

FUNCTIONAL SERVICING REPORT
LEBLANC ENTERPRISES - 0 CROFT STREET DEVELOPMENT

Official Plan & Zoning By-Law Applications

October 24, 2025



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1 BACKGROUND

Jewell Engineering Inc. (Jewell) has been retained by Leblanc Enterprises to complete a servicing study to review the feasibility of a residential development on Croft Street in the Municipality of Port Hope. The Site Plan is provided in Appendix A.

The development site is situated on a 1.8-hectare parcel fronting onto the unopened road allowance of Croft Street as shown in Figure 1-1. The lands north of Croft Street are the subject of a current residential development by the same Owner. As part of the development north of Croft St, DM Wills has prepared a design for the extension of Croft St which would also service this proposed development.

This servicing report has been prepared to support the Official Plan and Zoning By-Law Amendment Applications for the development.



Figure 1-1: Development Location

Water and sanitary sewer servicing have been considered in this report. Stormwater management and traffic analysis have been evaluated under separate covers.

1.1 SITE DESCRIPTION

The site is approximately 1.8 hectares (ha) on the west side of Rose Glen Road North, within the Urban Area of the Municipality of Port Hope. It is zoned Low Density Residential Type One Holding Symbol 1 'RES1-1(H1)'. The topography is generally flat, with a slight incline towards the west.

The surrounding land uses are:

- low/medium density residential to the north and west (with high-rise residential buildings and care facilities located further north);
- Trinity College to the south;
- Beatrice Strong Public School/childcare facilities and municipal parkland to the east.

1.2 PROPOSED DEVELOPMENT

The development is to be high density residential, comprising two 6-storey apartment building connected with a common lobby area. Each building contains 54 units resulting in a total of 108 units. An extension to Croft Street will be required to provide access to the development.

The lands north of Croft Street are the subject of a current residential development by the same Owner. As part of the development north of Croft St, DM Wills has prepared a design for the extension of Croft St which would also service this proposed development. The Croft Street extension design includes the installation of watermain and sanitary sewer along the development site frontage.

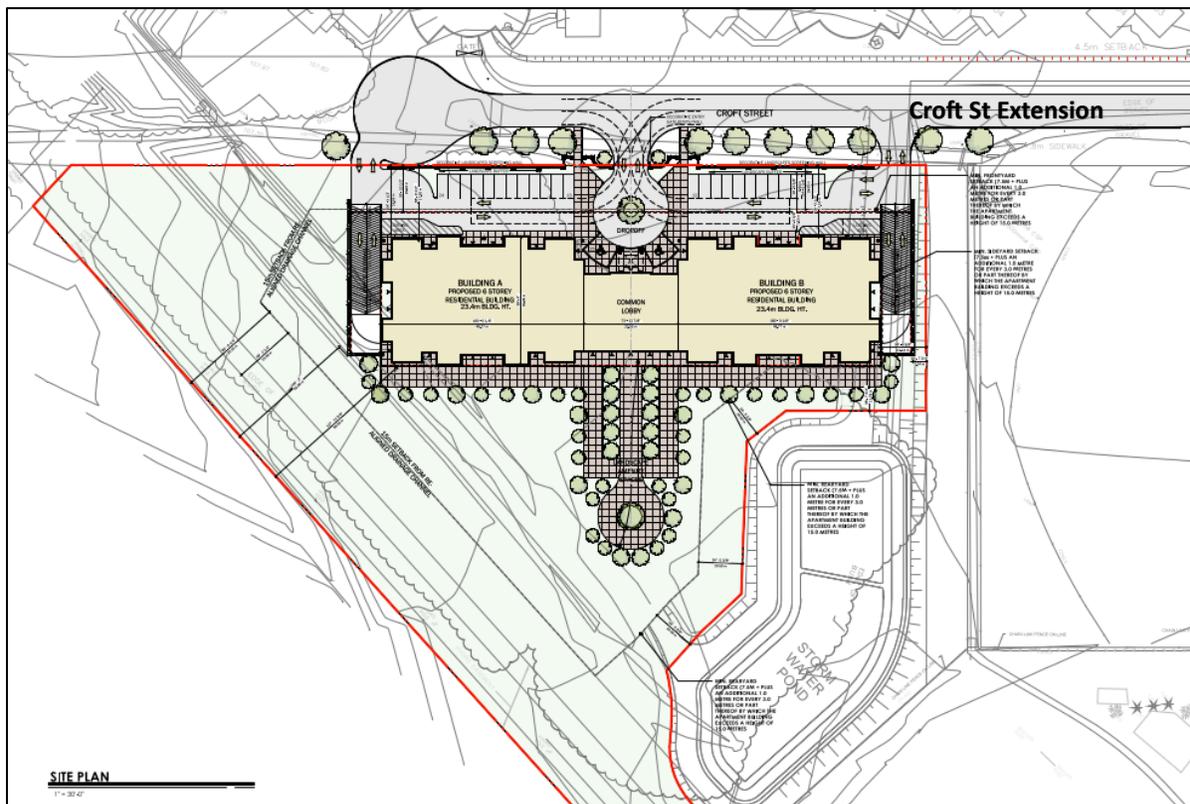


Figure 1-2: Proposed Site Layout Concept

1.3 SERVICING OPTIONS STATEMENT

The Provincial Policy Statement (2020) Subsection 1.6.6.2 specifies that “municipal sewage services and municipal water services are the preferred form of servicing for settlement areas to support protection of the environment and minimize potential risks to human health and safety.”

As the proposed development lies within the urban area of Port Hope, municipal services are the preferred form of servicing for this site. Both municipal sanitary sewer and municipal watermain services are present at the site frontage on Croft Street. Connection to these services is further evaluated in subsequent sections of this report.

2 WATER DISTRIBUTION SYSTEM

2.1 EXISTING CONDITIONS

According to the "Municipality of Port Hope Water Distribution Map Version 008" dated April 1, 2019, there is an existing 250mm watermain on Croft St which becomes a 200mm watermain before entering the adjacent development north of Croft St. This watermain is fed by a 400mm watermain on Rose Glen Road N (refer to Figure 2-1).

Per the "Croft Street Extension, Fourth Submission" drawings prepared by DM Wills (dated June 13, 2024), refer to Appendix B, a 200mm watermain will be extended along the development site frontage (dead-ending at the west end) and a 150mm service will be installed to the development site as part of the Croft Street Road Extension project (refer to Figure 2-1).

According to the Annual Summary Report for the Port Hope Drinking Water System, 2024, the rated capacity of the water treatment plant is 20,300 m³/d. The maximum reported daily flow was 6,719 m³, representing approximately 33% of plant's capacity. This indicates sufficient capacity remains in the drinking water plant for the development.

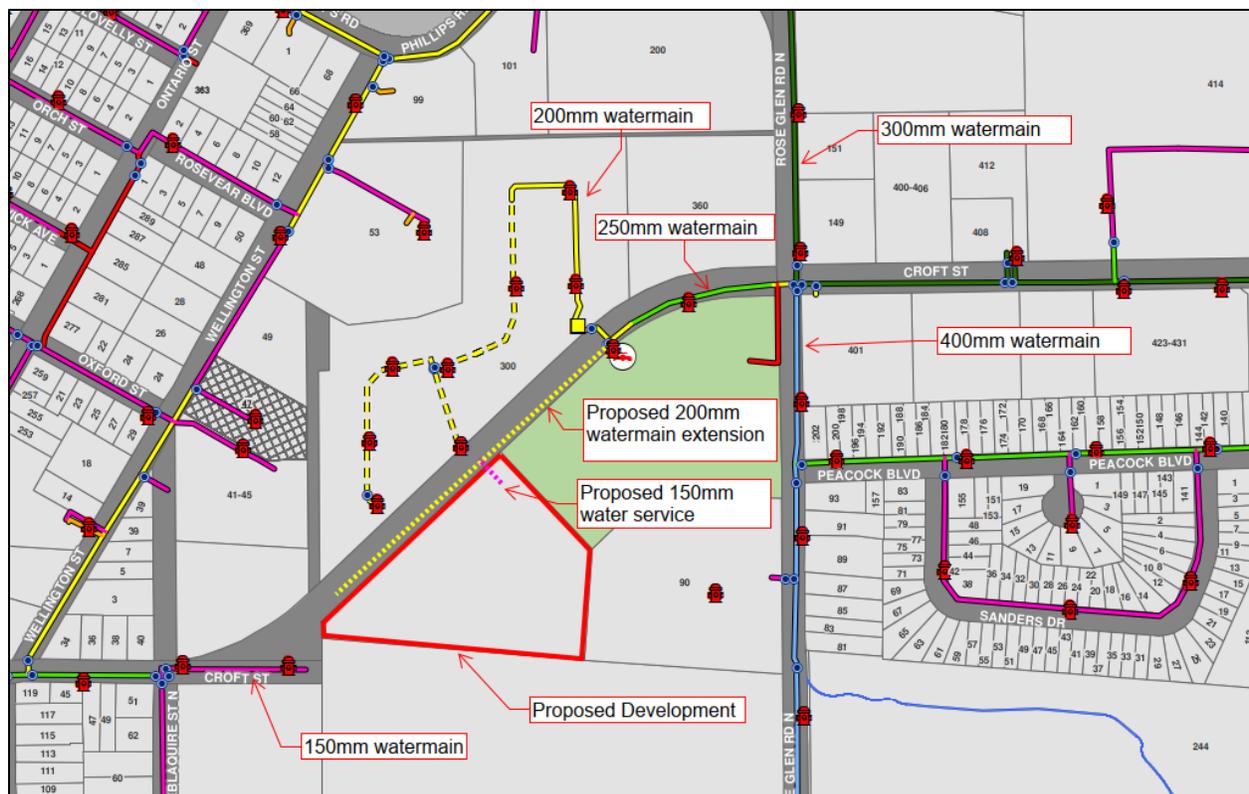


Figure 2-1: Port Hope Watermain Network

Hydrant flow testing was completed by LHS Inc. on October 3, 2025, on Croft Street and Rose Glen Road. A summary of the hydrant flow data is provided in Table 2-1, the full results can be found in Appendix D.

Table 2-1: Hydrant Flow Data Summary, completed by LHS Inc. on October 3, 2025

Hydrant Location	Main Size (mm)	Static Pressure (psi)	Available Flow @ 20 psi, 2 ports open (USGPM – L/min)
Parking lot at Park	250	70	4,162 – 15,755
91 Rose Glen Rd	400	74	5,140 – 19,457

2.2 DESIGN CRITERIA

The watermain design criteria used are based on the Ministry guidelines and municipal standards. The criteria are summarised below.

- Minimum Watermain Diameter: 200 mm
- Average Residential Daily Domestic Demand: 350 L/d*cap
- Population Factor: 2.0 per unit
- Peak Hour Pressure Targets:
 - Minimum Pressure: 275 kPa (40 psi)
 - Maximum Pressure: 700 kPa (100 psi)
- Max Day + Fire Flow Pressure Targets:
 - Minimum Pressure: 140 kPa (20 psi)
- Friction Factor Calculation: Hazen-Williams
 - C-factors: 110 (200 mm pipe)

2.3 FIRE FLOW REQUIREMENTS

Fire flows can be calculated to meet Ontario Building Code (OBC) requirements or the Fire Underwriters Survey of the Insurance Board of Canada (FUS) requirements depending on municipal requirements (and based on which standard the municipal system is designed to meet). In general:

- the OBC calculations provide “good” fire protection – while it is not intended to provide the ‘optimum’ level of property protection, it’s suggested that a timely response by a well-trained fire department ... should be sufficient to allow the fire department to extinguish typical building fires where adverse circumstances are not encountered.
- the FUS calculations provide “optimum” fire protection – it is generally accepted that this method of calculating fire flow provides a higher standard of protection, requires greater flows than that of the OBC method and accordingly can be more challenging to satisfy.

As there are no published design standards for the Municipality of Port Hope, it is not known which fire flow standard is required. Accordingly, fire flow requirements are shown for both FUS and OBC methods, the results are summarized below and the full calculations can be found in Table 2-2.

Table 2-2: Fire Flow Calculation Summary

Fire Flow Summary	FUS (L/min)		OBC (L/min)
6-Storey Residential	Ordinary Construction	18,000	<4,500
	Non-combustible Construction	7,000	

As the proposed development is a residential building, it is a Group C occupancy and is required to be sprinklered in accordance with OBC requirements (3.2.2.49/51, 3.2.5.13).

2.4 WATERMAIN DESIGN

The base demand of the development was established by calculating the daily demand for each unit assuming 2 persons per unit. Peaking factors were taken from the MOE 2008 guidelines, Table 3.1 for a population range of 10,001 – 25,000 residents. The population of Port Hope is reported as 17,294.

Table 2-3: Total Base Water Demand

Type	Apartment	
# of Units	108	
Population/Unit	2.0	
Population	216	
Capita Usage	350	L/d*cap
Total Base Demand	75,600	L/d

Table 2-4: Peaking Factors

Peaking Factors	
Base	1.00
Peak Hour	2.85
Maximum Day	1.90

Two scenarios were tested. The first is peak hour (PH) and the second is maximum day plus fire flow (MD + FF). The demand for the site is summarized in Table 2-5.

Table 2-5: Water Demands per Scenario

	Residential Demand (L/d) – (L/min)	Fire Flow (L/min)	Total Demand (L/min)
Average Day Demand	75,600 – 52.5	N/A	52.5
Peak Hour Demand	215,460 – 149.6	N/A	149.6
Maximum Day Demand	143,640 – 99.8	7,000	7,100

Data from the hydrant flow testing was used to complete a dead-end pressure calculation for the proposed development due to its proximity to the property. As detailed in section 2.1, a 200mm watermain is expected to be installed along Croft St and a 150mm service to the development site provided as part of the Croft St Extension work for the adjacent development to the north.

As shown below, under peak hour conditions, the proposed development will experience a minimal pressure loss and will operate within MOE operating pressures.

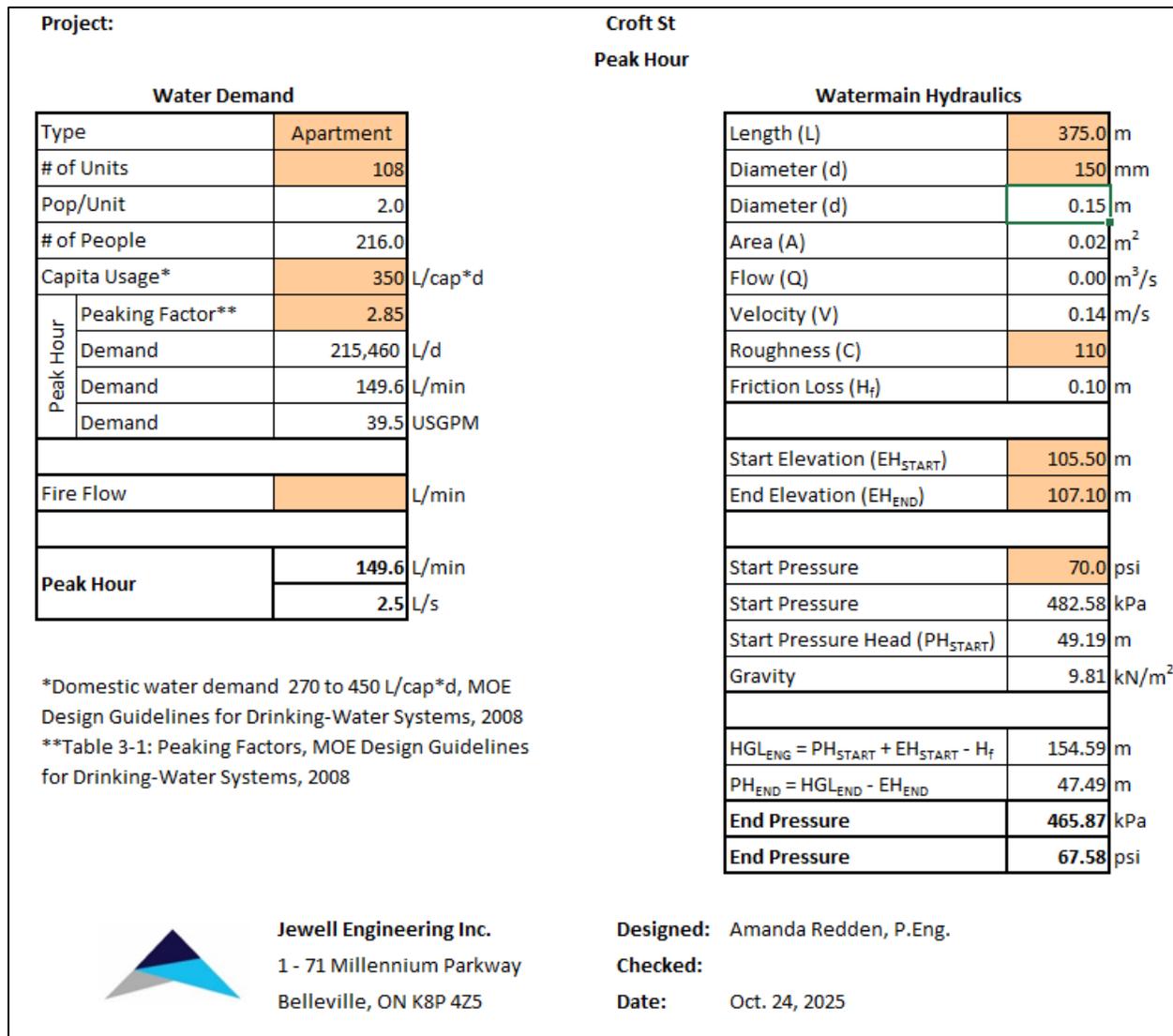


Figure 2-2: Peak Hour Watermain Hydraulics

As shown below, the max day + fire flow demand (7,100 L/min) is available along the Croft St extension while maintaining a minimum of 20psi in the system. Therefore, there is adequate flow to provide fire protection to the development to OBC standards and to FUS standards with non-combustible construction.

2.5 CONCLUSIONS

A 200mm watermain is expected to be installed along Croft St and a 150mm service to the development site provided as part of the Croft St Extension work for the adjacent development to the north. The site service will be single metered at the building and complete with a shutoff valve at the property line.

Under peak hour conditions, the proposed development will experience a minimal pressure loss and will operate within MOE operating pressures.

There is adequate flow to provide fire protection to the development to OBC standards and to FUS standards with non-combustible construction.

Table 2-6: Water Servicing Summary

Condition	Minimum Required	Available	Provided >Required
Peak Hour (psi)	50	67.6	✓
Fire Flow (L/s) OBC/FUS	4500/7000	7240	✓

3 SANITARY SEWER SYSTEM

According to the “Municipality of Port Hope Wastewater Collection System Map Version 008” dated July 21, 2017 and the “Croft Street Extension, Fourth Submission” drawings prepared by DM Wills (dated June 13, 2024), refer to Appendix B, there is an existing 200mm sanitary sewer on Croft Street with 200mm service stub to service the proposed development. The sewer on Croft St drains east to the trunk sewer system on Rose Glen Rd. N. Refer to Figure 3-1.

According to the Annual Performance Report for the Port Hope WWTP, 2024, the rated capacity of the wastewater treatment plant is 11,300 m³/d. The annual average daily flow was 4,831 m³, representing approximately 43% of plant’s capacity. This indicates sufficient capacity remains in the wastewater treatment plant to support the proposed development.

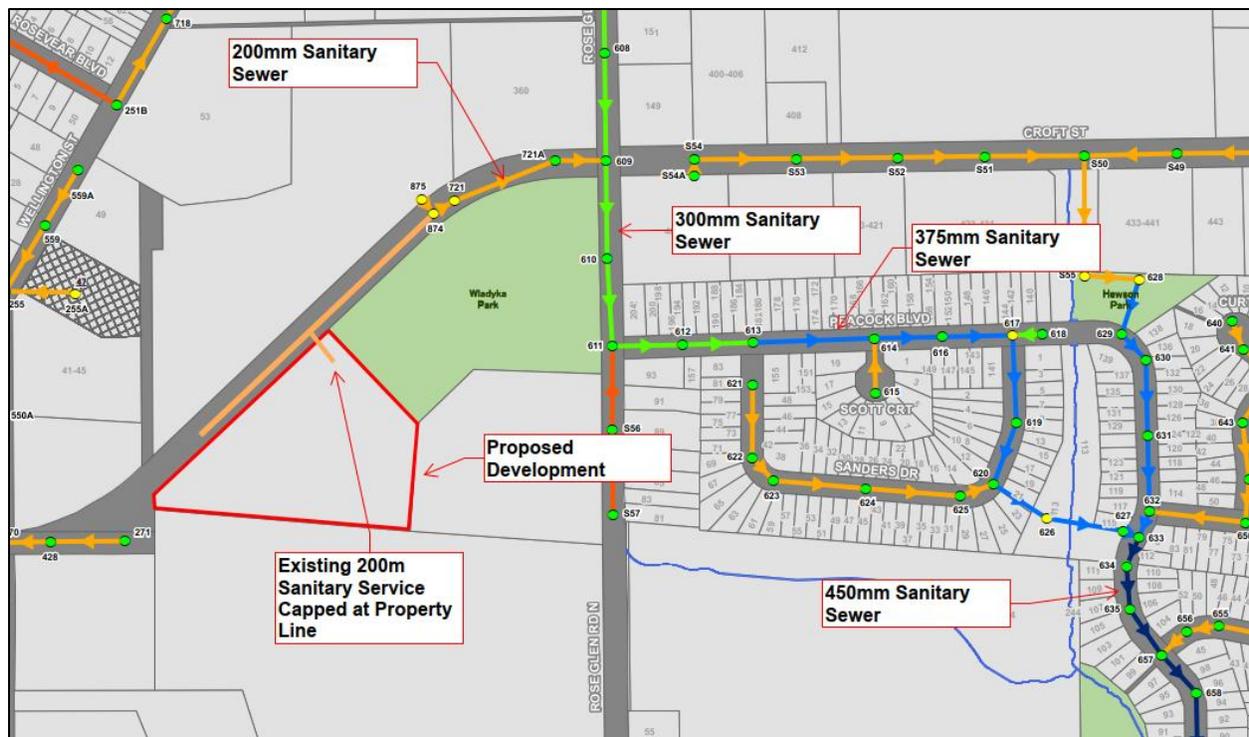


Figure 3-1: Port Hope Sanitary Sewer Network

3.1 DESIGN CRITERIA

The sanitary design criteria used is based on the Municipality’s and MOE guidelines and are summarized below.

- Minimum Sanitary Sewer Diameter: 200 mm
- Population Factor (Apartment): 2.0 per unit
- Average Daily Residential Domestic Design Flow: 350 L/d*cap
- Extraneous Flow Allowance: 0.26 L/s*ha
- Peaking Factor Calculation: Harmon’s Formula
 - Minimum Peaking Factor: 2.00

- Friction Factor Calculation: Manning's Formula
 - Manning's Roughness Coefficient: 0.013 - Full Flow Velocities:
 - Minimum: 0.6 m/s
 - Maximum: 3.0 m/s
-

3.2 SANITARY SEWER DESIGN

Table 3-1 provides the detailed calculations and sanitary sewer design for the proposed development and analysis of the downstream system to the trunk sewer on Rose Glen Road N.

As shown, the peak flow from the proposed 108-unit development will be 4.1 L/s and the receiving system on Croft Street has sufficient capacity to accommodate the proposed development (~60% full with the addition of the proposed development).

A 200mm sanitary lateral stub has been provided on Croft Street to service the proposed development. The private lateral will be complete with a cleanout at the property for maintenance purposes.

3.3 SANITARY SERVICING CONCLUSIONS

A 200 mm sanitary sewer will have sufficient capacity at a minimum slope of 0.4% to convey the expected peak flows from the development. The downstream sewer system on Croft Street has sufficient capacity to accommodate the proposed development.

Table 3-1: Sanitary Sewer Design Sheet

SANITARY SEWER DESIGN SHEET																						
Peak Design Flow Calculation										Stamp		Pipe Capacity by Manning's Equation										
Peak Design Flow (Q_d) = Peak Population Flow (Q_p) + C/I Flow (Q_c) + Industrial Flow (Q_{in}) + Peak Extraneous Flow (Q_i) $Q_d = Q_p + Q_i$ $Q_p = \frac{PqM}{86.4}$ $M = 1 + \frac{14}{4 + \sqrt{P}}$												$Q = \frac{1}{n} AR^{2/3} S^{1/2}$ Where: A Area of pipe in m^2 R Hydraulic radius = a/p P Wetted perimeter S Slope (m/m) n Manning's friction coef Check $Q_d \leq 0.8 \cdot (\text{Pipe Capacity})$ $0.6 \leq V \leq 3.0$ use Actual V if $d:D < 0.3$										
Where: q Average daily per capita flow 350 L/d*cap I Unit of peak extraneous flow 0.26 L/s*ha M Harmon peaking factor (min = 2) P Population in 1000's 2.0 persons/unit A Area in hectares (ha)																						
LOCATION				PEAK FLOW CALCULATION									SEWER DATA									
AREA ID	STREET	UPSTREAM MANHOLE	DOWNSTREAM MANHOLE	RESIDENTIAL					RESID. PEAKING FACTOR (M)	POP. FLOW Q_p (L/s)	PEAK EX. Q_i (L/s)	DESIGN FLOW Q_d (L/s)	LENGTH (m)	PIPE SIZE (mm)	PIPE MATERIAL	GRADE USE m/m (%)	CAPACITY n = 0.013 (L/s)	FULL FLOW VELOCITY (m/s)	RATIO d:D	ACTUAL VELOCITY AT Q_d (m/s)	CHECK	% FULL q/Q
				INDIVIDUAL		CUMULATIVE																
				UNITS	POP.	AREA (A) (ha)	POP.	AREA (A) (ha)														
1	0 Croft St	Site	874	108	216.0	1.80	216.0	1.80	4.14	3.6	0.5	4.1	10.7	200	PVC	0.4%	20.74	0.66	0.30	0.66	OK	19.7%
2	North Residential	875	874	140	280.0	5.40	280.0	5.40	4.09	4.6	1.4	6.0	16.4	200	PVC	0.4%	20.74	0.66	0.37	0.66	OK	29.1%
3		874	721		0.0		496.0	7.20	3.98	8.0	1.9	9.9	75.3	200	PVC	0.4%	20.74	0.66	0.49	0.66	OK	47.5%
4		721	721A		0.0		496.0	7.20	3.98	8.0	1.9	9.9	75.3	200	PVC	0.4%	20.74	0.66	0.49	0.66	OK	47.5%
6	Extendicare	721A	609	128	128.0	1.60	624.0	8.80	3.92	9.9	2.3	12.2	75.3	200	PVC	0.4%	20.74	0.66	0.55	0.66	OK	58.8%
 Jewell Engineering Inc. 1 - 71 Millennium Parkway Belleville, ON K8P 4Z5				Tel: 613-969-1111 Fax: 613-969-8988 Website: www.jewelleng.ca				Notes: Extendicare population = 1 person/unit Minimum pipe slopes have been assumed for analysis purposes					Designed: Julie Humphries, C.E.T. Checked: Amanda Redden, P.Eng. Date: October 2, 2025			Project: 0 Croft St						

4 CONCLUSIONS AND RECOMMENDATIONS

Based on the servicing analysis completed, the proposed high-density residential development at 0 Croft Street can be adequately serviced with municipal water and sanitary infrastructure. The existing municipal systems have sufficient capacity and meet the applicable regulatory and municipal standards.

Conclusion #1 – Water Supply

A 200mm watermain on Croft St with 150mm stub to the development property will be installed as part of the Croft St Extension work.

Under peak hour conditions, the proposed development will experience a minimal pressure loss and will operate within MOE operating pressures.

The building will be sprinklered to provide adequate fire protection and sufficient fire flow is available in the system to service the proposed development.

In conclusion, adequate pressure and capacity is available in the municipal system to service the proposed development.

Conclusion #2 – Sanitary Servicing

A 200 mm sanitary sewer at a minimum slope of 0.4% will be adequate to provide sanitary conveyance for the development. The downstream sewer system on Croft Street has sufficient capacity to accommodate the proposed development to the trunk sewer on Rose Glen Road N.

In conclusion, the development is serviceable in accordance with the above findings.

Prepared by:

Submitted by:



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



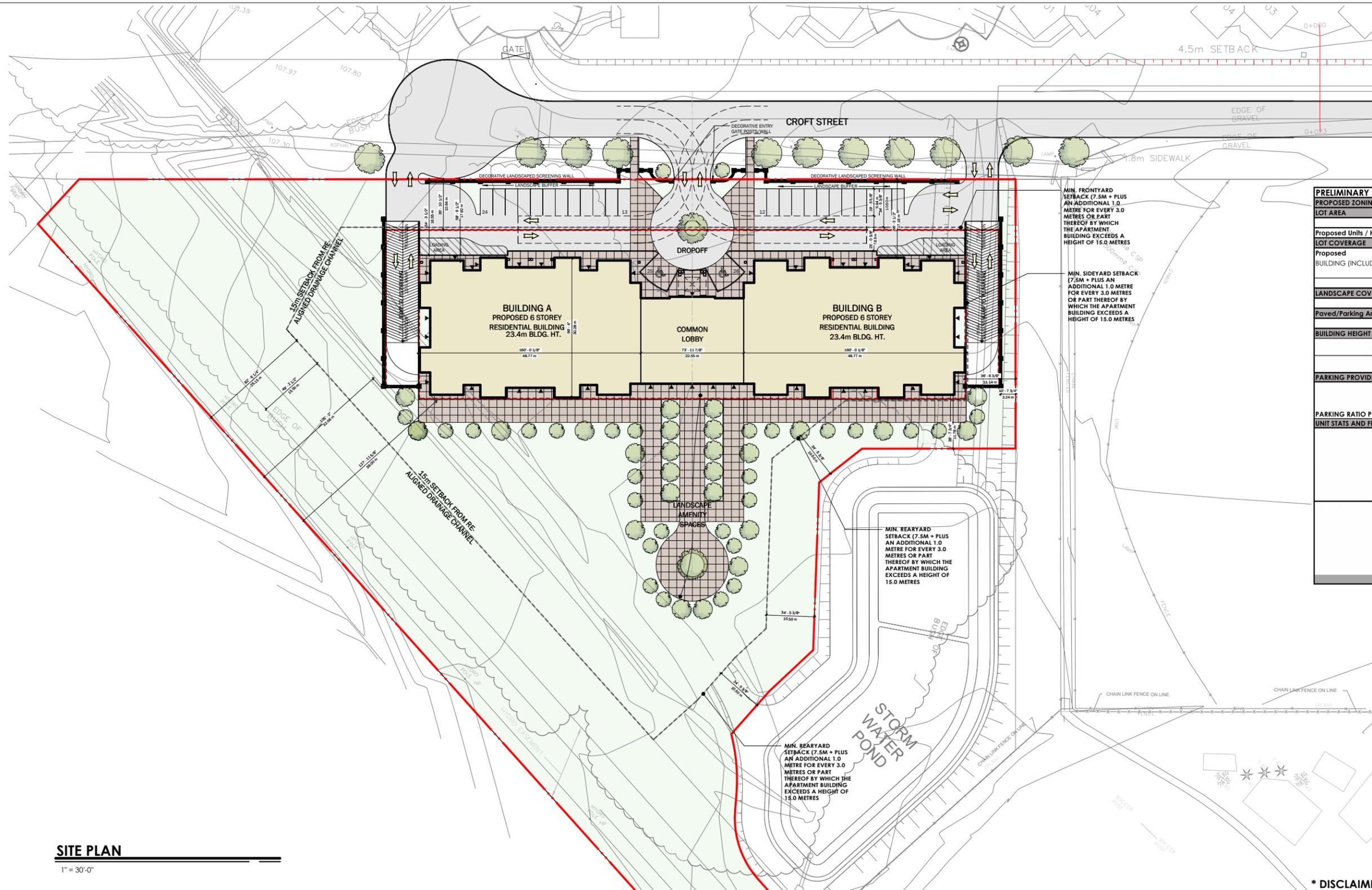
Amanda Redden, P.Eng.
Jewell Engineering Inc.

5 REFERENCES

The information used to prepare this report is based on the following documents and information provided as noted below:

- Municipality of Port Hope
 - Zoning By-law #20/2010
 - Design Guidelines (Criteria) – Water Systems, 2002
- Ontario Ministry of Environment
 - Design Guidelines for Drinking-Water Systems, 2008
 - Design Criteria for Sanitary Sewers, Storm Sewers and Force Mains for Alterations Authorized under an Environmental Compliance Approval, Version 2.0, May 31, 2023
- Fire Underwriters Survey
 - Water supply for Public Fire Protection, 2020

**APPENDIX A:
SITE CONCEPT PLAN**



PRELIMINARY SITE STATS		HECTARES	ft ²	m ²	%
PROPOSED ZONING - (RES4 HIGH DENSITY RESIDENTIAL)					
LOT AREA					
		1.8581	200000.00	18,580.6	100%
Proposed Units / Hectare					
		58.1251			
LOT COVERAGE					
Proposed					
BUILDING (INCLUDES PROJECTIONS)		39000.0	3,623.2		19.5%
Total		39000.0	3623.2		19.5%
LANDSCAPE COVERAGE (INCLUDES SIDEWALKS/PATIOS)					
Proposed		135000.0	12,541.9		67.5%
Paved/Parking Areas Not Covered by Building					
		26000.0	2,415.5		13.0%
BUILDING HEIGHT					
	Building A	6 Storey			23m (Top of Roof)
	Building B	6 Storey			23m (Top of Roof)
PARKING PROVIDED					
	P1 UNDERGROUND				132
	Surface				26
	Total				158
PARKING RATIO PROVIDED					
		1.46	Spaces Per Unit		
UNIT STATS AND FLOOR AREAS					
	Building A	Units			
	1st FLOOR	8			
	2nd FLOOR	10			
	3rd FLOOR	10			
	4th FLOOR	10			
	5th FLOOR	10			
	6th FLOOR	6			
	Total Building A	54			
	Building B	Units			
	1st FLOOR	8			
	2nd FLOOR	10			
	3rd FLOOR	10			
	4th FLOOR	10			
	5th FLOOR	10			
	6th FLOOR	6			
	Total Building B	54			
	Total Units Provided	108			

SITE PLAN

1" = 30'-0"

* DISCLAIMER: ISSUED FOR PRELIMINARY DESIGN DISCUSSION ONLY

LEBLANC ENTERPRISES CROFT STREET DEVELOPMENT

CROFT STREET | PORT HOPE | ONTARIO

A · C · K
architects
STUDIO INC.

SITE PLAN

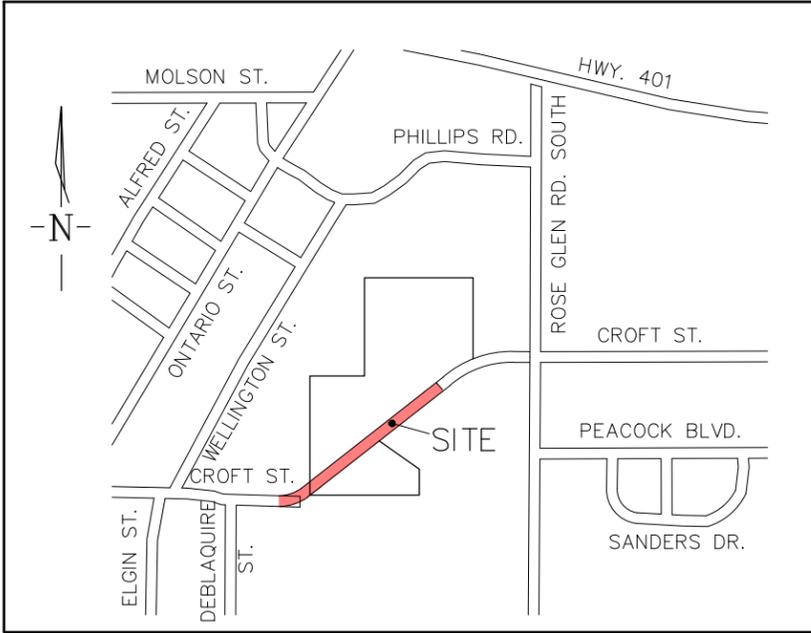
DWG. No.
.SP1

SCALE: AS SHOWN
DATE: JANUARY 2024
PROJECT No.: 2021-3475

**APPENDIX B:
CROFT ST EXTENSION DRAWINGS**

CROFT STREET EXTENSION

MUNICIPALITY OF PORT HOPE PROJECT No. 10-10322



DRAWING INDEX			
DRAWING	SHEET No.	REV. No.	REV. No.
GENERAL NOTES	01	4	JUNE 13/24
DETAILS	02	4	JUNE 13/24
REMOVALS	03	4	JUNE 13/24
PLAN/PROFILE - CROFT STREET STA. 5+000 to STA. 5+307	04	4	JUNE 13/24
PLAN/PROF. - WATERMAIN EXTENSION	04A	0	JUNE 13/24
ALIGNMENT PLAN	05	4	JUNE 13/24
SEDIMENT and EROSION CONTROL	06	4	JUNE 13/24



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CROFT STREET EXTENSION

MUNICIPALITY OF PORT HOPE
WILLS PROJECT No. 10-10322
FOURTH SUBMISSION - JUNE 13, 2024

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FOURTH SUBMISSION - JUNE 13, 2024
THIRD SUBMISSION - APRIL 8, 2021
SECOND SUBMISSION - APRIL 9, 2019
FIRST SUBMISSION - DECEMBER 7, 2018

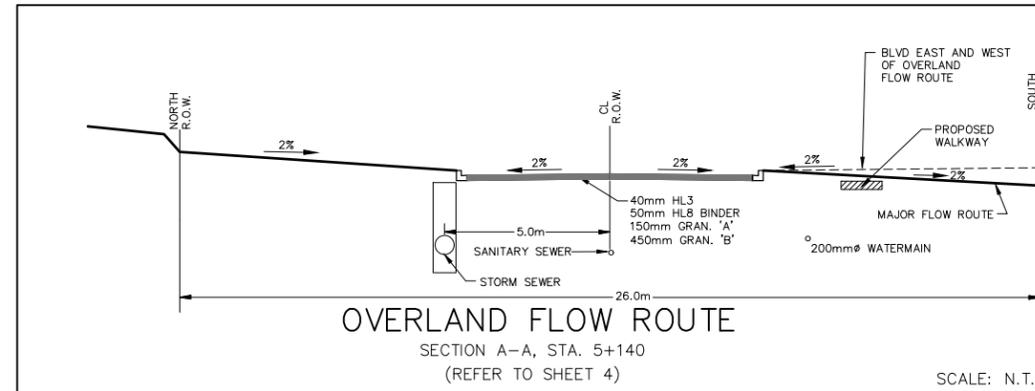
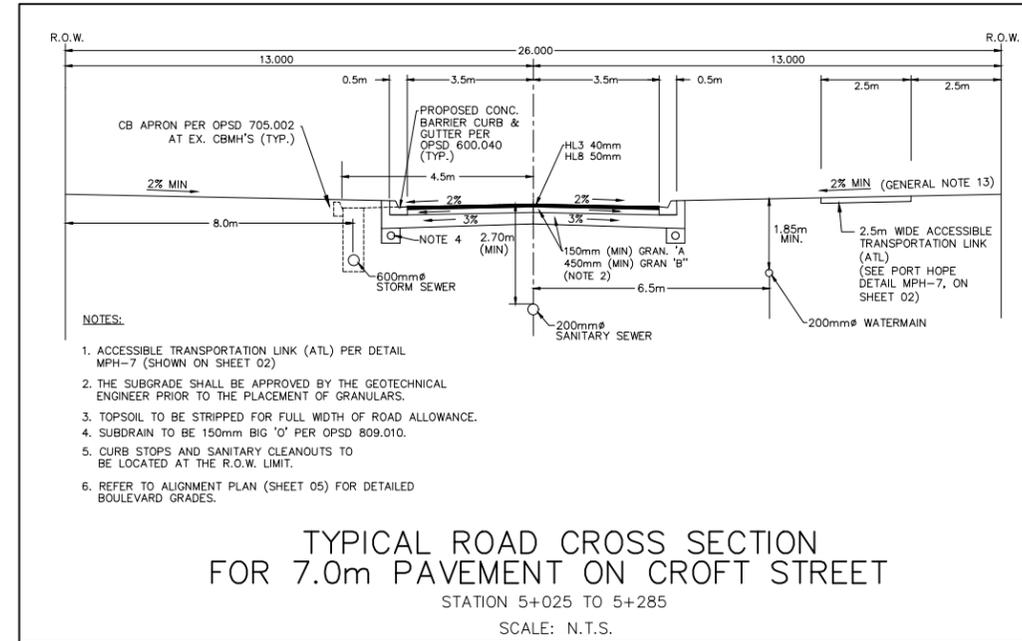
NOTES

GENERAL

- THE LOCATION OF EXISTING UTILITIES SHOWN ON THESE DRAWINGS IS APPROXIMATE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR THE FIELD LOCATION OF ALL UTILITIES PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR IS TO CONFIRM THE LOCATION OF EXISTING UTILITIES AND ANY DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE CAUSED TO EXISTING UTILITIES DURING CONSTRUCTION.
 - THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND HAVING ON SITE, A COPY OF THE ONTARIO PROVINCIAL STANDARDS AND THE MUNICIPALITY OF PORT HOPE STANDARDS RELEVANT TO THIS CONTRACT.
 - THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL PERMITS RELATED TO SERVICE CONNECTIONS INCLUDING THIRD PARTY UTILITY COSTS.
 - ALL WATERMAIN AND SEWER CONSTRUCTION SHALL BE DONE IN ACCORDANCE WITH THE MUNICIPALITY OF PORT HOPE STANDARDS AND PROVINCIAL STANDARDS.
 - THE MUNICIPALITY OF PORT HOPE STANDARDS SHALL TAKE PRECEDENCE OVER OPSD AND DETAILS ON THIS DRAWING.
 - CONTRACTOR IS TO UNCOVER EXISTING UTILITIES A MINIMUM OF FIVE (5) BUSINESS DAYS IN ADVANCE OF PIPE LAYING IN ORDER TO CORRECT GRADE PROBLEMS AS REQUIRED, IF REQUIRED.
 - ALL CONSTRUCTION WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
 - THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SAFETY MEASURES DURING THE CONSTRUCTION PERIOD, INCLUDING THE SUPPLY, INSTALLATION AND REMOVAL OF ALL NECESSARY SIGNAGE, DELINEATORS, MARKERS AND BARRIERS. ALL SIGNS SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS IN THE ONTARIO TRAFFIC MANUAL, BOOK 7, TEMPORARY CONDITIONS.
 - ALL AREAS DISTURBED BY THE CONTRACTOR'S CONSTRUCTION SHALL BE RESTORED TO EXISTING CONDITIONS AS INDICATED ON THE CONTRACT DRAWINGS AND IN ACCORDANCE WITH OPSD 507.
 - LEGAL BOUNDARY INFORMATION PROVIDED BY IVAN B. WALLACE, O.L.S., DATED NOVEMBER 10, 2010.
 - ANY HYDRO POLES OR BELL POLES THAT ARE IN DANGER OF BEING UNDERMINED ARE TO BE BRACED. THE CONTRACTOR SHALL BE RESPONSIBLE TO HAVE POLES BRACED TO THE SATISFACTION OF THE APPROPRIATE UTILITY PROVIDER. ALL COSTS ASSOCIATED WITH THE BRACING OF POLES SHALL BE CARRIED BY THE CONTRACTOR.
 - EXPANSION JOINTS ON THE ACCESSIBLE TRANSPORTATION LINK (ATL) SHALL BE CONSTRUCTED (BY SAWCUTTING) AT SPACING OF APPROXIMATELY 20.0m AND ON EACH SIDE OF EVERY ENTRANCE. THE CONCRETE SHOULD NOT BE EDGED.
 - THE SIDEWALK RAMPS AT INTERSECTIONS SHALL BE IN ACCORDANCE WITH THE MUNICIPALITY'S MPH-6 STANDARD.
- WATERMAIN**
- ALL WATERMAIN WORKS SHALL BE IN CONFORMANCE WITH THE MUNICIPALITY'S STANDARD SPECIFICATIONS FOR WATERMAINS.
 - ALL WATERMAIN FITTINGS AND CONNECTIONS REQUIRE RETAINING GLAND RINGS MECHANICALLY RESTRAINED IN FILL AREAS AND 6m FROM A DEAD END. PLEASE REFER TO MUNICIPALITY'S RESTRAINED JOINT STANDARD FOR PVC WATERMAINS.
 - MINIMUM COVER ON THE WATER SERVICE SHALL BE 1.80m, PROPOSED FINISH GRADE TO THE TOP OF PIPE.
 - BEDDING AND BACKFILL FOR WATERMAIN SHALL BE AS PER THE MUNICIPALITY'S SPECIFICATIONS.
 - THE MINIMUM VERTICAL DISTANCE ABOVE THE WATERMAIN AND EITHER A STORM SEWER OR SANITARY SEWER IS 500mm. THE MINIMUM VERTICAL DISTANCE BELOW THE WATERMAIN AND EITHER A STORM SEWER OR SANITARY SEWER IS 500mm.
 - ALL WATERMAINS REQUIRE 2.5m SEPARATION FROM SANITARY MANHOLES, STORM MANHOLES AND CATCH BASIN/MANHOLES WHERE POSSIBLE.
 - ALL NEW WATERMAINS SHALL BE CLEANED BY FOAM SWABBING (UP TO AND INCLUDING 300 mm) TO REMOVE ALL DEBRIS IN THE PIPELINE, HYDROSTATICALLY TESTED, DISINFECTED AND FLUSHED ACCORDING TO THE LATEST M.E.C.P. SPECIFICATIONS.
 - WATERMAIN TESTING INCLUDING CHLORINATION, BACTERIOLOGICAL, PRESSURE AND FLOW (FLOW TESTING ON ALL HYDRANTS IS TO INCLUDE THE FLOW RATE IN USGPM, THE STATIC PRESSURE IN PSI, AND THE RESIDUAL PRESSURE IN PSI) IS TO BE IN ACCORDANCE WITH MUNICIPALITY OF PORT HOPE SPECIFICATIONS. THE CONTRACTOR SHALL PROVIDE A FLUSHING, PRESSURE TESTING, CHLORINATION, AND SAMPLING PLAN TO BOTH THE MUNICIPALITY OF PORT HOPE AND THE CONSULTANT (D.M. WILLS ASSOCIATES LIMITED) A MINIMUM OF TWO WEEKS PRIOR TO ANY FLUSHING, PRESSURE TESTING AND CHLORINATION OF THE WATERMAIN. THE CONTRACTOR IS TO SUPPLY THE CONSULTANT WITH THREE (3) COPIES OF ALL TEST RESULTS. THE WATERMAIN TESTING CONTRACTOR(S) MUST BE APPROVED BY D.M. WILLS ASSOCIATES PRIOR TO TESTING OF THE WATERMAIN. THE SITE SERVICING CONTRACTOR OR GENERAL CONTRACTOR IS TO SUPPLY D.M. WILLS ASSOCIATES WITH THE NAME, PHONE NUMBER AND ADDRESS OF THE WATERMAIN TESTING CONTRACTOR(S), A MINIMUM OF TWO WEEKS PRIOR TO TESTING. THE CONTRACTOR SHALL PERFORM ALL WATERMAIN TESTING TO THE SATISFACTION OF THE MUNICIPALITY OF PORT HOPE.
 - ALL WATERMAIN CHLORINATION SHALL BE IN CONFORMANCE WITH THE MECP WATERMAIN DISINFECTION PROCEDURE AND THE AMERICAN WATER WORKS ASSOCIATION (AWWA) STANDARD C651.
 - THE CONTRACTOR SHALL NOT OPERATE ANY EXISTING WATERMAIN VALVES. THE MUNICIPALITY OF PORT HOPE'S WATER WORKS STAFF SHALL BE THE SOLE OPERATOR OF EXISTING VALVES, AND SHALL BE PRESENT FOR THE OPERATION OF ALL VALVES. THE CONTRACTOR SHALL COORDINATE WITH THE MUNICIPALITY'S WATER WORKS DEPARTMENT FOR THE OPERATION OF EXISTING VALVES.

SEWER

- THE CONTRACTOR MAY SUBSTITUTE CONCRETE CL 65-D STORM SEWERS FOR PVC STORM SEWERS.
 - THE STORM AND SANITARY SEWERS ARE TO BE FLUSHED UPON COMPLETION OF ALL SITE WORKS, AFTER EACH PHASE AND ALL CATCH BASINS AND STORM MANHOLES ARE TO BE CLEANED AND VACUUMED OUT.
 - BEDDING AND BACKFILL FOR STORM AND SANITARY SEWER SHALL BE AS PER OPSD 802.010.
 - THE CONTRACTOR SHALL PERFORM A DEFLECTION TEST ON ALL STORM AND SANITARY SEWERS IN ACCORDANCE WITH OPSD 410. THE CONTRACTOR SHALL NOTIFY D.M. WILLS AND THE MUNICIPALITY OF PORT HOPE 48HRS PRIOR TO CONDUCTING THE DEFLECTION TEST. THE DEFLECTION TEST SHALL NOT BE INITIATED WITHOUT D.M. WILLS' INSPECTOR ON SITE. THE CONTRACTOR SHALL SUBMIT THREE COPIES OF THE REPORTS TO THE CONSULTANT (D.M. WILLS ASSOCIATES LIMITED).
 - THE CONTRACTOR SHALL PERFORM AN AIR TEST ON ALL STORM AND SANITARY SEWERS IN ACCORDANCE WITH THE MUNICIPALITY OF PORT HOPE STANDARDS. THE CONTRACTOR SHALL NOTIFY D.M. WILLS AND THE MUNICIPALITY OF PORT HOPE 48HRS PRIOR TO CONDUCTING THE AIR TEST. THE AIR TEST SHALL NOT BE INITIATED WITHOUT D.M. WILLS' INSPECTOR ON SITE. THE AIR TEST SHALL BE CONDUCTED PRIOR TO PLACEMENT OF CONCRETE, CURB AND ASPHALT.
 - ALL CATCH BASINS SHALL HAVE FILTER FABRIC PLACED UNDER THE LID, IMMEDIATELY AFTER INSTALLATION, TO CONTROL ANY SILT THAT MAY ENTER THE STORM SEWER. THE CONTRACTOR SHALL ENSURE THE FILTER FABRIC IS NOT 'SEALED' IN PLACE DURING THE PLACEMENT OF ASPHALT. ALL FILTER FABRIC IS TO BE MAINTAINED BY THE CONTRACTOR. THE CONTRACTOR SHALL REMOVE ALL FILTER FABRIC UPON COMPLETION OF THE PROJECT OR AFTER BEING NOTIFIED BY THE CONSULTANT (D.M. WILLS ASSOCIATES LIMITED).
 - ALL NEW STORM AND SANITARY SEWER SHALL BE VIDEO TAPED AFTER CONSTRUCTION IS COMPLETE AND AFTER THE SEWERS HAVE BEEN CLEANED (NOTE 27). THE CONTRACTOR SHALL PROVIDE THREE COPIES OF THE VIDEO TAPES IN DIGITAL FORMAT (CD OR DVD) AND REPORTS, ALSO IN DIGITAL FORMAT (CD OR DVD) TO THE CONSULTANT (D.M. WILLS ASSOCIATES LIMITED).
 - SANITARY CLEAN-OUTS SHALL BE CAPPED WITH CAST IRON LIDS.
 - ALL MAINTENANCE HOLE COVERS SPECIFIED AS OPSD 401.010, SHALL BE TYPE 'A'.
 - ALL MAINTENANCE HOLES SHALL COME WITH A KOR-N-SEAL BOOT AT TIME OF CASTING.
 - MAINTENANCE HOLE STEPS SHALL BE SOLID RECTANGULAR ALUMINUM IN ACCORDANCE WITH TYPE 'A' OPSD 405.020.
- SITE**
- ALL MATERIALS (CONCRETE ASPHALT, ETC.) THAT ARE TO BE REMOVED MUST BE DISPOSED OF IN ACCORDANCE WITH THE LATEST MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS GUIDELINES AND LOCAL MUNICIPAL BYLAWS.
 - ALL LANDSCAPE AREAS DISTURBED BY CONSTRUCTION SHALL HAVE 150mm TOPSOIL AND SEED, UNLESS OTHERWISE NOTED. ALL SLOPES 4:1 OR GREATER ARE TO HAVE STAKED NURSERY SOD.
 - ALL TEMPORARY SILTATION CONTROL DEVICES ARE TO BE CONSTRUCTED AND MAINTAINED BEFORE CONSTRUCTION STARTS. CONTROL DEVICES SHALL BE REMOVED ONCE ALL CONSTRUCTION HAS BEEN COMPLETED. ALL VEGETATION HAS BEEN ESTABLISHED AND AT THE DIRECTIONS OF THE DIRECTOR OF WORKS AND ENGINEERING FOR THE MUNICIPALITY OF PORT HOPE.
 - ALL EXISTING ASPHALT EDGES SHALL BE SAW CUT CLEAN PRIOR TO ANY PAVING OPERATION. REFER TO DETAIL 2, ON SHEET 02.
 - THE CONTRACTOR IS RESPONSIBLE FOR ALL SURVEY LAYOUT.
 - THE CONTRACTOR IS TO ENSURE NO DEBRIS IS TRACKED ONTO ANY MUNICIPAL ROADS.



REVISIONS		
No.	Description	Date
4	FOURTH SUBMISSION	JUN 13/24
3	THIRD SUBMISSION	APR. 8/21
2	SECOND SUBMISSION	APR. 9/19
1	FIRST SUBMISSION	DEC. 7/18

METRIC Dimensions are in METRES and/or MILLIMETRES unless otherwise shown

LEGEND

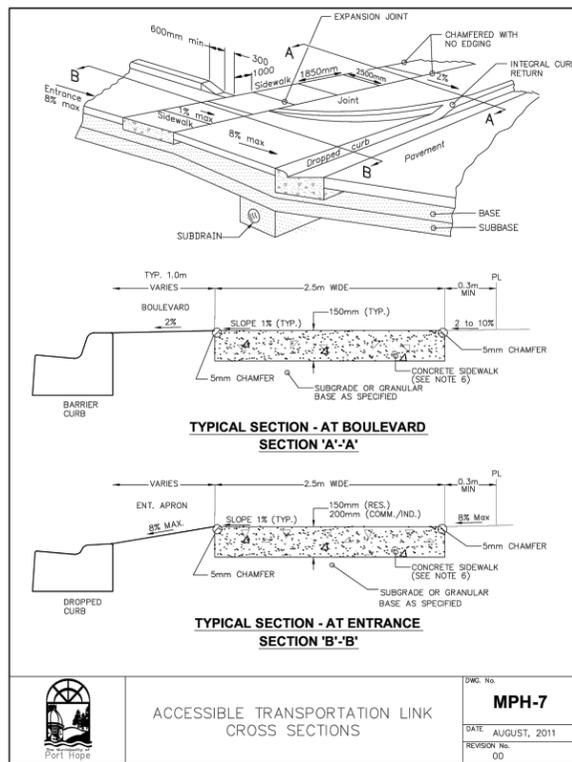
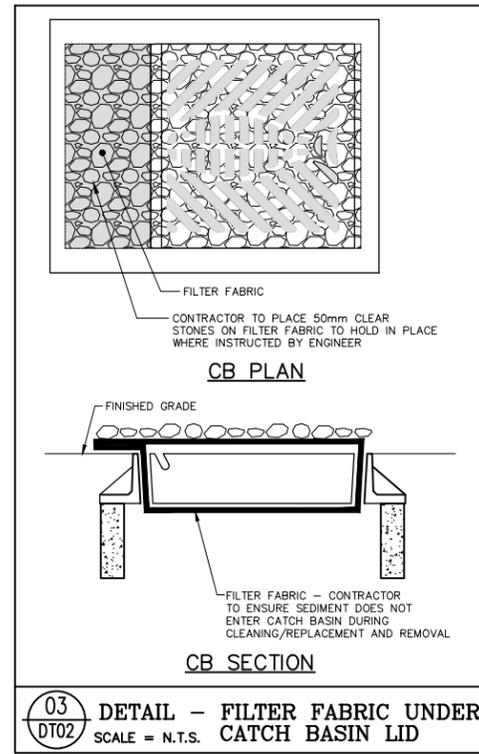
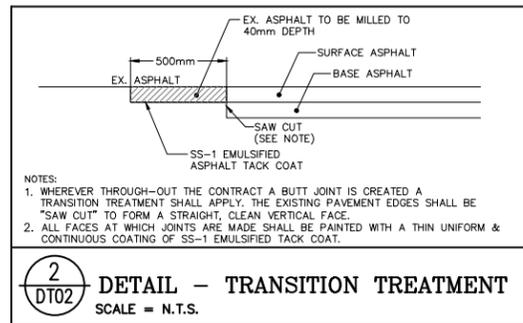
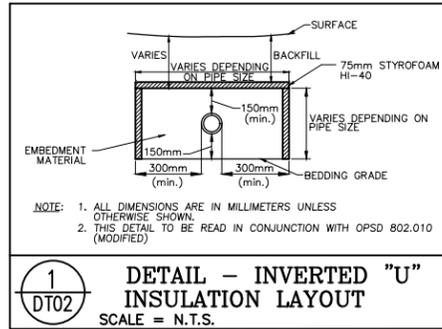
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E. wills@dmwills.com

Project Name/Location
CROFT STREET EXTENSION
THE MUNICIPALITY OF PORT HOPE

GENERAL NOTES

Drawn By: M.B.J.	SCALE: Horz. AS NOTED Vert. N/A
Designed By: A.T.C.	Plot Date: JUNE 13, 2024
Checked By: E.S.P.	Project No.: 10322
Engineer: E.S.P.	Dwg File No.: DT

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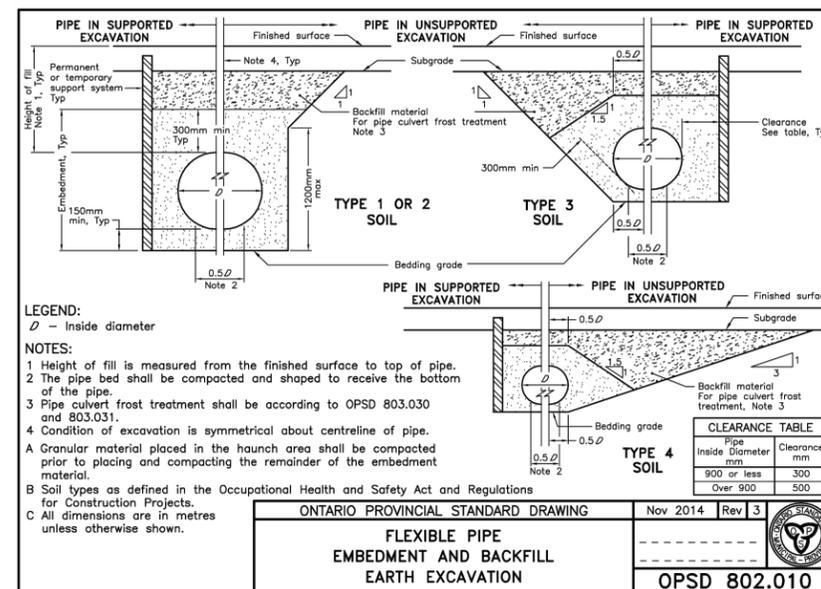
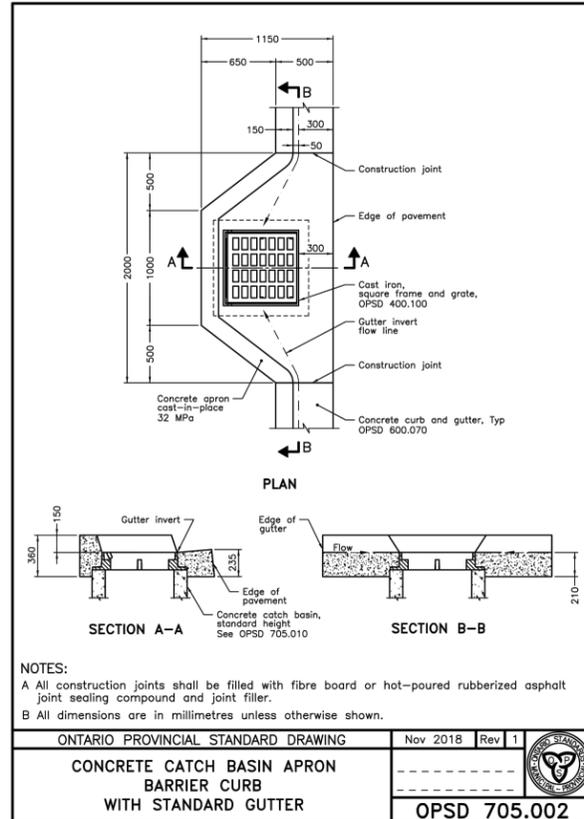
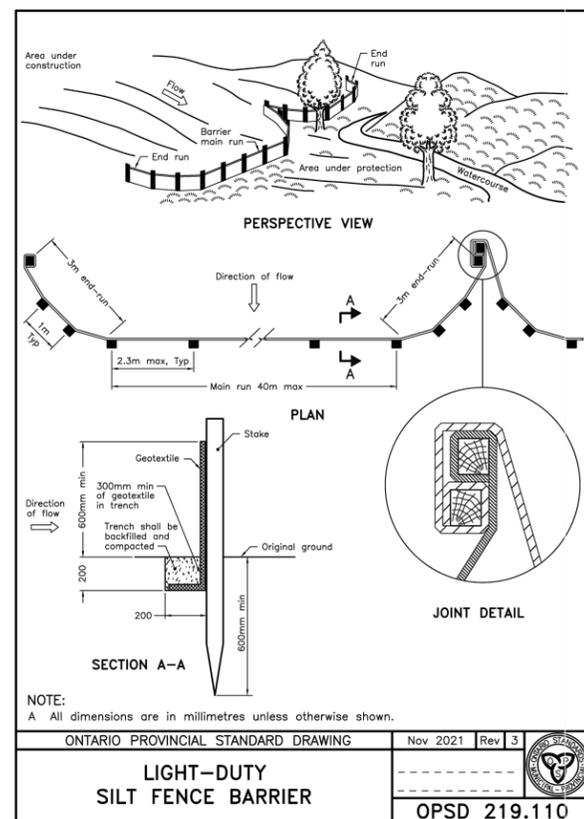
ONTARIO PROVINCIAL STANDARD DRAWINGS			
OPSD No.	TITLE	REV. #	REV. DATE
219.110	LIGHT UTILITY SILT FENCE BARRIER	3	NOV 2021
400.110	CAST IRON, SQUARE FRAME WITH SQUARE OVERFLOW TYPE FLAT GRATE FOR CATCH BASINS, PERFORATED OPENINGS	3	NOV 2018
401.010	CAST IRON, SQUARE FRAME WITH CIRCULAR CLOSED OR OPEN COVER FOR MAINTENANCE HOLES	4	NOV 2018
405.020	MAINTENANCE HOLE STEPS, SOLID	4	NOV 2018
600.040	CONCRETE BARRIER CURB WITH STANDARD GUTTER	2	NOV 2012
701.010	PRECAST CONCRETE MAINTENANCE HOLE, 1200 MM DIAMETER	5	NOV 2014
701.011	PRECAST CONCRETE MAINTENANCE HOLE, 1500 MM DIAMETER	5	NOV 2014
705.010	PRECAST CONCRETE CATCH BASIN 600 x 600mm	4	NOV 2019
705.002	CONCRETE CATCH BASIN APRON BARRIER CURB WITH STANDARD GUTTER	1	NOV 2018
802.010	FLEXIBLE PIPE EMBEDMENT AND BACKFILL, EARTH EXCAVATION	3	NOV 2014
809.010	PERFORATED PIPE SUBDRAIN IN GRANULAR TRENCH, MAIN STORM SEWER CONNECTION TO DRAINAGE STRUCTURE	4	NOV 2018
1109.011	CATHODIC PROTECTION FOR PVC WATERMAIN SYSTEMS	3	NOV 2020
OPSS 492	SITE RESTORATION FOLLOWING INSTALLATION OF PIPELINES, UTILITIES AND ASSOCIATED STRUCTURES IN OPEN CUT		NOV 2020



REVISIONS		
No.	Description	Date
4	FOURTH SUBMISSION	JUN 13/24
3	THIRD SUBMISSION	APR. 8/21
2	SECOND SUBMISSION	APR. 9/19
1	FIRST SUBMISSION	DEC. 7/18

METRIC Dimensions are in METRES and/or MILLIMETRES unless otherwise shown

LEGEND



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E. wills@dmwills.com

Project Name/Location
CROFT STREET EXTENSION
THE MUNICIPALITY OF PORT HOPE

Drawing Title
DETAILS

Drawn By: M.B.J. SCALE: Horz. AS NOTED Vert. N/A
Designed By: Plot Date: JUNE 13, 2024
Checked By: E.S.P. Project No.: 10322 Sht. No.:
Engineer: E.S.P. Dwg File No.: DT 02

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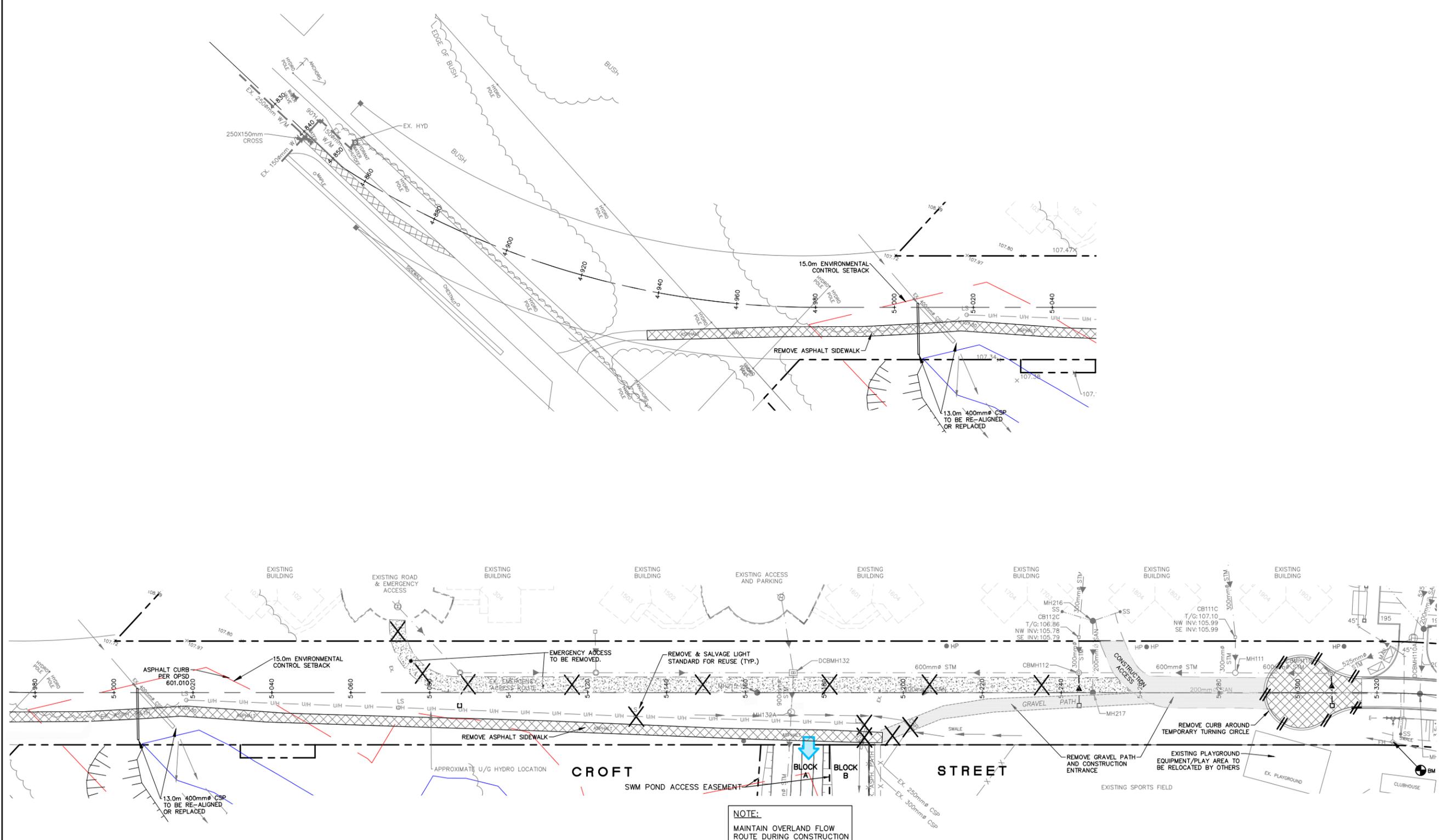
BENCH MARK
ELEV. 107.41m
TOP NUT OF FIRE HYDRANT ON
SOUTH SIDE OF CROFT STREET,
APPROX. 160m WEST OF ROSE
GLEN ROAD.



REVISIONS		
No.	Description	Date
4	FOURTH SUBMISSION	JUN 13/24
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2	SECOND SUBMISSION	APR. 9/19
1	FIRST SUBMISSION	DEC. 7/18

METRIC
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LEGEND	
---	PROPERTY LINE / RIGHT-OF-WAY
2102	UNIT NUMBER
---109.5---	CONTOUR LINE
---	EXISTING EDGE OF GRAVEL
○	EXISTING STORM MANHOLE
○	EX. STORM CATCHBASIN/MANHOLE
□	EX. DITCH INLET OR CATCH BASIN
---	EXISTING STORM SEWER
---	EXISTING CORRUGATED STEEL PIPE
---	EXISTING SANITARY MANHOLE
---	EXISTING SANITARY SEWER
---	EXISTING WATERMAIN
○	EXISTING FIRE HYDRANT
○	EXISTING WATER VALVE
---	EXISTING DITCH/SWALE
MAIL	EXISTING MAILBOX
U/H	EXISTING UNDERGROUND HYDRO
SL	EXISTING STREET LIGHT
---	EXISTING UNDERGROUND BELL LINE
---	EXISTING UNDERGROUND CABLE LINE
←	OVERLAND FLOW
▨	ASPHALT REMOVAL
▩	GRAVEL REMOVAL
⊘	VEGETATION REMOVAL
X	REMOVAL



NOTE:
MAINTAIN OVERLAND FLOW
ROUTE DURING CONSTRUCTION

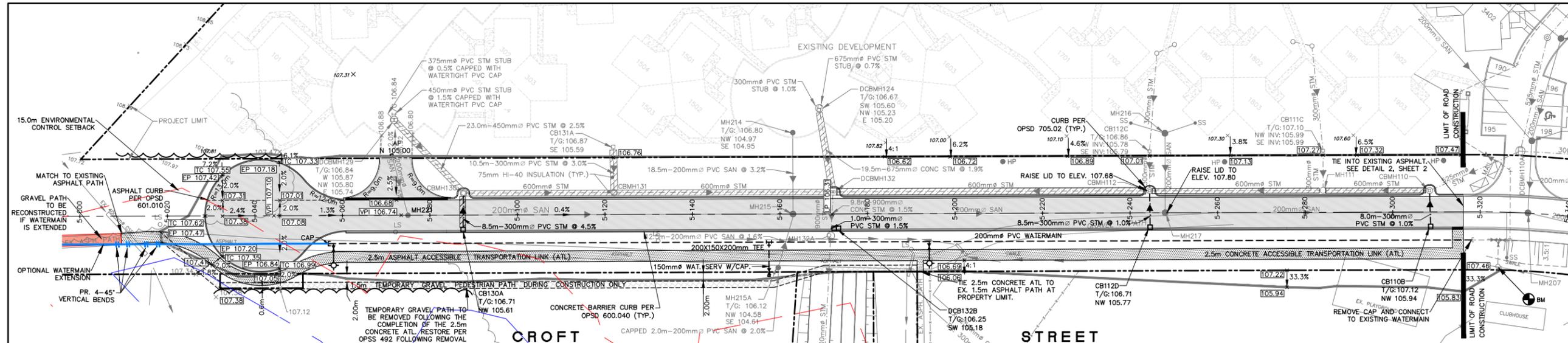
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Project Name/Location
CROFT STREET EXTENSION
THE MUNICIPALITY OF PORT HOPE

Drawing Title
REMOVALS

Drawn By: M.B.J.	SCALE: Horz. 1:500	Vert. N/A
Designed By: M.B.J.	Plot Date: JUNE 13, 2024	
Checked By: E.S.P.	Project No.: 10322	Sht. No.: 03
Engineer: E.S.P.	Dwg File No.: REM	

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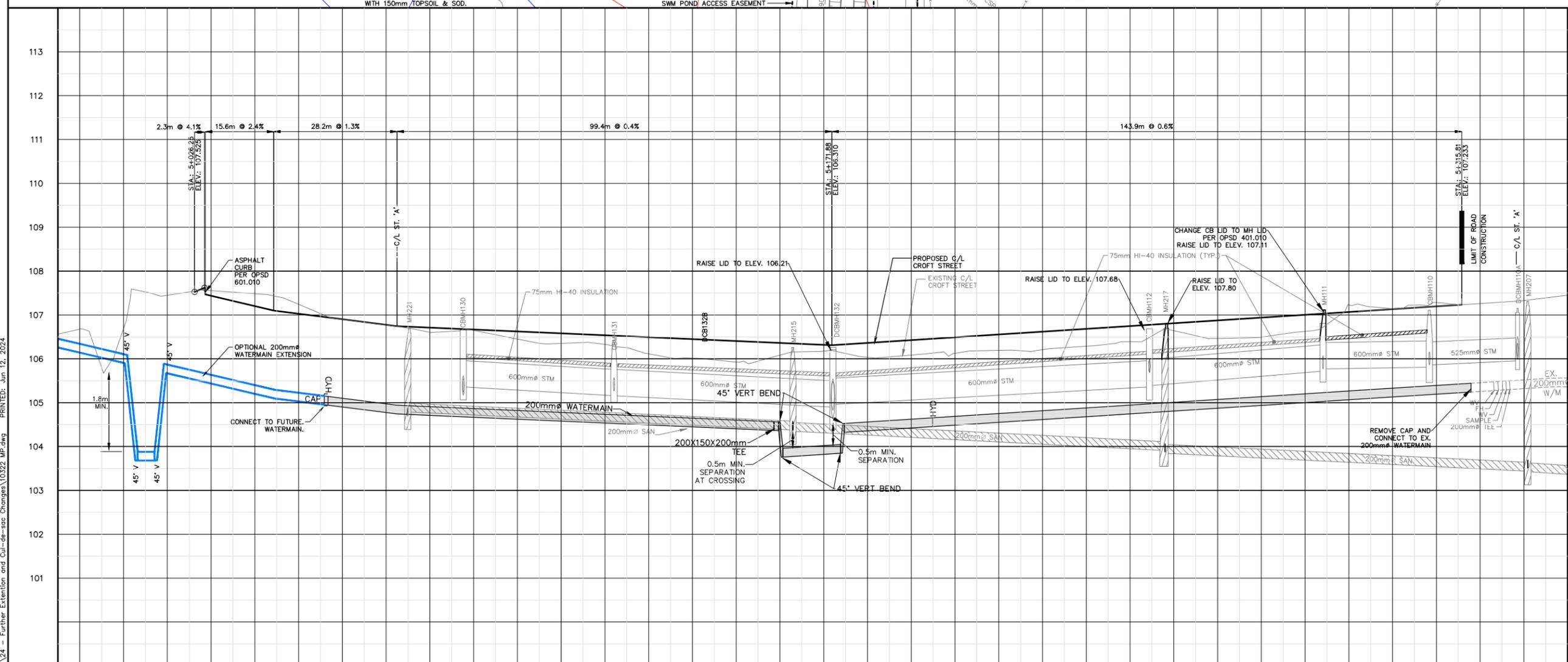
BENCH MARK
ELEV. 107.41m
TOP NUT OF FIRE HYDRANT ON SOUTH SIDE OF CROFT STREET, APPROX. 160m WEST OF ROSE GLEN ROAD.



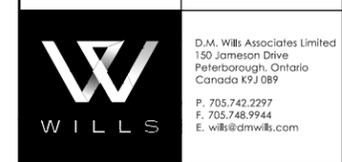
No.	Description	Date
4	FOURTH SUBMISSION	JUN 13/24
3	THIRD SUBMISSION	APR. 8/21
2	SECOND SUBMISSION	APR. 9/19
1	FIRST SUBMISSION	DEC. 7/18

METRIC
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LEGEND	
	PR. ASPHALT
	PR. GRAVEL
	PR. CONCRETE
	PR/EX EDGE OF ASPHALT/CURB & GUTTER
	EX/PR SANITARY MANHOLE
	EX/PR SANITARY SEWER
	EX/PR SANITARY SERVICE
	EX/PR CATCHBASIN MANHOLE
	EX/PR STORM MANHOLE
	EX/PR CATCHBASIN
	EX/PR DOUBLE CATCHBASIN
	EX/PR STORM SEWER
	EX/PR WATERMAIN
	EX/PR FIRE HYDRANT
	EX/PR WATER VALVE
	EX LIGHT STANDARD
	EX HYDRO POLE
	EX GUY WIRE/POLE ANCHOR
	EX BELL/CABLE PEDESTAL
	EX UNDERGROUND BELL
	EX UNDERGROUND HYDRO
	EX OVERHEAD HYDRO
	EX UNDERGROUND CABLE
	EX/PR CULVERT
	EX/PR SWALE/DITCH
	EX/PR FENCE
	EX/PR RIGHT-OF-WAY
	EX/PR VEGETATION
	LIMIT OF GRADING
	INSULATION



Utility Type	Stationing	Material & Size	Depth	Notes
STORM SEWER	5+000 to 5+020	34.4 m - 600mm \varnothing CONC STM @ 0.6%		STM CBMH130 T/G: 106.66 W 105.39 NE 104.92 SW 104.79
	5+100 to 5+120	50.0 m - 600mm \varnothing CONC STM @ 0.5%		STM CBMH131 T/G: 106.40 W 105.77 NE 105.10
SANITARY SEWER	5+160 to 5+200	85.0 m - 200mm \varnothing PVC SAN @ 0.5%		SAN MH215 T/G: 106.69 W 104.38 NE 103.91 SW 103.85 NW 103.87
	5+280 to 5+307	82.9 m - 200mm \varnothing PVC SAN @ 0.5%		SAN MH207 T/G: 107.31 W 105.99 NE 103.43 SW 103.44



CROFT STREET EXTENSION
THE MUNICIPALITY OF PORT HOPE

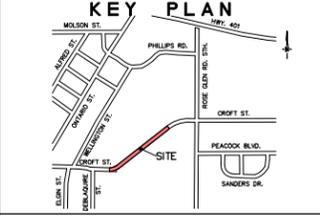
PLAN AND PROFILE
STA. 5+000 TO 5+307

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 Designed By: M.B.J. | Plot Date: JUNE 13, 2024
 Checked By: E.S.P. | Project No.: 10322 | Sht. No.: 04
 Engineer: E.S.P. | Dwg. File No.: 10322 MP

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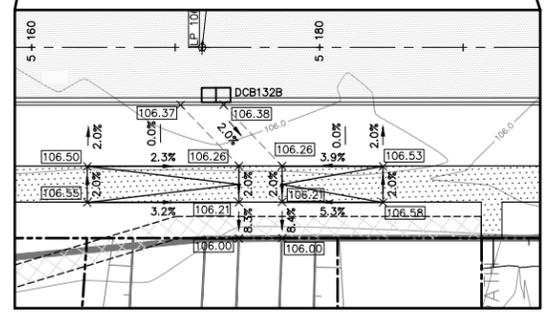
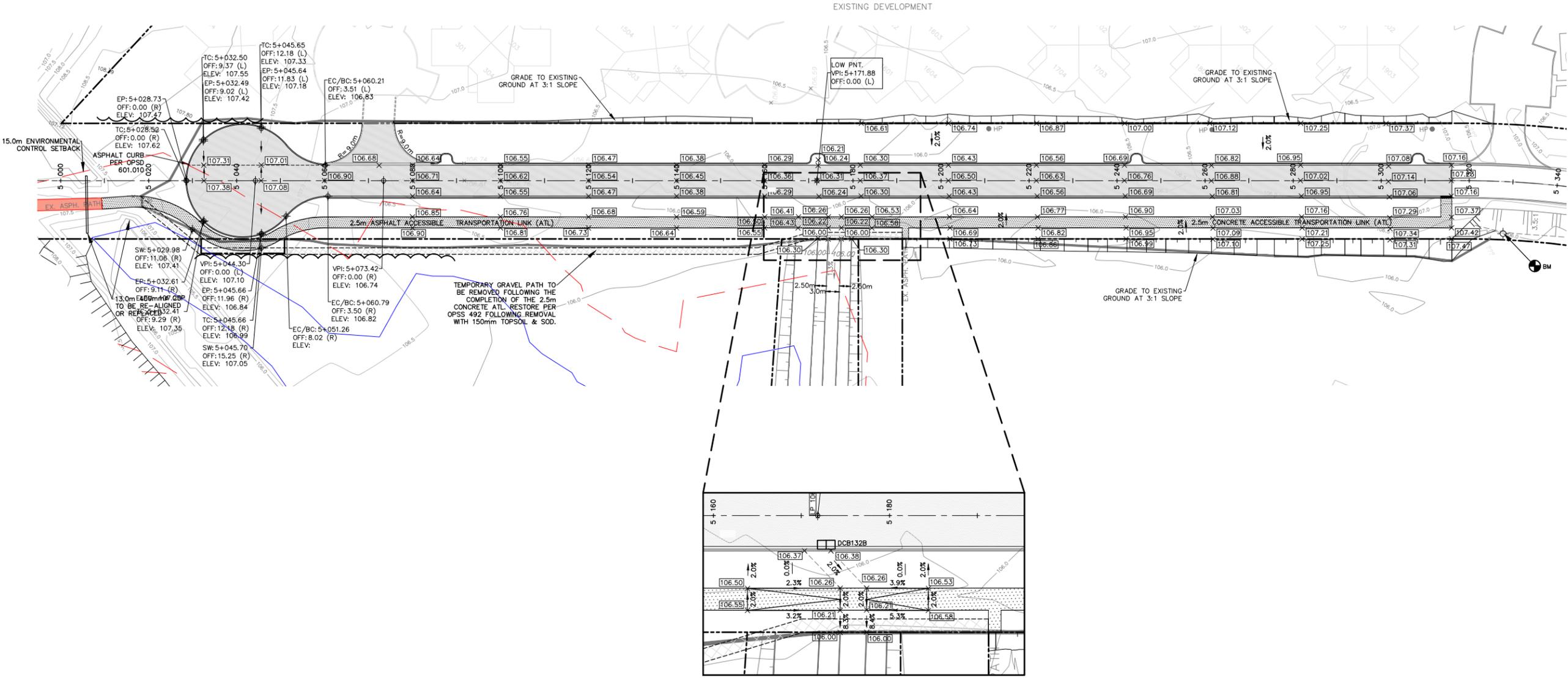
BENCH MARK
ELEV. 107.41m
 TOP NUT OF FIRE HYDRANT ON
 SOUTH SIDE OF CROFT STREET,
 APPROX. 160m WEST OF ROSE
 GLEN ROAD.



REVISIONS		
No.	Description	Date
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2	SECOND SUBMISSION	APR. 9/19
1	FIRST SUBMISSION	DEC. 7/18

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 MILLIMETRES unless otherwise shown

LEGEND	
— 105.5 —	EXISTING CONTOUR
× 106.81	PROPOSED ELEVATION
× 106.81	EXISTING ELEVATION
— 2.0% —	SLOPE LINE
— 2.0% —	GRADE
— —	LIMIT OF GRADING
▨	TEMPORARY 1.5m GRAVEL PATH



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Project Name/Location
**CROFT STREET
 EXTENSION**
 THE MUNICIPALITY OF PORT HOPE

Drawing Title
ALIGNMENT PLAN

Drawn By: M.B.J.	SCALE: Horz. AS NOTED Vert. N/A
Designed By: M.B.J.	Plot Date: JUNE 13, 2024
Checked By: E.S.P.	Project No.: 10322
Engineer: E.S.P.	Dwg File No.: AP

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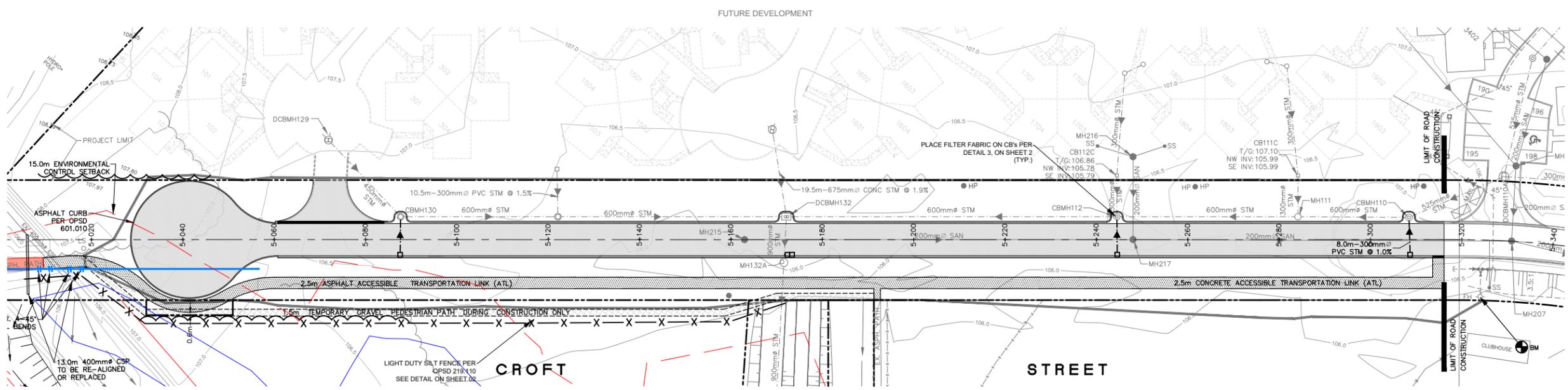
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REVISIONS		
No.	Description	Date
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LEGEND	
	PR. GRAVEL
	PR. CONCRETE
	PR/EX EDGE OF ASPHALT/CURB & GUTTER
	EX/PR SANITARY MANHOLE
	EX/PR SANITARY SEWER
	EX/PR SANITARY SERVICE
	EX/PR CATCHBASIN MANHOLE
	EX/PR STORM MANHOLE
	EX/PR CATCHBASIN
	EX/PR DOUBLE CATCHBASIN
	EX/PR STORM SEWER
	EX/PR WATERMAIN
	EX/PR FIRE HYDRANT
	EX/PR WATER VALVE
	EX/PR WATERMAIN TEE
	EX LIGHT STANDARD
	EX HYDRO POLE
	EX GUY WIRE/POLE ANCHOR
	EX BELL/CABLE PEDESTAL
	EX UNDERGROUND BELL
	EX UNDERGROUND HYDRO
	EX OVERHEAD HYDRO
	EX UNDERGROUND CABLE
	EX/PR CULVERT
	EX/PR SWALE/DITCH
	EX/PR FENCE
	RIGHT-OF-WAY
	EX/PR VEGETATION
	PROPOSED SILT FENCE



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Project Name/Location		
CROFT STREET EXTENSION		
THE MUNICIPALITY OF PORT HOPE		
Drawing Title		
SEDIMENT and EROSION CONTROL		
Drawn By: M.B.J.	SCALE: Horiz 1:500	Vert. N/A
Designed By: M.B.J.	Plot Date: JUNE 13, 2024	
Checked By: E.S.P.	Project No.: 10322	Sht. No.:
Engineer: E.S.P.	Dwg File No.: SEC	06

NOT FOR CONSTRUCTION

APPENDIX C: FIRE FLOW CALCULATIONS

Fire Underwriters Survey Method*

Fire Flow - 6-Storey Residential (Ordinary Construction)

*Water Supply for Public Fire Protection - A Guide to Recommended Practice in Canada - 2020

A	Construction Type	Ordinary	Type III	
	Constuction Coefficient		C =	1
	Vertical Openings	use if C < 1.0		N/A
B	Total Effective Floor Area	Ground Floor Area		3623 sq.m
		Height (# of Storeys)		6 storeys
			A =	21,738 sq.m
C	Required Fire Flow	$RFF = 220C\sqrt{A}$		32,436 L/min
		Rounded to 1000 L/min		32,000 L/min
D	Occupancy and Contents Adjustment	Limited Combustible		-15%
		Decrease by		-4,800 L/min
E	Automatic Sprinkler Adjustment	Fully Supervised		-50%
		Decrease by		-13,600 L/min
F	Exposure Adjustment	Exposure Charge		15%
		Increase by		4,080 L/min
G	Adjusted Required Fire Flow	Calculated		17,680 L/min
		Rounded to 1000 L/min		18,000 L/min
		Converted		300 L/s
		Converted		4,755 USGPM

Fire Underwriters Survey Method*

Fire Flow - 6-Storey Residential (Noncombustible Construction)

*Water Supply for Public Fire Protection - A Guide to Recommended Practice in Canada - 2020

A	Construction Type	Noncombustible	Type II	
	Constuction Coefficient		C =	0.8
	Vertical Openings	use if C < 1.0		Protected
B	Total Effective Floor Area	Ground Floor Area		3623 sq.m
		Height (# of Storeys)		6 storeys
			A =	5,435 sq.m
C	Required Fire Flow	$RFF = 220C\sqrt{A}$		12,975 L/min
		Rounded to 1000 L/min		13,000 L/min
D	Occupancy and Contents Adjustment	Limited Combustile		-15%
		Decrease by		-1,950 L/min
E	Automatic Sprinkler Adjustment	Fully Supervised		-50%
		Decrease by		-5,525 L/min
F	Exposure Adjustment	Exposure Charge		15%
		Increase by		1,658 L/min
G	Adjusted Required Fire Flow	Calculated		7,183 L/min
		Rounded to 1000 L/min		7,000 L/min
		Converted		117 L/s
		Converted		1,849 USGPM

Note: Total Effective Area 2b, vertical openings protected. Single largest floor area plus 25% of each of the two immediately adjoining floors.

Ontario Building Code Method*

Fire Flow – 6-Storey Residential

As the proposed development is a residential building, it is a Group C occupancy and is required to be sprinklered in accordance with OBC requirements (3.2.2.49/51, 3.2.5.13).

The OFM – Fire Protection Water Supply Guideline for Part 3 in The Ontario Building Code states:

- **With the exception of sprinklered buildings**, this guideline does not intend to provide the optimum for property protection.
- For sprinklered buildings, an adequate fire protection water supply means a reliable water supply providing sufficient water flow for the sprinkler systems (sprinkler and hose stream water requirements).

The sprinkler design will be completed during detailed design by a sprinkler contractor, however, based on previous experience on similar projects, the sprinkler system is expected to require a design flow of <75 L/s (4,500 L/s).

**APPENDIX D:
HYDRANT FLOW TEST RESULTS**



LHS INC.

P.O. Box 712 Cobourg ON K9A 4R5

905-377-0715 / 1-866-622-4022

Email: info@lhsinc.com

Client	Jewell Engineering (Test 1) 1-71 Millennium Parkway Belleville, On	Site	Croft St. Port Hope
		Site Contact Phone	Utility

FIRE FLOW TEST

Fire Flow Date **October 3, 2025 - 8:07 am**

Site **Croft St. Port Hope**

Static Hydrant **Parking lot at park**

Flow Hydrant **End of Croft at playground**

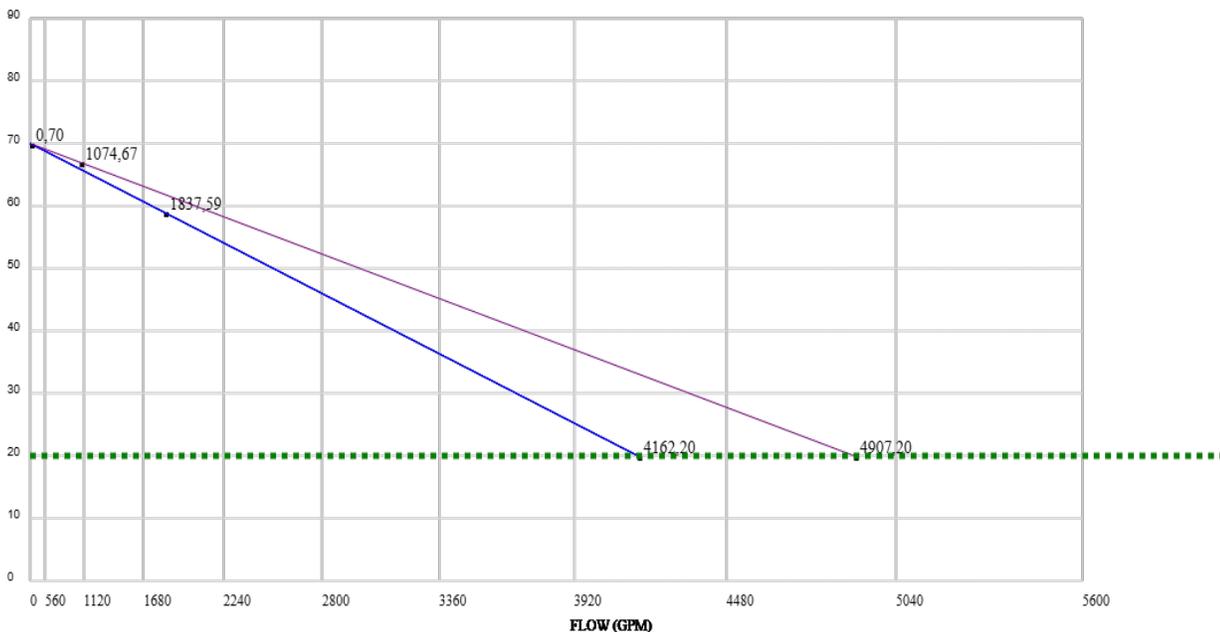
Hydrant Colours	RED - C	0-500
	ORANGE - B	500-1000
	GREEN - A	1000-1500
	BLUE - AA	>1500

Single Port

Static	70 psi
Residual 1	67 psi
Flow	41 psi
Observed	1074 US GPM 894 IMP GPM 4065 L / MIN
Projected @ 20psi	4907 US GPM 4086 IMP GPM 18575 l/min.

Two Port

Static	70 psi
Residual 2	59 psi
Flow 2 (x2)	30 psi
Observed	1837 US GPM 1530IMP GPM 6955 L / MIN
Projected @ 20psi	4162 US GPM 3466 IMP GPM 15755 l/min.





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Email: info@lhsinc.com

Client	Jewell Engineering (Test 2) 1-71 Millennium Parkway Belleville, On	Site	Roseglen Rd, Porthope
		Site Contact Phone	Utility

FIRE FLOW TEST

Fire Flow Date **October 3, 2025 - 8:10 am**

Site **Roseglen Rd, Porthope**

Static Hydrant **91 Roseglen Rd.**

Flow Hydrant **At the church entrance off Roseglen**

Hydrant Colours	RED - C	0-500
	ORANGE - B	500-1000
	GREEN - A	1000-1500
	BLUE - AA	>1500

Single Port

Static	74 psi
Residual 1	67 psi
Flow	52 psi
Observed	1209 US GPM 1007 IMP GPM 4578 L / MIN
Projected @ 20psi	3645 US GPM 3035 IMP GPM 13798 l/min.

Two Port

Static	74 psi
Residual 2	64 psi
Flow 2 (x2)	38 psi
Observed	2068 US GPM 1722IMP GPM 7827 L / MIN
Projected @ 20psi	5140 US GPM 4280 IMP GPM 19457 l/min.

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