Functional Servicing and Stormwater Management Report

The Woolverton
13 Mountain Street & 19 Elm Street, Grimsby

Valentine Coleman 1 Inc. and Valentine Coleman 2 Inc.

R.J. Burnside & Associates Limited
1465 Pickering Parkway Suite 200
Pickering ON L1V 7G7 CANADA

May 2021 (Revised October 2021)
300053081.0000

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Record of Revisions

Revision	Date	Description
0	May 25, 2021	OPA/ZBA Submission to the Town of Grimsby
1	October 25, 2021	OPA/ZBA Re-submission to the Town of Grimsby

R.J. Burnside & Associates Limited

Report Prepared By:

Laura Garner, P.Eng.
Project Engineer
LG:cv

Report Reviewed By:

Matt Coleridge, P.Eng.
Leader, Urban Renewal

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Disclaimer

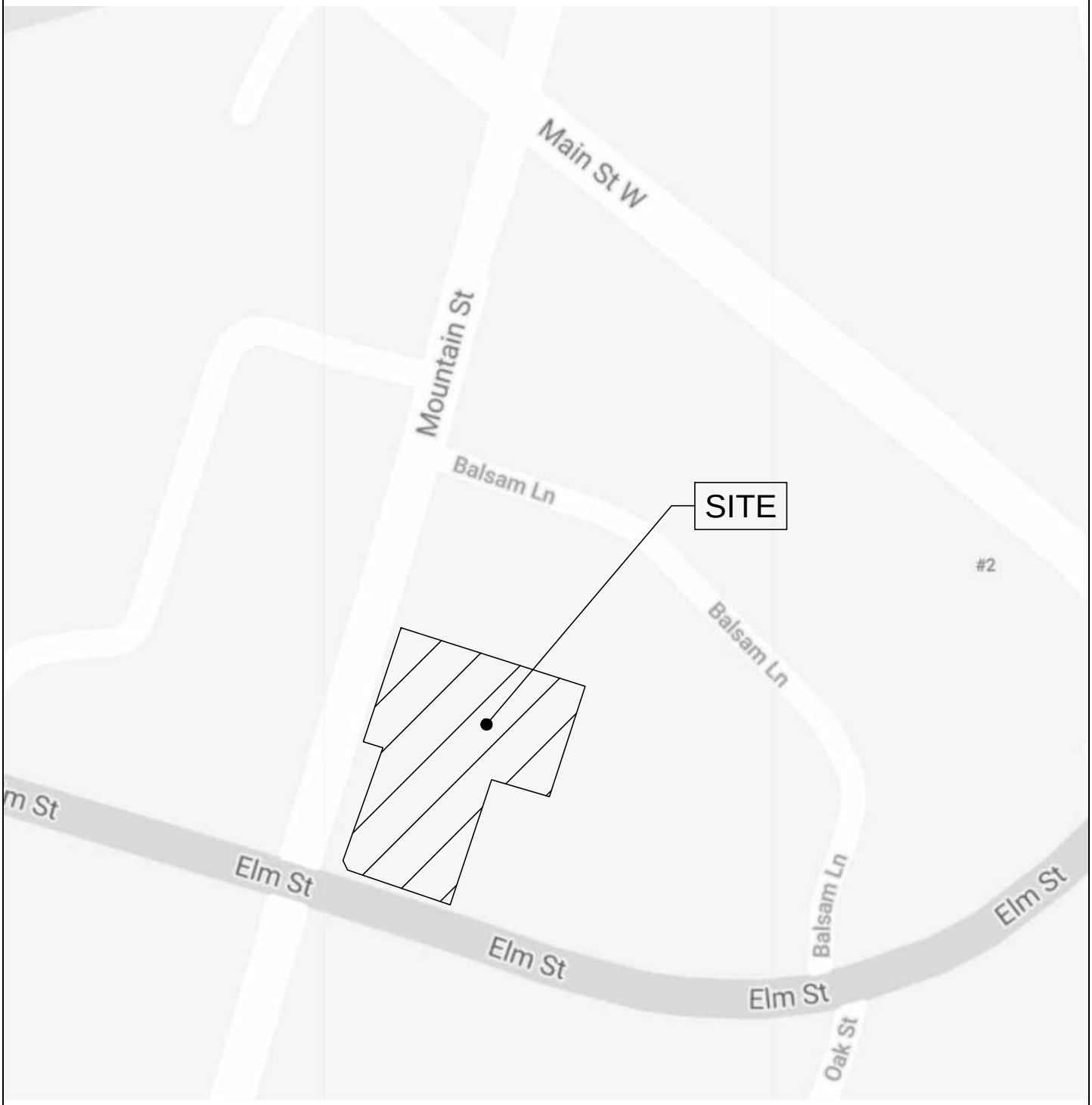
1.0 Introduction

R.J. Burnside & Associates Limited (Burnside) are the Consulting Engineers retained by Valentine Coleman 1 Inc. and Valentine Coleman 2 Inc. to prepare a Functional Servicing and Stormwater Management Report in support of an Official Plan and Zoning By-Law Amendment application for the re-development of 13 Mountain Street and 19 Elm Street in the Town of Grimsby (the Site).

2.0 Background

The Site is 3,188 m^2 in area and is presently occupied by two 2-storey buildings at 13 Mountain Street and 19 Elm Street, as well as an ancillary building to the rear of the property. The Site is anticipated to include a proposed future road widening along Mountain Street, which will reduce the proposed site area to 2,993 m^2. The Site is bound by Elm Street to the south, a 2-storey commercial building (11 Mountain Street) to the north, Mountain Street to the west, and municipally owned surface parking lot (21 Elm Street) to the east.

The Site is located in an area that is well established and serviced by a network of municipal infrastructure including roads, sewer, watermains, and other services and utilities. Refer to Figure 1 for the site location in context to the surrounding area.



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BURNSIDE

1465 Pickering Parkway, Pickering, Ontario, L1V 7G7
telephone (905) 420-5777 **fax** (905) 420-5247

Client

VALENTINE COLEMAN 1 INC. AND VALENTINE COLEMAN 2 INC.

180 BLOOR STREET WEST, SUITE 701
TORONTO, ON
M5S 1T6

Drawing Title

THE WOOLVERTON
13 MOUNTAIN STREET & 19 ELM STREET
GRIMBSY, ON L3M 3J7

SITE LOCATION PLAN

Drawn	Checked	Date	Drawing No.
GP	MC	21/04/21	**FIG1**
Scale		Project No.	
N.T.S.		300053081	

2.1 Proposed Development

The proposed development will maintain portions of the two existing buildings at 13 Mountain Street and 19 Elm Street. The two buildings are proposed to continue their existing uses including commercial and residential uses in 13 Mountain Street and community uses in 19 Elm Street. The proposed development will consist of a 7-storey residential building with 73 residential units, and 457 m^2 of community/commercial uses on the ground floor. There will be 2.5 underground parking levels constructed below grade for the proposed building. Vehicular access to the proposed underground parking will be provided off Mountain Street. Refer to the Architectural Site Plan in Appendix A for the proposed site and building statistics prepared by SvN Architects + Planners.

2.1.1 Ownership Structure

The proposed development will support commercial, community and residential (rental) uses. The property is intended to remain as a single ownership.

3.0 Water Servicing

3.1 Existing Water Infrastructure

Based on the drawings provided by the Town and the survey information, the municipal water infrastructure in the vicinity of the Site includes a 250 mm diameter watermain on the west side of Mountain Street and a 150 mm diameter watermain on the north side of Elm Street. Refer to Drawing S1 for the existing watermain infrastructure surrounding the Site.

3.2 Proposed Water Servicing

3.2.1 New Connections

The proposed water service connection will be to the existing 250 mm diameter watermain within Mountain Street.

The servicing for the building includes one 150 mm diameter domestic connection to service the building via a combined 200 mm diameter fire connection and 150 mm diameter domestic supply connection.

3.2.2 Water Demand

The proposed fire demand for the development was calculated based on the criteria outlined by the Fire Underwriters Survey. The proposed domestic demands for the development were calculated using the Niagara Region Design Criteria, which specifies a demand of 300 L/cap/day based on a calculated population.

The anticipated domestic flow for the development under proposed conditions, have been calculated as 2.11 L/s based on the Niagara Region Design Criteria. Detailed calculations are provided in Appendix B.

The required fire flow was calculated to be 4,069 USGPM (257 L/s) based on the guidelines outlined in the Fire Underwriters Survey (FUS) at a pressure of 140 KPa (20.3 psi). Refer to detailed calculations provided in Appendix B.

Hydrant flow testing has been completed on the 250 mm watermain in Mountain Street to verify that water pressures and flows are adequate to supply the maximum domestic and fire supply required for the proposed development, and to show that the minimum required fire flows can be met for this development. A test was completed by L & D Waterworks Inc. in accordance with NFPA-291 guidelines on the hydrant located on Mountain Street in front of 10 Mountain Street.

Based on the results of the tests (see Appendix B for results), it is estimated that approximately 5,689 USGPM (358.9 L/s) is available at the Mountain Street hydrant, at 140 Kpa (20.3 psi). Interpolating the results, it is estimated that at the required fire flow 4,069 USGPM (257 L/s), the watermain will operate at a pressure of 34.3 psi, above the minimum required pressure of 20.3 psi. Therefore, based on the results of the test, the existing 250 mm watermain can provide sufficient flow to service the development. Refer to Appendix B for detailed water demand calculations.

3.2.3 Hydrant Coverage

There is an existing fire hydrant on the north side Elm Street just west of the intersection of Mountain Street and an existing hydrant on the west side of Mountain Street approximately 10 m north of the Site. As requested by the Town of Grimsby, three new public hydrants are proposed as part of this project. The first is located on the north side of Elm Street, east of Mountain Street in front of the proposed site. The second is located on the east side of Mountain Street, north of Elm Street in front of the existing Woolverton House building. The third hydrant is located in Balsam Lane, just north of 11 Mountain Street. The Siamese connection has been placed on the building within the maximum allowable distance from a hydrant of 45 m therefore, satisfying the Building Code requirement.

Refer to Drawing S1 for hydrant location details.

4.0 Stormwater Management

4.1 Existing Storm Sewer Infrastructure

Based on existing Town records and survey information, there is an existing 600 mm diameter storm sewer in the south side of Elm Street and there are no storm sewers in Mountain Street fronting the Site. It was determined that the existing catchbasins on the site drain via a 300 mm diameter storm sewer to the existing storm network located in Balsam Lane, northeast of the Site. The 300 mm diameter storm outlet drains through the adjacent municipal parking lot prior to connecting to a storm structure in Balsam Lane.

A CCTV investigation of the existing sewer has been completed to verify the routing and condition of the existing 300 mm storm sewer connection to Balsam Lane. Based on the results of the CCTV investigation, it was determined there were a couple issues with the pipe including a break and a buildup of deposits, both issues are located in the first 20 m of pipe which are sections of the pipe that would be removed as part of the proposed development. The section of pipe that is proposed to remain can provide a suitable outlet for the site and this CCTV investigation verifies the current outlet for the majority of the storm drainage from the site to the storm sewer network in Balsam Lane. Refer to Appendix C for a copy of the CCTV investigation. Refer to Drawing S1 for locations of the existing sewer infrastructure.

4.2 Existing Drainage Conditions

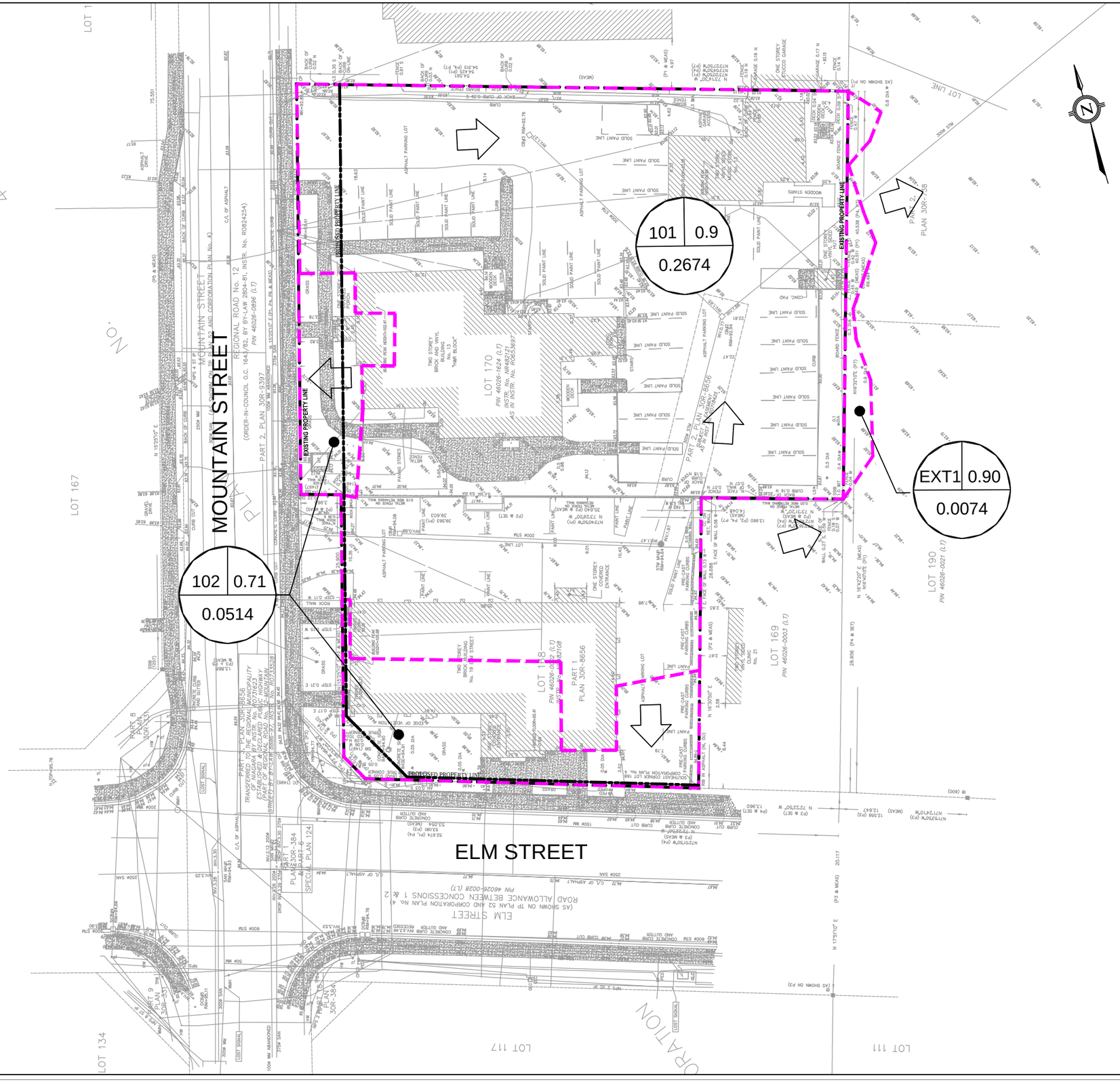
There is an existing storm sewer network on the Site that captures most of the parking area and, as mentioned above, has a 300 mm diameter storm connection to the storm sewer network northeast of the Site in Balsam Lane (Drainage Area 101 on Figure 2). A small amount of the Site fronting on Elm Street and Mountain Street drains uncontrolled to the right-of-way and is picked up within City storm infrastructure on the Streets (Drainage Area 102 on Figure 2). Refer to Figure 2 for the existing drainage conditions and Table 1 below for the area breakdowns. Refer to Appendix D for calculations.

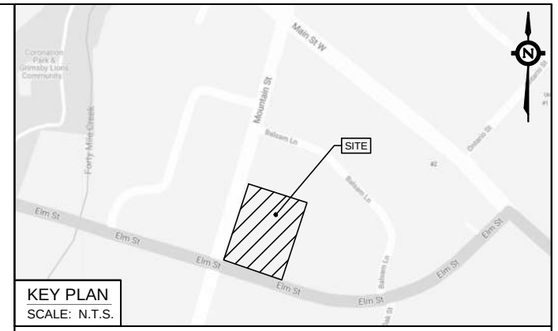
Table 1: Existing Storm Drainage

	Catchment	Area (m²)	C	Q (2-Year)	Q (100-Year)
On-site Capture (Balsam Lane Drainage)	101	2,674	0.90	45.06 L/s	94.30 L/s
Drainage to Surrounding Streets	102	514	0.71	6.84 L/s	14.32 L/s
Total		**3,188**			

4.3 External Drainage

In the existing condition, there is a small drainage area from the adjacent property; 23 Elm Street and the adjacent municipal parking lot on Balsam Lane. Currently this drainage area is an existing parking area that overland flow onto the Site. Refer to Figure 2 for the existing external drainage areas.





KEY PLAN
SCALE: N.T.S.

Notes

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2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

LEGEND:

- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- DRAINAGE BOUNDARY
- OVERLAND FLOW ROUTE
- DRAINAGE AREA NUMBER
- % IMPERVIOUS
- DRAINAGE AREA (ha)

SITE | 0.90 | 1.14 ha

BURNSIDE

R.J. Burnside & Associates Limited
1465 Pickering Parkway
Pickering, Ontario, L1V 7G7
telephone (905) 420-5777 **fax** (905) 420-5247
web www.rjburnside.com

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PRE-DEVELOPMENT DRAINAGE PLAN

Drawn	Checked	Date	Drawing No.
GP	MC	21/04/21	**FIG2**
Scale		Project No.	
1:400		300053081	

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4.4 Proposed Storm Service Connection

The proposed storm service connection for the Site will connect to the existing 300 mm diameter municipal storm sewer located east of the Site in the municipal parking lot, that ultimately drains to Balsam Lane. This is consistent with where the majority of the storm drainage from the Site drains to currently. The storm service will consist of a 300 mm diameter service at a 2.0% slope. Refer Drawings S1 for further details.

4.4.1 Storm Sewer Capacity – Elm Street Connection Option

A connection to the existing 600 mm storm sewer in Elm Street was investigated to determine its feasibility. In order to make a connection to the storm sewer in Elm Street, running a service connection at an elevation to cross above the existing sanitary sewer in Elm Street would cause all of the Site's stormwater to need to be pumped to reach this elevation as the entire site slopes to the northeast.

Based on the anticipated long-term maintenance with pumping the stormwater it is proposed to utilize the existing outlet from the Site to the existing 300 mm storm sewer connection to Balsam Lane.

4.4.2 Storm Sewer Capacity – Balsam Lane Connection

An analysis of the existing and proposed sewer capacities for the storm sewer network in Balsam Lane was completed to determine the impacts of the proposed site continuing to connect to this sewer network in post-development. Table 2 provides a summary of the analysis, the drainage area figures, and design sheets can be found in Appendix C.

Table 2: Balsam Lane Sewer Capacity Review

Scenario	Controlled Flow from Site (m^3/s)	% Full (Pipe: 1196-2409)*	% Full (Pipe: 1198-2410)**
Existing Condition (2-Year Storm Event)	-	82%	111%
Proposed Condition (2-Year Storm Event with 2-year Controlled Flow from Site)	0.027	72%	102%

Scenario	Controlled Flow from Site (m^3/s)	% Full (Pipe: 1196-2409)*	% Full (Pipe: 1198-2410)**
Proposed Condition (2-Year Storm Event with 100-year Controlled Flow from Site)	0.042	81%	110%

*Pipe 1196-2409 is the first storm sewer in Balsam Lane downstream of the existing storm connection from the site.
**Pipe 1198-2410 is the last storm sewer in Balsam Lane prior to the sewer network connecting out to Elm Street.

As shown in the table above, it was determined that in a 2-year event the proposed development improved the capacity in the system by approximately 10%. In the 100 year event, it is proposed that the site be controlled to flows less than the 2-year existing flow, which improves the capacity of the sewers from existing conditions.

Based on the results, it can be concluded that the proposed development reduces the runoff to the existing Balsam Lane sewers and improves the overall capacity within the system from existing conditions. The storm outlet to Balsam Lane is suitable to support the proposed development with no negative impact to the existing downstream storm sewer network.

4.5 Stormwater Management Design Criteria

The stormwater management criteria for this development are based on the *Niagara Peninsula Conservation Authority Stormwater Management Guidelines* as outlined below.

Water Quantity

Stormwater quantity control is required to control post-development peak release rates to match pre-development rates.

Water Quality

Enhanced level stormwater quality treatment (80% TSS Removal) is to be provided.

Erosion and Sediment Control

Erosion and sediment control BMPs shall be designed, constructed, and maintained in accordance with the *Erosion and Sediment Control Guidelines for Urban Construction.* The proposed development ensures no increase in erosion or downstream flooding.

4.5.1 Method of Analysis

The Modified Rational Method has been used to calculate the runoff rates from all drainage catchments and to quantify the detention storage required for quantity control measures. Refer to Appendix D for detailed stormwater management calculations.

4.6 Proposed Drainage

The proposed site has been broken down into multiple drainage areas which are identified on Figure 3. Table 3 outlines the post-development drainage areas and their associated release rates. A few of these catchment areas propose stormwater management controls in order to reduce their post-development release rate. The details for these controls are described in the following section.

Table 3: Proposed Storm Drainage

	Catchment	Area (m^2)	C	Q (2-Year)	Q (100-Year)
Controlled Roof	201	644	0.63	2.7 L/s	2.7 L/s
Controlled Plaza Area	202	404	0.89	3 L/s	3 L/s
Controlled Outdoor Amenity Area	203	372	0.86	5 L/s	5 L/s
Controlled Driveway (Pumped)	204	533	0.90	3 L/s	3 L/s
Uncontrolled Roof	205	766	0.95	13.64 L/s	28.55 L/s
Total to Storm Connection				**27.4 L/s**	**42.3L/s**
Drainage to Surrounding Streets	206	469	0.77	6.77	14.17
Total		**3,188**			

As shown in the table above, the 100-year flows from the proposed site have been controlled down to less than the 2-year existing release rate to the Balsam Lane sewer. Based on the existing pipe size, slope, and ponding on the existing site it is anticipated flows significantly larger than the 2-year event make it into the storm sewer network and ultimately to Balsam Lane in the existing condition. However, in order to ensure the flows to the downstream storm sewer are reduced in post-development, the Site has been controlled to lower than the 2-year pre-development flow rate.

4.6.1 Proposed Stormwater Management Controls

4.6.1.1 Catchment Area 201

A portion of the roof area that is at Level 7, including the green roof area, will be equipped with controlled roof drains that control the flow to 42 L/s/ha. For a drainage area of 644 m^2, this equates to a maximum flow rate of 2.7 L/s.

4.6.1.2 Catchment Area 202

The plaza area on the west side of the site fronting Mountain Street will incorporate stormwater management measures to control back the flows from this area. The area will be captured in area drains and directed to an underground stormwater management chamber that will be equipped with a Hydrovex Flow Regulator 75VHV-1 to control flows to 3 L/s in the 100-year storm event. Based on the modified rational method, this equates to a storage volume required in the 100-year storm event of 11 m^3. Refer to the Servicing Drawing S1 for details of the storm servicing in the plaza area. Complete storm calculations are presented in Appendix D of this report.

4.6.1.3 Catchment Area 203

The outdoor amenity area on the east side of the Site will incorporate stormwater management measures to control back the flows from this area. The area includes a rain garden that stormwater will be directed to via a curb cut and ponding will occur in the rain garden and be captured in an area drain, raised above the bottom of the storage to provide attenuation. The outlet will be equipped with a Hydrovex Flow Regulator 75VHV-1 to control flows to 5 L/s in the 100-year storm event. The 100-year storage volume required is 6 m^3 which will be provided prior to flows reaching the area drain elevation. Refer to the Servicing Drawing S1 for details of the storm servicing in the plaza area. Complete storm calculations are presented in Appendix D of this report.

4.6.1.4 Catchment Area 204

A portion of the site at the north end, including the loading ramp, cannot reach the storm outlet via gravity and therefore must be pumped. A tank is proposed in the bottom parking level to store stormwater from Catchment Area 204. A maximum pump rate of 3 L/s is proposed, requiring 17 m^3 of storage in the 100-year storm event.

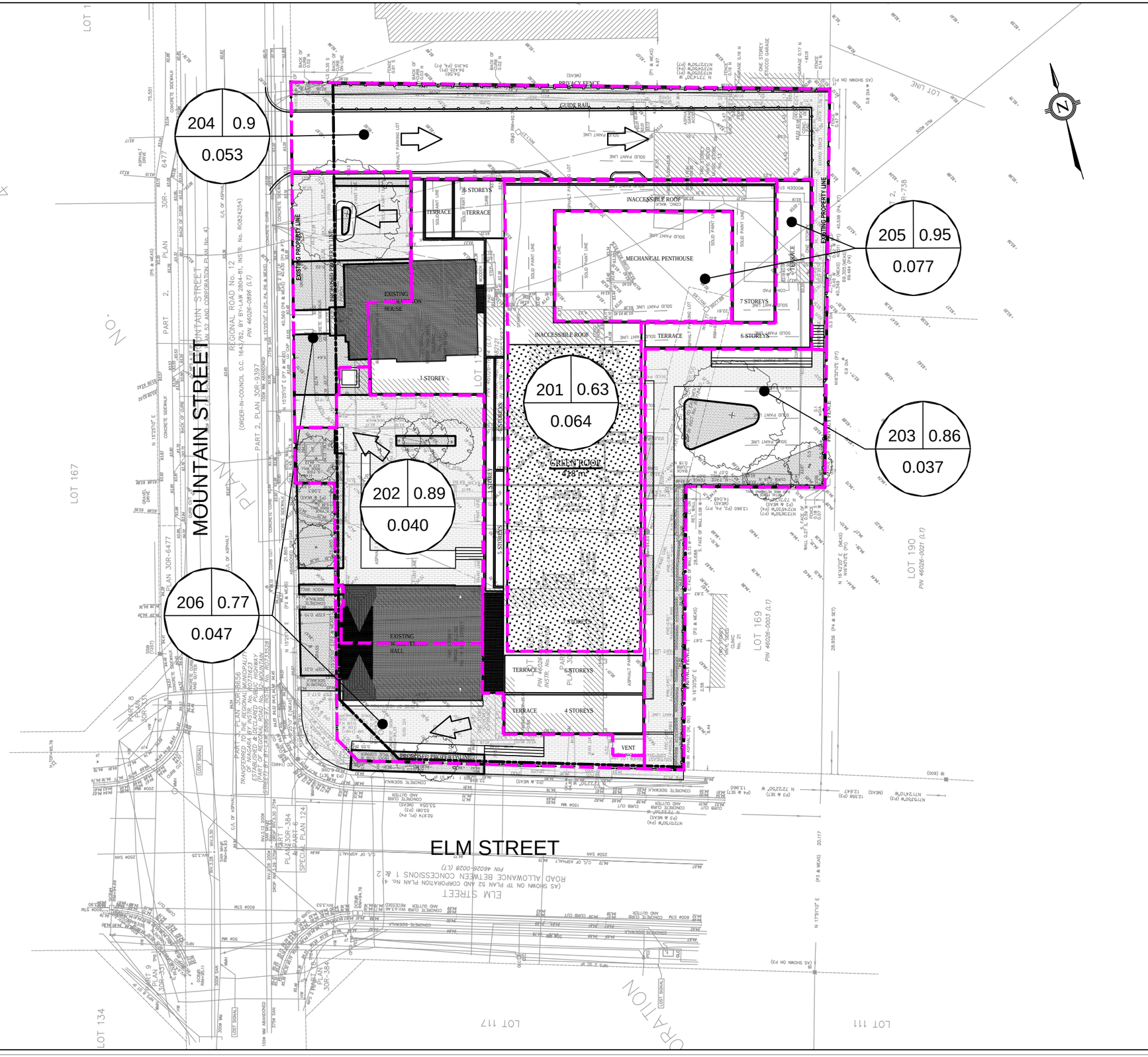
4.6.2 Major Overland Flood Flow Route

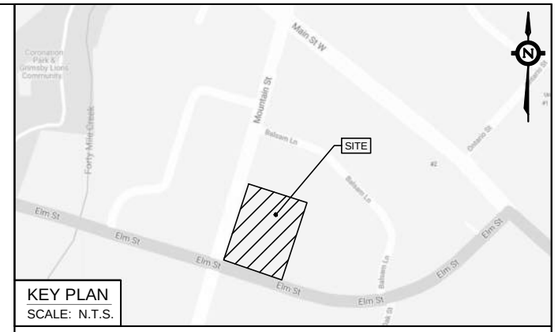
The majority of the Site has rooftop coverage; however, for the sloped driveway entrance, a suitable major overland flood flow route does not exist. Area drains are proposed in this area to capture up to the 100-year storm event for the site area not covered by roof. In the event of blockage, drainage from this area will spill into the air shaft into the parking garage which will be captured in the P3 and pumped. An

emergency overland flow route for the areas fronting Mountain Street and Elm Street exists out to the right-of-way.

4.7 Proposed Stormwater Quality

The majority of the site coverage includes roof, green roof, and pedestrian accessible areas that incorporate landscape features. These areas are unlikely to accumulate sediment, and therefore, can be considered 'clean' water and achieves a TSS removal of 80%, not requiring any additional quality control. The one area on the Site requiring quality treatment for TSS removal is the loading/vehicle ramp at the north end of the Site (Catchment 204). This area that will see vehicle traffic will be captured and treated using an OGS unit to achieve an average of 80% long-term removal of total suspended solids based on the annual loading basis from all runoff leaving the catchment area. It is proposed that the OGS unit be located within the mechanical room at the P2 level with the lid being accessible for maintenance proposes at the surface in the driveway/loading ramp. Refer to Servicing Drawing S1 for the location of the OGS unit.





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POST-DEVELOPMENT DRAINAGE PLAN

Drawn	Checked	Date	Drawing No.
GP	MC	21/04/21	**FIG3**
Scale		Project No.	
1:400		300053081	

File Name: 053081 - FIG3.dwg Date Plotted: October 12, 2021 - 2:30 PM

5.0 Sanitary Servicing

5.1 Existing Sanitary Sewer Infrastructure

Based on existing Town records and survey information, there is an existing 375 mm diameter sanitary sewer in the east side of Mountain Street and a 300 mm diameter sanitary sewer in the west side of Mountain Street. There is also a 250 mm diameter sanitary sewer in Elm Street. Refer to Drawing S1 for locations of the existing sewer infrastructure.

5.2 Proposed Sanitary Connection

The development proposes a 150 mm diameter service connection at 2.0% slope to service the proposed building. The connection will be made to the existing 375 mm diameter sanitary sewer located within Mountain Street.

5.3 Sanitary Flows

The proposed sanitary flows generated by the development were calculated using Niagara Region Design Criteria which specifies an average flow rate 275 L/cap/day, as well as an infiltration rate of 0.286 L/s/ha.

The existing Woolverton House proposed to remain has commercial space on the ground floor, with an equivalent population of 2, and residential space on the second floor with an equivalent population of 3. The existing Woolverton Hall has commercial space on the ground floor, with an equivalent population of 3. The proposed development will have 72 residential units, with an equivalent population of 140 persons, as well as 186 m^2 of new “commercial” space. Refer to the Site statistics provided by the Architect, included in Appendix A and Appendix E for the associated calculations. The total peak sanitary flow for the proposed development and existing buildings that will remain (including the groundwater and infiltration allowance) is 3.02 L/s, Table 4 summarizes the sanitary flows.

Table 4: Proposed Sanitary Flows

Proposed Development	Units/Area	Population	Flows (L/s)
Existing Non-Res GFA	272 m^2	5	0.12
Proposed Non-Res GFA	186 m^2	4	
Existing Residential GFA	100 m^2	3	1.82
Proposed Residential GFA	72	140	
Groundwater	-	-	1.00
Infiltration	-	-	0.09
Total	**-**	**152**	**3.02**

6.0 Conclusions and Recommendations

The analysis and recommendations for servicing of the proposed development are summarized in the sections below.

6.1 Water Servicing

- The calculated domestic flow demand due to the proposed development is 2.11 L/s.
- The calculated fire flow demands due to the proposed development is 4,069 USGPM (257 L/s).
- The new service connection consists of a 200 mm fire service connection, and a 150 mm domestic supply connection.
- Hydrant flow testing was completed, and it was determined the existing municipal water supply network will not be affected by the proposed development and can adequately service the Site.

6.2 Stormwater Servicing

- Stormwater runoff from this Site will be controlled such that the post-development flows are less than existing.
- Flows from some areas of the Site will be controlled in order to ensure the anticipated 100-year runoff does not exceed the existing 2-year runoff from the existing storm connection to Balsam Lane.
- Water quantity control will be achieved through a proposed stormwater vault.
- Stormwater quality control will be achieved through the high portion of the rooftop coverage and the installation of an OGS unit to treat the hardscape area that will see vehicle traffic.
- Sediment and erosion control measures to be taken during construction have been presented in this report.
- A CCTV investigation was completed to verify the routing and condition of the existing 300mm storm sewer connection to Balsam Lane. The section of sewer that is proposed to remain was found to be a suitable outlet for the site and verifies the current outlet for the majority of the storm drainage from the site to the storm sewer network in Balsam Lane.
- The new service connection will consist of a 300 mm diameter connection at a 2.0% slope and will be made to the 300 mm diameter storm sewer located within the existing municipal parking lot, connecting to Balsam Lane.

6.3 Sanitary Servicing

- The total peak sanitary flows for the proposed development at 13 Mountain Street and 19 Elm Street (including the infiltration and groundwater allowance) has been calculated as 3.02 L/s.
- The new service connection will consist of a 150 mm diameter connection at a 2.0% slope and will be made to the 375 mm sanitary sewer located within Mountain Street.

In summary, the Site can be sufficiently serviced with respect to water supply, sanitary drainage, and stormwater management. Accordingly, we hereby recommend the adoption of this report as it relates to the provision of servicing works, and for the purposes of Official Plan and Zoning By-law Amendment application approvals.

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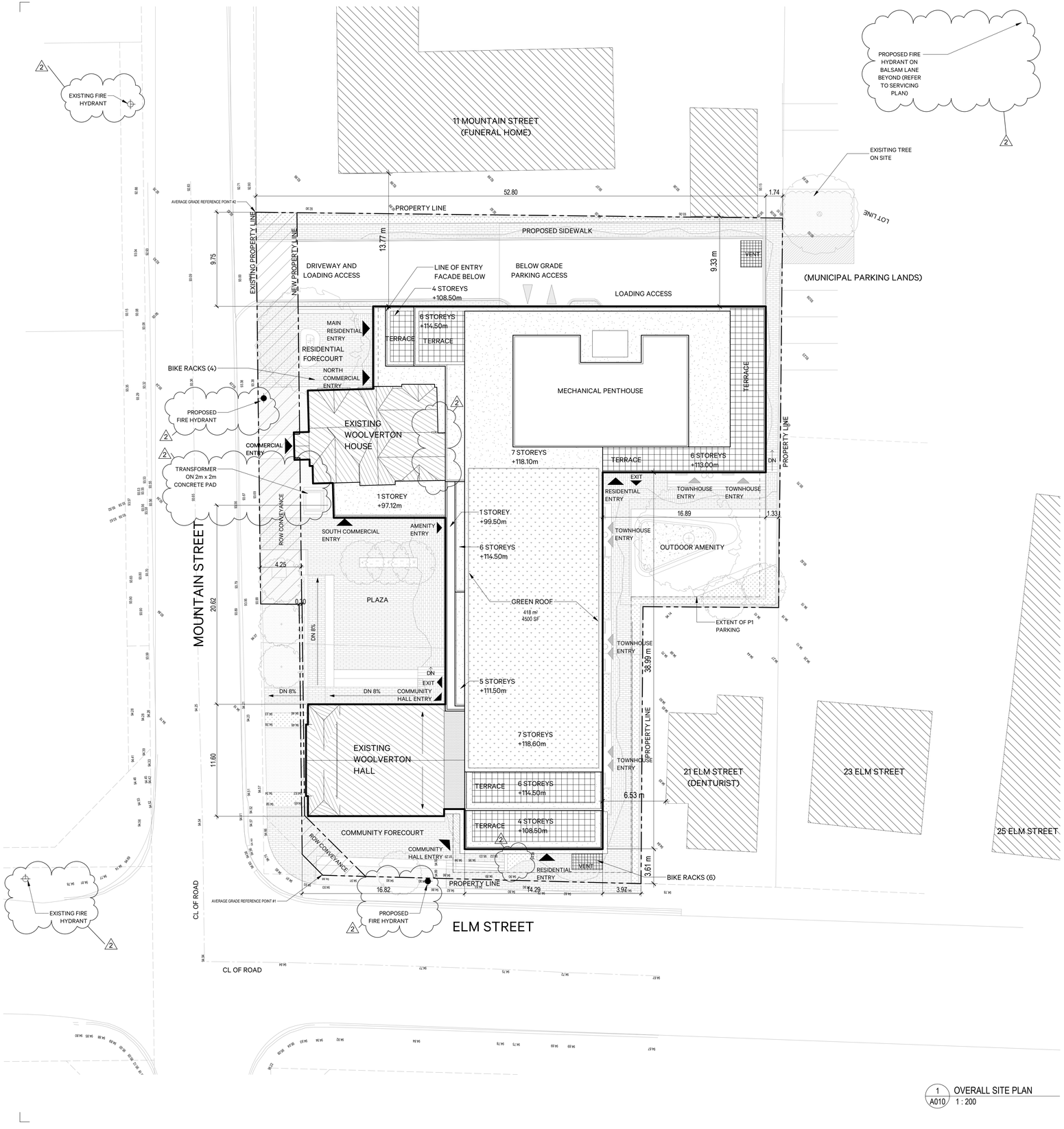
Appendix A

Background Material



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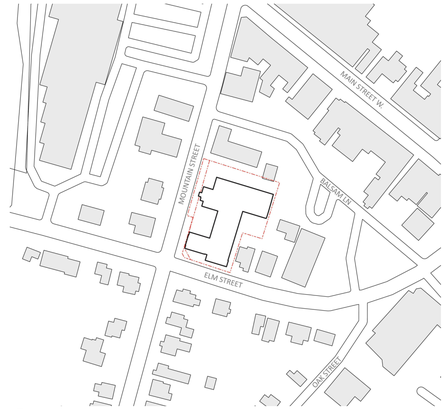

2 / A010 CONTEXT PLAN

PROJECT SUMMARY		
MUNICIPAL ADDRESS	13 Mountain Street & 19 Elm Street	
LOT AREA	**Metric**	**Imperial**
EXISTING SITE AREA	3,188 m²	*34,318 sf*
ROW CONVEYANCE	195 m²	*2,101 sf*
NEW SITE AREA	2,993 m²	*32,217 sf*

ZONING		
DESIGNATION	DI - DOWNTOWN INTENSIFICATION	
BUILDING AREA AT GRADE	1,541 m²	*16,582 sf*
LOT COVERAGE	51.5%	
FSI	2.34	
HEIGHT [a] (EXCLUDING MECHANICAL PENTHOUSE)	25.24 m	*82.81 ft*
NUMBER OF STOREYS	7	

GROSS FLOOR AREA (GFA) [b]		
EXISTING WOOLVERTON HOUSE (Second Floor & Stair)	147 m²	*1,581 sf*
NEW RESIDENTIAL GFA [b]	6,389 m²	*68,771 sf*
TOTAL RESIDENTIAL GFA [b]	6,536 m²	*70,352 sf*
EXISTING WOOLVERTON HOUSE (Ground Floor)	118 m²	*1,267 sf*
NEW COMMERCIAL/RETAIL	65 m²	*695 sf*
TOTAL COMMERCIAL/RETAIL (NON-RES)	182 m²	*1,962 sf*
EXISTING WOOLVERTON HALL	154 m²	*1,660 sf*
NEW COMMUNITY HUB	121 m²	*1,301 sf*
TOTAL COMMUNITY HUB (NON-RES)	275 m²	*2,961 sf*
TOTAL NON-RESIDENTIAL	457 m²	*4,923 sf*
TOTAL GFA	6,993 m²	*75,276 sf*

RESIDENTIAL UNITS		
1B (600-800 sq.ft.)	25	34%
2B & 2B Townhouse (800-1,000 sq.ft.)	41	56%
3B + 3B Townhouse (1,000-1,200 sq.ft.)	7	10%
TOTAL UNITS	73	

AMENITY		
INDOOR RES. AMENITY SPACE	135 m²	*1,452 sf*
OUTDOOR RES. AMENITY SPACE	123 m²	*1,321 sf*

PARKING AREAS (GCA)			
P1 (area not included in GFA)	31 spaces	1,210 m²	*13,025 sf*
P2 (area not included in GFA)	43 spaces	1,645 m²	*17,706 sf*
P3 (area not included in GFA)	26 spaces	961 m²	*10,347 sf*

PARKING	By-Law Required [c]	Proposed [d]
RESIDENTIAL	92	74
RESIDENTIAL VISITOR	19	
COMMERCIAL/RETAIL	7	
COMMUNITY HUB	10	
ADDITIONAL PARKING AT MUNICIPAL LOT [e]	n/a	2
TIME OF DAY SHARED PARKING		26
TOTAL	128	102

BICYCLE PARKING	By-Law Required	Proposed
RESIDENTIAL BIKE PARKING	23	74
NON-RES BIKE PARKING	2	10

LOADING	By-Law Required	Proposed
LOADING SPACE (3.5 x 9.0m)	1	1

[a] Height measured from average grade along Mountain Street to top of 7th Floor

[b] GFA calculation based on total area of the dwelling units, measured between the exterior faces of the exterior walls and corridor side of the common building walls, and excludes common building areas.

[c] By-Law Required Parking Rate:
residential: 1.25 per unit
visitor: 0.25 per unit
Commercial Retail: 1 per 28 sq.m. GFA
Community Hub: 1 per 30 sq.m. GFA

[d] Proposed Parking Rate: *refer to Transportation Considerations Study*

[e] 2 parking spaces on adjacent municipal lot owned by Valentine Coleman 1 and Valentine Coleman 2

3 / A010 PROJECT STATISTICS

NO.	DATE	DESCRIPTION/COMMENTS
1	2021-05-25	ISSUED FOR OPA/ZBA
2	2021-10-25	ISSUED FOR OPA/ZBA RESUBMISSION 1

LEGEND

- ROW CONVEYANCE
- EXISTING BUILDING
- PRIMARY BUILDING ENTRANCE
- SECONDARY BUILDING ENTRANCE/EXIT
- PRIVATE RESIDENTIAL BUILDING ENTRANCE
- PARKING ENTRANCE
- EXISTING FIRE HYDRANT LOCATION
- PROPOSED FIRE HYDRANT LOCATION

NOTES

93.875 m - AVERAGE GRADE BASED ON EXISTING GRADE ELEVATIONS AT NORTH-WEST AND SOUTH-WEST CORNERS OF THE PROPERTY (SEE SITE PLAN)

SvN
110 Adelaide St. E.
Toronto, ON M5C 1K9
info@svn-ap.com
416.593.6499
ONTARIO ASSOCIATION OF ARCHITECTS
ANDREW SINCLAIR
LICENCE
6592

THE WOOLVERTON
13 MOUNTAIN STREET & 19 ELM STREET

Valentine Coleman 1 Inc.
Valentine Coleman 2 Inc.

SITE PLAN + STATISTICS

PROJECT	42051	DRAWN	LS
SCALE	1:200	CHECKED	AB
DATE	06/07/21	PLOTTED	10/25/2021 4:47:31 PM

A010

BURNSIDE

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Appendix B

Water Calculations

BURNSIDE

CALCULATION SHEET

Project:	**13 Mountain St & 19 Elm St**	Prepared by:	L.Garner
	Grimsby, Ontario	Checked by:	M.Coleridge
		Project No:	300053081
	Water Demand & Fire Demand	Date:	October 25, 2021

I. Fire Flow Calculation

*Based on Fire Underwriters Survey

1 $F = 220\ C\ (A)^{1/2}$

Where F= Fire flow in Lpm

C= construction type coefficient

= 0.8 For Non-Combustible construction (unprotected vertical openings)

A = total floor area in sq.m. excluding basements

Floor	Area (sq.m)	%
Floor 1	1507	100%
Floor 2	1167	100%
Floor 3	1192	50%
Floor 4	1192	50%
Floor 5	1105	50%
Floor 6	1093	50%
Floor 7	897	50%

*Two largest adjoining floor areas + 50% of all floor areas immediately above them

Largest Area = 5,414 sq.m.

F = 12,949.68 L/min

Round to nearest 1000 l/min

F = 13,000 L/min

2 Occupancy Reduction

15% reduction for non-combustible occupancy, residential

Reduction = 1950

F = 11,000 L/min *Round to nearest 1000 L/min

3 Sprinkler Reduction

30% Reduction for NFPA Sprinkler System

Reduction = 3300 l/min

F = 7,700

4 Separation Charge

15%	N	10.1 - 20m	
20%	E	3.1 - 10m	
10%	S	20.1 - 30m	
25%	W	0 - 3m	
70%	Total Separation Charge,		7700 L/min

F= 15,400 L/min

257 L/s

4,069 US GPM

Fire Flow Required = 256.67 L/s 4069 US GPM

BURNSIDE

CALCULATION SHEET

Project:	**13 Mountain St & 19 Elm St**	Prepared by:	L.Garner
	Grimsby, Ontario	Checked by:	M.Coleridge
		Project No:	300053081
	Water Demand & Fire Demand	Date:	October 25, 2021

II. Domestic Flow Calculations

Population =	152	persons	*From Sanitary Calculations (Niagara Region Water & Wastewater Master Servicing Plan (2016) Volume 3)
Avg. Day Demand =	300	L/cap/day	
	0.53	L/s	
	8	US GPM	
Max. Hourly Peaking Factor =	4.0		(Niagara Region Water & Wastewater Master Servicing Plan (2016) Volume 3)
Max. Domestic Flow Rate F_{dom} =	2.11	L/s	
	33	US GPM	

Domestic Flow Demand = 2.11 L/s 33 US GPM

= 33.47 US GPM

III. Flow Test Results

* As per fire flow test completed on a fire hydrant located at 10 Mountain Street, Grimsby, April 12, 2021.

Static Pressure= 78 psi

Pressure (psi)	*Flow (L/s)*	*Flow (GPM)*
74	84.7	1342
65	146.7	2325

Theoretical Flow @ 20 psi = ***5689*** **US GPM** *Calculated Fire Flow Demand of 4069 US GPM less than theoretical therefore OK

358.9 **L/s**

Anticipated Residual Pressures at Fire Flow

Scenario	Flow (L/s)	Pressure (psi)	
		Estimated	Required
Fire	256.7	***34.3***	20.3

The Woolverton – Floor Area Breakdown
May 10, 2021

EXIST. WOOLVERTON HOUSE GCA (NON-RES): 117.62
EXIST. WOOLVERTON HOUSE GCA (RES - 2nd Flr): 117.7
NEW NON-RES GCA (CAFE & OFFICE ADDITION ON WOOLVERTON HOUSE): 68.9
TOTAL WOOLVERTON HOUSE (EXISTING + NEW): 304.22 sq.m.

EXIST. WOOLV. HALL GCA (NON-RES): 153.8
NEW NON-RES GCA (WOOLV. HALL GROUND FLOOR + MEZZANINE): 121.8
TOTAL WOOLVERTON HALL (EXISTING + NEW): 275.6 sq.m.

NEW RES GCA - 1ST FLOOR: 1044.76
NEW RES GCA - 2ND FLOOR: 1049.6
NEW RES GCA - 3RD FLOOR: 1191.8
NEW RES GCA - 4TH FLOOR: 1191.6
NEW RES GCA - 5TH FLOOR: 1104.8
NEW RES GCA - 6TH FLOOR: 1093.2
NEW RES GCA - 7TH FLOOR: 896.79
TOTAL NEW RESIDENTIAL GCA: 7,572.46 sq.m.

P1: 1504.3
P2: 1785.5
P3: 1139.9
TOTAL PARKING GARAGE AREA: 4,429.7 sq.m.

Hydrant Flow Test Report

Site Name:

SITE ADDRESS / MUNICIPALITY Elm Street and Mountain Street in Grimsby, ON

TEST HYDRANT LOCATION : IN Front of 10 Mountain Street

BASE HYDRANT LOCATION: In Front of 20 Mountain Street

TEST BY: Luzia Wood

TEST DATE: April12,2021

TEST TIME: 8:45AM

TEST DATA

FLOW HYDRANT — **Pipe Diam. (in / mm)** 250 **cast iron**

	PITOT 1	PITOT 2
SIZE OPENING (inches):	2.5	2.5
COEFFICIENT (note 1):	0.90	0.90
PITOT READING (psi):	64	48 / 48
FLOW (usgpm):	**1342**	**2325**

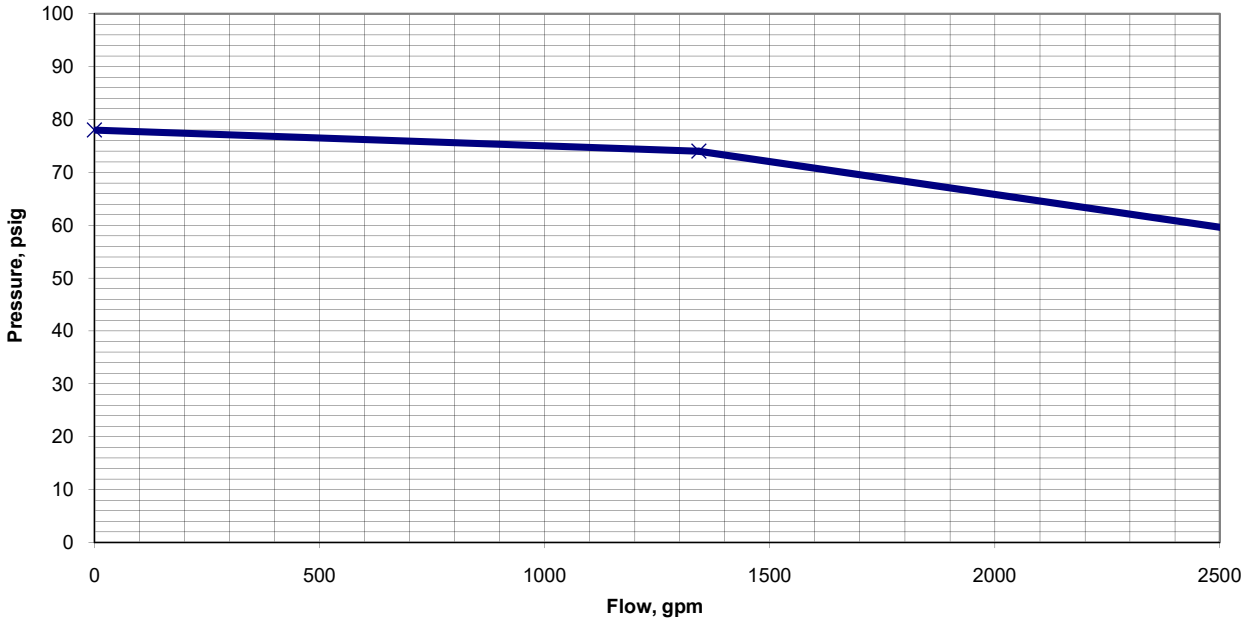
THEORETICAL FLOW @ 20 PSI 5689

BASE HYDRANT — **Pipe Diam. (in / mm)** 300 **cast iron**

STATIC READING (psi): 78 **RESIDUAL 1 (psi):** 74 **RESIDUAL 2 (psi):** 65

REMARKS:

NOTE 1: Conversion factor of .90 used for flow calculation based on rounded and flush internal nozzle configuration. No appreciable difference in pipe invert between flow and base hydrants.



491 Port Maitland Rd
Dunnville, ON N1A 2W6

BURNSIDE

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Appendix C

Storm Sewer Calculations

CUES, Inc.
3600 Rio Vista Avenue
Orlando, FL 32805
Phone: 407-849-0190
Fax: 407-425-1569

PACP Inspections

Surveyed by:	Certificate number:	Owner:	Customer:	Drainage area:	P/O number:	Sheet number:
Steven	U-515-6023882		Aquaflow			

Pipe segment ref.:	Start date/time:	Street:	City:
CB-2_CB-1	20211006 14:49	13 MOUNTAIN STREET - STORM	GRIMSBY

Location details:	Upstream MH No:	Rim to invert:	Grade to invert:	Rim to grade:
	CB-2			

Sewer use:	Direction:	Flow control:	Downstream MH No:	Rim to invert:	Grade to invert:	Rim to grade:
SW	D		CB-1			

Height:	Width:	Shape:	Material:	Lining method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:
300 mm		C	RCP		2.5 m	60.0 m	54.6 m		

Media label:	Purpose:	Sewer category:	Pre-cleaning:	Date cleaned:	Work order no.:	Weather:	Location code:	Pressure value:
			J			1		

Project name:	Additional info:
21300-ONSITE	

Observations

Distance	Video Ref.	PACP Code	Continuous	S/M/L	Value Inches (mm) 1st	Value Inches (mm) 2nd	%	Joint	Circumferential Location At/From	Circumferential Location To	Image Ref.	Remarks
0.0 m	00:00:12	AMH						☐	/			CB-2
0.0 m	00:00:22	MWL					0	☐	/			
5.5 m	00:01:27	B						☐	6 /	10		
19.3 m	00:02:56	DAE					15	☐	4 /	8		
27.7 m	00:04:08	MWL					10	☐	/			
30.1 m	00:04:25	MWL					0	☐	/			
48.8 m	00:05:57	FL						☐	6 /			
54.6 m	00:06:43	MGO						☐	/			CB COVER IS SIEZED SHUT - NO ACCESS

Observations

Distance	Video Ref.	PACP Code	Continuous	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	To	Image Ref.	Remarks
54.6 m	**00:06:59**	**AMH**						☐	**/**			**CB-1**

SUBSURFACE UTILITY PLAN OF

ELM STREET & MOUNTAIN STREET TOWN OF GRIMSBY

REGIONAL MUNICIPALITY OF NIAGARA

SCALE 1 : 150

2 0 2 4 6 8 metres

METRIC

DISTANCES AND/OR COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

COORDINATE SYSTEM

UTM ZONE 17, NAD83 (CSRS) (2010.0).

LEGEND

— SAN —	DENOTES UNDERGROUND SANITARY SEWER
— STM —	DENOTES UNDERGROUND STORM SEWER
— G —	DENOTES UNDERGROUND GAS LINE
— W —	DENOTES UNDERGROUND WATER LINE
— UE —	DENOTES UNDERGROUND HYDRO LINE
— UC —	DENOTES UNDERGROUND CABLE LINE
— UT —	DENOTES UNDERGROUND TELEPHONE LINE
— FO —	DENOTES UNDERGROUND FIBRE OPTIC LINE
○ SAN MH	DENOTES SANITARY MANHOLE
○ STM MH	DENOTES STORM MANHOLE
□ CB	DENOTES CATCH BASIN
DCB	DENOTES DOUBLE CATCH BASIN
* GM	DENOTES GAS METER
○ WMH	DENOTES WATER MANHOLE
PED	DENOTES PEDESTAL
CPED	DENOTES TELEVISION PEDESTAL
□ GLC	DENOTES GROUND LEVEL CHAMBER
■ HW	DENOTES HANDWELL
• TL	DENOTES TRAFFIC LIGHT
• TPB	DENOTES TRAFFIC POLE BUTTON
E CAP	DENOTES CAP

SEWER INVERT NOTE:

SEWER INVERT DEPTHS ARE MANUALLY MEASURED FROM THE LID/GRATE OF THE GIVEN FEATURE.

ANNOTATIONS DISPLAYED AS *ITALICIZED* WITH AN ASTERISK* HAVE BEEN INTERPOLATED FROM RECORDS AND WERE NOT FIELD VERIFIED BY ONSITE LOCATES LTD.

INVERT DEPTH MEASUREMENTS ARE FROM THE ASSUMED BOTTOM OF THE FACILITY STRUCTURE.

DEPTHS ARE NOT SUITABLE FOR EXCAVATION PURPOSES. SEWER NETWORK CONNECTIONS WERE COMPILED WHERE FIELD EVIDENCE COINCIDED WITH AS-BUILT RECORDS

WHERE NO DEPTH INFORMATION COULD BE OBTAINED, UTILITIES ARE ASSUMED TO BE AT STANDARD INSTALLATION DEPTH FOR THE SPECIFIC TYPE OF UTILITY.

THE MOST RELIABLE WAY TO PRECISELY DETERMINE THE HORIZONTAL AND VERTICAL LOCATION OF AN UNDERGROUND UTILITY IS THROUGH PHYSICAL EXPOSURE USING SAFE DIGGING TECHNIQUES (COMMONLY PERFORMED WITH HYDRO VACUUM EXCAVATION)

INVERT DEPTH MEASUREMENTS HEREON ARE PROVIDED IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

UNDERGROUND UTILITY NOTES

THE UTILITY DATA DEPICTED ON THIS DRAWING WERE ACQUIRED IN ACCORDANCE WITH ASCE STANDARD 38-02. THE INFORMATION IS SHOWN BY ATTRIBUTED QUALITY LEVELS WHICH ARE DEFINED AS FOLLOWS:

DATA QUALITY LEVEL

HIGHEST QUALITY

QUALITY LEVEL A
QUALITY LEVEL B
QUALITY LEVEL C
QUALITY LEVEL D

LOWEST QUALITY

QUALITY LEVEL "A" - INFORMATION OBTAINED BY ACTUAL PHYSICAL EXPOSURE OF TARGETED UTILITIES AND SUBSEQUENT MEASUREMENT OF THE EXPOSED PRECISE HORIZONTAL AND VERTICAL POSITION.

QUALITY LEVEL "B" - INFORMATION OBTAINED USING GEOPHYSICAL LOCATE TECHNIQUES TO IDENTIFY THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF THE DESIGNATED UTILITIES.

QUALITY LEVEL "C" - INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE UTILITY FEATURES AND BY USING PROFESSIONAL JUDGMENT IN CORRELATING THIS INFORMATION TO THE QUALITY "D" INFORMATION OBTAINED.

QUALITY LEVEL "D" - INFORMATION DERIVED FROM UTILITY RECORDS OR VERBAL RECOLLECTIONS

ALL SERVICES ARE QUALITY "D" UNLESS NOTED OTHERWISE.
LEVEL "D" RECORD INFORMATION SHOWN ON THIS PLAN HAVE BEEN PLOTTED APPROXIMATELY AS PER THE RECORDS FOUND AND COULD NOT BE FIELD VERIFIED WITHIN THE SCOPE OF THIS PROJECT. IF FURTHER VERIFICATION IS REQUIRED, IT IS SUGGESTED THAT LEVEL "A" METHODOLOGIES BE EMPLOYED.

LOST SIGNAL- DENOTES/INDICATES A POINT WHERE QL-B METHODS COULD NO LONGER ASCERTAIN THE HORIZONTAL POSITION OF A FACILITY.

QUALITY LEVEL "D" INFORMATION COMPILED FROM RECORDS PROVIDED BY BELL CANADA MUNICIPAL OPERATIONS CENTRE MARKUP# 89820, ENBRIDGE FILE# 25231137, TOWN OF GRIMSBY DRAWING# ST-Y12-40H/ 13 MOUNTAIN MAP.PDF/ 19 ELM MAP.PDF/ DWG. NO. WTM 82 -01 AND 7130-1, GRIMSBY POWER SCHEMATICS1.PNG.

CAUTION: CALL BEFORE YOU DIG

THIS PLAN IS INTENDED FOR DESIGN PURPOSES ONLY. OTHER BURIED UTILITIES MAY EXIST WHICH ARE NOT SHOWN DUE TO INSUFFICIENT INFORMATION OR IMPROPER INSTALLATION. CONTACT ALL POTENTIAL OWNERS OF UNDERGROUND UTILITIES PRIOR TO CONSTRUCTION OR BREAKING GROUND.
IT IS THE RESPONSIBILITY OF THE CONTRACTOR/BUILDER TO ENSURE THE APPROPRIATE LEGAL REQUIREMENTS ARE MET.

SUBSURFACE UTILITY FIELD WORK WAS COMPLETED ON THE 8TH DAY OF OCTOBER, 2021

ONSITE LOCATES INC.
UTILITY LOCATE SERVICES
A wholly owned subsidiary of J.D. Barnes Ltd.
140 RENFREW DRIVE, SUITE 100, MARKHAM, ON L3R 6B3
T: 1-800-805-6155 www.onsitelocates.ca

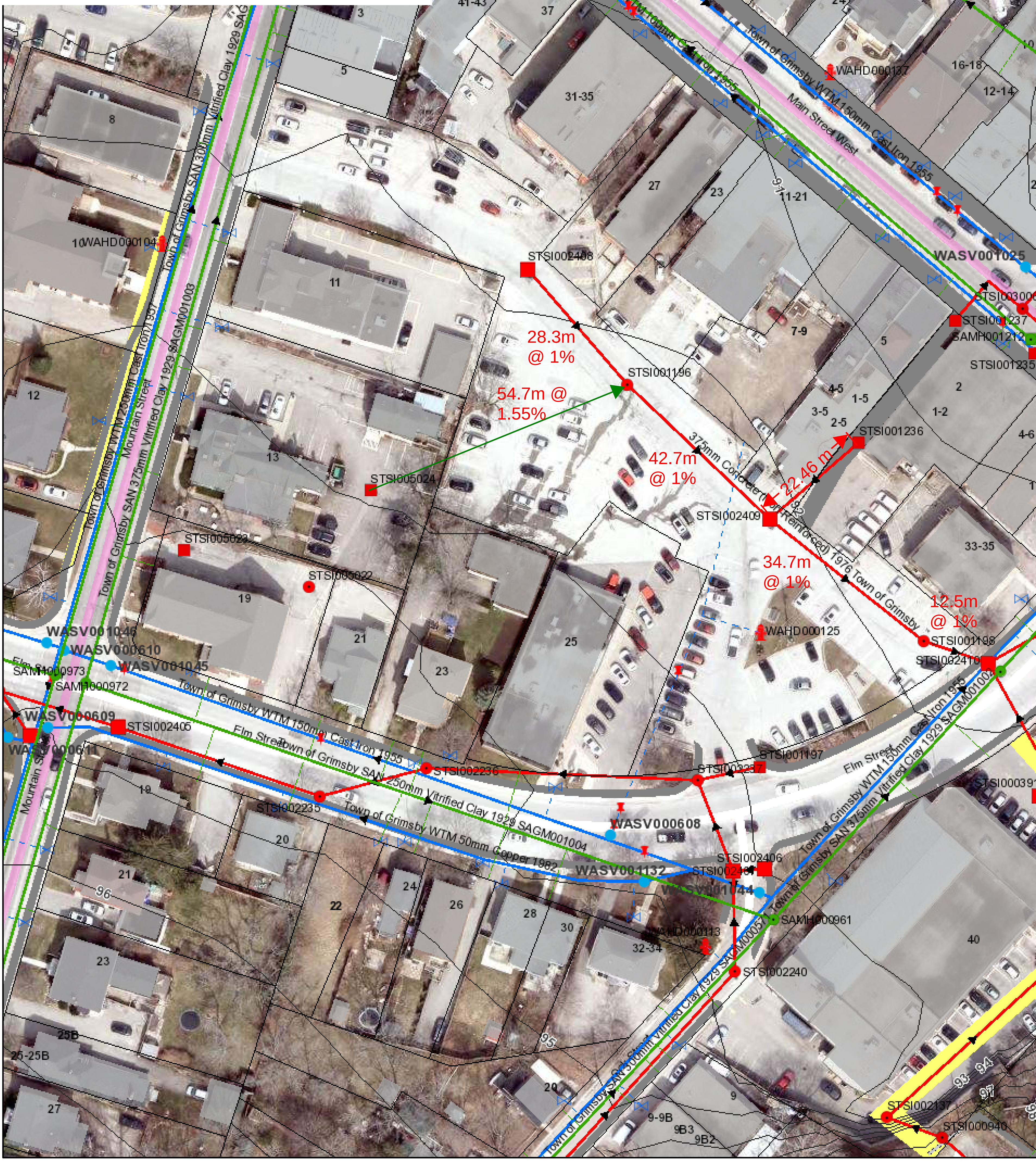
DRAWN BY:	CHECKED BY:	REFERENCE NO.:
ZK	MC	21-46-31781

FILE: \\USER8\usrl\ONSITE\21-46-31781-cctv-13\To Client\Oct21\2021-10-[illegible]78-Rev03-Oct21.dgn DATED: [illegible]

PLOTTED: 10/21/2021

*ULPVE\ ,QWHUDFWLYH 0DSSLQJ

Balsam Lane - Storm Analysis
Pipe Details



6LWH $GGUHVV 2ZQHU)LWWLQJ VZ*UDYLW\0DLQ

$VVHVVPHQW 3DUFHO 2ZQHG "1XOO! $&7,9($%$1'21('

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81'(5 &216758&7,21 5HGXFHU 81'(5 &216758&7,21 $&7,9(

:DWHU /HDNV 7DS $&7,9(81'(5 &216758&7,21

Z6\VWHP9DOYH 7HH $&7,9(VZ/DWHUDOV

$&7,9("1XOO! 7HH 81'(5 &216758&7,21 VZ,QOHW

$&7,9(%DOO :\H $&7,9(&$3

$&7,9(%XWWHUIO\ Z+\GUDQW &DWFKEDVLQ

$&7,9(&KHFN $&7,9(&DWFKEDVLQ 0DQKROH

$&7,9(*DWH 81'(5 &216758&7,21 'LWFK ,QOHW

81'(5 &216758&7,21 "1XOO! Z6DPSOLQJ6WDWLRQ 'LWFK ,QOHW &DWFKEDVLQ

81'(5 &216758&7,21 *DWH 'LWFK ,QOHW 0DQKROH

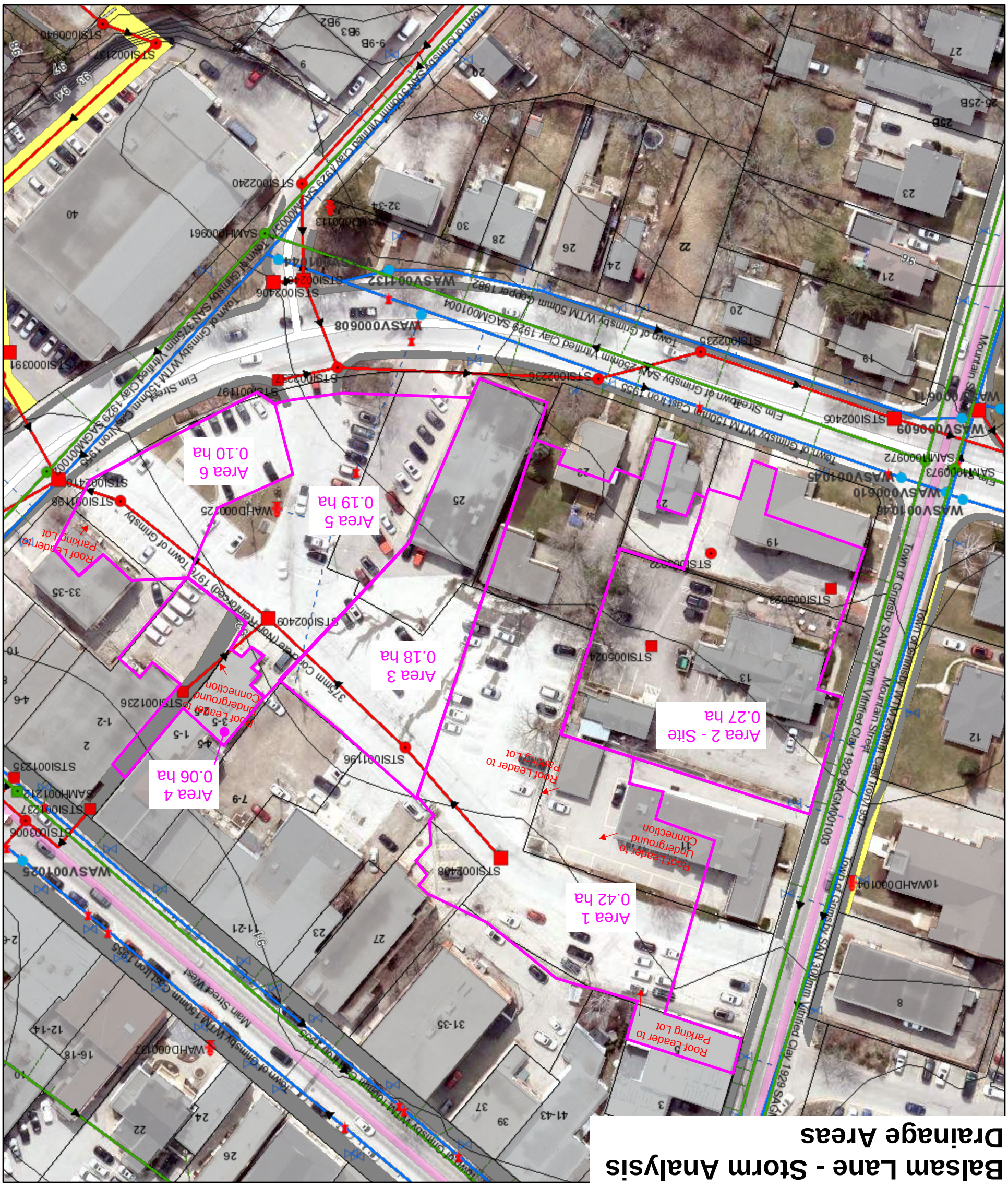
P

IW

P

:HE $SS%XLOGHU IRU $

Balsam Lane - Storm Analysis
Drainage Areas



*ULPVE\ ,QWHUDFWLYH 0DSSLQJ

EXISTING CONDITION

STORM SEWER DESIGN SHEET: (2 Year Storm)

13 Mountain & 19 Elm Street

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

Project #: 300053081.0
Date: 12-Oct-21
Designed: L.Garner
Checked: M.Coleridge

Min. Diameter = 250 mm
Mannings 'n'= 0.013
Starting Tc = 10 min
Factor of Safety = 10 %

Rainfall Intensity = $\frac{A}{(Tc+B)^c}$ *where Tc is in minutes*

A = 603.25
B = 6 *(2 Yr)*
C = 0.79

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	CONSTANT FLOW (m3/s)	ACCUM. CONSTANT FLOW (m3/s)	TOTAL FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
Area 1 - Balsam Lane	STSI002408	STSI001196	0.42	0.90	0.38	0.38	67.5	0.072			0.072	28.3	1.00	300	0.097	1.37	10.00	0.34	10.34	74%
Area 2 - Proposed Site	STSI00502A	STSI001196	0.27	0.90	0.24	0.24	67.5	0.046			0.046	54.7	1.55	300	0.120	1.70	10.00	0.54	10.54	38%
Area 3 - Balsam Lane	STSI001196	STSI002409	0.18	0.90	0.16	0.79	65.8	0.144			0.144	42.7	1.00	375	0.175	1.59	10.54	0.45	10.98	82%
Area 4 - Walkway*	STSI001236	STSI002409	0.06	0.90	0.05	0.05	67.5	0.010			0.010	22.5	1.00	250	0.059	1.21	10.00	0.31	10.31	17%
Area 5 - Balsam Lane	STSI002409	STSI001198	0.19	0.90	0.17	1.01	64.4	0.181			0.181	34.7	1.00	375	0.175	1.59	10.98	0.36	11.35	103%
Area 6 - Balsam Lane	STSI001198	STSI002410	0.10	0.90	0.09	1.10	63.3	0.194			0.194	12.5	1.00	375	0.175	1.59	11.35	0.13	11.48	111%

* Pipe slope and size for connection from walkway assumed at 1% as no existing information was available for sewer

PROPOSED CONDITION - 2 Year Flow from Proposed Site

STORM SEWER DESIGN SHEET: (2 Year Storm)

13 Mountain & 19 Elm Street

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

Project #: 300053081.0
Date: 13-Oct-21
Designed: L.Garner
Checked: M.Coleridge

Min. Diameter = 250 mm
Mannings 'n'= 0.013
Starting Tc = 10 min
Factor of Safety = 10 %

Rainfall Intensity = $\frac{A}{(Tc+B)^c}$ *where Tc is in minutes*

A = 603.25
B = 6 *(2 Yr)*
C = 0.79

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	CONSTANT FLOW (m3/s)	ACCUM. CONSTANT FLOW (m3/s)	TOTAL FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
Area 1 - Balsam Lane	STSI002408	STSI001196	0.42	0.90	0.38	0.38	67.5	0.072			0.072	28.3	1.00	300	0.097	1.37	10.00	0.34	10.34	74%
Area 2 - Proposed Site**	STSI00502A	STSI001196					67.5		0.027	0.027	0.027	54.7	1.55	300	0.120	1.70	10.00	0.54	10.54	22%
Area 3 - Balsam Lane	STSI001196	STSI002409	0.18	0.90	0.16	0.55	65.8	0.100		0.027	0.127	42.7	1.00	375	0.175	1.59	10.54	0.45	10.98	72%
Area 4 - Walkway*	STSI001236	STSI002409	0.06	0.90	0.05	0.05	67.5	0.010			0.010	22.5	1.00	250	0.059	1.21	10.00	0.31	10.31	17%
Area 5 - Balsam Lane	STSI002409	STSI001198	0.19	0.90	0.17	0.77	64.4	0.138		0.027	0.165	34.7	1.00	375	0.175	1.59	10.98	0.36	11.35	94%
Area 6 - Balsam Lane	STSI001198	STSI002410	0.10	0.90	0.09	0.86	63.3	0.151		0.027	0.178	12.5	1.00	375	0.175	1.59	11.35	0.13	11.48	102%

* Pipe slope and size for connection from walkway assumed at 1% as no existing information was available for sewer

** 0.027 cms constant flow added to represent 2-year controlled flow from Site

PROPOSED CONDITION - 100 Year Flow from Proposed Site

STORM SEWER DESIGN SHEET: (2 Year Storm)

13 Mountain & 19 Elm Street

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

Project #: 300053081.0
Date: 13-Oct-21
Designed: L.Garner
Checked: M.Coleridge

Min. Diameter = 250 mm
Mannings 'n'= 0.013
Starting Tc = 10 min
Factor of Safety = 10 %

Rainfall Intensity = $\frac{A}{(Tc+B)^c}$ *where Tc is in minutes*

A = 603.25
B = 6
C = 0.79
(2 Yr)

NOMINAL PIPE SIZE USED

DESCRIPTION	FROM MH	TO MH	AREA (ha)	RUNOFF COEFFICIENT "R"	'AR'	ACCUM. 'AR'	RAINFALL INTENSITY (mm/hr)	FLOW (m3/s)	CONSTANT FLOW (m3/s)	ACCUM. CONSTANT FLOW (m3/s)	TOTAL FLOW (m3/s)	LENGTH (m)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (m3/s)	FULL FLOW VELOCITY (m/s)	INITIAL Tc (min)	TIME OF CONCENTRATION (min)	ACC. TIME OF CONCENTRATION (min)	PERCENT FULL (%)
Area 1 - Balsam Lane	STSI002408	STSI001196	0.42	0.90	0.38	0.38	67.5	0.072			0.072	28.3	1.00	300	0.097	1.37	10.00	0.34	10.34	74%
Area 2 - Proposed Site**	STSI00502A	STSI001196					67.5		0.042	0.042	0.042	54.7	1.55	300	0.120	1.70	10.00	0.54	10.54	35%
Area 3 - Balsam Lane	STSI001196	STSI002409	0.18	0.90	0.16	0.55	65.8	0.100		0.042	0.142	42.7	1.00	375	0.175	1.59	10.54	0.45	10.98	81%
Area 4 - Walkway*	STSI001236	STSI002409	0.06	0.90	0.05	0.05	67.5	0.010			0.010	22.5	1.00	250	0.059	1.21	10.00	0.31	10.31	17%
Area 5 - Balsam Lane	STSI002409	STSI001198	0.19	0.90	0.17	0.77	64.4	0.138		0.042	0.180	34.7	1.00	375	0.175	1.59	10.98	0.36	11.35	103%
Area 6 - Balsam Lane	STSI001198	STSI002410	0.10	0.90	0.09	0.86	63.3	0.151		0.042	0.193	12.5	1.00	375	0.175	1.59	11.35	0.13	11.48	110%

* Pipe slope and size for connection from walkway assumed at 1% as no existing information was available for sewer

** 0.042 cms constant flow added to represent 100-year controlled flow from Site

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Appendix D

Stormwater Management Calculations

BURNSIDE

Project:	**13 Mountain St & 19 Elm St** **Grimsby, Ontario**	Prepared by:	L.Garner
		Checked by:	M.Coleridge
		Project No:	300053081
	Catchment Summary	Date:	Oct 12, 2021

Total Site Area = ***3188 m²***

Pre-Development

Area 101 - On-Site Catchbasin	Area	RC	Area x RC	Composite
Roof & Hardscape	0.248 ha	0.95	0.2355	
Landscape	0.020 ha	0.25	0.0049	
Total Area (101) =	0.267 ha		0.2403	**0.90**

Area 102 - Surrounding Streets	Area	RC	Area x RC	Composite
Hardscape	0.033 ha	0.95	0.0315	
Landscape	0.018 ha	0.25	0.0046	
Total Area (102) =	0.051 ha		0.0360	**0.71**

Area EXT1- External Flows from Ajacent Property

	Area	RC	Area x RC	Composite
Hardscape Area	0.025 ha	0.95	0.0234	
Landscape Area		0.25		
Total Area (202) =	0.025 ha		0.0234	**0.95**

BURNSIDE

Project: **13 Mountain St & 19 Elm St**
Grimsby, Ontario

Catchment Summary

Prepared by: L.Garner
Checked by: M.Coleridge
Project No: 300053081
Date: Oct 12, 2021

Post-Development

Area 201 - Controlled - Roof (Green Roof & 7th Storey Roof)

	Area	RC	Area x RC	Composite
Roof =	0.023 ha	0.95	0.0215	
Green Roof =	0.042 ha	0.45	0.0188	
Total Area (201) =	0.064 ha		0.0403	**0.63**

Area 202 - Controlled - Plaza Area

	Area	RC	Area x RC	Composite
Landscape =	0.003 ha	0.25	0.0008	
Hardscape =	0.037 ha	0.95	0.0352	
Total Area (202) =	0.040 ha		0.0360	**0.89**

Area 203 - Controlled - Outdoor Amenity Area

	Area	RC	Area x RC	Composite
Hardscape Area	0.032 ha	0.95	0.0308	
Landscape Area	0.005 ha	0.25	0.0012	
Total Area (203) =	0.037 ha		0.0320	**0.86**

Area 204 - Controlled Loading (Pumped)

	Area	RC	Area x RC	Composite
Hardscape Area	0.049 ha	0.95	0.0468	
Landscape Area	0.004 ha	0.25	0.0010	
Total Area (204) =	0.053 ha		0.0478	**0.90**

Area 205 - Uncontrolled - Roof

	Area	RC	Area x RC	Composite
Roof Area	0.077 ha	0.95	0.0728	
Total Area (205) =	0.077 ha		0.0728	**0.95**

Area 206 - Uncontrolled - Drains to Moutain/Elm Streets

	Area	RC	Area x RC	Composite
Hardscape Area	0.035 ha	0.95	0.0331	
Landscape Area	0.012 ha	0.25	0.0030	
Total Area (206) =	0.047 ha		0.0361	**0.77**

BURNSIDE

CALCULATION SHEET

Project: **13 Mountain St & 19 Elm St**
Grimsby, Ontario

Existing & Uncontrolled Flows

Prepared by: L.Garner
Checked by: M.Coleridge
Project No: 300053081
Date: Oct 12, 2021

Runoff Equation Q = 2.78CIA (l/s)

where,
C = runoff coefficient
I = rainfall intensity (mm/hr)
A = area (ha)
2.78= conversion factor

$$I = \frac{A}{T^c}$$

I= Rainfall Intensity (mm/hr)
T= Time of concentration (min)
(use T=10 min)

Area 101 - Drainage to On-Site Catchbasins and Ultimately Balsam Lane

Area	C
2,674 m^2	0.90

Return Period	A	B	C	T	I	Q
2 year	603.250	6.000	0.790	10 min	67.49 mm/hr	45.06 L/s
5 year	785.590	6.000	0.790	10 min	87.89 mm/hr	58.68 L/s
10 year	953.640	7.000	0.790	10 min	101.70 mm/hr	67.90 L/s
25 year	1119.020	7.000	0.790	10 min	119.34 mm/hr	79.68 L/s
50 year	1301.800	8.000	0.800	10 min	128.92 mm/hr	86.08 L/s
100 year	1426.130	8.000	0.800	10 min	141.23 mm/hr	94.30 L/s

Area 102 - Drainage to Adjacent Streets

Area	C
514 m^2	0.71

Return Period	A	B	C	T	I	Q
2 year	603.250	6.000	0.790	10 min	67.49 mm/hr	6.84 L/s
5 year	785.590	6.000	0.790	10 min	87.89 mm/hr	8.91 L/s
10 year	953.640	7.000	0.790	10 min	101.70 mm/hr	10.31 L/s
25 year	1119.020	7.000	0.790	10 min	119.34 mm/hr	12.10 L/s
50 year	1301.800	8.000	0.800	10 min	128.92 mm/hr	13.07 L/s
100 year	1426.130	8.000	0.800	10 min	141.23 mm/hr	14.32 L/s

Area 205 - Uncontrolled Roof (to Balsam Lane)

Area	C
766 m^2	0.95

Return Period	A	B	C	T	I	Q
2 year	603.250	6.000	0.790	10 min	67.49 mm/hr	13.64 L/s
5 year	785.590	6.000	0.790	10 min	87.89 mm/hr	17.77 L/s
10 year	953.640	7.000	0.790	10 min	101.70 mm/hr	20.56 L/s
25 year	1119.020	7.000	0.790	10 min	119.34 mm/hr	24.13 L/s
50 year	1301.800	8.000	0.800	10 min	128.92 mm/hr	26.06 L/s
100 year	1426.130	8.000	0.800	10 min	141.23 mm/hr	28.55 L/s

Area 206 - Uncontrolled to Mountain & Elm Streets

Area	C
469 m^2	0.77

Return Period	A	B	C	T	I	Q
2 year	603.250	6.000	0.790	10 min	67.49 mm/hr	6.77 L/s
5 year	785.590	6.000	0.790	10 min	87.89 mm/hr	8.82 L/s
10 year	953.640	7.000	0.790	10 min	101.70 mm/hr	10.20 L/s
25 year	1119.020	7.000	0.790	10 min	119.34 mm/hr	11.97 L/s
50 year	1301.800	8.000	0.800	10 min	128.92 mm/hr	12.93 L/s
100 year	1426.130	8.000	0.800	10 min	141.23 mm/hr	14.17 L/s

Project: 13 Mountain St & 19 Elm St
Project No.: 300053081
Modelled By: L.Garner
Date: 2021/10/12

MODIFIED RATIONAL METHOD
POST-DEVELOPMENT CONTROLLED FLOWS

Rainfall IDF Coefficients	100	-year
A =		
C =		

A =	1426.130
B =	8.000
C =	0.800

Rational Method Calculation - AREA 202

Area =	0.04	ha
Runoff Coefficient, C =	0.89	
C*A =	0.04	
Time of Concentration, t_c =	10.0	min
Storm Duration Increment =	5.0	min
Target Release Rate =		L/s
Max. Allowable Outflow =	3.00	L/s (Controlled using a Hydrovex 75VHV-1)

Storm Duration (min)	Rainfall Intensity (mm/hr)	Max. Runoff Flow (L/s)	Runoff Volume (m^3)	Released Volume (m^3)	Storage Volume (m^3)	Max. Storage Volume Required (m^3)	Drawdown Time (hrs)
10.0	141.23	14.14	8	2	7		
15.0	116.09	11.62	10	2	8		
20.0	99.18	9.93	12	3	9		
25.0	86.97	8.71	13	3	10		
30.0	77.68	7.78	14	4	10		
35.0	70.37	7.05	15	4	11		
40.0	64.44	6.45	15	5	11		
45.0	59.53	5.96	16	5	11		
50.0	55.39	5.55	17	5	11		
55.0	51.84	5.19	17	6	11	11	2.09
60.0	48.77	4.88	18	6	11		
65.0	46.08	4.61	18	7	11		
70.0	43.70	4.38	18	7	11		
75.0	41.58	4.16	19	8	11		
80.0	39.68	3.97	19	8	11		
85.0	37.96	3.80	19	9	11		

Project: 13 Mountain St & 19 Elm St
Project No.: 300053081
Modelled By: L.Garner
Date: 2021/10/12

MODIFIED RATIONAL METHOD
POST-DEVELOPMENT CONTROLLED FLOWS

Rainfall IDF Coefficients — 100 -year

A =		A =	1426.130
C =		B =	8.000
		C =	0.800

Rational Method Calculation - AREA 203

Area =	0.04	ha
Runoff Coefficient, C =	0.86	
C*A =	0.03	
Time of Concentration, t_c =	10.0	min
Storm Duration Increment =	5.0	min
Max. Allowable Outflow =	5.00	L/s

Storm Duration (min)	Rainfall Intensity (mm/hr)	Max. Runoff Flow (L/s)	Runoff Volume (m^3)	Released Volume (m^3)	Storage Volume (m^3)	Max. Storage Volume Required (m^3)	Drawdown Time (hrs)
10.0	141.23	12.54	8	3	5		
15.0	116.09	10.31	9	4	6		
20.0	99.18	8.81	11	5	6		
25.0	86.97	7.72	12	5	6		
30.0	77.68	6.90	12	6	6	6	0.71
35.0	70.37	6.25	13	7	6		
40.0	64.44	5.72	14	8	6		
45.0	59.53	5.29	14	8	6		
50.0	55.39	4.92	15	9	6		
55.0	51.84	4.60	15	10	5		
60.0	48.77	4.33	16	11	5		
65.0	46.08	4.09	16	11	5		
70.0	43.70	3.88	16	12	4		
75.0	41.58	3.69	17	13	4		
80.0	39.68	3.52	17	14	3		
85.0	37.96	3.37	17	14	3		

Project: 13 Mountain St & 19 Elm St
Project No.: 300053081
Modelled By: L.Garner
Date: 2021/10/12

MODIFIED RATIONAL METHOD
POST-DEVELOPMENT CONTROLLED FLOWS

Rainfall IDF Coefficients 100 -year

A =		A =	1426.130
C =		B =	8.000
		C =	0.800

Rational Method Calculation - AREA 204

Area =	0.05	ha	
Runoff Coefficient, C =	0.90		
C*A =	0.05		
Time of Concentration, t_c =	10.0	min	
Storm Duration Increment =	10.0	min	
Max. Allowable Outflow =	3.00	L/s	(Pumped Release Rate)

Storm Duration (min)	Rainfall Intensity (mm/hr)	Max. Runoff Flow (L/s)	Runoff Volume (m^3)	Released Volume (m^3)	Storage Volume (m^3)	Max. Storage Volume Required (m^3)	Drawdown Time (hrs)
10.0	141.23	18.82	11	2	9		
20.0	99.18	13.22	16	3	13		
30.0	77.68	10.35	19	4	15		
40.0	64.44	8.59	21	5	16		
50.0	55.39	7.38	22	5	17		
60.0	48.77	6.50	23	6	17		
70.0	43.70	5.82	24	7	17		
80.0	39.68	5.29	25	8	17	17	3.20
90.0	36.41	4.85	26	9	17		
100.0	33.68	4.49	27	10	17		
110.0	31.38	4.18	28	11	17		
120.0	29.40	3.92	28	12	17		
130.0	27.69	3.69	29	13	16		
140.0	26.18	3.49	29	14	16		
150.0	24.84	3.31	30	14	15		
160.0	23.65	3.15	30	15	15		

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Appendix E

Sanitary Calculations

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CALCULATION SHEET

Project: **13 Mountain St & 19 Elm St**
Grimsby, Ontario

Sanitary Servicing Analysis

Prepared by:	L.Garner
Checked by:	M.Coleridge
Project No:	300053081
Date:	October 25, 2021

$$Q = \frac{P \times Q \times M}{86400} + (A \times I)$$

Commercial

Building Address	Stories	Building Area (m^2)	GFA (ha)	P/m^2	Population
Existing Woolverton House	1	118	0.012	0.02	2
Existing Woolverton Hall	1	154	0.015	0.02	3
New Commercial	1	186	0.019	0.02	4
Total					**9**

$Q_{(ICI)}$= 275 L/cap/day (Niagara Region Water & Wastewater Master Servicing Plan (2016) Volume 4)

$$M = 1 + \frac{14}{4 + (P/1000)^{1/2}}$$

M= 4.00 (Value between 2 and 4)

$Q_{(ICI)}$= 0.12 L/s

Residential

	Total	PPU	Population
1 Bedroom=	25	1.4	35
2 Bedroom=	41	2.1	86
3 Bedroom=	6	3.1	19
Total=	**72**		**140**
Existing Woolverton House (2nd Floor, 3 Bed) =	1	3.1	3
Total=	**73**		**143**

Q= 275 L/cap/day

$$Q = \frac{P \times Q \times M}{86400} + (A \times I)$$

$$M = 1 + \frac{14}{4 + (P/1000)^{1/2}}$$

M= 4.00 (Value between 2 and 4)

$Q_{(residential)}$= 1.82 L/s

Groundwater Pump Rate

$Q_{(Peak)}$= 1.00 L/s

**Groundwater Pump Rate, based on preliminary Hydrogeological Information for Long Term Discharge of 28,500 L/day or 0.33 L/s. Refer to Preliminary Groundwater Summary information provided in this Appendix.*

Infiltration

Infiltration Allowance= 0.286 L/s/ha (Niagara Region Water & Wastewater Master Servicing Plan (2016) Volume 4)

A= 0.30 ha

$Q_{infiltration}$= 0.09 L/s

$Q_{proposed\ total}$ = 3.02 L/s

Laura Garner

From: Teresa Weatherhead <tweatherhead@terraprobe.ca>
Sent: Wednesday, May 26, 2021 9:30 AM
To: Jasmine Frolick; Harley Valentine; Laura Garner; Matt Coleridge
Cc: Elsa Fancello
Subject: Preliminary Hydrogeological Summary for Elm and Mountain Streets, Grimsby (7-18-0051-46)
Attachments: Long Term - Permeable Shoring.pdf; Short Term - Permeable Shoring.pdf

Good Morning,
The following is a summary of the preliminary hydrogeological findings for the property located at 13 Mountain Street and 19 Elm Street in Grimsby. This summary is intended for preliminary purposes in order to provide an estimate on the anticipated ground water flow rates for the civil engineer to use in their preliminary Functional Servicing Report as part of the Re-zoning application process.

The preliminary hydrogeological comments are summarized as below:

- The highest stabilized groundwater level is 91.5 masl (metres above sea level) measured at BH4.
- For short-term dewatering: the groundwater level should be maintained 1.0 m below the base of the elevator pit, which is assumed to be constructed 1.8 m below P3 FFE (Elev. 83.5 masl). This should be revised once the elevation for the elevator pits have been decided.
- The location of a caisson wall and recommendations on the caisson embedment has not been considered at this time. The finite element modelling and hydrogeological information should be updated once these recommendations are available.
- The P2 Finished Floor Elevation is taken at 88.09 masl with a base of excavation at 87.6 masl
- The P3 Finished Floor Elevation is taken at 87.6 masl with a base of excavation at 84.8 masl
- The estimated Short-Term Dewatering Flow rate is: 101,500 L/day (including 46,500 L/day of ground water seepage and 55,000 L/day based on a 2-year storm event)
- The estimated Long-Term Dewatering Flow rate is: 28,500 L/day (including 25,500 L/day of ground water seepage and 3,000 L/day for infiltration based on a 2-year storm event)

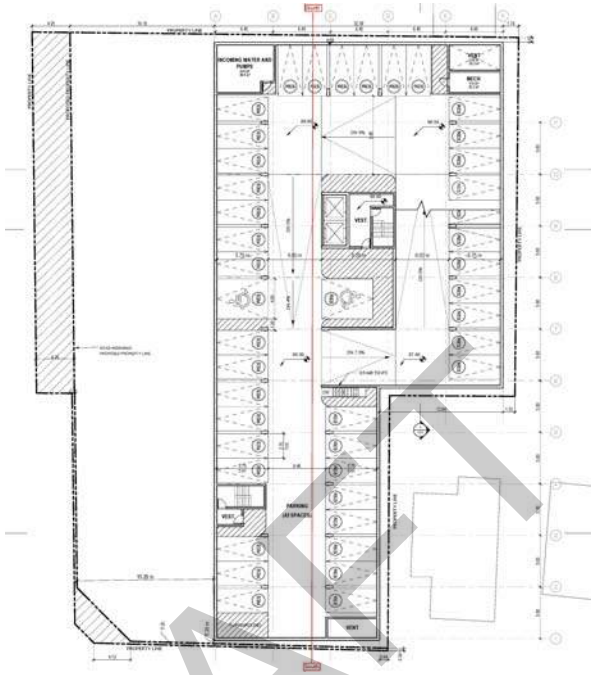
A copy of the geotechnical investigation report will be circulated shortly and will include the borehole logs and Borehole Location Plan.
Please feel free to contact us if you have any questions.

Kind Regards,

Teresa Weatherhead, LEL
Environmental Engineering

Terraprobe
Geotechnical, Geostructural, & Environmental Engineering
Construction Materials, Inspection & Testing
903 Barton Street, Unit 22, Stoney Creek, Ontario L8E 5P5
t: 905.643.7560
www.terraprobe.ca

Material Name	Color	KS (m/s)
Earth Fill		1e-006
Clayey Silt Glacial Till		9.4e-007



Excavation Dimensions: 66 m x 27 m
Section Cut: N-S

P2 Finished Floor Elev. 88.09 masl
P3 Finished Floor Elev. 85.3 masl

Ground Water Elev. 91.5 masl
P2 Drainage Layer Elev. 87.6 masl
P3 Drainage Layer Elev. 84.8 masl

Q Seepage = 25,500 L/day
(S.F.=1.5)

Q Infiltration = 3,000 L/day

Q Total = 28,500 L/day

Terraprobe
Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing

SLIDEINTERPRET 7.024

Notes
Refer to Hydrogeological Report for factual information supporting this analysis.

Project **7-18-0051-46 | 19 Elm St & 13 Mountain St, Grimsby**

Analysis Dewatering | P3 Level, Long Term, Permeable Shoring

Date	Scale	File
5/25/2021	1:390	7-18-0051 Elm & Mountain FEA 2021-05-25.slmd

By MA

Ref.

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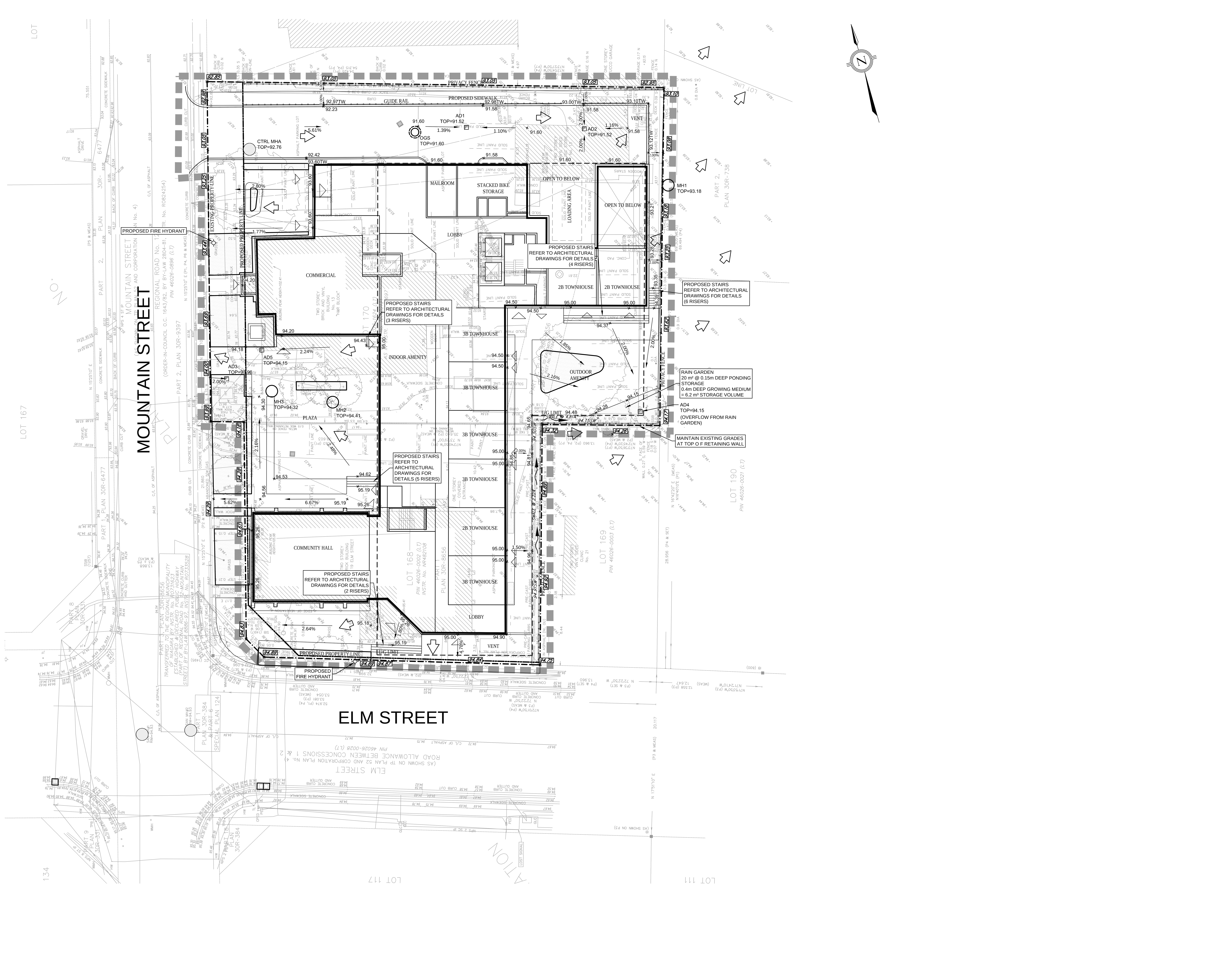
Drawings



KEY PLAN
SCALE: N.T.S.

LEGEND:

- EXISTING SITE PROPERTY LINE
- PROPOSED PROPERTY LINE
- OUTLINE OF UNDERGROUND (BELOW)
- LIMIT OF CONSTRUCTION
- RETAINING WALL
- STEP JOINT
- PROPOSED BUILDING ENTRANCE
- × 48.79 EXISTING ELEVATIONS
- × 48.79 EXISTING ELEVATIONS TO MATCH
- × 48.21 FINISHED GROUND ELEVATION
- × 48.29TC TOP OF CURB ELEVATION
- × 48.29TW TOP OF WALL ELEVATION
- ×48.96SW SWALE ELEVATION
- OVERLAND FLOW ROUTE
- 2.00% PROPOSED SLOPES
- QUALITY CONTROL DEVICE
- CATCHBASIN / DOUBLE CATCHBASIN
- CATCHBASIN MANHOLE
- TRENCH DRAIN
- HYD HYDRANT AND VALVE
- VB VALVE & BOX
- SIAMESE CONNECTION
- 48.23 PONDING AREA
- INTERCEPTOR SWALE
- LANDSCAPE AREA
- FOOTPRINT OF EXISTING BUILDINGS

SITE PLAN
PREPARED BY: SVN ARCHITECTS + PLANNERS
DATE: OCT 8, 2021

TOPOGRAPHIC & LEGAL
PREPARED BY: J.D. BARNES LIMITED
DATE: FEBRUARY 19, 2021

BENCHMARK NOTES
ELEVATIONS ARE OF GEODETIC ORIGIN (CGVD-1928:78), AND ARE DERIVED FROM GNSS OBSERVATIONS AND NATURAL RESOURCES CANADA'S GEOID MODEL HT2.0.

Notes

2. The contractor shall verify all dimensions, levels, and datums on site and report any discrepancies or omissions to this office prior to construction.
3. This drawing is to be read and understood in conjunction with all other plans and documents applicable to this project.

No.	Issue / Revision	Date	Auth.
1	ISSUED FOR OFFICIAL PLAN AMENDMENT AND ZONING BYLAW AMENDMENT	5/25/2021	LG
2	RE-ISSUED FOR OFFICIAL PLAN AMENDMENT AND ZONING BYLAW AMENDMENT	10/25/2021	LG

LICENSED PROFESSIONAL ENGINEER
L. J. GARNER
100171979
OCT 25, 2021
PROVINCE OF ONTARIO

BURNSIDE
R.J. Burnside & Associates Limited
1465 Pickering Parkway
Pickering, Ontario, L1V 7G7
Telephone: (905) 420-5777
Fax: (905) 420-5247
web www.rjburnside.com

Client
VALENTINE COLEMAN 1 INC. AND VALENTINE COLEMAN 2 INC.
180 BLOOR STREET WEST, SUITE 701
TORONTO, ON
M5S 1T6

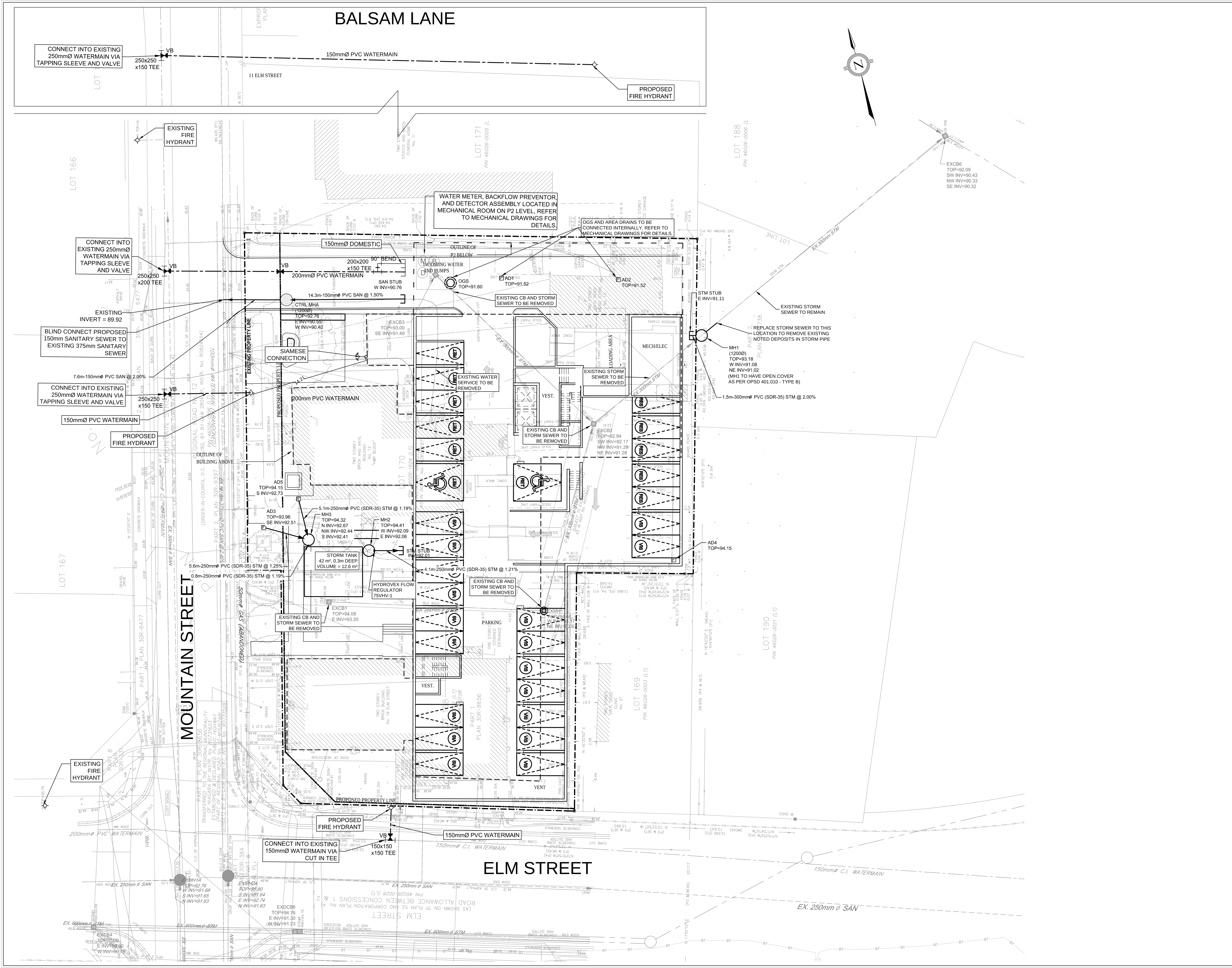
Drawing Title
THE WOOLVERTON
13 MOUNTAIN STREET & 19 ELM STREET
GRIMBSY, ON L3M 3J7

GRADING PLAN

Drawn	Checked	Designed	Checked	Date	Drawing No.
GP	MC	LG	MC	21/03/25	G1
Project No. 300053081		Contract No.		Revision No.	
Scale 1:200	0 4.0 8.0 12.0m				

File: \\pops\Shared Work Areas\053081 - 13 Mountain and 19 Elm Grimsby\03_ProductionDwg\053081 - G1.dwg Date Plotted: October 25, 2021 - 2:23 PM

Plotted by:LGarner Paper size: ARCH D (24.00 X 36.00 Inches) Plot table: Rjb Full Scale-pickering 2013.ctb



BALSAM LANE
CONNECT INTO EXISTING 250mmØ WATERMAIN VIA TAPPING SLEEVE AND VALVE
250x250 x150 TEE
VB
150mmØ PVC WATERMAIN
11 ELM STREET
PROPOSED FIRE HYDRANT
EXISTING FIRE HYDRANT
WATER METER, BACKFLOW PREVENTOR, AND DETECTOR ASSEMBLY LOCATED IN MECHANICAL ROOM ON P2 LEVEL. REFER TO MECHANICAL DRAWINGS FOR DETAILS.
OGS AND AREA DRAINS TO BE CONNECTED INTERNALLY. REFER TO MECHANICAL DRAWINGS FOR DETAILS.
150mmØ DOMESTIC
200x200 x150 TEE
90° BEND
200mmØ PVC WATERMAIN
CONNECT INTO EXISTING 250mmØ WATERMAIN VIA TAPPING SLEEVE AND VALVE
250x250 x200 TEE
SAN STUB W INV=90.76
OGS TOP=91.60
AD1 TOP=91.52
AD2 TOP=91.52
EXISTING CB AND STORM SEWER TO BE REMOVED
14.3m-150mmØ PVC SAN @ 1.50%
EXISTING INVERT = 89.92
CTRL MHA (1200Ø) TOP=92.78 E INV=90.55 W INV=90.40
EXCB3 TOP=93.00 SE INV=91.49
BLIND CONNECT PROPOSED 150mm SANITARY SEWER TO EXISTING 375mm SANITARY SEWER
SIAMESE CONNECTION
EXISTING PROPERTY LINE
PROPOSED PROPERTY LINE
7.6m-150mmØ PVC SAN @ 2.00%
CONNECT INTO EXISTING 250mmØ WATERMAIN VIA TAPPING SLEEVE AND VALVE
250x250 x150 TEE
150mmØ PVC WATERMAIN
PROPOSED FIRE HYDRANT
EXISTING WATER SERVICE TO BE REMOVED
EXISTING STORM SEWER TO BE REMOVED
EXISTING CB AND STORM SEWER TO BE REMOVED
EXCB2 TOP=92.94 SW INV=92.17 NW INV=91.29 NE INV=91.28
MECH/ELEC
VEST.
LOADING AREA
EXISTING STORM SEWER TO REMAIN
REPLACE STORM SEWER TO THIS LOCATION TO REMOVE EXISTING NOTED DEPOSITS IN STORM PIPE
STM STUB E INV=91.11
MH1 (1200Ø) TOP=93.18 W INV=91.08 NE INV=91.02 (MH1 TO HAVE OPEN COVER AS PER OPSD 401.010 - TYPE B)
1.5m-300mmØ PVC (SDR-35) STM @ 2.00%
EXCB6 TOP=92.09 SW INV=90.43 NW INV=90.33 SE INV=90.32
EX. 300mm STM
OUTLINE OF BUILDING ABOVE
AD5 TOP=94.15 S INV=92.73
AD3 TOP=93.96 SE INV=92.51
5.1m-250mmØ PVC (SDR-35) STM @ 1.19%
MH3 TOP=94.32 N INV=92.67 NW INV=92.44 S INV=92.41
MH2 TOP=94.41 W INV=92.09 E INV=92.06
STORM TANK 42 m², 0.3m DEEP VOLUME = 12.6 m³
STM STUB INV=92.01
5.6m-250mmØ PVC (SDR-35) STM @ 1.25%
0.8m-250mmØ PVC (SDR-35) STM @ 1.19%
4.1m-250mmØ PVC (SDR-35) STM @ 1.21%
HYDROVEX FLOW REGULATOR 75VHV-1
EXISTING CB AND STORM SEWER TO BE REMOVED
EXCB1 TOP=94.08 E INV=93.20
EXISTING CB AND STORM SEWER TO BE REMOVED
AD4 TOP=94.15
PARKING
VEST.
VENT
MOUNTAIN STREET
LOT 166
LOT 167
LOT 171
LOT 188
LOT 170
LOT 169
LOT 190
EXISTING FIRE HYDRANT
PROPOSED PROPERTY LINE
PROPOSED FIRE HYDRANT
CONNECT INTO EXISTING 150mmØ WATERMAIN VIA CUT IN TEE
150x150 x150 TEE
150mmØ PVC WATERMAIN
200mmØ PVC WATERMAIN
150mmØ C.I. WATERMAIN
ELM STREET
EX. 250mmØ SAN
EX. 600mmØ STM
EXCB6 TOP=94.76 E INV=91.30 W INV=91.23
EXCB4

KEY PLAN
SCALE: N.T.S.

LEGEND:

- SITE PROPERTY LINE
- PROPOSED PROPERTY LINE
- LIMIT OF CONSTRUCTION
- OUTLINE OF BUILDING ABOVE
- OUTLINE OF BUILDING BELOW
- PROPOSED BUILDING ENTRANCE
- STORM SEWER AND MANHOLE
- SANITARY SEWER AND MANHOLE
- WATERMAIN
- EXISTING STORM SEWER AND MANHOLE
- EXISTING SANITARY SEWER AND MANHOLE
- QUALITY CONTROL DEVICE
- CATCHBASIN / DOUBLE CATCHBASIN
- CATCHBASIN MANHOLE
- AREA DRAIN
- TRENCH DRAIN
- ORIFICE1 — PIPE ORIFICE
- HYD — HYDRANT AND VALVE
- VB — VALVE & BOX
- VC — VALVE & CHAMBER
- CV — CHECK VALVE
- SIAMESE CONNECTION
- WATER METER
- 06 / 0.51 — PIPE CROSSING DENOTE

SITE PLAN
PREPARED BY: SVN ARCHITECTS + PLANNERS
DATE: OCT 8, 2021

TOPOGRAPHIC & LEGAL
PREPARED BY: J.D. BARNES LIMITED
DATE: FEBRUARY 19, 2021

BENCHMARK NOTES
ELEVATIONS ARE OF GEODETIC ORIGIN (CGVD-1928:78), AND ARE DERIVED FROM GNSS OBSERVATIONS AND NATURAL RESOURCES CANADA'S GEOID MODEL HT2.0.

Notes

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No.	Issue / Revision	Date	Auth.
1	ISSUED FOR OFFICIAL PLAN AMENDMENT AND ZONING BYLAW AMENDMENT	5/25/2021	LG
2	RE-ISSUED FOR OFFICIAL PLAN AMENDMENT AND ZONING BYLAW AMENDMENT	10/25/2021	LG

LICENSED PROFESSIONAL ENGINEER
L. J. GARNER
100171979
OCT 25, 2021
PROVINCE OF ONTARIO

BURNSIDE
R.J. Burnside & Associates Limited
1465 Pickering Parkway
Pickering, Ontario, L1V 7G7
Telephone: (905) 420-5777
Fax: (905) 420-5247
web www.rjburnside.com

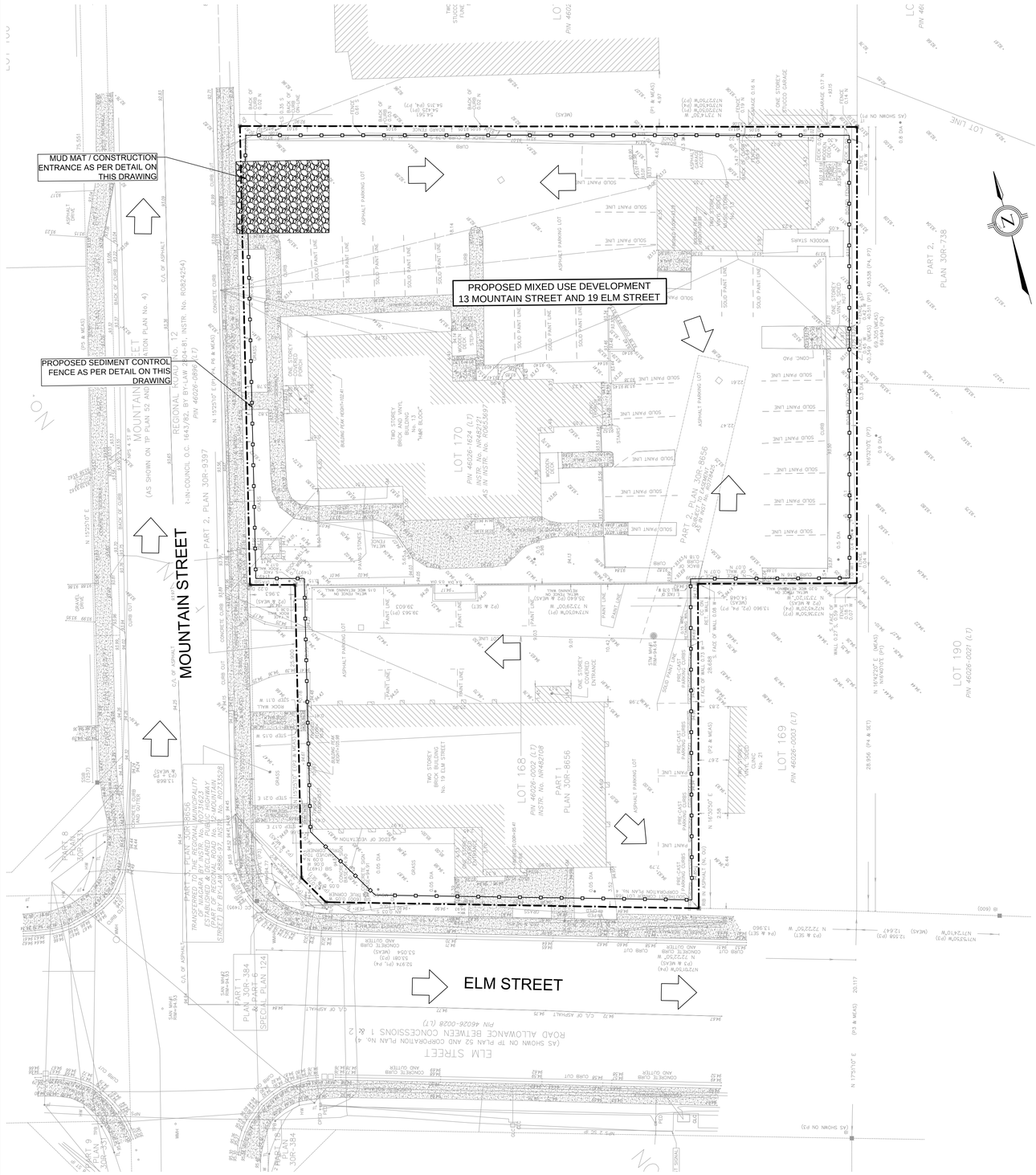
Client
VALENTINE COLEMAN 1 INC. AND VALENTINE COLEMAN 2 INC.
180 BLOOR STREET WEST, SUITE 701
TORONTO, ON
M5S 1T6

Drawing Title
THE WOOLVERTON
13 MOUNTAIN STREET & 19 ELM STREET
GRIMBSY, ON L3M 3J7

SERVICING PLAN

Drawn	Checked	Designed	Checked	Date	Drawing No.
GP	MC	LG	MC	21/03/25	S1
Project No. 300053081		Contract No.		Revision No.	
Scale 1:200	0 4.0 8.0 12.0m				

File: \\pops\Shared Work Areas\053081 - 13 Mountain and 19 Elm Grimsby\03_ProductionDwg\053081 - S1.dwg Date Plotted: October 25, 2021 - 2:20 PM
Plotted by:LGarner Paper size: ARCH D (24.00 X 36.00 Inches) Plot table: Rjb Full Scale-pickering 2013.ctb



EROSION & SEDIMENT CONTROL:

1. EROSION AND SEDIMENT CONTROL (ESC) MEASURES WILL BE IMPLEMENTED PRIOR TO, AND MAINTAINED DURING CONSTRUCTION PHASES, TO PREVENT ENTRY OF SEDIMENT INTO THE WATER. ALL DAMAGED EROSION AND SEDIMENT CONTROL MEASURES SHOULD BE REPAIRED OR REPLACED WITHIN 48 HOURS OF INSPECTION OR BOTH.
2. ALL DISTURBED AREAS WILL BE MINIMIZED TO THE EXTENT POSSIBLE, AND TEMPORARILY OR PERMANENTLY STABILIZED OR RESTORED AS THE WORK PROGRESSES.
3. THE EROSION AND SEDIMENT CONTROL STRATEGIES OUTLINED ON THE PLANS ARE STATIC AND MAY NEED TO BE UPGRADED/AMENDED AS SITE CONDITIONS CHANGE TO MINIMIZE SEDIMENT LADEN RUNOFF FROM LEAVING THE WORK AREA. IF THE PRESCRIBED MEASURES ON THE PLANS ARE NOT EFFECTIVE IN PREVENTING THE RELEASE OF A DELETERIOUS SUBSTANCE, THEN ALTERNATIVE MEASURES MUST BE IMPLEMENTED IMMEDIATELY TO MINIMIZE POTENTIAL ECOLOGICAL IMPACTS AND A TORONTO REGION CONSERVATION AUTHORITY ENFORCEMENT OFFICE SHOULD BE IMMEDIATELY CONTACTED. ADDITIONAL ESC MEASURES TO BE KEPT ON SITE AND USED AS NECESSARY.
4. ALL ACTIVITIES, INCLUDING MAINTENANCE PROCEDURES, WILL E CONTROLLED TO PREVENT THE ENTRY OF PETROLEUM PRODUCTS, DEBRIS, RUBBLE, CONCRETE OR OTHER DELETERIOUS SUBSTANCES INTO THE WATER. VEHICULAR REFUELING AND MAINTENANCE AND REFUELING WILL BE CONDUCTED A MINIMUM OF 30 m FROM THE WATER.
5. ALL GRADES WITHIN THE REGULATORY FLOOD PLAN WILL BE MAINTAINED OR MATCHED.
6. IF NECESSARY, TRUCKS WILL BE WASHED DOWN BEFORE LEAVING THE SITE.
7. THE SITE WILL BE WET DOWN IF NECESSARY TO CONTROL DUST.
8. ALL CONSTRUCTION EQUIPMENT MUST BE PARKED ON-SITE.
9. SEDIMENT CONTROL FENCE TO BE AS PER DETAIL ON THIS DRAWING.
10. ALL SILTSACK SEDIMENT CONTROL DEVICES TO BE ROUTINELY INSPECTED AND MAINTAINED IN PROPER WORKING ORDER UNTIL AREA IS STABILIZED.
11. SILTSACK TO BE PLACED UNDER GRATES ON ALL CATCHBASINS TO TRAP SEDIMENT. SILTSACK ARE TO BE CLEANED REGULARLY AND ARE NOT TO BE REMOVED UNTIL SUCH TIME AS THE CURBS ARE CONSTRUCTED AND THE BOULEVARDS ARE SODDED OR BACKYARDS GRADED AND SODDED. SILTSACK FOR SILT CONTROL TO BE TERRA FIX SILTSACK OR APPROVED EQUIVALENT AS PER DETAIL ON DRAWING D1.
12. IN THE CASE OF ANY CONFLICT WITH ANOTHER PLAN, THIS PLAN PREVAILS ONLY IN RESPECT TO CONSTRUCTION MEASURES AND ACTIVITIES SUCH AS THE CONSTRUCTION ACCESS, SILT FENCE, SECURITY FENCING, SEDIMENT CONTROL, AND MUD MATS.
13. STREET SWEEPING, CATCH BASIN CLEANING AND DUST CONTROL ARE THE RESPONSIBILITY OF THE DEVELOPER AND MUST BE KEPT UNDER CONTROL ON ALL ROADWAYS TO THE SATISFACTION OF THE CITY.
14. APPROPRIATE SIGNAGE IS TO BE INSTALLED ON THE BOULEVARD TO INDICATE THAT THE SIDEWALK IS NOT ACCESSIBLE.

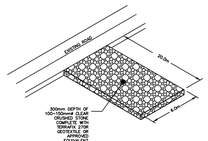
KEY PLAN
SCALE: N.T.S.

LEGEND:

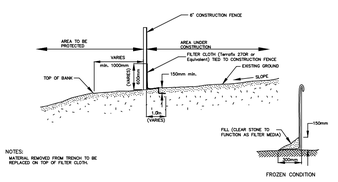
SITE PROPERTY LINE

SEDIMENT CONTROL FENCE

OVERLAND FLOW ROUTE



MUD MAT - CONSTRUCTION ACCESS
SCALE: N.T.S.



CONSTRUCTION/SEDIMENT CONTROL FENCE
SCALE: N.T.S.

SITE PLAN
PREPARED BY: SVN ARCHITECTS + PLANNERS
DATE: OCT 8, 2021

TOPOGRAPHIC & LEGAL
PREPARED BY: J.D. BARNES LIMITED
DATE: FEBRUARY 19, 2021

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R.J. Burnside & Associates Limited
1465 Pickering Parkway
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Drawing Title
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13 MOUNTAIN STREET & 19 ELM STREET
GRIMBSY, ON L3M 3J7

EROSION AND SEDIMENT CONTROL PLAN

Drawn	Checked	Designed	Checked	Date	Drawing No.
CL	MC	LG	MC	21/03/25	**ESC1**
Project No. 300053081		Contract No.		Revision No.	
Scale 1:200		0 4.0 8.0 12.0m			