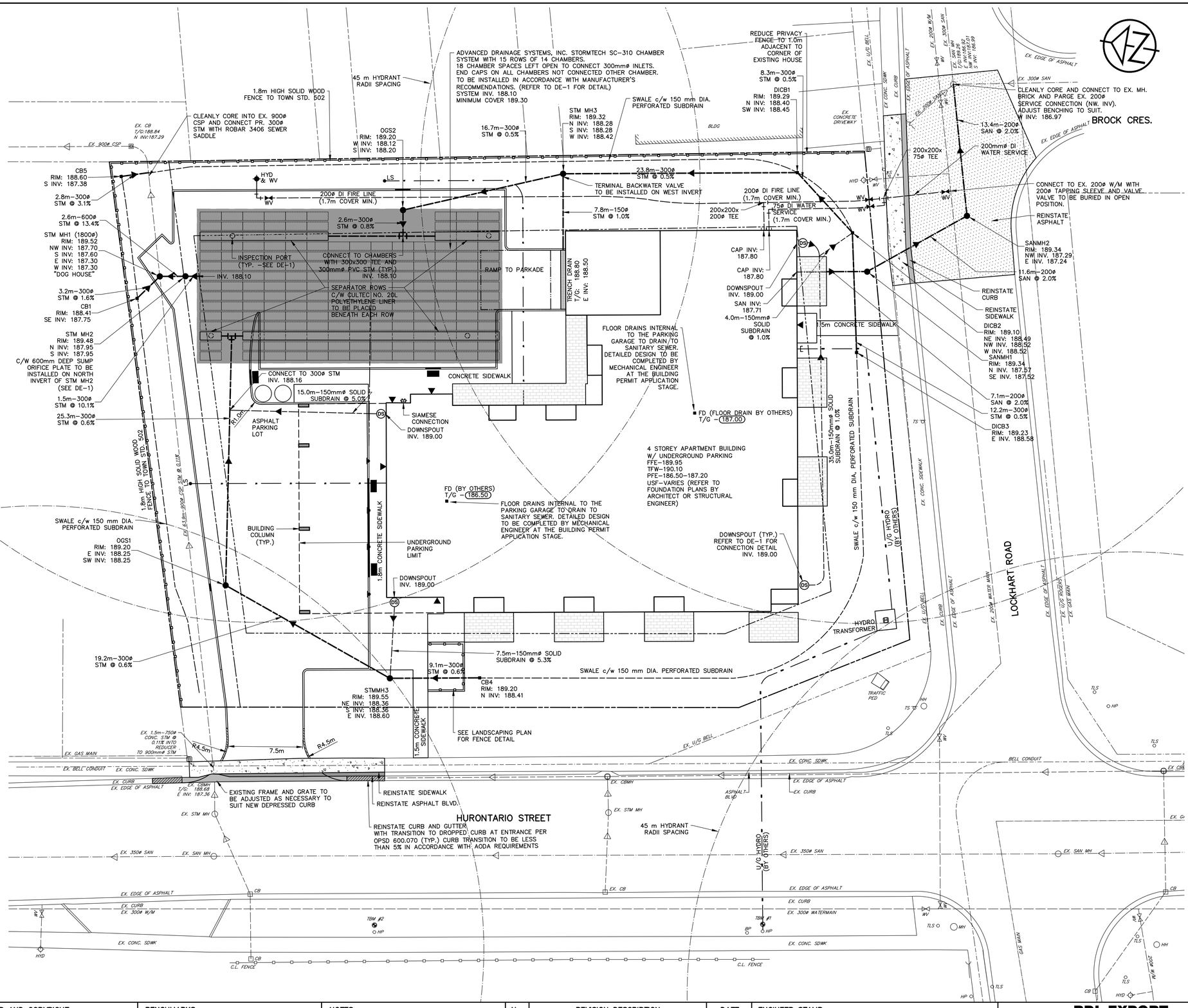
1)

Version Date: Insert Date

Version Number: 1

Engineers Seal

Street Name	Area Label/ID	Upstream Maintenance Hole	Downstream Maintenance Hole	Development Type	Population Density	Number of Units	Population (cap)	Accumulated Population (cap)	Peaking Factor	Area (ha)	Cumulative Area (ha)	Average Flow (L/s)			Peak Flow (L/s)			Proposed Sanitary Sewer							
												Development	Infiltration	Total	Development	Infiltration	Total	Sewer Length (m)	Sewer Slope (%)	Actual Sewer Diameter (mm)	Full Flow Velocity (m/s)	Full Flow Capacity (L/s)	Actual Velocity (m/s)	Calculated Sewer Diameter (mm)	Percentage of Full Flow Capacity (%)
Lockhart Road		Apartment	SANMH1	Residential	High	50	95.0	95.0	4.25	0.42	0.42	0.29	0.10	0.38	1.21	0.10	1.31	7.1	2.0%	200	1.48	46.38	0.65	52	2.8%
Lockhart Road		SANMH1	SANMH2	Residential	High	-	-	95.0	4.25	0.00	0.42	0.29	0.10	0.38	1.21	0.10	1.31	11.6	2.0%	200	1.48	46.38	0.65	52	2.8%
Lockhart Road		SANMH2	Ex. SANMH	Residential	High	-	-	95.0	4.25	0.00	0.42	0.29	0.10	0.38	1.21	0.10	1.31	13.4	2.0%	200	1.48	46.38	0.65	52	2.8%



TOWN APPROVAL

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CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

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BENCHMARKS

TBM1 – ELEVATION 189.177
ELEVATIONS HEREON ARE GEODETIC AND REFER TO THE NAIL & WASHER IN SECOND HYDRO POLE NORTH OF THE INTERSECTION OF LOCKHART ROAD AND HURONTARIO STREET ON WEST SIDE OF ROAD.

TBM2 – ELEVATION 189.682
ELEVATIONS HEREON ARE GEODETIC AND REFER TO THE NAIL & WASHER IN FIRST HYDRO POLE NORTH OF INTERSECTION OF LOCKHART ROAD AND HURONTARIO STREET ON WEST SIDE OF ROAD.

NOTES

LEGAL SURVEY INFORMATION AND LOT DIMENSIONS SHOWN ON THIS PLAN ARE TAKEN FROM A SURVEY PLAN PREPARED BY ZUBEK, EMO, THOMSEN & PATTEN, DATED 2019. WHICH MAY NOT BE FINAL AND ARE NOT GUARANTEED. THE FINAL REGISTERED PLAN OF SUBDIVISION SHALL BE REFERRED TO FOR CONFIRMATION OF THE DATA.
TOPOGRAPHIC INFORMATION ON THIS PLAN FROM SURVEY PREPARED BY C.C. TATHAM & ASSOCIATES DATED OCT 13/2016.

No.	REVISION DESCRIPTION	DATE
3.	3RD SUBMISSION	FEB 2021
4.	6TH SUBMISSION	MAR 2021
5.	7TH SUBMISSION	JUL 2022
6.	8TH SUBMISSION	JAN 2023
7.	9TH SUBMISSION	MAR 2023

ENGINEER STAMP

APPROVED PROFESSIONAL ENGINEER
23 03 22
R. S. SIMPSON
PROVINCE OF ONTARIO

RDL EXPORT
655 HURONTARIO STREET
TOWN OF COLLNGWOOD

TATHAM ENGINEERING

SITE SERVICING PLAN

DESIGN: AS/RD	FILE: 118197	DWG: SS-1
DRAWN: RD	DATE: MAY 2020	
CHECK: JPA/RS	SCALE: 1:200	

Drawing Name: 118197-SS01.dwg, Plotted: Mar 22, 2023