First Capital R.E.I.T.
Functional Servicing and Stormwater Management Report
6901-6951 Derry Road West
Town of Milton, ON.

September 26th, 2025
(Revised June 4, 2026)

GE Project #: 25-201

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1.0 Introduction

1.1 General Information

Greystone Engineering Inc. has been retained by First Capital R.E.I.T to prepare a Functional Servicing and Stormwater Management Report (FSR) for the proposed development at 6901-6951 Derry Road West in the Town of Milton. The project includes the addition of a 3,612.55 m^2 (38,885 s.f) commercial building with a grocery store and gym as well as a 826.17 m^2 (8,893 s.f) CRU. The proposed development is located on the west side of the existing plaza with a development area of 2.24 ha.

The original development area of 4.20 ha has been increased to 4.44 ha by the pending purchase of land (0.24 ha) from Altea Active who purchased the parcel from Region of Halton in 2022. The additional land is located on the west side of the site.

Refer to **Figure 1** for site location plan and site plan **SP1** by Greystone Design Group in **Appendix B** for site plan details.

For the purposes of this report, the proposed development will be referred to as Phase 2 (2.24 ha) and the remaining property of the original development as Phase 1 (2.20 ha).

The original Derry Heights Plaza was constructed in 2009 with new commercial buildings on the east side of the property. A pre-existing daycare building remained at the south-west corner of the property but has since been demolished. The original 2009 design included for redevelopment of this area and as such, all existing site servicing and stormwater management were designed to accommodate the proposed development.

For reference, relevant excerpts from the original Stormwater Management Report and drawings prepared by R.J. Burnside (January 2009) are appended to this report. Refer to **Appendix A** for original design drawings and **Appendix D** for stormwater design information.

1.2 Objectives

The objectives of this Functional Servicing and Stormwater Management Report are to:

- Confirm the location of existing infrastructure both internal and adjacent to the subject site;
- Estimate sanitary servicing generated from the Phase 2 development and confirm capacity;
- Evaluate and confirm adequate supply of municipal water to meet domestic and fire flow requirements to the new parcel; and
- Confirm that the proposed Phase 2 development is in keeping with the previously approved stormwater management design.

All of the above will be done in accordance with accepted engineering practices.

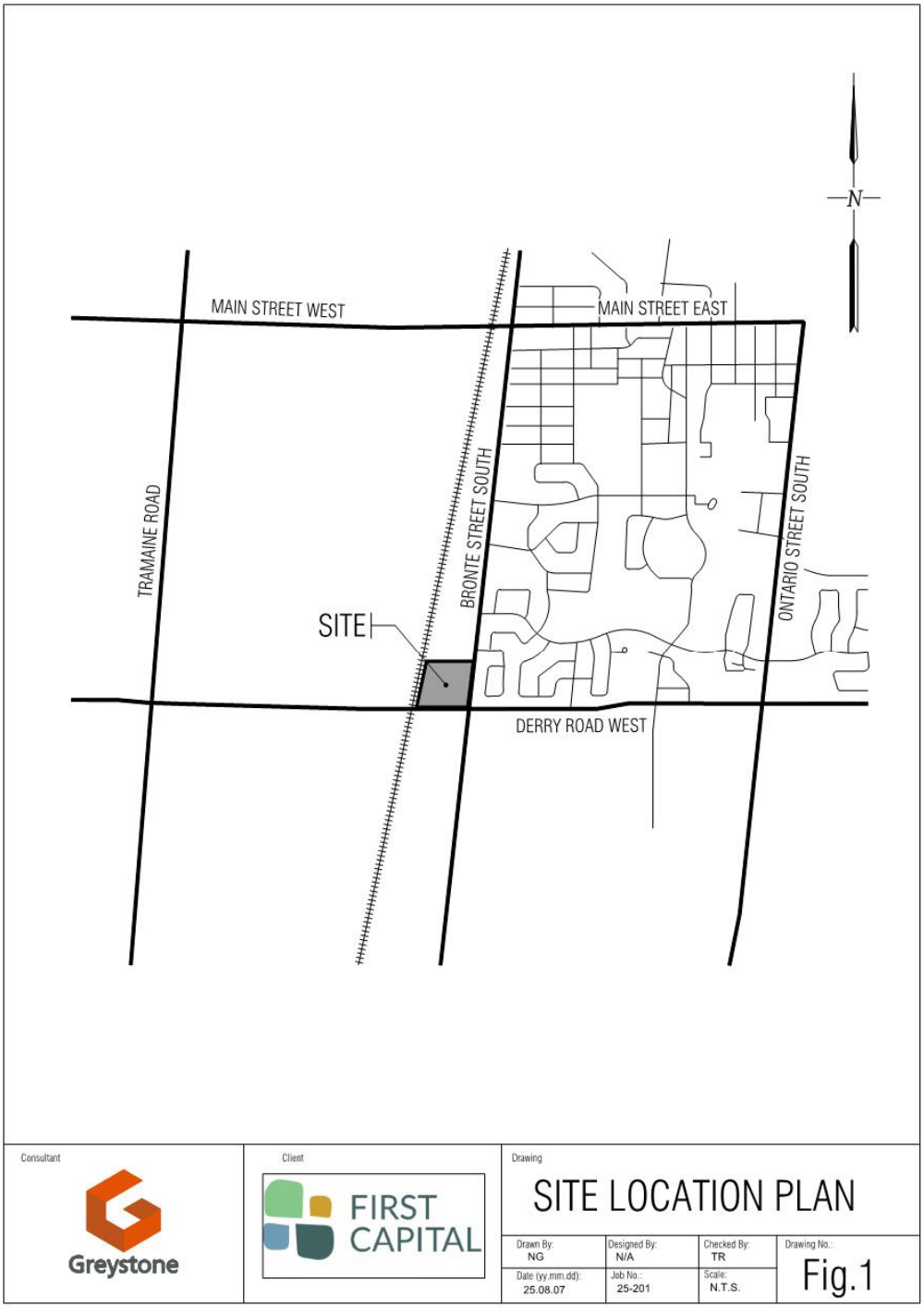
1.3 Existing Conditions

The Derry Heights Plaza is located at the Northwest Corner of Derry Road and Bronte Street South (refer to **Figure 1**). The site is currently serviced by municipal storm, water and sanitary that was designed for the original 4.20 ha development.

Site access includes three entrances off of Bronte Street South and a right-in/right out entrance on Derry Road (Regional Road No. 7).

As mentioned in section 1.1, the plaza was constructed in 2009 with new commercial buildings on the east side of the property. A pre-existing daycare building remained at the south-west corner of the property but has since been demolished.

Figure 1 Site Location



1.4 Proposed Development

The development includes the addition of a 3,612 m^2 (38,885 s.f) commercial building with a grocery store and gym as well as a 826 m^2 (8,893 s.f) CRU. The proposed Phase 2 development is located on the west side of the existing plaza with a development area of 2.24 ha.

The existing storm, sanitary and water servicing within the Derry Heights Plaza will be used to service Phase 2. Stormwater drainage will continue to be directed to the Bronte Street South storm system as originally designed, maintaining quantity / quality control measures and existing overland flow routes.

Refer to **Drawings S1 and G1** in **Appendix B** for servicing, grading and drainage plans.

2.0 Sanitary Servicing

2.1 Existing Sanitary Sewer Infrastructure

As part of a previous development review in April 2021, a sanitary analysis was completed by Greystone Engineering Inc. on behalf of Altea NYX Milton L.P. for the addition of a 7,660 m^2 (82,450 s.f) gym at the same location of the proposed Building F. At that time, the Region of Halton provided their existing sanitary model for the Bronte Street South sanitary sewer. Refer to **Appendix C** for sanitary calculations and model information.

The existing Derry Heights Plaza outlets to a 250 mm diameter sanitary sewer within Bronte Street South. At this location, the sewer is at the upstream end of the sewer-shed starting at the Bronte and Derry Road intersection, servicing the Milton District Hospital (SE corner) and a small commercial plaza (SW corner).

The 250 mm sewer runs North within the Bronte Street South Right of Way where a connection is made at **MH19161** (Halton Region Hydraulic Model ID) from the existing Derry Height Plaza. Downstream of this connection the sewer is running at 0.4 % slope with a total flow capacity of **36.27 L/s** (based on the Regions sanitary model) with an average flow of 3.03 L/s and a peak flow of **9.09 L/s** using a Harmon Peaking factor of 3.

With all properties combined, this sewer is flowing at about 25% of full flow capacity. Refer to **drawing S1, Appendix B** and **Appendix C** for Sanitary information.

Refer to **Appendix C** for calculations and snapshot of model results.

2.2 Proposed Sanitary Servicing

The Phase 2 development will be serviced by the existing sanitary sewer on site which discharges to the existing 250 mm diameter sanitary within Bronte Street South, connecting at Region **MH19161**.

Using Table 3-2 of the Halton Water and Wastewater Linear Design Manual, standards for commercial areas the following is to be applied for sanitary flows:

- 90 ppha equivalent population
- 0.286 x 10^{-3} m^3/ha/s (includes infiltration)

Expected sanitary flow from the Phase 2 development is:

= Area (2.24 ha) x Sanitary Flow Allowance (0.286 x 10^{-3} m^3/ha/s)
= **0.640 L/s**

It is estimated that the Phase 2 development will generate an additional peak sanitary flow of approximately **1.92 L/s** (0.640 L/s x peaking factor of 3) to **MH19161**.

As mentioned in section 2.1, the downstream 250 mm sanitary sewer has an existing peak flow of **9.09 L/s** and a total flow capacity of **36.27 L/s**. Adding the Phase 2 peak flow of **1.92 L/s** to the existing peak flow results in total peak flow of **11.01 L/s** or 30% of the sewers full flow capacity.

Refer to **Appendix C** for sanitary design calculations, and **Drawing S1** for the location of the existing and proposed servicing infrastructure.

3.0 Water Supply and Distribution

3.1 Existing and Proposed Water Infrastructure

The Derry Heights site is serviced by an existing 300 mm watermain on both Derry Road and Bronte Street South. Existing connections to the site are located at the northeast entrance behind Building B (Bronte Street connection) and just west of the existing entrance off of Derry Road (Derry Road connection).

The existing water connection from Derry Road includes a 200 mm diameter fire and 100 mm diameter domestic. With the demolition of the previous daycare building, the fire and domestic services were capped with the exception of the existing private hydrant located at the south property line. It is proposed that Building F will use these existing stubs and that Building A will connect to the existing 200 mm just east of Building A.

Refer to **drawing S1** in **Appendix B** for details.

A recent fire flow test was completed by Epic Fire Protection on August 29th 2025. The static watermain pressure is 82 psi and **69 psi** at **1840 GPM**. Building F will have the largest fire and domestic demand of **1114 GPM** based on FUS (Fire Underwriters Survey) calculations provided in **Appendix E**.

There is sufficient water pressure for both fire and domestic flows to service the entire site including the Phase 2 development.

4.0 Stormwater Management

4.1 Existing Storm Drainage System

The existing Stormwater Management Design for the Derry Heights Plaza has a maximum permissible 5-year release rate from the site to the Bronte Road sewer of **292 L/s** as outlined in the January 2009 SWM Report by RJ Burnside. Refer to excerpts from the January 2009 Report in **Appendix D**). The current designed release rate for the entire site to the Bronte Street storm sewer is **267 L/s**.

Approximately 0.71 ha (or flow Q_{100} = 218 L/s) of the property currently drains southwest towards the CN Railway. With the final buildout of the Derry Heights plaza this drainage area will be reduced to 0.24 ha (C=0.6) or flow Q_{100} = 69 L/s allowing for additional capacity of the downstream CNR culvert which has a capacity of 153 L/s (Refer to Appendix D, R.J Burnside report dated Jan 2009).

The site was designed to accommodate the redevelopment in the southwest corner of the property to convey stormwater flows and currently meets quantity storage as well as quality control for the entire 4.2 ha property. The additional 0.24 ha of lands purchased from Altea Active on the west side of the site will be included in new design. Refer to **Appendix A** for original design drawings by R.J Burnside, 2009.

4.2 Proposed Development

The current designed release rate of **267 L/s** to the Bronte Street South storm sewer as well as existing Emergency Overland Flow routes (> 100 yr storm) will be maintained.

The existing drainage that is currently directed to Derry Road will be maintained and the existing drainage to CNR swale will be reduced as outlined below. **Table 1** below outlines the new site statistics based on site plan **SP1**.

Table 1: Site Statistics for Existing Phase 1 and Proposed Phase 2

Location	Area (ha)
Phase 1 Area	2.20
Phase 2 Building Area	0.44
Phase 2 Asphalt Area	1.63
Phase 2 Landscaped Area	0.17
Total:	**4.44**

The southwest corner of Phase 2 will require some fill material to raise the site and allow it to drain east as originally designed.

As outlined in the Burnside report for the original site area of 4.2 ha, the total required site release rate is **292 L/s** which is currently restricted to **267 L/s** using orifice control. The existing uncontrolled areas draining to Bronte/Derry will remain (0.17 ha, Q_{100} = 72.3 L/s). The existing uncontrolled flows to CNR of 218 L/s will be reduced to 69 L/s (0.24 ha) as mentioned above in section 4.1. These uncontrolled areas will be removed from the site drainage area calculations for drainage to the Bronte Street storm sewer which is 4.03 ha. At the existing release rate of 267 L/s the new site storage requirement for the site is **1135 m^3**.

Table 2 below outlines the total site storage summary.

Table 2: Summary of Proposed Stormwater Management

	Target Release Rate L/s	Storage Provided (m^3)	Area (ha)	Peak Flow (L/s)	Storage Required (m^3)
Phase 2		777	2.24		
Phase 1 *	292	813	2.2	267*	1135
Total	**292**	**1590**	**4.4**	**267**	**1135**

**Phase 1 outlet release rate includes Phase 2 and total release rate as previously designed/approved.*

The existing STC 750 and STC 4000 stormceptors located at the Northeast corner of the site were designed to accommodate the original 4.20 ha site with a Total Suspended Solid (TSS) removal efficiency of 80%. The STC 750 was designed to capture an area of 0.56 ha (C=0.9) and the STC 4000 3.58 ha (C=0.90). These original calculations have been brought to the beginning of **Appendix D** for ease of review.

With the completed development, the areas draining to the existing STC 750 is 0.5 ha and the STC 4000 is 3.53 ha. The existing stormceptors will continue to provide Level 1 Total Suspended Solid (TSS) removal in keeping with the original design and the Ministry of the Environment Stormwater Management Planning and Design Manual recommendations. Refer to **Appendix D** for calculations.

In summary, the proposed development is in keeping with the originally approved stormwater management design by Burnside and meets stormwater quantity and quality requirements.

5.0 Conclusions and Recommendations

The servicing analysis provided within this report is summarized as follows:

Sanitary

- The proposed Phase 2 of development is currently serviced within the Derry Heights Plaza sanitary connection at MH19161.
- The proposed development will generate a flow of **1.92 L/s** to the existing peak flow resulting in a total peak flow of **11.01 L/s** or 30% of the sewers full flow capacity.
- Sanitary connection for the proposed Phase 2 parcel can be provided by the existing 200mm gravity sewer within Derry Heights Plaza.

Water Servicing

- The existing 200 mm Fire and 100 mm Domestic water services from Derry Road will be used to service Phase 2 of the development.
- Water static water pressure is 82 psi and **69 psi** at **1840 GPM**. Building F will have the largest fire and domestic demand of **1114 GPM** based on FUS calculations.
- Fire protection for the proposed development will be achieved through the existing municipal hydrants and private hydrants added to the site.

Stormwater Management

- The existing Stormwater Management Design for the Derry Heights Plaza has a maximum permissible 5-year release rate from the site to the Bronte Road sewer of **292 L/s**. The current release rate to the Bronte Street storm sewer is **267 L/s**.
- The original design included quantity, quality and conveyance allowances for the proposed Phase 2.
- The required storage for the site is **1135 m^3** with **1590 m^3** being provided with a release rate of **267 L/s**.
- The existing STC 750 and STC 4000 stormceptors located at the Northeast corner of the site were designed to accommodate the original 4.20 ha site. With the completed development area draining to the existing stormceptors being 4.03 ha, the existing stormceptors will provide Level 1 Total Suspended Solid (TSS) removal.
- The overland flow routes will remain as intended in the originally approved 2009 SWM Report by Burnside.

This Functional Servicing and Stormwater Management Report has been submitted as part of the 6901-6951 Derry Road ZBA/SPA application and approval. The proposed Phase 2 can be completed with the servicing designs outlined in this report.

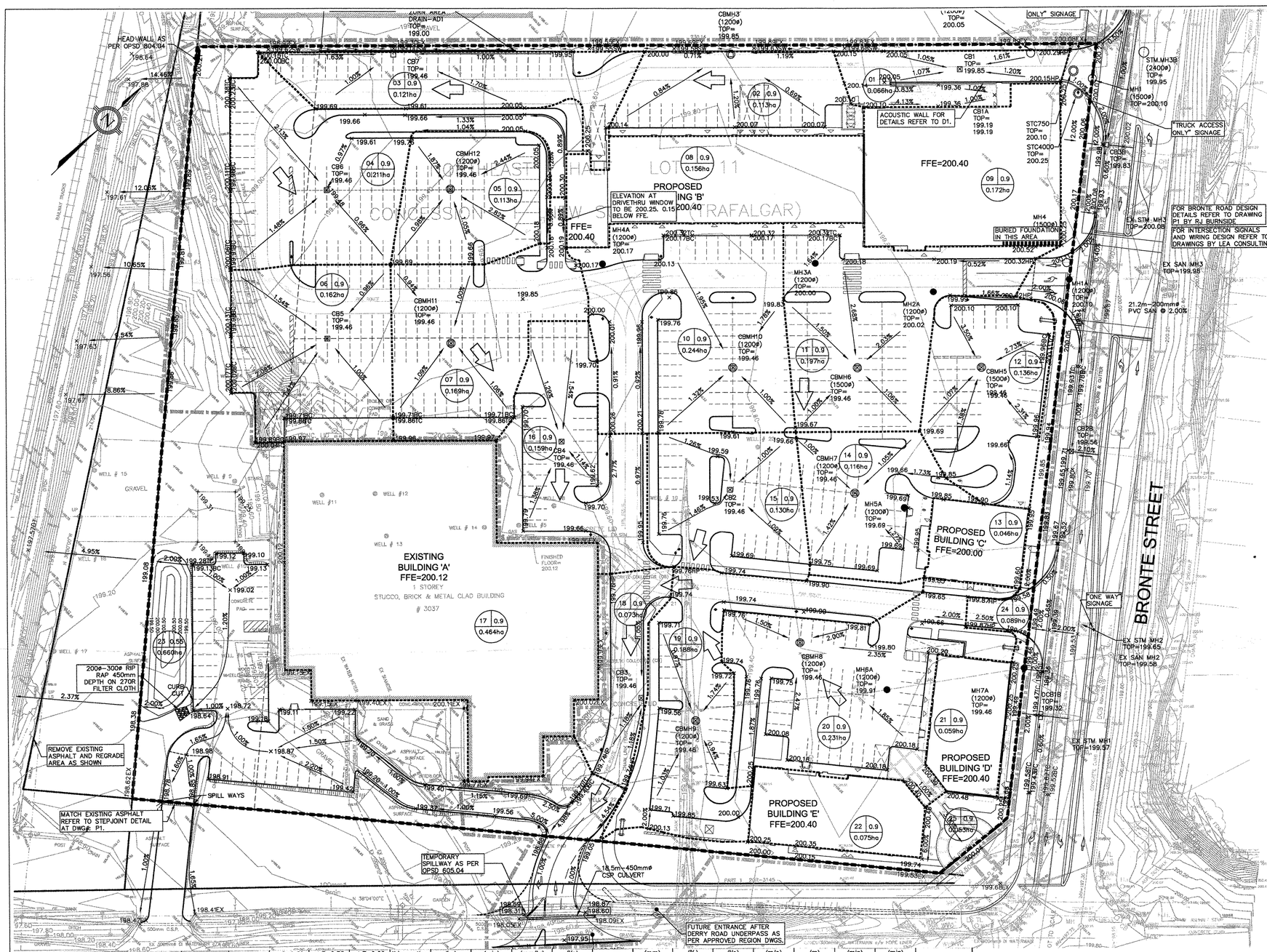
Prepared by:

Greystone Engineering Inc.



Todd Ricketts, P.Eng.
Principal.

Appendix A
Original Design Drawings



	Manhole	Manhole	at R=0.25 (ha)	at R=0.50 (ha)	at R=0.75 (ha)	at R=0.90 (ha)	this section (ha)	(ha)	(min)	(mm/hr)	(l/s)		(mm)	(%)	(l/s)	(m/s)	(m)	(min)	(min)	
	Roof-E	CBMH9				0.0752	0.068	0.068	7.00	102.88	19.34	IMPERIAL	250	1.00	62.04	1.22	20.8	0.28	7.28	31.2%
	CB3	CBMH9				0.0700	0.063	0.063	7.00	103.80	18.16	IMPERIAL	375	1.00	182.91	1.60	13.6	0.14	7.14	9.9%
	CBMH9	CBMH8				0.1877	0.169	0.300	7.28	100.30	83.49	IMPERIAL	450	0.50	210.32	1.28	32.0	0.42	7.70	39.7%
	Roof-D	CBMH8				0.0587	0.053	0.053	7.00	102.09	14.99	IMPERIAL	250	1.00	62.04	1.22	30.0	0.41	7.41	24.2%
	CBMH8	CBMH7				0.2328	0.210	0.562	7.70	97.34	151.98	IMPERIAL	450	0.50	210.32	1.28	39.0	0.51	8.21	72.3%
	Roof-C	CBMH7				0.0465	0.042	0.042	7.00	103.15	11.98	IMPERIAL	250	1.00	62.04	1.22	17.7	0.24	7.24	19.3%
	CB2	CBMH7				0.1303	0.117	0.117	7.00	101.04	32.92	IMPERIAL	250	0.50	43.87	0.87	30.0	0.58	7.58	75.0%
	CBMH7	CBMH6				0.1164	0.105	0.826	8.21	95.38	218.82	IMPERIAL	525	0.50	317.25	1.42	30.5	0.36	8.56	69.0%
	CB7	CBMH12				0.1211	0.109	0.109	7.00	101.05	30.60	IMPERIAL	250	0.50	43.87	0.87	29.9	0.58	7.58	69.8%
	CBMH12	CBMH11				0.3233	0.291	0.400	7.58	97.87	108.75	IMPERIAL	375	0.50	129.34	1.13	36.7	0.54	8.11	84.1%
	CBMH11	CBMH10				0.9537	0.858	1.258	8.11	93.82	327.94	IMPERIAL	600	0.50	452.95	1.55	69.5	0.75	8.86	72.4%
	CBMH10	CBMH6				0.2442	0.220	1.478	8.86	92.16	378.40	IMPERIAL	600	0.50	452.95	1.55	30.5	0.33	9.19	83.5%
	CBMH6	CBMH5				0.1968	0.177	2.481	8.56	93.90	647.15	IMPERIAL	750	0.50	821.24	1.80	30.4	0.28	8.85	78.8%
	CBMH5	MH4				0.1363	0.123	2.604	8.85	92.27	667.40	IMPERIAL	750	0.50	821.24	1.80	34.6	0.32	9.17	81.3%
	MH4	STC4000					0.000	2.604	9.17	90.49	654.52	IMPERIAL	750	0.50	821.24	1.80	39.6	0.37	9.53	79.7%
	Roof-B1	CBMH3				0.1555	0.140	0.140	7.00	103.23	40.13	IMPERIAL	250	1.00	62.04	1.22	16.8	0.23	7.23	64.7%
	Roof-B2	MH2				0.1718	0.155	0.155	7.00	104.19	44.76	IMPERIAL	250	1.00	62.04	1.22	6.0	0.08	7.08	72.1%
	CBMH3	MH2				0.1782	0.160	0.300	7.23	102.77	85.74	IMPERIAL	300	1.00	100.88	1.38	6.0	0.07	7.30	85.0%
	MH2	STC750					0.000	0.455	7.08	103.42	130.71	IMPERIAL	375	1.00	182.91	1.60	11.3	0.12	7.20	71.5%
	STC750	MH1					0.000	0.455	7.20	103.09	130.29	IMPERIAL	375	1.00	182.91	1.60	5.0	0.05	7.25	71.2%
	STC4000	MH1					0.000	2.604	9.53	90.32	653.32	IMPERIAL	675	1.00	876.94	2.37	5.0	0.04	9.57	74.5%
	MH1	STM. MH3B					0.000	3.059	7.25	102.46	870.60	IMPERIAL	675	1.00	876.94	2.37	14.0	0.10	7.35	99.3%

GENERAL NOTES:

1. ALL WORK SHALL BE CARRIED OUT IN COMPLIANCE WITH THE APPLICABLE HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
2. ALL THE CONSTRUCTION WORK FOR THIS PROJECT SHALL COMPLY WITH THE STANDARD DRAWINGS AND SPECIFICATIONS OF THE TOWN OF MILTON, REGION OF HALTON AND THE ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS.
3. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH ALL OTHER CONTRACTORS AND PREVENT CONSTRUCTION CONFLICTS.
4. THE INFORMATION SHOWN FOR EXISTING UTILITIES WAS PROVIDED BY OTHERS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. ALL EXISTING UTILITIES MUST BE LOCATED AND VERIFIED BY EACH UTILITY PRIOR TO COMMENCEMENT OF WORK. ANY VARIANCE IS TO BE IMMEDIATELY REPORTED TO THE ENGINEER. LOST TIME DUE TO FAILURE OF THE CONTRACTOR TO CONFIRM UTILITY LOCATIONS AND NOTIFY THE ENGINEER OF CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT THE CONTRACTORS EXPENSE.
5. ROAD OCCUPANCY/ACCESS PERMIT MUST BE OBTAINED 48 HOURS PRIOR TO COMMENCING ANY WORKS WITHIN THE MUNICIPAL ROAD ALLOWANCE.

1. This drawing is the exclusive property of R. J. Burnside & Associates Limited and the reproduction of any part without prior written consent of this office is strictly prohibited.
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.
4. Do not scale the drawings.

No.	Issue / Revision	Date
1	SPA RE-SUBMISSION AS PER CITY AND REGION COMMENTS	DEC. 04, 2008
2	REVISED AS PER TOWN & CONSERVATION HALTON COMMENTS	JAN. 29, 2009
3	ISSUED FOR TENDER	FEB. 02, 2009
4	ISSUED FOR SPA	MAR. 30, 2009

LICENSED PROFESSIONAL ENGINEER T. M. RICKETTS 90439981 Mar 30/09 PROVINCE OF ONTARIO

LOCATION PLAN

N.T.S.



LEGEND:

- PROPERTY LINE
- STORM DRAINAGE BOUNDARY
- PROPOSED INTERNAL OVERLAND FLOW DIRECTION
- DRAINAGE AREA NUMBER
- 03 | 0.62 — RUNOFF COEFFICIENT
- 0.0971ha — DRAINAGE AREA (ha)

DRAINAGE AREAS		
##	C	AREA, ha
1	0.9	0.0655
2	0.9	0.1127
3	0.9	0.1211
4	0.9	0.2107
5	0.9	0.1126
6	0.9	0.1620
7	0.9	0.169
8	0.9	0.1555
9	0.9	0.1718
10	0.9	0.2442
11	0.9	0.1968
12	0.9	0.1363
13	0.9	0.0465
14	0.9	0.1164
15	0.9	0.1303
16	0.9	0.1593
17	0.9	0.4637
18	0.9	0.0732
19	0.9	0.1877
20	0.9	0.2313
21	0.9	0.0587
22	0.9	0.0752
23	0.55	0.6595
24	0.9	0.0888
25	0.9	0.0533
TOTAL		4.202ha

10 0 10 20 30
METRES SCALE 1:500

SITE PLAN APPROVAL SP 01/07
Subject to the conditions, if any set forth in the agreement dated Mar 30/09 this plan is approved under Section 41 of the Planning Act 1983 as amended, this 29th day of July 09 by the Director of Planning & Development of the Town of Milton.
Director of Planning & Developme
Authority granted by By-law 82-98

SITE PLAN
PREPARED BY: IBI GROUP
DATE: NOVEMBER 14, 2008

GEOTECHNICAL
PREPARED BY: ALSTON ASSOCIATES INC
DATE: JUNE 05, 2006
REPORT NO: 05-052

TOPOGRAPHIC
PREPARED BY: CUNNINGHAM McCONNELL LIMITED O.L.S
TOPO DATE: OCTOBER 11, 2006
FILE No.: 06-3755

TOPOGRAPHIC BRONTE ROAD
PREPARED BY: CUNNINGHAM McCONNELL LIMITED O.L.S
TOPO DATE: NOVEMBER 11, 2008
FILE No.: 08-4113

BENCHMARK NOTES
ALL ELEVATIONS SHOWN HERE ON ARE GEODETIC AND ARE RELATED TO THE TOWN OF MILTON BENCH MARK # 92-008 BEING A BRASS PLAQUE ON THE SOUTH FACE OF TOWN OF MILTON PUBLIC WORKS BUILDING AT #101 NIPISSING ROAD; AT THE SOUTHWEST CORNER OF THE MOST SOUTHERLY EDGE OF BUILDING 0.2m ABOVE GROUND LEVEL; 0.3m FROM SOUTHWEST CORNER OF BUILDING IN THE SECOND ROW OF CONCRETE BLOCKS ABOVE GROUND, 21.6m NORTH OF CENRELINE OF NIPISSING ROAD. HAVING AN ELEVATION OF 202.022 METRES.

BURNSIDE
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Pickering, Ontario, L1W 3T7
telephone (905) 686-3067 fax (905) 686-9652
web www.rjburnside.com

Client

FIRST CAPITAL
Shopping For Everyday Life

Drawing/Project Title

DRAINAGE PLAN

APR 02 2009

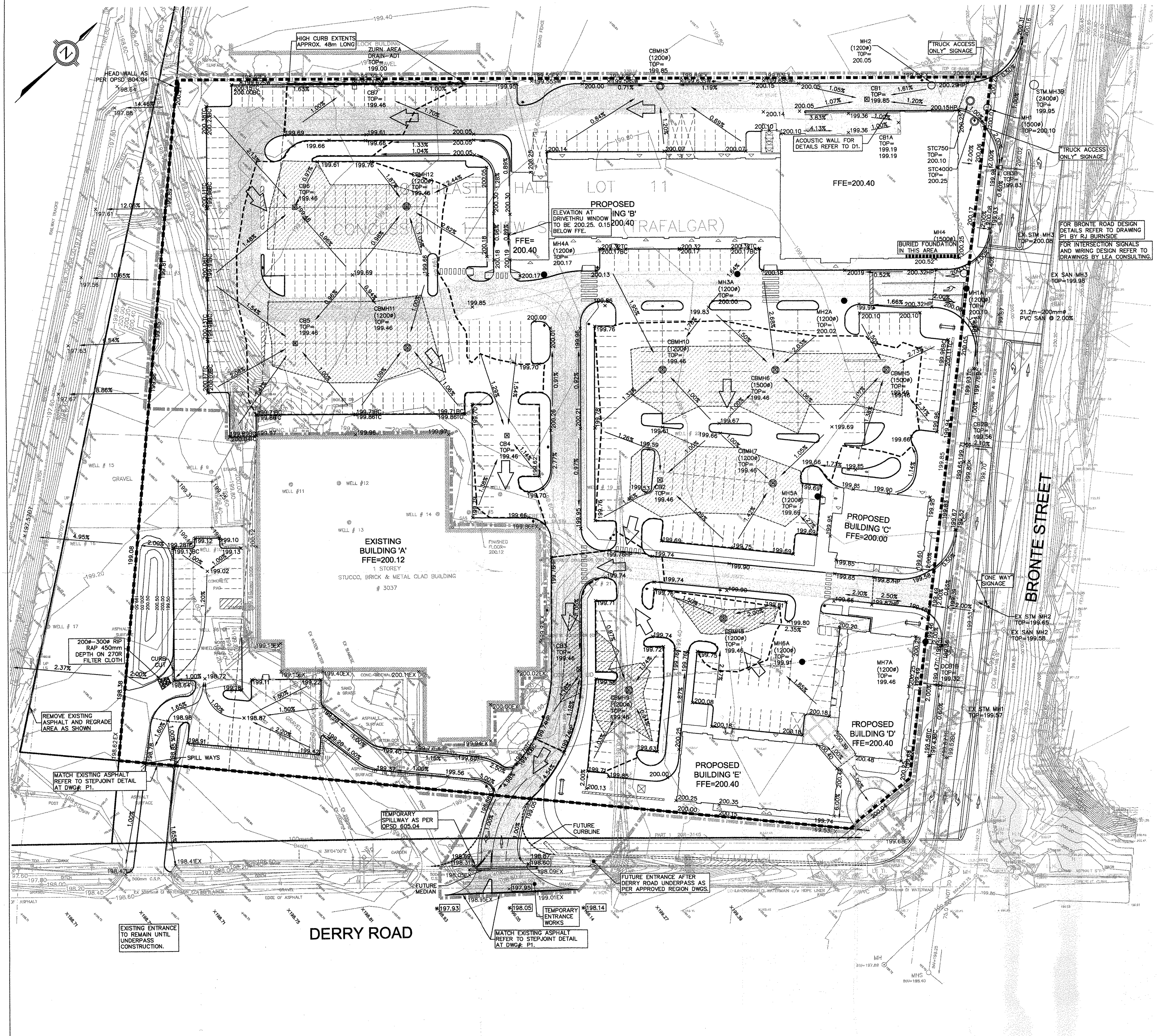
COMMERCIAL DEVELOPMENT
3037 DERRY ROAD WEST
MILTON, ONTARIO

Rev 0

Drawn	Checked	Designed	Checked	Drawing No.
B.B.S./C.C.R.	T.M.R.	B.B.S.	T.M.R.	DR1
Scale 1:500		Project No. PTD14679		

Mar 31, 2009 - 9:48am

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GENERAL NOTES:

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5. ROAD OCCUPANCY/ACCESS PERMIT MUST BE OBTAINED 48 HOURS PRIOR TO COMMENCING ANY WORKS WITHIN THE MUNICIPAL ROAD ALLOWANCE.

SITE GRADING:

1. ALL DISTURBED GRASSED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER WITH SOD ON MIN 100mm TOPSOIL. THE RELOCATION OF TREES AND SHRUBS SHALL BE SUBJECT TO APPROVAL BY THE PROJECT LANDSCAPE ARCHITECT OR ENGINEER.

2. ALL GRANULAR BASE AND SUB-BASE MATERIALS SHALL BE GRADED AND COMPACTED TO 98% STANDARD PROCTOR DENSITY, FREE OF DEPRESSIONS AS PER THE GEOTECHNICAL REPORT.

3. THE PAVEMENT STRUCTURE SHALL BE CONSTRUCTED OF THE FOLLOWING MINIMUM THICKNESSES OF MATERIALS AS PER THE GEOTECHNICAL REPORT:

CAR PARK AREA (LIGHT DUTY ASPHALT)
40mm HL3 ASPHALTIC CONCRETE
40mm HL8 ASPHALTIC CONCRETE
150mm – GRANULAR "A"
300mm – GRANULAR "B" TYPE 1

FIRE ROUTE/TRUCK ENTRANCE (HEAVY DUTY ASPHALT)
40mm HL3 ASPHALTIC CONCRETE
80mm HL8 ASPHALTIC CONCRETE
150mm – GRANULAR "A"
450mm – GRANULAR "B" TYPE 1

4. PROVIDE SUBDRAINS, MINIMUM LENGTH OF 3.0m, EXTENDING FROM ALL CATCHBASINS AND CATCHBASIN MANHOLES TO DRAIN THE GRANULAR SUB-BASE LAYER AS PER DETAIL ON DRAWING D1.

5. ALL BARRIER CURB WITHIN THE SITE TO BE CONSTRUCTED AS PER DETAIL ON DRAWING D1, UNLESS OTHERWISE SPECIFIED.

6. TRENCH BACKFILL WITHIN THE RIGHT OF WAY SHALL BE UNSHRINKABLE FILL AND SHALL EXTEND TO THE BASE OF ASPHALT.

7. ALL WORK SHALL BE SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF TOWNSHIP/COUNTY ROAD OCCUPANCY PERMIT.

8. INSPECTIONS: ALL WORK ON THE MUNICIPAL RIGHT OF WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR TO BACKFILLING. ALL WORK RELATING TO WATERMAINS AND SEWERS TO BE INSPECTED BY THE MUNICIPALITY WHEN REQUIRED BY THE MUNICIPALITY.

9. REFER TO SITE PLAN FOR DIMENSIONS AND SITE DETAILS.

10. STEP JOINTS ARE TO BE USED WHERE PROPOSED ASPHALT MEETS EXISTING ASPHALT AS PER DETAIL ON DRAWING D1. ALL JOINTS MUST BE SEALED AS PER DETAIL.

11. TRANSITIONS WITHIN THE SUBGRADE WITHIN 1.2m FROM THE TOP OF PAVEMENT SHOULD INCLUDE 3H:1V TRANSITIONS AS PER DETAIL ON DRAWING D1.

12. EMBANKMENTS TO BE SLOPED AT MAX. 3:1, UNLESS OTHERWISE SPECIFIED.

13. ALL PAVEMENT MARKING, LINE PAINTING, DIRECTIONAL LINES/ARROWS ETC. SHALL BE PLACED IN ACCORDANCE WITH THE ARCHITECTURAL SITE PLAN OR THE OWNER'S TRAFFIC ENGINEERING CONSULTANT'S DRAWINGS. LINE PAINTING AND DIRECTIONAL SYMBOLS SHALL BE APPLIED WITH A MINIMUM OF TWO COATS OF ORGANIC SOLVENT BASED PAINT IN ACCORDANCE WITH OPSS 1712.

14. WHERE APPLICABLE THE CONTRACTOR IS TO SUBMIT SHOP DRAWINGS FOR THE RETAINING WALL (INCLUDE RAILINGS IF APPLICABLE) TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. SHOP DRAWINGS MUST BE SITE SPECIFIC, SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER. THE CONTRACTOR WILL ALSO BE REQUIRED TO SUPPLY STRUCTURAL AND GEOTECHNICAL CERTIFICATION OF THE AS-CONSTRUCTED RETAINING WALL TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.

15. THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER 1 (ONE) SET OF AS CONSTRUCTED SITE SERVICING, GRADING, AND SITE ELECTRICAL DRAWINGS.

SITE PLAN APPROVAL SP 01/07
Subject to the conditions, if any set forth in the agreement dated APR 30/09 this plan is approved under Section 41 of the Planning Act 1983 as amended, this 29th day of JULY/09 by the Director of Planning & Development of the Town of Milton.
Director of Planning & Development
(Authority granted by By-law 82-98)

SITE PLAN
PREPARED BY: IBI GROUP
DATE: NOVEMBER 14, 2008

GEOTECHNICAL
PREPARED BY: ALSTON ASSOCIATES INC
DATE: JUNE 05, 2006
REPORT NO: 05–052

TOPOGRAPHIC
PREPARED BY: CUNNINGHAM McCONNELL LIMITED O.L.S
TOPO DATE: OCTOBER 11, 2006
FILE No.: 06–3755

TOPOGRAPHIC BRONTE ROAD
PREPARED BY: CUNNINGHAM McCONNELL LIMITED O.L.S
TOPO DATE: NOVEMBER 11, 2008
FILE No.: 08–4113

BENCHMARK NOTES
ALL ELEVATIONS SHOWN HERE ON ARE GEODETIC AND ARE RELATED TO THE TOWN OF MILTON BENCH MARK # 92–008 BEING A BRASS PLAQUE ON THE SOUTH FACE OF TOWN OF MILTON PUBLIC WORKS BUILDING AT #101 NIPISSING ROAD; AT THE SOUTHWEST CORNER OF THE MOST SOUTHERLY EDGE OF BUILDING 0.2m ABOVE GROUND LEVEL: 0.3m FROM SOUTHWEST CORNER OF BUILDING IN THE SECOND ROW OF CONCRETE BLOCKS ABOVE GROUND, 21.6m NORTH OF CENRELINE OF NIPISSING ROAD. HAVING AN ELEVATION OF 202.022 METRES.

1. This drawing is the exclusive property of R. J. Burnside & Associates Limited and the reproduction of any part without prior written consent of this office is strictly prohibited.

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.

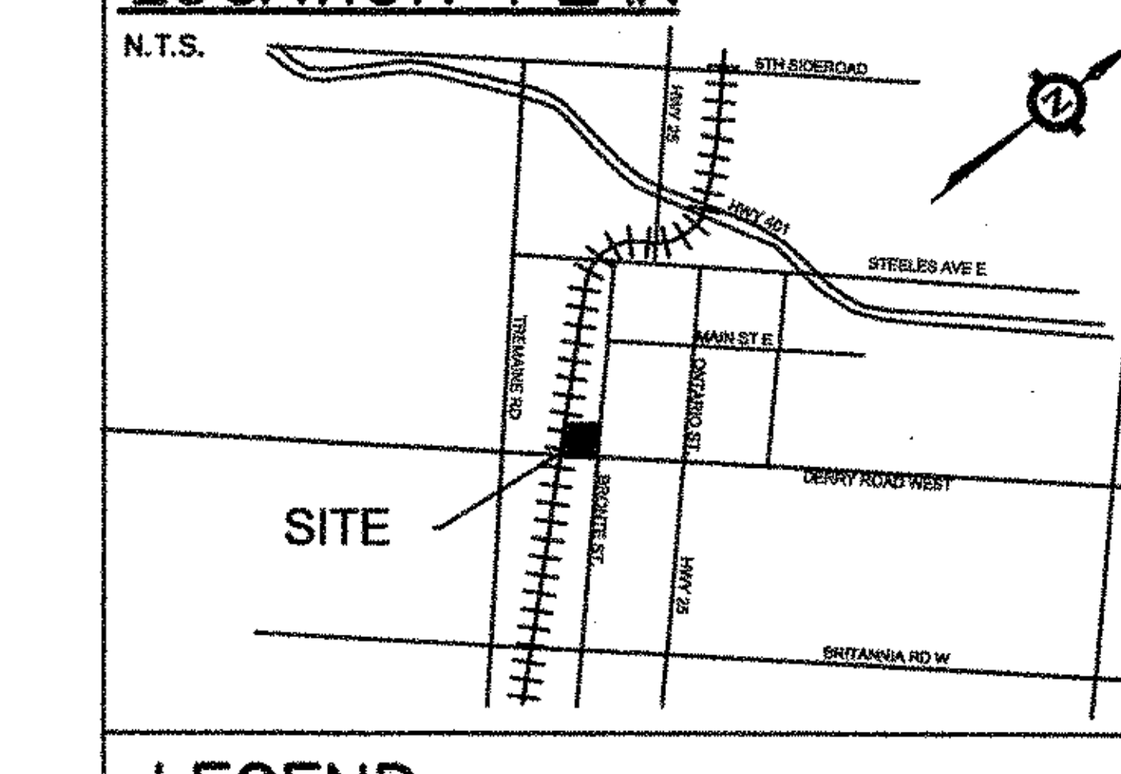
4. Do not scale the drawings.

No.	Issue / Revision	Date
1	SPA RE-SUBMISSION AS PER CITY AND REGION COMMENTS	DEC. 04, 2008
2	REVISED AS PER TOWN & CONSERVATION HALTON COMMENTS	JAN. 29, 2009
3	ISSUED FOR TENDER	FEB. 02, 2009
4	ISSUED FOR SPA	MAR. 30, 2009

LICENSED PROFESSIONAL ENGINEER
T. M. RICKETTS
90436981
Mar 30/09
PROVINCE OF ONTARIO

LOCATION PLAN

N.T.S.



LEGEND:

(symbol)	PROPERTY BOUNDARY
(symbol)	LIMIT OF CONSTRUCTION
(symbol)	CONCRETE CURB
⊠	VALVE & BOX
x 174.40 EX	EXISTING ELEVATIONS
x 174.40 TC	TOP OF CURB ELEVATIONS
x 174.40 BC	BOTTOM OF CURB ELEVATIONS
x 174.40	PROPOSED ELEVATIONS
(symbol)	HEAVY DUTY ASPHALT
(symbol)	0.15m PONDING AREA
(symbol)	0.30m PONDING AREA
2.19%	PROPOSED SLOPES
172.40	EXISTING TOPOGRAPHIC ELEVATIONS
(symbol)	EXISTING TOPOGRAPHIC INFORMATION
(symbol)	OVERLAND FLOW ROUTE
(symbol)	PROPOSED PYLON SIGN
(symbol)	SITE BENCHMARK
(symbol)	STEPJOINT AS PER DETAIL ON DRAWING D1
198.14	FUTURE DERRY RD. GRADES WITH UNDERPASS @ CN
(symbol)	LIGHT STANDARDS

10 0 10 20 30
METRES SCALE 1:500

BURNSIDE
R.J. Burnside & Associates Limited
1053 Brock Road S.
Pickering, Ontario, L1W 3T7
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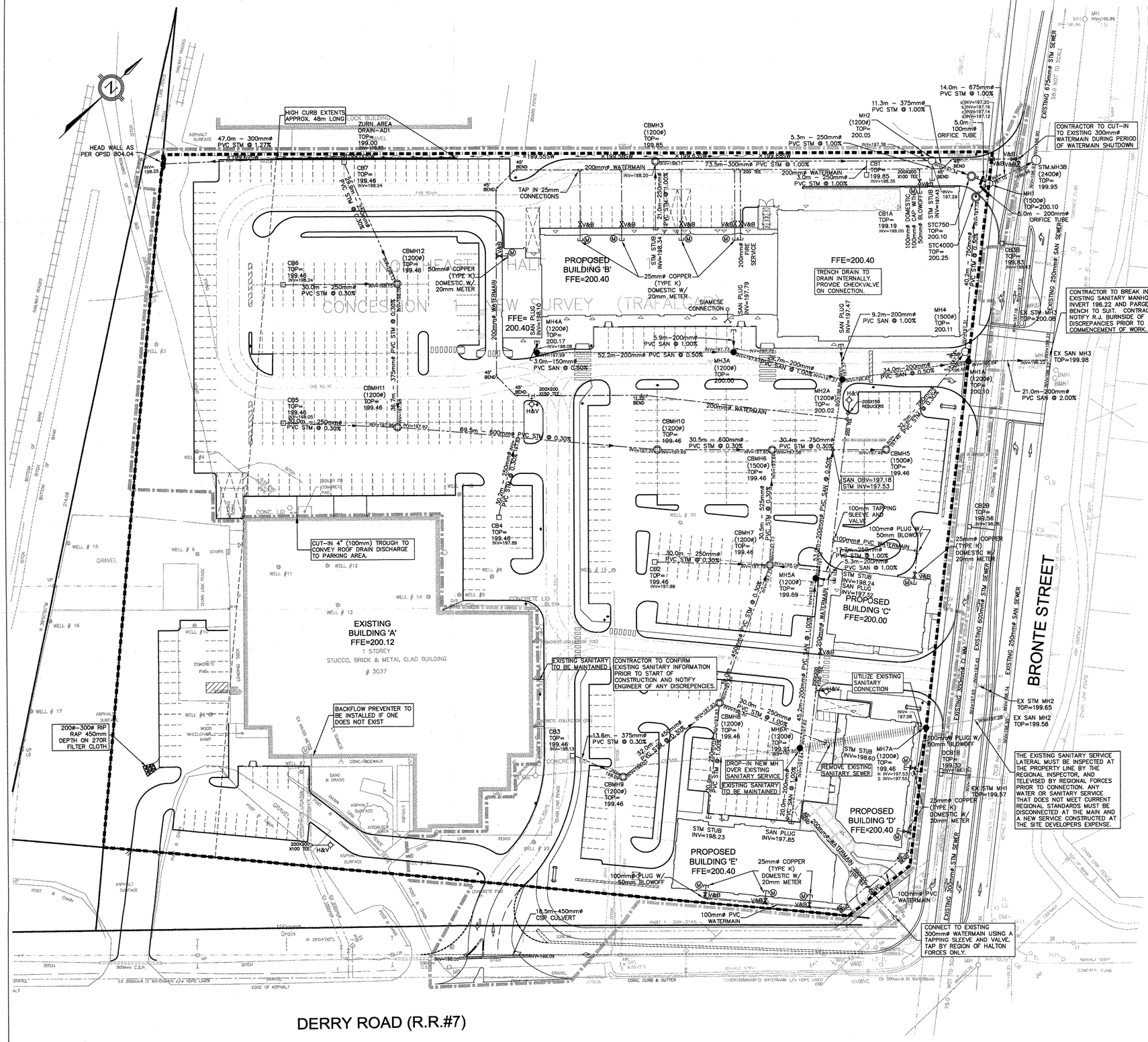
Drawing/Project Title
GRADING PLAN APR 02 2009

COMMERCIAL DEVELOPMENT
3037 DERRY ROAD WEST
MILTON, ONTARIO

Drawn	Checked	Designed	Checked	Drawing No.	Rev
B.B.S./C.C.R.	T.M.R.	B.B.S.	T.M.R.	G1	0
Scale 1:500		Project No. PTD14679			

Mar 31, 2009 – 4:26pm

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GENERAL NOTES:

1. ALL WORK SHALL BE CARRIED OUT IN COMPLIANCE WITH THE APPLICABLE HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.

2. ALL THE CONSTRUCTION WORK FOR THIS PROJECT SHALL COMPLY WITH THE STANDARD DRAWINGS AND SPECIFICATIONS OF THE TOWN OF MILTON, REGION OF HALTON AND THE ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS.

3. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH ALL OTHER CONTRACTORS AND PREVENT CONSTRUCTION CONFLICTS.

4. THE INFORMATION SHOWN FOR EXISTING UTILITIES WAS PROVIDED BY OTHERS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. ALL EXISTING UTILITIES MUST BE LOCATED AND VERIFIED BY EACH UTILITY PRIOR TO COMMENCEMENT OF WORK. ANY VARIANCE IS TO BE IMMEDIATELY REPORTED TO THE ENGINEER. LOST TIME DUE TO FAILURE OF THE CONTRACTOR TO CONFIRM UTILITY LOCATIONS AND NOTIFY THE ENGINEER OF CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT THE CONTRACTORS EXPENSE.

5. ROAD OCCUPANCY/ACCESS PERMIT MUST BE OBTAINED 48 HOURS PRIOR TO COMMENCING ANY WORKS WITHIN THE MUNICIPAL ROAD ALLOWANCE.

WATERMAINS:

1. WATERMAIN SHALL BE POLYVINYL CHLORIDE (PVC) CLASS 150 DR-18 PIPE MANUFACTURED TO AWWA C900-89 AND CSA CAN3 B137.3-M1986 WITH GASKETED BELL END C/W #10 AWG SOLID COPPER TRACER WIRE.

2. WATERMAINS SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 300mm OVER AND 500mm UNDER SEWERS AND ALL OTHER UTILITIES WHEN CROSSING. ALL WATERMAINS AND SERVICES SHALL HAVE 1.80m MINIMUM COVER.

3. BEDDING FOR WATERMAINS SHALL BE AS PER OPSD 802.030.

4. ALL WATERMAIN HORIZONTAL AND VERTICAL BENDS, JOINTS AND PLUGS TO BE MECHANICALLY RESTRAINED. THRUST BLOCKS/MECHANICAL RESTRAINERS MUST BE INSTALLED ON ALL WATERMAIN BENDS, TEES, AND PLUGS AS PER LOCAL MUNICIPAL STANDARDS.

5. ALL WATERMAIN STUBS SHALL BE TERMINATED WITH A PLUG AND 50mm BLOW OFF UNLESS OTHERWISE NOTED.

6. HYDRANT AND VALVE TO BE AS PER OPSD 1105.010.

7. ALL HYDRANT FLANGE ELEVATIONS TO BE INSTALLED 0.15m ABOVE PROPOSED FINISHED GRADE AT HYDRANT.

8. BUILDING SERVICE VALVES TO BE 3.0m OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED AND MUST BE RESTRAINED A MINIMUM OF 12m BACK FROM STUB. ALL DOMESTIC WATER CONNECTIONS ATO PROVIDE BACKFLOW PREVENTION AS PER OBC.

9. PROVISIONS FOR FLUSHING WATERMAINS MUST BE PROVIDED WITH A MINIMUM 50mm OUTLET FOR MAINS 100mm AND LARGER. FLUSHING POINTS MATCHING THE SIZE OF THE PIPE MUST BE PROVIDED AT THE END OF EACH COPPER MAIN. FIRE MAIN FLUSHING OUTLETS TO BE 100mm DIAMETER MINIMUM OR A HYDRANT. FLUSHING POINTS MUST BE HOSED OR PIPED TO ALLOW THE WATER TO DRAIN.

10. ALL WATERMAINS SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH LOCAL MUNICIPAL AND PROVINCIAL GUIDELINES UNLESS OTHERWISE DIRECTED. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED.

11. ALL PROPOSED WATER PIPING MUST BE ISOLATED FROM EXISTING MAINS IN ORDER TO ALLOW INDEPENDENT PRESSURE TESTING AND CHLORINATION.

STORM AND SANITARY SEWERS:

1. MANHOLES SHALL BE AS PER OPSD 701.010 AND OPSD 701.011; FRAMES AND COVERS SHALL BE AS PER OPSD 401.010. SAFETY PLATFORMS TO BE INSTALLED WHERE DEPTH EXCEEDS 5.0m.

2. SINGLE CATCHBASINS SHALL BE AS PER OPSD 705.010, WITH FRAMES AND COVERS AS PER OPSD 400.020. DOUBLE CATCHBASINS SHALL BE AS PER OPSD 705.020.

3. CONCRETE PIPE SEWER BEDDING SHALL BE CLASS 'B' AS PER OPSD 802.030, PVC PIPE SEWER BEDDING SHALL BE CLASS 'B' AS PER OPSD 802.030 TO TOP OF SEWER. NATIVE BACKFILL TO BE COMPACTED TO A MIN. 98% STANDARD PROCTOR DENSITY, WITH A MINIMUM 300mm SAND COVER OVER PIPE.

4. ALL STORM SEWER PIPES UP TO 450mm DIA. SHALL BE PVC SDR-35 OR APPROVED EQUIVALENT. ALL STORM SEWER PIPES 525mm DIA. AND LARGER SHALL BE CONCRETE AND EQUAL TO C.S.A. SPECIFICATIONS A257.2 REINFORCED CLASSES AS SPECIFIED (65-D, 100-D, 140-D,) OR LATEST AMENDMENT UNLESS OTHERWISE SPECIFIED.

5. ALL SANITARY PVC SEWER PIPES SHALL BE SDR-35 EQUAL CSA SPECIFICATIONS B182.2-M1990 OR LATEST AMENDMENT UNLESS OTHERWISE NOTED.

6. ALL MANHOLE AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL COMPACTED TO 98% STANDARD PROCTOR DENSITY.

7. ALL CATCH BASINS AND CATCH BASIN MANHOLES ARE TO INCLUDE SUBDRAIN TREATMENT AS PER DETAIL ON DRAWING D1.

8. ALL BLIND CONNECTIONS TO MATCH THE INVERT OF THE CATCH BASIN LEAD TO THE SPRINGLINE OF THE STORM PIPE. OTHERWISE INSTALL THE CATCH BASIN LEAD AT A MAXIMUM 2.00% AND DROP INTO PIPE.

9. UNLESS NOTED OTHERWISE, CATCHBASIN LEADS SHALL BE 250mmø AT MINIMUM 1.00% SLOPE.

10. THE CONTRACTOR IS TO PROVIDE CCTV CAMERA INSPECTIONS OF ALL SANITARY AND STORM SEWERS, INCLUDING PICTORIAL REPORT, TWO (2) CD COPIES AND ONE (1) VIDEO TAPE IN A FORMAT SATISFACTORY TO THE ENGINEER. ALL SEWERS ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION.

REGIONAL APPROVAL

REGION DESIGN OF WATER &/OR WASTEWATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM AREA MUNICIPALITY.

SIGNED:_____ DATED:_____
PLANNING & PUBLIC WORKS DEPARTMENT

SITE PLAN APPROVAL SP 01/07
Subject to the conditions, if any set forth in the agreement dated Apr 30/09 this plan is approved under Section 41 of the Planning Act, R.S.O. 1990, as amended, this 29th day of July 2009 by the Director of Planning Services, Development of the Town of Milton.
Director of Planning & Development
Authority granted by By-law 52-08

SITE PLAN
PREPARED BY: IBI GROUP
DATE: MARCH 30, 2006

GEOTECHNICAL
PREPARED BY: ALSTON ASSOCIATES
DATE: JUNE 05, 2006
REPORT NO: 05-052

TOPOGRAPHIC
PREPARED BY: CUNNINGHAM McCONNELL LIMITED
TOPO DATE: OCTOBER 11, 2006
FILE No.: 06-3755

TOPOGRAPHIC BRONTE ROAD
PREPARED BY: CUNNINGHAM McCONNELL LIMITED O.L.S
TOPO DATE: NOVEMBER 11, 2008
FILE No.: 08-4113

BENCHMARK NOTES
ALL ELEVATIONS SHOWN HERE ON ARE GEODETIC AND ARE RELATED TO THE TOWN OF MILTON BENCH MARK # 92-008 BEING A BRASS PLAQUE ON THE SOUTH FACE OF TOWN OF MILTON PUBLIC WORKS BUILDING AT #101 NIPISSING ROAD; AT THE SOUTHWEST CORNER OF THE MOST SOUTHERLY EDGE OF BUILDING 0.2m ABOVE GROUND LEVEL: 0.3m FROM SOUTHWEST CORNER OF BUILDING IN THE SECOND ROW OF CONCRETE BLOCKS ABOVE GROUND, 21.6m NORTH OF CENRELINE OF NIPISSING ROAD. HAVING AN ELEVATION OF 202.022 METRES.

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4. Do not scale the drawings.

No.	Issue / Revision	Date
1	SPA RE-SUBMISSION AS PER CITY AND REGION COMMENTS	DEC. 04, 2008
2	REVISED AS PER TOWN & CONSERVATION HALTON COMMENTS	JAN. 29, 2009
3	ISSUED FOR TENDER	FEB. 02, 2009
4	ISSUED FOR SPA	MAR. 30, 2009
5	REVISED AS PER REGION COMMENTS	APRIL 6, 2009

LICENCED PROFESSIONAL ENGINEER
T. M. RICKETTS
90493881
Apr 6/09
PROVINCE OF ONTARIO

LOCATION PLAN

N.T.S.



LEGEND:

- PROPERTY BOUNDARY
- LIMIT OF CONSTRUCTION
- H&V — HYDRANT AND VALVE
- SIAMESE CONNECTION
- VB — VALVE AND BOX
- M — METER
- PROPOSED SANITARY MANHOLE
- PROPOSED STORM MANHOLE
- PROPOSED CATCHBASIN
- OIL GRIT SEPERATOR
- EXISTING DOWNSPOUTS
- SANITARY SEWER
- STORM SEWER
- WATERMAIN
- EXISTING TOPOGRAPHIC INFORMATION
- PROPOSED PYLON SIGN
- SITE BENCHMARK

10 0 10 20 30
METRES SCALE 1:500

BURNSIDE
R.J. Burnside & Associates Limited
1053 Brock Road S.
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telephone (905) 686-3067 fax (905) 686-9652
web www.rjburnside.com

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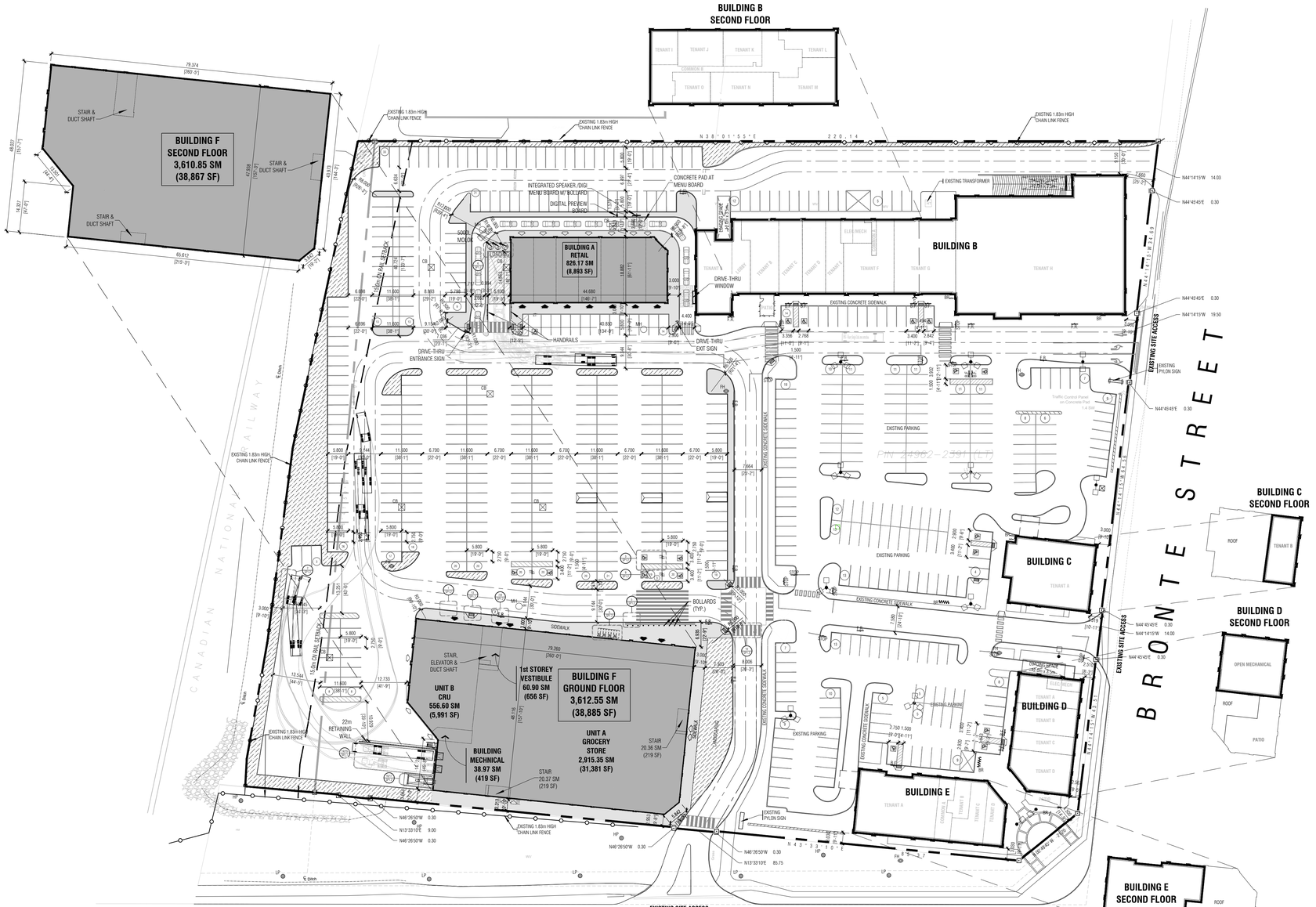
Drawing/Project Title
SERVICING PLAN
REGION FILE No. SP-01/07M
COMMERCIAL DEVELOPMENT
3037 DERRY ROAD WEST
MILTON, ONTARIO
Rev. 0

Drawn	Checked	Designed	Checked	Drawing No.
B.B.S./C.C.R.	T.M.R.	B.B.S.	T.M.R.	S1
Scale 1:500		Project No. PTD14679		

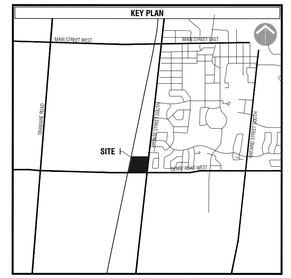
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APR 07 2009

Appendix B
Proposed Design Drawings



1 SITE PLAN
A1.0 1:400



IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO:

- CHECK AND VERIFY ALL DIMENSIONS ON SITE;
- REPORT ALL ERRORS AND/OR OMISSIONS TO GREYSTONE BEFORE CONTINUING WITH ANY WORK.

THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS NOTED OTHERWISE

THESE DRAWINGS SHALL NOT TO BE SCALED ERRORS MADE BY PERSONS SCALING THESE DRAWINGS WILL NOT BE THE RESPONSIBILITY OF GREYSTONE ARCHITECTURAL PARTNERS

THESE DRAWINGS SHALL TO BE READ IN CONJUNCTION WITH ALL OTHER RELATED DOCUMENTS.

ALL DESIGN DOCUMENTS SHALL THE COPYRIGHT PROPERTY OF GREYSTONE. ANY REPRODUCTIONS OF THE DESIGN DOCUMENTS IN PART OR IN WHOLE IS FORBIDDEN WITHOUT WRITTEN APPROVAL BY GREYSTONE.

PROJECT NORTH

SITE DATA

	SF	SM	ACRES
COMMERCIAL DISTRICT ZONE (C-2)			
TOTAL SITE	478,216	44,427.8	10.98
EXISTING BUILDING			COVERAGE
BUILDING A	8,893	826.17	1.9%
BUILDING B	47,715	4,432.8	7.4%
GROUND FLOOR	35,541	3,301.9	
SECOND FLOOR	12,173	1,131.0	
BUILDING C	6,957	646.4	1.1%
GROUND FLOOR	5,115	475.2	
SECOND FLOOR	1,843	171.2	
BUILDING D	9,660	897.5	1.3%
GROUND FLOOR	6,367	591.5	
SECOND FLOOR	3,293	305.9	
BUILDING E	13,195	1,225.8	1.7%
GROUND FLOOR	8,164	758.5	
SECOND FLOOR	5,031	467.4	
BUILDING F	77,752	7,223.40	
GROUND FLOOR	38,885	3,612.55	8.1%
GROCERY (UNIT A)	31,381	2,915.35	
CRU (UNIT B)	5,991	556.60	
COMMON 1ST STOREY VESTIBULE	656	60.90	
MECHANICAL ROOM	419	38.97	
STAIR & DUCT SHAFT	438	40.73	
SECOND FLOOR	38,867	3,610.85	
TOTAL GROUND FLOOR	102,965	9,565.82	21.53%
TOTAL SECOND FLOOR	61,207	5,688.35	
GROSS FLOOR AREA	164,172	15,252.17	
PATIO AREAS	SF	SM	
BUILDING B	249.5	23.2	
BUILDING D (AT GRADE)	359.2	33.4	
BUILDING D (ON ROOFTOP)	1,990.6	184.9	
TOTAL PATIO AREA	2,699.3	241.5	
PARKING DATA			
PARKING SPACE: 2.75m x 5.80m, 6.70m AISLE			
REQUIRED PARKING	- SPACES		
REQUIRED BARRIER FREE PARKING	- SPACES		
TOTAL REQUIRED PARKING	- SPACES		
PARKING DATA			
PARKING SPACE: 2.75m x 5.80m, 6.70m AISLE			
PROVIDED PARKING	547 SPACES		
PROVIDED BARRIER FREE PARKING	18 SPACES		
TOTAL PROVIDED PARKING	565 SPACES		
LANDSCAPING			
LANDSCAPED AREA: 4,093.08	LANDSCAPING COVERAGE: 9.21%		

LEGEND

PROPERTY LINE	
SETBACKS	
EXISTING CONDITIONS	
FENCE	
FIRE ROUTE	
IRON BAR	SIGNALIZED INTERSECTION
GM GAS METER	PARKING COUNT
PRINCIPLE ENTRANCE	SECONDARY ENTRANCE
CB CATCH BASIN	MH MANHOLE
FH FIRE HYDRANT	FDC FIRE DEPARTMENT CONNECTION
BIKE RACK - 10 SPOTS	BIKE RACK - 2 SPOTS
PEDESTRIAN CROSSWALK	'NO PARK' ZONE
TRAFFIC FLOW ARROWS	PRECAST CONCRETE CURB
CART CORRAL	3m x 6m CAR SPACE
LIGHT STANDARD	LP LIGHT POLE
HP HYDRO POLE	BOLLARD
PYLON SIGN	TRANSFORMER
ADDA TACTILE STRIP	F.R. 'FIRE ROUTE' SIGN
STOP 'STOP' SIGN	D.N.E. 'DO NOT ENTER' SIGN
ONE WAY 'ONE WAY' SIGN	NEW SIDEWALK
NEW ASPHALT AREA	PLANTING BED
GRASS AREA	BARRIER FREE PARKING
EARTHBIN ON CONC. PAD	MOLOK GARBAGE SYSTEM
B.F. 'BARRIER FREE' SIGN	

Greystone
CAMBRIDGE • TORONTO • EDMONTON

154 King Street East
Cambridge, Ontario N3H 3M4
T: (519) 896-1010 ext.100

REV.	DESCRIPTION	DATE
9	ISSUED FOR COORDINATION	2026.05.29
8	ISSUED FOR COORDINATION	2026.05.14
7	ISSUED FOR ZBA	2025.09.26
6	ISSUED FOR COORDINATION	2025.09.23
5	ISSUED FOR COORDINATION	2025.09.19
4	ISSUED FOR COORDINATION	2025.09.17
3	ISSUED FOR COORDINATION	2025.09.11
2	ISSUED FOR REVIEW	2025.09.03
1	ISSUED FOR REVIEW	2025.08.15

△ REVISION ☐ ISSUED ○ APPROVAL

CLIENT:
FIRST CAPITAL

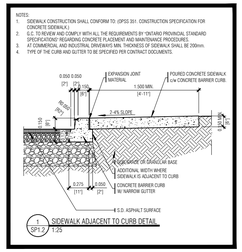
PROJECT:
SITE PLAN

DERRY HEIGHTS
DERRY ROAD & BRONTE ST.
MILTON, ONTARIO

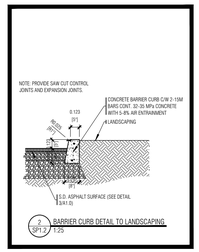
DRAWING:
OVERALL PROPOSED SITE PLAN

DATE YYYY/MM/DD: 2026.05.27	REVISION NUMBER: R9
SCALE: 1:400	DRAWING NUMBER: SP1.0
JOB NUMBER: 25201-E	

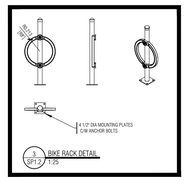
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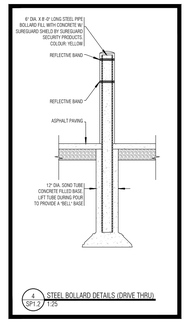
1 / SP1.2 SIDEWALK ADJACENT TO CURB DETAIL
1:25



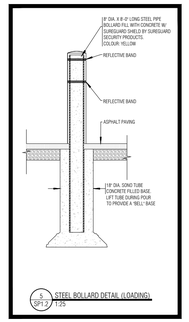
2 / SP1.2 BARRIER CURB DETAIL TO LANDSCAPING
1:25



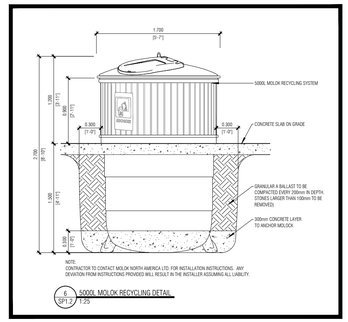
3 / SP1.2 BIKE RACK DETAIL
1:25



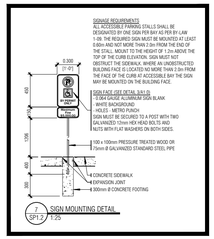
4 / SP1.2 STEEL BOLLARD DETAILS (DRIVE THRU)
T.35



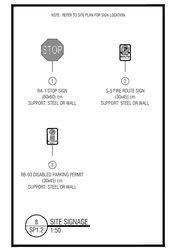
5 / SP1.2 STEEL BOLLARD DETAIL (LOADING)
T.35



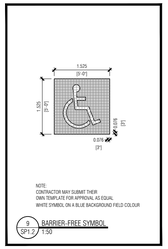
6 / SP1.2 5000L MOLOK RECYCLING DETAIL
1:25



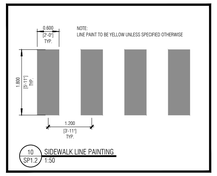
7 / SP1.2 SIGN MOUNTING DETAIL
1:25



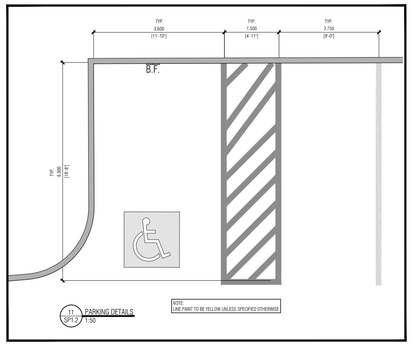
8 / SP1.2 SITE SIGNAGE
1:50



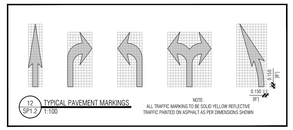
9 / SP1.2 BARRIER-FREE SYMBOL
1:50



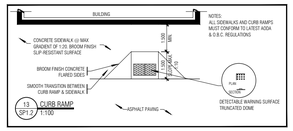
10 / SP1.2 SIDEWALK LINE PAINTING
1:50



11 / SP1.2 PARKING DETAILS
1:50



12 / SP1.2 TYPICAL PAVEMENT MARKINGS
1:100



13 / SP1.2 CURB RAMP
1:100

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO:

- CHECK AND VERIFY ALL DIMENSIONS ON SITE;
- REPORT ALL ERRORS AND/OR OMISSIONS TO GREYSTONE BEFORE CONTINUING WITH ANY WORK.

THESE DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS NOTED OTHERWISE

THESE DRAWINGS SHALL NOT TO BE SCALED ERRORS MADE BY PERSONS SCALING THESE DRAWINGS WILL NOT BE THE RESPONSIBILITY OF GREYSTONE ARCHITECTURAL PARTNERS

THESE DRAWINGS SHALL TO BE READ IN CONJUNCTION WITH ALL OTHER RELATED DOCUMENTS.

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PROJECT NORTH

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154 King Street East
Cambridge, Ontario N3H 3M4
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REV.	DESCRIPTION	DATE
9	ISSUED FOR COORDINATION	2026.05.29
8	ISSUED FOR COORDINATION	2026.05.14
7	ISSUED FOR ZBA	2025.09.26
6	ISSUED FOR COORDINATION	2025.09.23
5	ISSUED FOR COORDINATION	2025.09.19
4	ISSUED FOR COORDINATION	2025.09.17
3	ISSUED FOR COORDINATION	2025.09.11
2	ISSUED FOR REVIEW	2025.09.03
1	ISSUED FOR REVIEW	2025.08.15

△ REVISION ☐ ISSUED ○ APPROVAL

CLIENT:

FIRST CAPITAL

PROJECT:

SITE PLAN

DERRY HEIGHTS
DERRY ROAD & BRONTE ST.
MILTON, ONTARIO

DRAWING:

PROPOSED SITE PLAN DETAILS

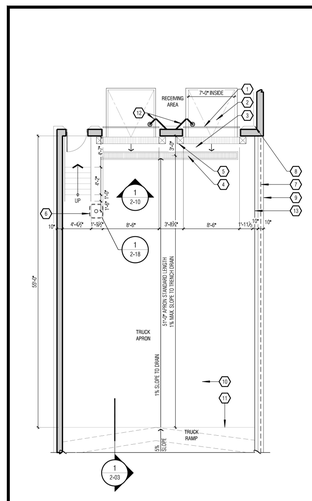
DATE YYYY/MM/DD: 2026.05.27

REVISION NUMBER: R9

SCALE: AS INDICATED

DRAWING NUMBER: SP1.2

JOB NUMBER: 25201-E



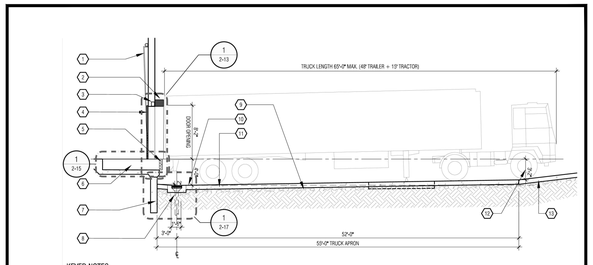
14 / SP1.2 LOADING DOCK
NTS

KEYED NOTES:

- 1 THERMACORE OVERHEAD DOOR MODEL #1932 BY *OVERHEAD DOOR CO* OR APPROVED EQUAL
- 2 HYDRAULIC DOCK LEVELER BY *BLUE GIANT* MODEL #HLT7060-35 OR APPROVED ALTERNATE BY SERCO OR PENTALIFT.
- 3 1.5% SLOPE TO TRENCH DRAIN.
- 4 TRENCH DRAIN. (SEE MECHANICAL)
- 5 DOCK SEAL AND BUMPER
- 6 CONCRETE FILLED STEEL BOLLARD. (SEE STANDARD DETAIL 1/SA1)
- 7 HOT DIP GALVANIZED RAILING TO BE INSTALLED ON TOP OF RETAINING WALL. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
- 8 CONCRETE FILLED STEEL CURB. (SEE STANDARD DETAILS)
- 9 REINFORCED POURED CONCRETE RETAINING WALL. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
- 10 REINFORCED POURED CONCRETE APRON. (SEE STRUCTURAL)
- 11 EXTENT OF CONCRETE APRON.
- 12 DOCK LOADING LIGHT. (SEE ELECTRICAL)
- 13 POURED CONCRETE CURB 6"W x 9"H

GENERAL NOTES:

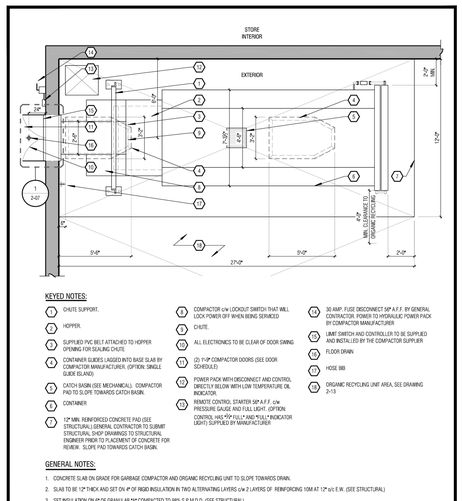
1. TAGE OF SLOPE OF RAMP = 5% OF LENGTH
2. HERRINGBONE PATTERN IN CONCRETE RAMP
3. HEAVY PAVING TO ASPHALT RAMP



15 / SP1.2 LOADING DOCK SECTION
NTS

KEYED NOTES

- 1 TRACK FOR VERTICAL LIFT DOOR
- 2 BC100 FIXED HEAD PADD DOCK SEAL BY *BLUE GIANT* OR APPROVED ALTERNATE
- 3 STEEL LINTEL AND CHANNEL FRAME HEAD. (SEE STRUCTURAL DWGS).
- 4 THERMACORE OVERHEAD DOOR MODEL #1932 BY *OVERHEAD DOOR CO* OR APPROVED ALTERNATE
- 5 DOCK BUMPER MODEL DB412WS 1"W x 20"H x 4.5"D BY *BLUE GIANT* OR APPROVED ALTERNATE BY SERCO OR PENTALIFT
- 6 HYDRAULIC DOCK LEVELER BY *BLUE GIANT* MODEL #HLT7060-35 OR APPROVED ALTERNATE BY SERCO OR PENTALIFT.
- 7 FOUNDATION WALL
- 8 CATCH BASIN CONNECTED TO STORMWATER SEWER.
- 9 TYPE "**" FILL COMPACTED TO 98% PROCTOR DENSITY.
- 10 APRON SLOPED TO CATCH BASIN AT 1.5%.
- 11 9" THICK CONC. SLAB (CLASS C2 CONC.) 10M @ 18" T&B EACH WAY. 8" MIN.
- 12 GRADE AT END OF TRUCK APRON TO BE AT 3"-4" BELOW FINISHED FLOOR MAXIMUM
- 13 SLOPE RAMP UP W/ HERRINGBONE PATTERN 5%



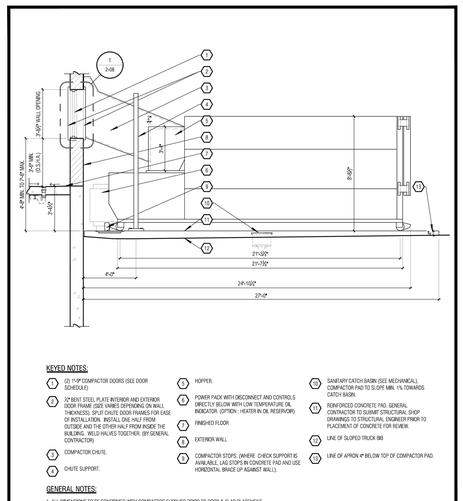
16 / SP1.2 COMPACTOR
NTS

KEYED NOTES:

- 1 CHUTE SUPPORT.
- 2 HOPPER.
- 3 SUPPLIED PVC BELT ATTACHED TO HOPPER OPENING FOR SEALING CHUTE.
- 4 CONTAINER GUIDES LAGGED INTO BASE SLAB BY COMPACTOR MANUFACTURER. (OPTION: SINGLE GUIDE ISLAND)
- 5 CATCH BASIN (SEE MECHANICAL). COMPACTOR PAD TO SLOPE TOWARDS CATCH BASIN.
- 6 CONTAINER
- 7 12" MIN. REINFORCED CONCRETE PAD (SEE STRUCTURAL) GENERAL CONTRACTOR TO SUBMIT STRUCTURAL SHOP DRAWINGS TO STRUCTURAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE FOR REVIEW. SLOPE PAD TOWARDS CATCH BASIN.
- 8 COMPACTOR c/w LOCKOUT SWITCH THAT WILL LOCK POWER OFF WHEN BEING SERVICED
- 9 CHUTE.
- 10 ALL ELECTRONICS TO BE CLEAR OF DOOR SWING
- 11 (2) 7'x9' COMPACTOR DOORS (SEE DOOR SCHEDULE)
- 12 POWER PACK WITH DISCONNECT AND CONTROL DIRECTLY BELOW WITH LOW TEMPERATURE OIL INDICATOR.
- 13 REMOTE CONTROL STARTER S9* A.F.F. c/w PRESSURE GAUGE AND FULL LIGHT. (OPTION: CONTROL HAS *O* FULL* AND *FULL* INDICATOR LIGHT) SUPPLIED BY MANUFACTURER
- 14 30 AMP. FUSE DISCONNECT S9* A.F.F. BY GENERAL CONTRACTOR. POWER TO HYDRAULIC POWER PACK BY COMPACTOR MANUFACTURER
- 15 LIMIT SWITCH AND CONTROLLER TO BE SUPPLIED AND INSTALLED BY THE COMPACTOR SUPPLIER
- 16 FLOOR DRAIN
- 17 HOSE BIB
- 18 ORGANIC RECYCLING UNIT AREA, SEE DRAWING 2-13

GENERAL NOTES:

1. CONCRETE SLAB ON GRADE FOR GARBAGE COMPACTOR AND ORGANIC RECYCLING UNIT TO SLOPE TOWARDS DRAIN.
2. SLAB TO BE 12" THICK AND SET ON 4"-0" RIGID INSULATION IN TWO ALTERNATING LAYERS c/w 2 LAYERS OF REINFORCING 10M AT 12" o/c E.W. (SEE STRUCTURAL)
3. SET INSULATION ON 6"-0" GRANULAR "A" COMPACTED TO 98% S.P.M.D.D. (SEE STRUCTURAL)
4. CONCRETE TO BE 35 MPa + - 5% TO 8% AIR ENTRAINMENT (SEE STRUCTURAL)
5. SEE FIXTURE LAYOUT FOR ORIENTATION AND LAYOUT OF COMPACTOR.



17 / SP1.2 COMPACTOR SECTION
NTS

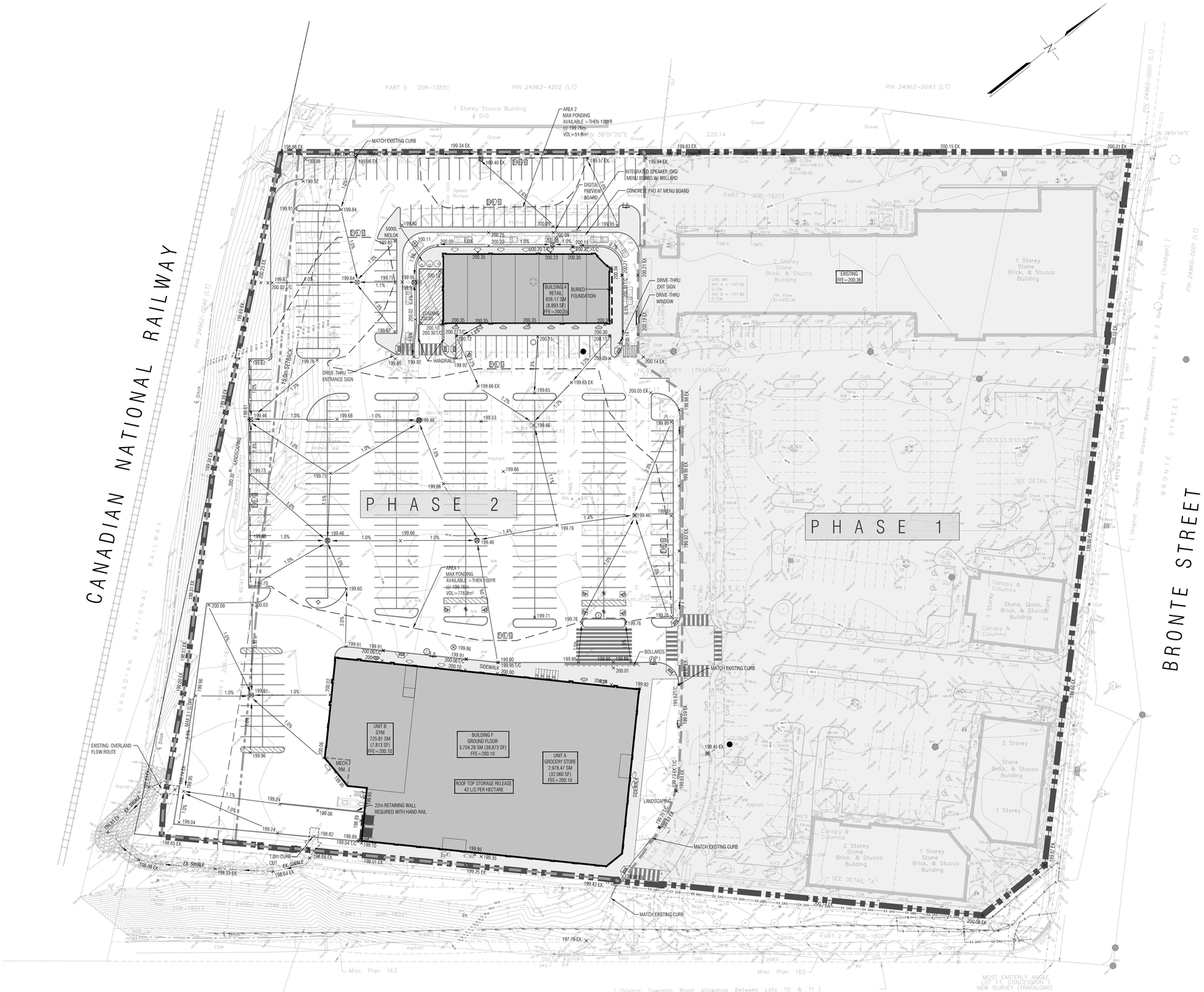
KEYED NOTES:

- 1 (2) 7'x9' COMPACTOR DOORS (SEE DOOR SCHEDULE)
- 2 3/*" BENT STEEL PLATE INTERIOR AND EXTERIOR DOOR FRAME (SIZE VARIES DEPENDING ON WALL THICKNESS). SPLIT CHUTE DOOR FRAMES FOR EASE OF INSTALLATION. INSTALL ONE HALF FROM OUTSIDE AND THE OTHER HALF FROM INSIDE THE BUILDING. WELD HALVES TOGETHER. (BY GENERAL CONTRACTOR)
- 3 COMPACTOR CHUTE.
- 4 CHUTE SUPPORT.
- 5 HOPPER.
- 6 POWER PACK WITH DISCONNECT AND CONTROLS DIRECTLY BELOW WITH LOW TEMPERATURE OIL INDICATOR. (OPTION: : HEATER IN OIL RESERVOIR)
- 7 FINISHED FLOOR
- 8 EXTERIOR WALL
- 9 COMPACTOR STOPS. (WHERE CHECK SUPPORT IS AVAILABLE, LAG STOPS IN CONCRETE PAD AND USE HORIZONTAL BRACE UP AGAINST WALL).
- 10 SANITARY CATCH BASIN (SEE MECHANICAL). COMPACTOR PAD TO SLOPE MIN. 1% TOWARDS CATCH BASIN.
- 11 REINFORCED CONCRETE PAD. GENERAL CONTRACTOR TO SUBMIT STRUCTURAL SHOP DRAWINGS TO STRUCTURAL ENGINEER PRIOR TO PLACEMENT OF CONCRETE FOR REVIEW.
- 12 LINE OF SLOPED TRUCK BB
- 13 LINE OF APRON 4" BELOW TOP OF COMPACTOR PAD.

GENERAL NOTES:

1. ALL DIMENSIONS TO BE CONFIRMED WITH COMPACTOR SUPPLIER PRIOR TO DOOR & SLAB PLACEMENT.
2. INSTALLER TO CUT ANGLES ON CHUTE TO FIT.
3. POWER PACK TO BE BRACKETED TO WALL WITH DISCONNECT & CONTROLS DIRECTLY BELOW

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GENERAL NOTES:

1. ALL WORK SHALL BE CARRIED OUT IN COMPLIANCE WITH THE APPLICABLE HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
2. ALL THE CONSTRUCTION WORK FOR THIS PROJECT SHALL COMPLY WITH THE STANDARD DRAWINGS AND SPECIFICATIONS OF THE TOWN OF MILTON, REGION OF HALTON AND THE ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS.
3. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH ALL OTHER CONTRACTORS AND PREVENT CONSTRUCTION CONFLICTS.
4. THE INFORMATION SHOWN FOR EXISTING UTILITIES WAS PROVIDED BY OTHERS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. ALL EXISTING UTILITIES MUST BE LOCATED AND VERIFIED BY EACH UTILITY PRIOR TO COMMENCEMENT OF WORK. ANY VARIANCE IS TO BE IMMEDIATELY REPORTED TO THE ENGINEER. LOST TIME DUE TO FAILURE OF THE CONTRACTOR TO CONFIRM UTILITY LOCATIONS AND NOTIFYING THE ENGINEER OF CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT THE CONTRACTORS EXPENSE.
5. ROAD OCCUPANCY/ACCESS PERMIT MUST BE OBTAINED 48 HOURS PRIOR TO COMMENCING ANY WORKS WITHIN THE MUNICIPAL ROAD ALLOWANCE.

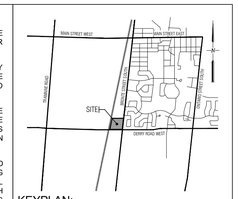
SITE GRADING:

1. ALL DISTURBED GRASSED AREAS SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER. THE RELOCATION OF TREES AND SHRUBS SHALL BE SUBJECT TO APPROVAL BY THE PROJECT LANDSCAPE ARCHITECT OR ENGINEER.
2. ALL GRANULAR BASE AND SUB-BASE MATERIALS SHALL BE GRADED AND COMPACTED TO 98% STANDARD PROCTOR DENSITY, FREE OF DEPRESSIONS.
3. THE PAVEMENT STRUCTURE SHALL BE CONSTRUCTED OF THE MINIMUM THICKNESSES OF MATERIALS AS PER THE GEOTECHNICAL REPORT AND THE CITY OF XXXXXX STANDARDS, OR A MINIMUM OF THE FOLLOWING:

   CAR PARK AREA (LIGHT DUTY ASPHALT)
   40mm HL3 ASPHALTIC CONCRETE
   50mm HL4 ASPHALTIC CONCRETE
   150mm - GRANULAR 'A' BASE
   200mm - GRANULAR 'B' TYPE II

   FIRE ROUTE/TRUCK ENTRANCE (HEAVY DUTY ASPHALT)
   40mm HL3 ASPHALTIC CONCRETE
   75mm HL4 ASPHALTIC CONCRETE
   150mm - GRANULAR 'A' BASE
   300mm - GRANULAR 'B' TYPE II

   CONCRETE IN LOADING DOCK AREA (RIGID)
   200mm CONCRETE
   150mm - GRANULAR 'A' BASE
   200mm - GRANULAR 'B' TYPE II
4. PROVIDE SUBDRAINS, MINIMUM LENGTH OF 3.0m EXTENDING FROM ALL CATCHBASINS AND CATCHBASIN MANHOLES TO DRAIN THE GRANULAR SUB-BASE LAYER AS PER DETAIL ON DRAWING D1.
5. ALL BARRIER CURB WITHIN THE SITE TO BE CONSTRUCTED AS PER DETAIL ON DRAWING D1, UNLESS OTHERWISE SPECIFIED.
6. TRENCH BACKFILL WITHIN THE SITE TO BE CONSTRUCTED AS PER DETAIL ON DRAWING D1, UNLESS OTHERWISE SPECIFIED.
7. FROST SLABS ARE REQUIRED AT ALL DOOR LOCATIONS WHERE PROPOSED OUTSIDE GRADE IS FLUSH WITH FINISHED FLOOR ELEVATION.
8. ALL WORK SHALL BE SUBJECT TO THE CONDITIONS AND REQUIREMENTS OF CITY ROAD OCCUPANCY PERMIT.
9. INSPECTIONS: ALL WORK ON THE MUNICIPAL RIGHT OF WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR TO BACKFILLING. ALL WORK RELATING TO WATERMAINS AND SEWERS TO BE INSPECTED BY THE MUNICIPALITY WHEN REQUIRED BY THE MUNICIPALITY.
10. REFER TO SITE PLAN FOR DIMENSIONS AND DETAILS.
11. STEP JOINTS ARE TO BE USED WHERE PROPOSED ASPHALT MEETS EXISTING ASPHALT AS PER DETAIL ON DRAWING D1. ALL JOINTS MUST BE SEALED AS PER DETAIL.
12. TRANSITIONS WITHIN THE SUBGRADE WITHIN 1.2m FROM THE TOP OF PAVEMENT SHOULD INCLUDE 3H:1V TRANSITIONS AS PER DETAIL ON DRAWING D1.
13. EMBANKMENTS TO BE SLOPED AT MAX. 3:1, UNLESS OTHERWISE SPECIFIED.
14. ALL PAVEMENT MARKING, LINE PAINTING, DIRECTIONAL LINES/ARROWS ETC, SHALL BE PLACED IN ACCORDANCE WITH THE ARCHITECTURAL SITE PLAN OR THE OWNERS TRAFFIC ENGINEERING CONSULTANT'S DRAWINGS. LINE PAINTING AND DIRECTIONAL SYMBOLS SHALL BE APPLIED WITH A MINIMUM OF TWO COATS OF ORGANIC SOLVENT BASED PAINT IN ACCORDANCE WITH OPSS 712.
15. THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER 1 (ONE) SET OF AS CONSTRUCTED SITE SERVICING AND GRADING DRAWINGS.



KEYPLAN:
N.T.S.

LEGEND:

- CONSTRUCTION LIMIT
- PROPERTY BOUNDARY
- BURIED FOUNDATION
- EXPOSED FOUNDATION
- BUILDING ENTRANCE
- OIL GRIT SEPARATOR
- HEADWALL
- VALVE AND BOX
- HYDRANT AND VALVE
- SIAMESE CONNECTION
- WATER METER
- BACKFLOW PREVENTOR
- DETECTOR CHECK VALVE
- SANITARY MANHOLE
- STORM MANHOLE
- CATCH BASIN MANHOLE
- CATCH BASIN/DOUBLE CATCH BASIN
- PROPOSED WATERMAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- EXISTING SANITARY MANHOLE
- EXISTING STORM MANHOLE
- EXISTING CATCH BASIN
- EXISTING SANITARY SEWER (EX SAN)
- EXISTING STORM SEWER (EX STM)
- EXISTING WATERMAIN (EX WM)
- EXISTING SLOPES (1.00%)
- PROPOSED SLOPES (1.00%)
- INTERCEPTOR SWALE
- PROPOSED GROUND ELEVATION (× 99.20)
- TOP OF CURB ELEVATION (× 99.20 TC)
- EXISTING ELEVATION (× 99.20 EX)
- PROPOSED OVERLAND FLOW ROUTE
- EMBANKMENT
- EXISTING OVERLAND FLOW ROUTE
- EXISTING CONTOURS (99.00)
- PONDING AREA (D6/D7)
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LANDSCAPE AREA

SITE PLAN PREPARED BY: GREYSTONE ENGINEERING

TOPOGRAPHIC & LEGAL: PREPARED BY: CUNNINGHAM McCONNEL LIMITED COMPLETED ON MAY 27TH 2025.

COORDINATES:

CITY BENCHMARK: ELEVATIONS ARE GEODETIC AND HAVE BEEN DERIVED BASED ON THE TOPNET NETWORK GPS SYSTEM.

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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 at this project.

NOT FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER T. M. RICKETTS 90439981 SEPT. 25, 2025 PROVINCE OF ONTARIO

Number	Issued/Revision	Date	Auth.
1	ZBA SUBMISSION	25/09/25	TR

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Client: FIRST CAPITAL

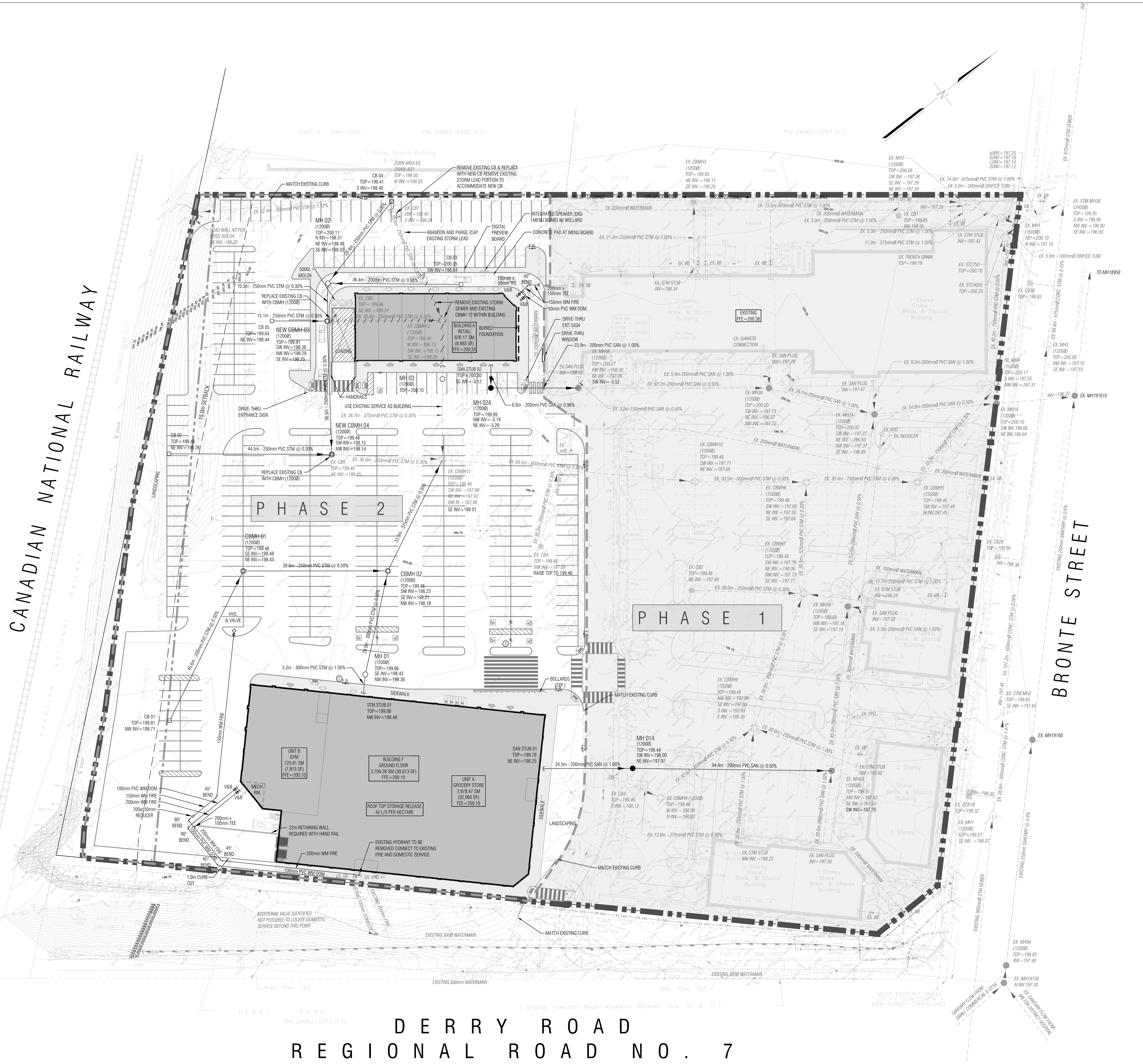
Drawing Title:

GRADING PLAN

DERRY HEIGHTS
COMMERCIAL DEVELOPMENT
MILTON, ON

Drawn By:	Checked By:	Scale:	Drawing No.:
NG	TR	1:500	G1
Date (yy.mm.dd): 2025-07-31	Job No.: 25-201	Revision No.:	

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GENERAL NOTES:

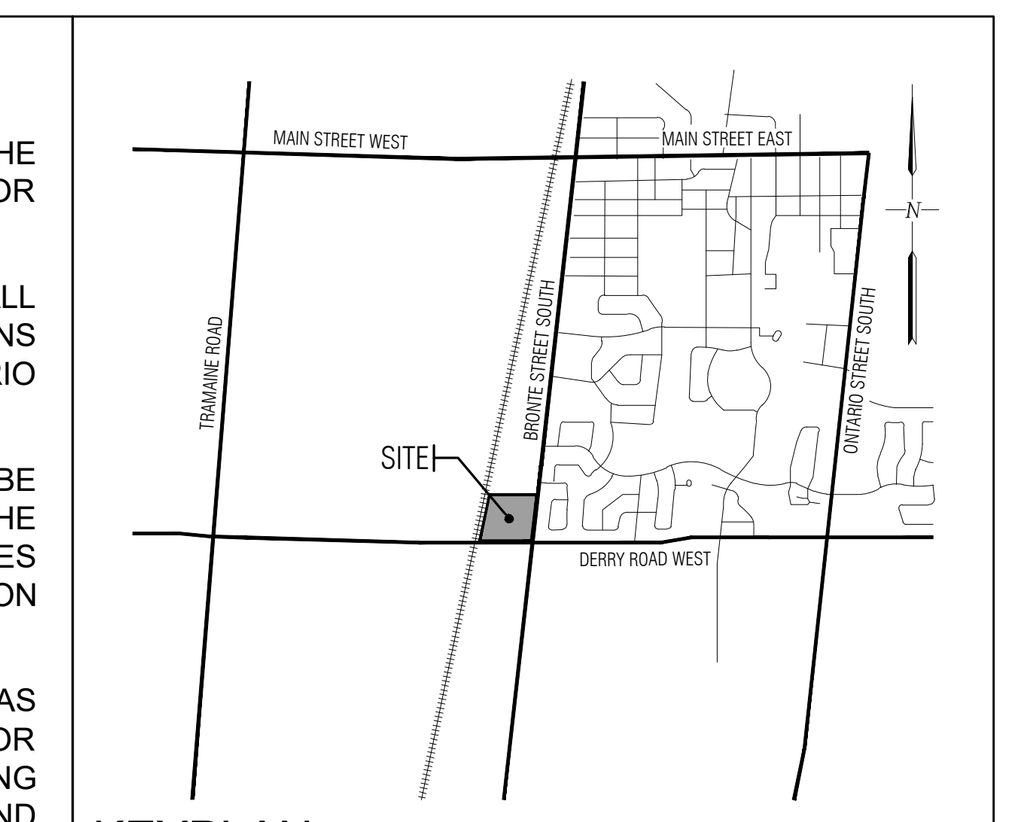
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STORM AND SANITARY:

1. MANHOLES SHALL BE AS PER OPSD 701.010 AND OPSD 701.011; FRAMES AND COVERS SHALL BE AS PER OPSD 401.010.
2. SINGLE CATCH BASINS SHALL BE AS PER OPSD 705.010, WITH FRAMES AND COVERS AS PER OPSD 400.020. DOUBLE CATCH BASINS SHALL BE AS PER OPSD 705.020.
3. CONCRETE PIPE SEWER BEDDING SHALL BE AS PER OPSD 802.030. PVC PIPE SEWER BEDDING SHALL BE CLASS 'B' AS PER OPSD 802.030 TO TOP OF SEWER. NATIVE BACKFILL TO BE COMPACTED TO A MIN. 98% STANDARD PROCTOR DENSITY WITH A MINIMUM 300mm SAND COVER OVER PIPE.
4. ALL STORM SEWER PIPES UP TO 450mmØ SHALL BE PVC SDR-35 OR APPROVED EQUIVALENT. ALL STORM SEWER PIPES 525mmØ AND LARGER SHALL BE CONCRETE AND EQUAL TO C.S.A. SPECIFICATIONS A257.2 REINFORCED CLASSES AS SPECIFIED (65-D, 100-D, 140-D.) OR LATEST AMENDMENT UNLESS OTHERWISE SPECIFIED.
5. ALL MANHOLE AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL COMPACTED TO 98% STANDARD PROCTOR DENSITY,
6. ALL CATCH BASINS AND CATCH BASIN MANHOLES ARE TO INCLUDE SUBDRAIN TREATMENT AS PER DETAIL ON THIS DRAWING.
7. UNLESS NOTED OTHERWISE, CATCH BASIN LEADS SHALL BE 250mmØ AT MINIMUM 1.00% SLOPE
8. THE CONTRACTOR IS TO PROVIDE CCTV CAMERA INSPECTIONS OF ALL SANITARY AND STORM SEWERS, INCLUDING PICTORIAL REPORT AND A DIGITAL COPY IN A FORMAT SATISFACTORY TO THE ENGINEER. ALL SEWERS ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION.

WATERMAINS:

1. WATERMAIN SHALL BE POLYVINYL CHLORIDE (PVC) CLASS 150 DR-18 PIPE MANUFACTURED TO AWWA C900-89 AND CSA CAN3 B137.3-M1986 WITH GASKETED BELL END CM #14 AWG SOLID COPPER TRACER WIRE.
2. WATERMAINS SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 300mm OVER AND 500mm UNDER SEWERS AND ALL OTHER UTILITIES WHEN CROSSING, ALL WATERMAINS AND SERVICES SHALL HAVE 1.80m MINIMUM COVER
3. BEDDING FOR WATERMAINS SHALL BE AS PER OPSD 802.030.
4. ALL WATERMAIN HORIZONTAL AND VERTICAL BENDS, JOINTS AND PLUGS TO BE MECHANICALLY RESTRAINED. THRUST BLOCKS/MECHANICAL RESTRAINERS MUST BE INSTALLED ON ALL WATERMAIN BENDS. TEES, AND PLUGS AS PER LOCAL MUNICIPAL STANDARDS.
5. ALL WATERMAIN STUBS SHALL BE TERMINATED WITH A PLUG AND 50mm BLOW OFF UNLESS OTHERWISE NOTED.
6. HYDRANT AND VALVE TO BE AS PER OPSD 1105.010.
7. ALL HYDRANT FLANGE ELEVATIONS TO BE INSTALLED 0.15m ABOVE PROPOSED FINISHED GRADE AT HYDRANT.
8. BUILDING SERVICE VALVES TO BE 3.0m OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED AND MUST BE RESTRAINED A MINIMUM OF 12m BACK FROM STUB.
9. PROVISIONS FOR FLUSHING WATERMAINS MUST BE PROVIDED WITH A MINIMUM 50mm OUTLET FOR MAINS 100mm AND LARGER. FLUSHING POINTS MATCHING THE SIZE OF THE PIPE MUST BE PROVIDED AT THE END OF EACH COPPER MAIN. FIRE MAIN FLUSHING OUTLETS TO BE 100mm DIAMETER MINIMUM OR A HYDRANT. FLUSHING POINTS MUST BE HOSED OR PIPED TO ALLOW THE WATER TO DRAIN.
10. ALL WATERMAINS SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH REGION OF PEEL STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE DIRECTED. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED.
11. ALL PROPOSED WATER PIPING MUST BE ISOLATED FROM EXISTING MAINS IN ORDER TO ALLOW INDEPENDENT PRESSURE TESTING AND CHLORINATION AS PER REGION OF PEEL STANDARDS AND SPECIFICATIONS.
12. ALL MATERIALS AND CONSTRUCTION METHODS MUST CORRESPOND TO THE CURRENT PEEL PUBLIC WORKS STANDARDS AND SPECIFICATIONS,
13. WATERMAIN AND/OR WATER SERVICE MATERIALS 100mm (4") AND LARGER MUST BE PVC SDR-18 CLASS 150. SIZE 50mm (2") AND SMALLER MUST BE COPPER TYPE 'K'.
14. WATERMAINS AND / OR WATER SERVICES ARE TO HAVE A MINIMUM COVER OF 1.7m (5' 6") WITH A MINIMUM HORIZONTAL SPACING OF 1.2m (4") FROM THEMSELVES AND ALL OTHER UTILITIES.
15. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED WITH AT LEAST A 50mm (2") OUTLET ON 100mm (4") AND LARGER LINES. COPPER LINES ARE TO HAVE FLUSHING POINTS AT THE END. THE SAME SIZE AS THE LINE, THEY MUST ALSO BE HOSED OR PIPED TO ALLOW THE WATER TO DRAIN ONTO A PARKING LOT OR DOWN A DRAIN. ON FIRE LINES, FLUSHING OUTLET TO BE 100mm (4") DIAMETER MINIMUM ON A HYDRANT.
16. ALL CURB STOPS TO BE 3.0m (10') OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED.
17. HYDRANT AND VALVE SET TO REGION STANDARD 1 - 6-1 DIMENSION A AND B, 0.7m (2') AND 0.9m (3') AND TO HAVE PUMPER NOZZLE.
18. WATERMAINS TO BE INSTALLED TO GRADES AS SHOWN ON APPROVED SITE PLAN, COPY OF GRADE SHEET MUST BE SUPPLIED TO INSPECTOR PRIOR TO COMMENCEMENT OF WORK, WHERE REQUESTED BY INSPECTOR.
19. WATERMAINS MUST HAVE A MINIMUM VERTICAL CLEARANCE OF 0.3m (12") OVER / 0.5m (20") UNDER SEWERS AND ALL OTHER UTILITIES WHEN CROSSING.
20. ALL PROPOSED WATER PIPING MUST BE ISOLATED FROM EXISTING LINES IN ORDER TO ALLOW INDEPENDENT PRESSURE TESTING AND CHLORINATING FROM EXISTING SYSTEMS.
21. ALL LIVE TAPPING AND OPERATION OF REGION WATER VALVES SHALL BE ARRANGED THROUGH THE REGIONAL INSPECTOR ASSIGNED OR BY CONTACTING THE OPERATIONS AND MAINTENANCE DIVISION.



KEYPLAN:
N.T.S.

LEGEND:

CONSTRUCTION LIMIT
PROPERTY BOUNDARY
BURIED FOUNDATION
EXPOSED FOUNDATION
BUILDING ENTRANCE
OIL GRIT SEPARATOR
HEADWALL
VALVE AND BOX
HYDRANT AND VALVE
SIAMESE CONNECTION
WATER METER
BACKFLOW PREVENTOR
DETECTOR CHECK VALVE
SANITARY MANHOLE
STORM MANHOLE
CATCH BASIN MANHOLE
CATCH BASIN/DOUBLE CATCH BASIN
PROPOSED WATERMAIN
PROPOSED SANITARY SEWER
PROPOSED STORM SEWER
EXISTING SANITARY MANHOLE
EXISTING STORM MANHOLE
EXISTING CATCH BASIN
EXISTING SANITARY SEWER — EX. SAN
EXISTING STORM SEWER — EX. STM
EXISTING WATERMAIN — EX.WM
EXISTING SLOPES — 1.00%
PROPOSED SLOPES — 1.00%
INTERCEPTOR SWALE
PROPOSED GROUND ELEVATION — × 99.20
TOP OF CURB ELEVATION — × 99.20 TC
EXISTING ELEVATION — × 99.20 EX
PROPOSED OVERLAND FLOW ROUTE
EMBANKMENT
EXISTING OVERLAND FLOW ROUTE
EXISTING CONTOURS — 331.25
PONDING AREA — 199.74
PROPOSED HEAVY DUTY ASPHALT
PROPOSED LANDSCAPE AREA

SITE PLAN PREPARED BY: GREYSTONE ENGINEERING

TOPOGRAPHIC & LEGAL: PREPARED BY: CUNNINGHAM McCONNEL LIMITED COMPLETED ON MAY 27TH 2025.

COORDINATES:

CITY BENCHMARK: ELEVATIONS ARE GEODETIC AND HAVE BEEN DERIVED BASED ON THE TOPNET NETWORK GPS SYSTEM.

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LICENSED PROFESSIONAL ENGINEER
T. M. RICKETTS
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SEPT. 25, 2025
PROVINCE OF ONTARIO

Number	Issued/Revision	Date	Auth.
1	ZBA SUBMISSION	25/09/25	TR

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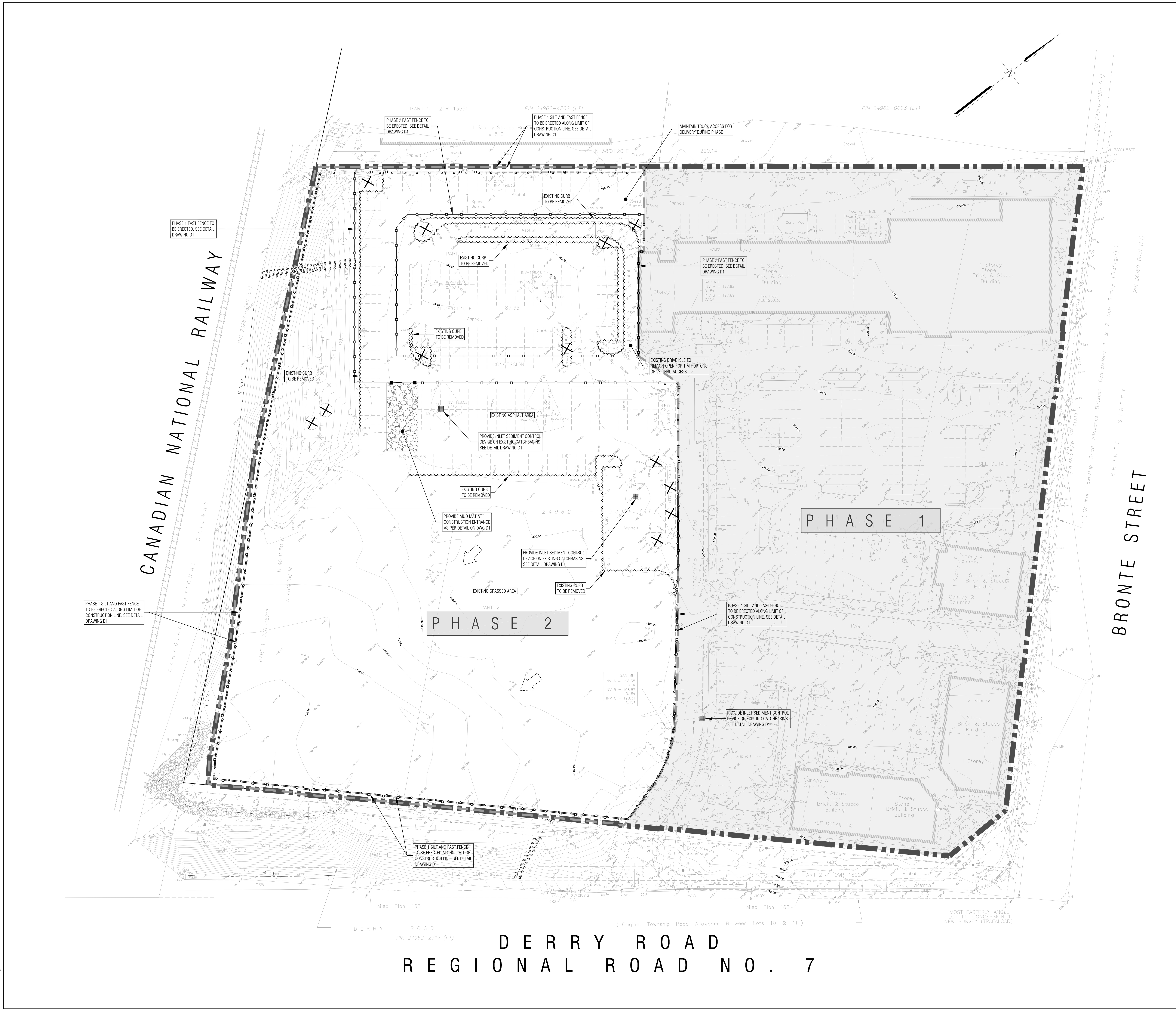
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SERVICING PLAN

DERRY HEIGHTS
COMMERCIAL DEVELOPMENT
MILTON, ON

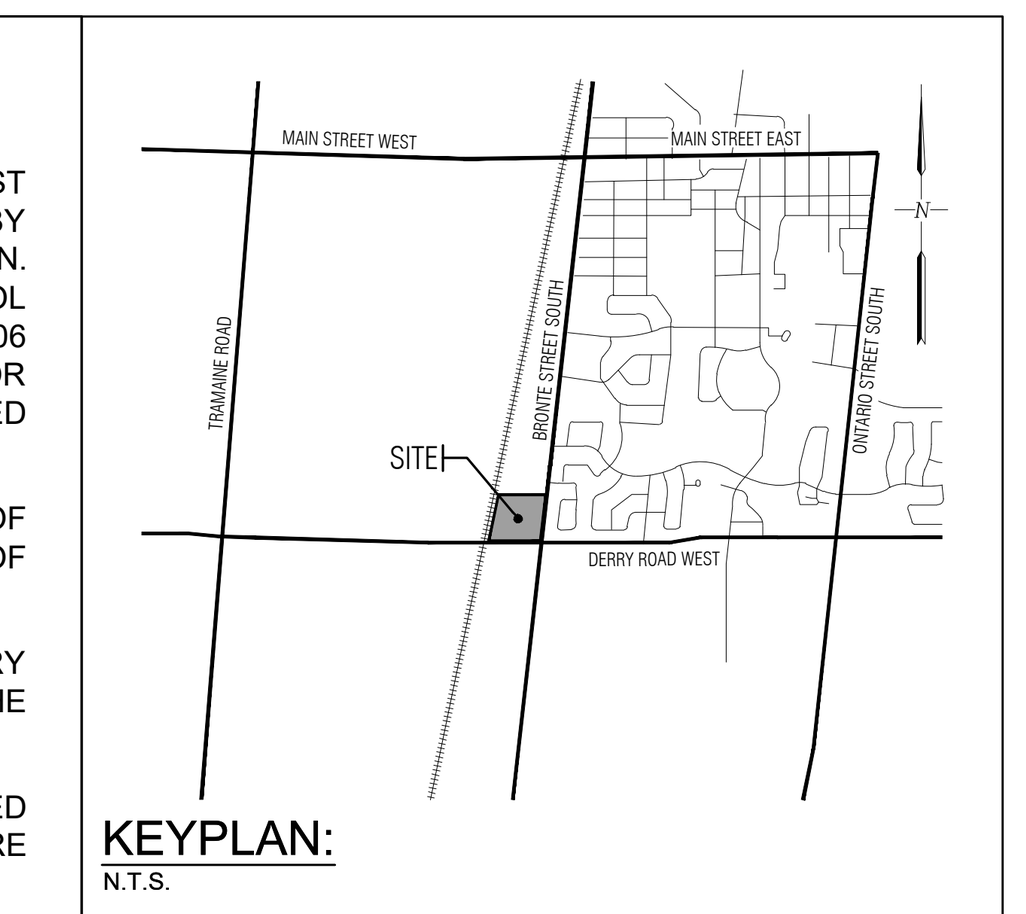
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Date (yy.mm.dd): 2025-07-31	Job No.: 25-201	Revision No.:	

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EROSION AND SEDIMENT CONTROL NOTES:

1. ALL CONTROL MEASURES MUST CORRESPOND TO THE LATEST EROSION AND SEDIMENT CONTROL STANDARDS PROVIDED BY THE TOWN OF MILTON AND THE REGION OF HALTON. STANDARDS PROVIDED IN THE "EROSION & SEDIMENT CONTROL GUIDELINES FOR URBAN CONSTRUCTION" DECEMBER 2006 SHALL GOVERN WHERE NO OTHER STANDARD OR SPECIFICATION IS PROVIDED BY THE LOCAL CONCERNED AUTHORITIES.
2. SILT CONTROLS ARE TO BE IN PLACE PRIOR TO THE START OF SITE WORKS, AND BE MAINTAINED FOR THE DURATION OF CONSTRUCTION.
3. SEDIMENT BARRIERS, CHECK DAMS, AND TEMPORARY CONSTRUCTION ACCESS TO BE INSTALLED PRIOR TO THE BEGINNING OF CONSTRUCTION.
4. ALL SEDIMENT CONTROL DEVICES TO BE ROUTINELY INSPECTED AND MAINTAINED IN PROPER WORKING ORDER UNTIL AREA ARE STABILIZED.
5. IF NECESSARY, TRUCKS WILL BE WASHED DOWN BEFORE LEAVING THE SITE.
6. THE SITE WILL BE WET DOWN IF NECESSARY TO CONTROL DUST.
7. ALL CONSTRUCTION EQUIPMENT MUST BE PARKED ON-SITE.
8. ALL CONSTRUCTION ACTIVITY SHALL COMPLY WITH THE TOWN OF MILTON NOISE BYLAW.
9. SEDIMENT CONTROL FENCE TO BE AS PER DETAIL ON DWG. D1.
10. STONE PAD CONSTRUCTION ENTRANCE TO BE AS PER TYPICAL MUD MAT DETAIL PROVIDED ON DWG. D1.
11. CONTRACTOR SHALL DETERMINE LOCATION OF CONSTRUCTION ENTRANCE IN CONSULTATION WITH THE CITY INSPECTOR. ALL CONSTRUCTION VEHICLES TO ENTER AND EXIT SITE FROM TEMPORARY CONSTRUCTION ACCESS.
12. ALL TOPSOIL STOCKPILES (IF REQUIRED) TO BE SURROUNDED WITH SEDIMENT CONTROL FENCING. CONTRACTOR SHALL DETERMINE LOCATION OF STOCKPILES IN CONSULTATION WITH THE CITY INSPECTOR.
13. FILTER FABRIC TO BE PLACED UNDER GRATES ON ALL CATCHBASINS TO TRAP SEDIMENT. SILT TRAPS ARE TO BE CLEANED REGULARLY AND ARE NOT TO BE REMOVED UNTIL SUCH TIME AS THE CURBS ARE CONSTRUCTED AND THE BOULEVARDS ARE SODDED. FILTER FABRIC FOR SILT CONTROL TO BE TERRA FIX 270R OR APPROVED EQUIVALENT.
14. STREET SWEEPING, CATCH BASIN CLEANING AND DUST CONTROL ARE THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE KEPT UNDER CONTROL ON ALL ROADWAYS TO THE SATISFACTION OF THE TOWN/REGION.
15. CONTRACTOR IS RESPONSIBLE TO PROVIDE TEMPORARY DITCHES AND OVERLAND FLOW PATHS DURING CONSTRUCTION ALONG ALL PROPERTY LINES (LIMITS OF CONSTRUCTION) WITH POSITIVE SLOPE TOWARDS THE SAFE OUTLET LOCATION. CONTRACTOR IS SOLELY RESPONSIBLE FOR MAINTAINING THESE DITCHES IN PROPER WORKING CONDITION AT ALL TIMES DURING CONSTRUCTION TO RESTRICT RUNOFF FROM ENTERING INTO THE ADJOINING PROPERTIES.
16. PUMPING OF BUILDING EXCAVATION (IF REQUIRED) SHALL REMAIN ON SITE AND INCLUDE A FILTER SOCK AT THE PUMP OUTLET.



KEYPLAN:
N.T.S.

LEGEND:

- CONSTRUCTION LIMIT
- PROPERTY BOUNDARY
- SILT FENCE
- CONSTRUCTION FENCE
- MUDMAT CONSTRUCTION ACCESS PAD
- SEDIMENT CONTROL DEVICE
- PROPOSED OVERLAND FLOW ROUTE
- EXISTING OVERLAND FLOW ROUTE
- TEMPORARY ESC POND
- INTERCEPTOR SWALE
- EXISTING TREES/LANDSCAPING TO BE REMOVED
- EXISTING CONTOURS (331.25)
- CURB REMOVAL

SITE PLAN PREPARED BY: GREYSTONE ENGINEERING

TOPOGRAPHIC & LEGAL: PREPARED BY: CUNNINGHAM McCONNEL LIMITED COMPLETED ON MAY 27TH 2025.

COORDINATES:

CITY BENCHMARK: ELEVATIONS ARE GEODETIC AND HAVE BEEN DERIVED BASED ON THE TOPNET NETWORK GPS SYSTEM.

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SEPT. 25, 2025
PROVINCE OF ONTARIO

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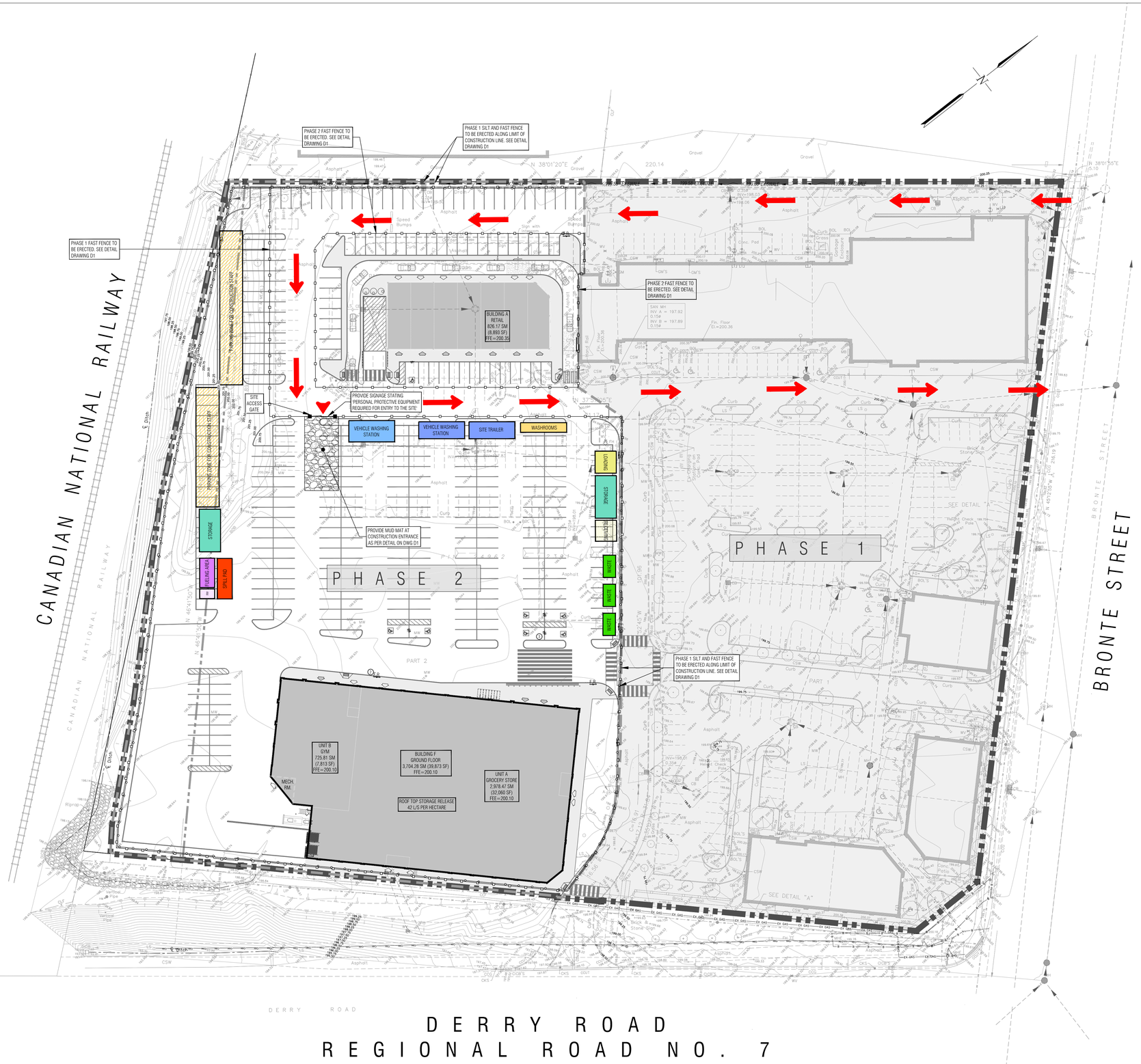
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EROSION & SEDIMENT CONTROL PLAN

DERRY HEIGHTS
COMMERCIAL DEVELOPMENT
MILTON, ON

Drawn By:	Checked By:	Scale:	Drawing No.:
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Date (yy.mm.dd): 2025-07-31	Job No.: 25-201	Revision No.:	

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GENERAL NOTES:

1. ALL WORK SHALL BE CARRIED OUT IN COMPLIANCE WITH THE APPLICABLE HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS.
2. ALL THE CONSTRUCTION WORK FOR THIS PROJECT SHALL COMPLY WITH THE STANDARD DRAWINGS AND SPECIFICATIONS OF THE CITY OF TORONTO AND THE ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS.
3. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH ALL OTHER CONTRACTORS AND PREVENT CONSTRUCTION CONFLICTS.
4. THE INFORMATION SHOWN FOR EXISTING UTILITIES WAS PROVIDED BY OTHERS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES DURING CONSTRUCTION. ALL EXISTING UTILITIES MUST BE LOCATED AND VERIFIED BY EACH UTILITY PRIOR TO COMMENCEMENT OF WORK. ANY VARIANCE IS TO BE IMMEDIATELY REPORTED TO THE ENGINEER. LOST TIME DUE TO FAILURE OF THE CONTRACTOR TO CONFIRM UTILITY LOCATIONS AND NOTIFY THE ENGINEER OF CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT THE CONTRACTORS EXPENSE.
5. ROAD OCCUPANCY/ACCESS PERMIT MUST BE OBTAINED 48 HOURS PRIOR TO COMMENCING ANY WORKS WITHIN THE MUNICIPAL ROAD ALLOWANCE.

EROSION:

1. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITIES.
2. ADDITIONAL SILT FENCING SHOULD BE AVAILABLE IN CASE IMMEDIATE REPAIR IS REQUIRED.
3. CONTRACTOR TO STABILIZE THE SITE AS SOON AS POSSIBLE BY REESTABLISHING VEGETATIVE GROUND COVER AND AVOIDING BARE SOIL AREAS. ALL AREAS (INCLUDING STOCKPILES) WHERE SITE IMPROVEMENTS ARE NOT EXPECTED TO OCCUR IMMEDIATELY SHALL BE REVEGETATED WITH 100mm OF TOPSOIL AND HYDROSEEDED.
4. ALL DRAINAGE WORKS REQUIRE EROSION / SEDIMENT CONTROL SATISFACTORY TO THE APPROVAL AGENCIES DURING CONSTRUCTION PERIOD AND MUST BE MONITORED AND MAINTAINED ON A REGULAR BASIS TO ENSURE MINIMIZED SILT MIGRATION OFF-SITE.
5. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CHECKED AND MAINTAINED ON A REGULAR BASIS AND INSPECTED AFTER EVERY RAINFALL.



KEYPLAN:
N.T.S.

LEGEND:

- CONSTRUCTION LIMIT
- PROPERTY BOUNDARY
- SITE ENTRANCE
- TRAFFIC ROUTE
- SITE OFFICE/SECONDARY TRAILER
- VEHICLE WASHING STATION
- WASTE/RECYCLING BINS
- WASHROOM
- PARKING ZONE FOR CONSTRUCTION STAFF
- MATERIAL STORAGE
- MATERIAL RECEIVING
- MATERIAL LOADING
- FILTER GALLERY/SPILL PAD
- FUEL AREA
- FUEL STORAGE
- MUDMAT CONSTRUCTION ACCESS PAD
- EXISTING SANITARY MANHOLE
- EXISTING STORM MANHOLE
- EXISTING CATCH BASIN
- EXISTING SANITARY SEWER — EX. SAN
- EXISTING STORM SEWER — EX. STM
- EXISTING WATERMAIN — EX.WM

SITE PLAN PREPARED BY: GREYSTONE ENGINEERING

TOPOGRAPHIC & LEGAL: PREPARED BY: CUNNINGHAM McCONNEL LIMITED COMPLETED ON MAY 27TH 2025.

COORDINATES:

CITY BENCHMARK: ELEVATIONS ARE GEODETIC AND HAVE BEEN DERIVED BASED ON THE TOPNET NETWORK GPS SYSTEM.

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LICENSED PROFESSIONAL ENGINEER
T. M. RICKETTS
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SEPT. 25, 2025
PROVINCE OF ONTARIO

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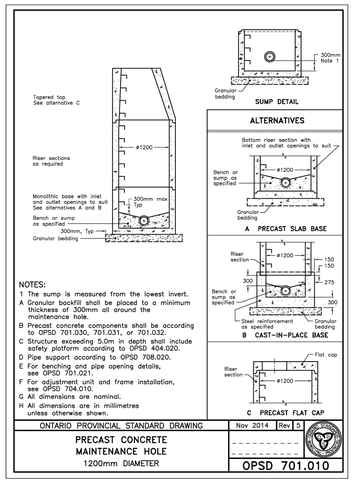
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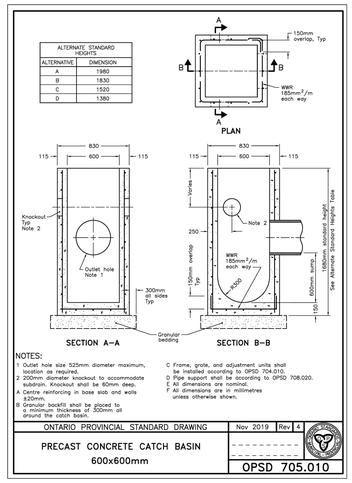
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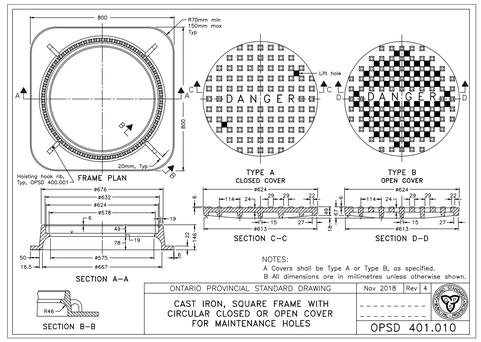
DERRY HEIGHTS
COMMERCIAL DEVELOPMENT
MILTON, ON

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NG	TR	1:500	CM1
Date (yy.mm.dd):	Job No.:	Revision No.:	
2025-07-31	25-201		

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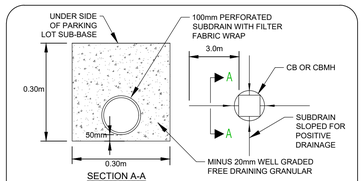




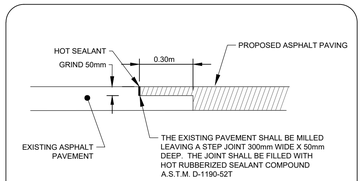




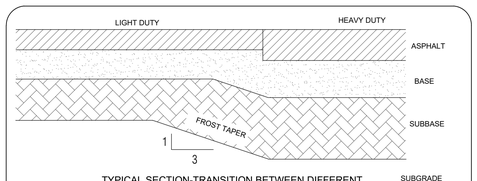
KEYPLAN:
N.T.S.



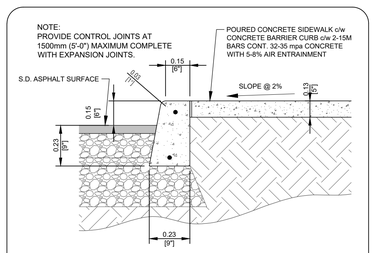
SUBDRAIN DETAIL
N.T.S.



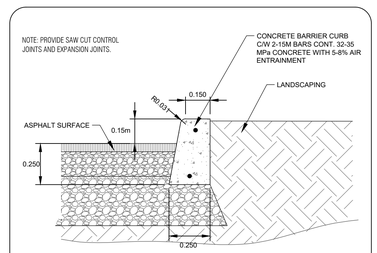
MEDIAN/STEP JOINT DETAIL
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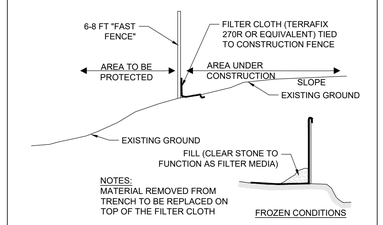
TYPICAL SECTION-TRANSITION BETWEEN DIFFERENT PAVEMENT STRUCTURES
N.T.S.



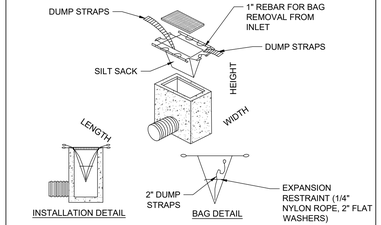
SIDEWALK CURB DETAIL
N.T.S.



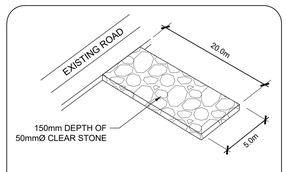
BARRIER CURB DETAIL
N.T.S.



SILT/CONSTRUCTION FENCE DETAIL
N.T.S.



INLET SEDIMENT CONTROL DEVICE DETAIL
N.T.S.



MUD MAT CONSTRUCTIION ACCESS DETAIL
N.T.S.

SITE PLAN PREPARED BY: GREYSTONE ENGINEERING

TOPOGRAPHIC & LEGAL: PREPARED BY: CUNNINGHAM McCONNEL LIMITED COMPLETED ON MAY 27TH 2025.

COORDINATES:

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LICENSED PROFESSIONAL ENGINEER T. M. RICKETTS 90436951 SEPT. 25, 2025 PROVINCE OF ONTARIO

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Client:
FIRST CAPITAL

Drawing Title:

DETAIL PLAN

DERRY HEIGHTS
COMMERCIAL DEVELOPMENT
MILTON, ON

Drawn By:	Checked By:	Scale:	Drawing No.:
NG	TR	N.T.S	D1
Date (yy.mm.dd): 2025-07-31	Job No.: 25-201	Revision No.:	

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DRAINAGE AREAS		
ID #	C	Area (ha)
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2	0.9	0.113
3	0.9	0.173
4	0.86	0.177
5	0.9	0.085
6	0.9	0.159
7	0.9	0.178
8	0.9	0.156
9	0.9	0.172
10	0.9	0.221
11	0.9	0.197
12	0.9	0.136
13	0.9	0.046
14	0.9	0.114
15	0.9	0.167
16	0.9	0.177
17	0.9	0.12
18	0.9	0.025
19	0.9	0.188
20	0.9	0.231
21	0.9	0.059
22	0.9	0.07
23	0.83	0.09
24	0.9	0.088
25	0.9	0.053
26	0.81	0.216
27	0.9	0.181
28	0.9	0.019
29	0.9	0.370
30	0.9	0.121
31	0.64	0.186
32	0.9	0.060
33	0.25	0.034
TOTAL	0.88	4.443



KEYPLAN:
N.T.S.

LEGEND:

- LIMIT OF CONSTRUCTION
- PROPERTY BOUNDARY
- SANITARY MANHOLE
- STORM MANHOLE
- CATCH BASIN MANHOLE
- CATCH BASIN/DOUBLE CATCH BASIN
- PROPOSED SLOPES 1.00%
- EXISTING SLOPES 1.00%
- INTERCEPTOR SWALE
- PROPOSED GROUND ELEVATION × 99.20
- TOP OF CURB ELEVATION × 99.20 TC
- EXISTING ELEVATION × 99.20 EX
- PROPOSED OVERLAND FLOW ROUTE
- EXISTING OVERLAND FLOW ROUTE
- EXISTING PONDING AREA
- DRAINAGE AREA
- RUN OFF COEFFICIENT
- AREA #
- AREA (ha)

SITE PLAN PREPARED BY: GREYSTONE ENGINEERING

TOPOGRAPHIC & LEGAL: PREPARED BY: CUNNINGHAM McCONNEL LIMITED COMPLETED ON MAY 27TH 2025.

COORDINATES:

CITY BENCHMARK: ELEVATIONS ARE GEODETIC AND HAVE BEEN DERIVED BASED ON THE TOPNET NETWORK GPS SYSTEM.

NOTES:
1. This drawing is the exclusive property of Greystone Engineering Inc. The reproduction of any part without prior written consent of this office is strictly prohibited.
2. The contractor shall verify all dimensions, levels and datums on site and report any discrepancies 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.

NOT FOR CONSTRUCTION

LICENSED PROFESSIONAL ENGINEER
T. M. RICKETTS
90438881
APT. 25, 2025
PROVINCE OF ONTARIO

Number	Issued/Revision	Date	Auth.
1	ZBA SUBMISSION	25/09/25	TR

Greystone Engineering

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Suite 203
Toronto, Ontario M4S 2M3
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Client: FIRST CAPITAL

Drawing Title:

DRAINAGE PLAN

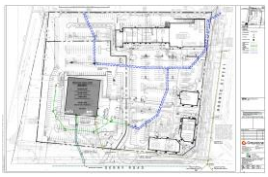
DERRY HEIGHTS
COMMERCIAL DEVELOPMENT
MILTON, ON

Drawn By:	Checked By:	Scale:	Drawing No.:
NG	TR		DR1
Date (yy.mm.dd):	Job No.:	Revision No.:	
2025-07-31	25-201		

FILE C:\Users\ngio\Dropbox\Greystone\Civil 3D Projects_2025\25_201_Derry Heights_WORKING FOLDER\Drainage\25_201_DR1.dwg
LAST SAVED BY ngio, 9/24/2025 12:39 PM

Appendix C
Sanitary Design Information

PROJECT DERRY HEIGHTS
CLIENT GREYSTONE ENGINEERING
DATE Apr-21

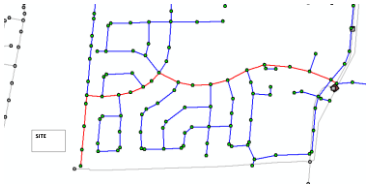


three-storey buildine at Derry Road and Bronte St in Milton

Average Flow: 0.458 L/s
Peak Flow: 1.374 L/s

MODEL SIMULATION USED:
2021-Peak-WWF. June 3. 2011 Update

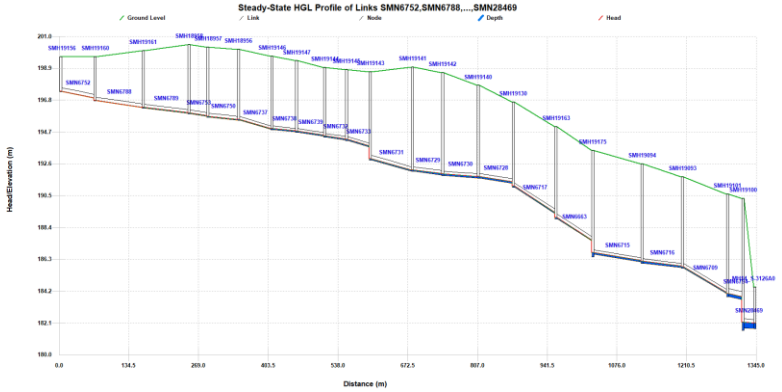
PROFILE FROM SITE TO TRUNK (SPS) AT COMMERCIAL AND LAURIER



EXISTING PIPE DETAILS

ID	From ID	To ID	Diameter (mm)	Length (m)	Slope	Total Flow (L/s)	Unpeakable Flow (L/s)	Peakable Flow (L/s)	Coverage Flow (L/s)	Infiltration Flow (L/s)	Storm Flow (L/s)	Flow Type
SMN6752	SMH19156	SMH19160	250	66.697	0.006	0.461	0.307	0	0.035	0	0	Free Surface
SMN6788	SMH19160	SMH19161	250	94.805	0.005	2.699	0.614	0	0.513	0	0	Free Surface
SMN6789	SMH19161	SMH18958	250	91.062	0.004	3.026	0.921	0	0.518	0	0	Free Surface
SMN6753	SMH18958	SMH18957	250	34.404	0.005	3.167	1.228	0	0.532	0	0	Free Surface
SMN6750	SMH18957	SMH18956	250	58.868	0.003	3.868	1.535	0	0.579	0	0	Free Surface
SMN6737	SMH18956	SMH19146	250	65.106	0.009	4.322	1.842	0	0.616	0	0	Free Surface
SMN6738	SMH19146	SMH19147	250	46.382	0.003	9.13	4.605	0	1.152	0	0	Free Surface
SMN6739	SMH19147	SMH19144	250	53.9	0.005	9.577	4.912	0	1.189	0	0	Free Surface
SMN6732	SMH19144	SMH19145	250	40.149	0.005	11.616	6.14	0	1.41	0	0	Free Surface
SMN6733	SMH19145	SMH19143	250	45.225	0.01	11.998	6.447	0	1.43	0	0	Free Surface
SMN6731	SMH19143	SMH19141	300	83.069	0.009	15.889	8.289	0	1.945	0	0	Free Surface
SMN6729	SMH19141	SMH19142	300	57.878	0.004	16.533	8.903	0	2.006	0	0	Free Surface
SMN6730	SMH19142	SMH19140	300	68.81	0.002	16.91	9.21	0	2.026	0	0	Free Surface
SMN6728	SMH19140	SMH19130	300	68.68	0.005	17.261	9.517	0	2.038	0	0	Free Surface
SMN6717	SMH19130	SMH19163	300	84.127	0.021	18.678	10.438	0	2.177	0	0	Free Surface
SMN6663	SMH19163	SMH19175	300	71.634	0.02	21.992	12.28	0	2.606	0	0	Free Surface
SMN6715	SMH19175	SMH19094	300	98.176	0.005	23.292	13.201	0	2.716	0	0	Free Surface
SMN6716	SMH19094	SMH19093	300	78.632	0.004	23.777	13.508	0	2.768	0	0	Free Surface
SMN6709	SMH19093	SMH19101	300	89.46	0.019	24.793	14.122	0	2.884	0	0	Free Surface
SMN6794	SMH19101	SMH19100	525	27.352	0.007	110.907	62.321	0	16.032	0	0	Free Surface
SMN28469	SMH19100	MH14 5-3126A0	600	20.204	0.002	212.401	126.464	0	31.046	0	0	Free Surface

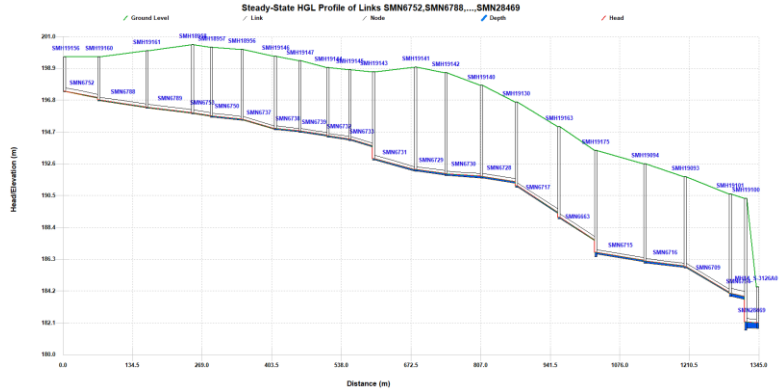
EXISTING HGL PROFILE

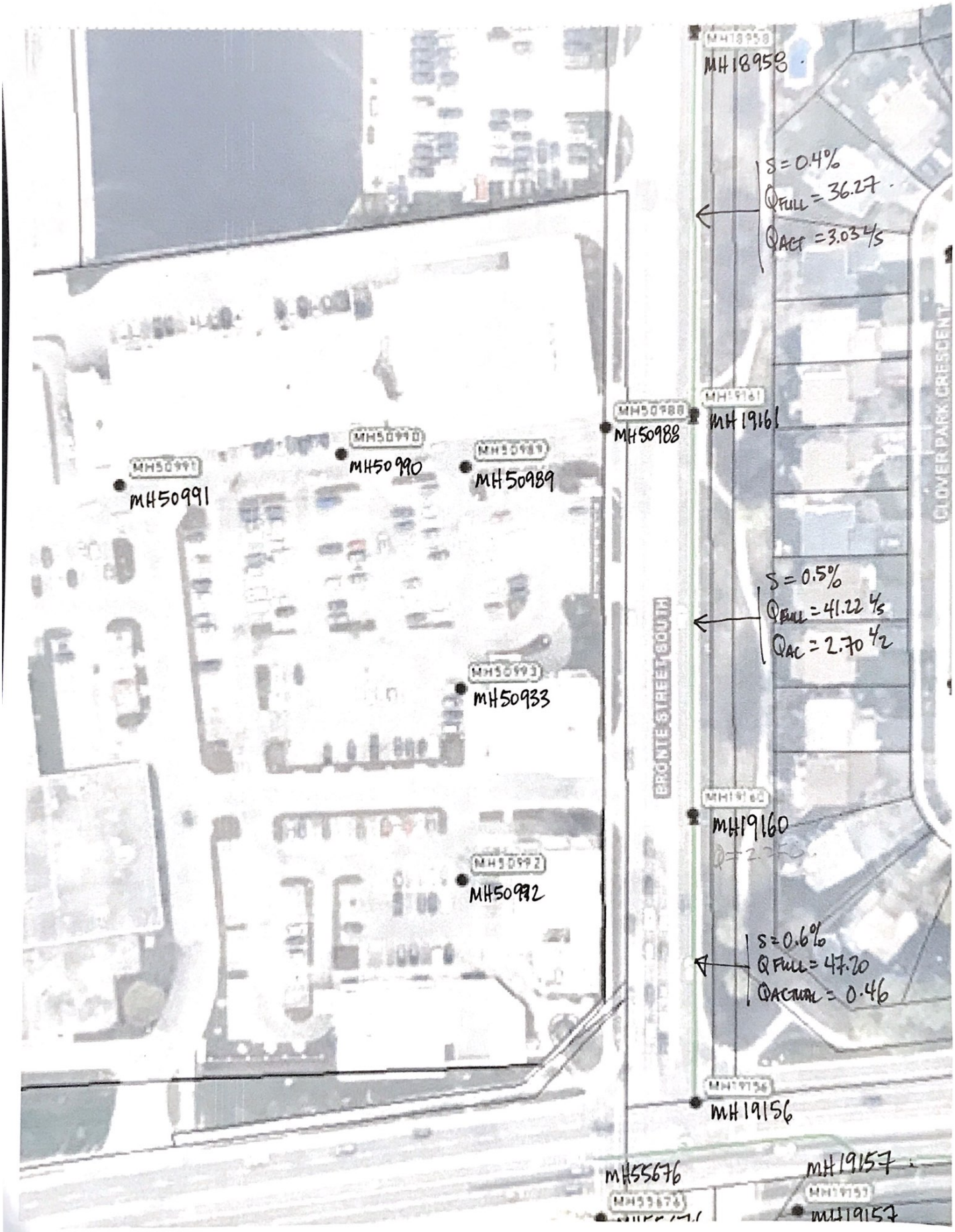


WITH THE ADDITION OF 1.37 L/s FROM SITE ADDED TO NODE MH SMH19156:
PIPE DETAILS

ID	From ID	To ID	Diameter (mm)	Length (m)	Slope	Total Flow (L/s)	Unpeakable Flow (L/s)	Peakable Flow (L/s)	Coverage Flow (L/s)	Infiltration Flow (L/s)	Storm Flow (L/s)	Flow Type
SMN6752	SMH19156	SMH19160	250	66.697	0.006	1.831	1.677	0	0.035	0	0	Free Surface
SMN6788	SMH19160	SMH19161	250	94.805	0.005	4.069	1.984	0	0.513	0	0	Free Surface
SMN6789	SMH19161	SMH18958	250	91.062	0.004	4.396	2.291	0	0.518	0	0	Free Surface
SMN6753	SMH18958	SMH18957	250	34.404	0.005	4.757	2.598	0	0.532	0	0	Free Surface
SMN6750	SMH18957	SMH18956	250	58.868	0.003	5.211	2.89	0	0.576	0	0	Free Surface
SMN6737	SMH18956	SMH19146	250	65.106	0.009	5.665	3.197	0	0.613	0	0	Free Surface
SMN6738	SMH19146	SMH19147	250	46.382	0.003	10.474	5.96	0	1.149	0	0	Free Surface
SMN6739	SMH19147	SMH19144	250	53.9	0.005	10.921	6.267	0	1.186	0	0	Free Surface
SMN6732	SMH19144	SMH19145	250	40.149	0.005	12.96	7.495	0	1.407	0	0	Free Surface
SMN6733	SMH19145	SMH19143	250	45.225	0.01	13.342	7.802	0	1.427	0	0	Free Surface
SMN6731	SMH19143	SMH19141	300	83.069	0.009	17.043	9.644	0	1.941	0	0	Free Surface
SMN6729	SMH19141	SMH19142	300	57.878	0.004	17.877	10.258	0	2.003	0	0	Free Surface
SMN6730	SMH19142	SMH19140	300	68.81	0.002	18.255	10.565	0	2.022	0	0	Free Surface
SMN6728	SMH19140	SMH19130	300	68.68	0.005	18.605	10.872	0	2.035	0	0	Free Surface
SMN6717	SMH19130	SMH19163	300	84.127	0.021	20.023	11.793	0	2.174	0	0	Free Surface
SMN6663	SMH19163	SMH19175	300	71.634	0.02	23.337	13.635	0	2.603	0	0	Free Surface
SMN6715	SMH19175	SMH19094	300	98.176	0.005	24.637	14.556	0	2.713	0	0	Free Surface
SMN6716	SMH19094	SMH19093	300	78.632	0.004	25.122	14.863	0	2.765	0	0	Free Surface
SMN6709	SMH19093	SMH19101	300	89.46	0.019	26.138	15.477	0	2.881	0	0	Free Surface
SMN6794	SMH19101	SMH19100	525	27.352	0.007	112.277	63.691	0	16.032	0	0	Free Surface
SMN28469	SMH19100	MH14 5-3126A0	600	20.204	0.002	213.771	127.834	0	31.046	0	0	Free Surface

HGL PROFILE




MH18958
MH18958
S = 0.4%
QFULL = 36.27
QACT = 3.034/s
MH19161
MH19161
MH50988
MH50988
MH50990
MH50990
MH50989
MH50989
MH50991
MH50991
CLOVER PARK CRESCENT
S = 0.5%
QFULL = 41.22 4/s
QAC = 2.70 4/2
MH50993
MH50933
ERG NTE STREET SOUTH
MH19160
MH19160
MH50992
MH50992
S = 0.6%
Q FULL = 47.20
QACTUAL = 0.46
MH19156
MH19156
MH55676
MH19157
MH19157

b. The later of the Halton Water & Wastewater Master Plan or the Development Charges Water/Wastewater Technical Report provides a general guideline on population densities and wastewater flows to be used in design flow calculations for a development charge wastewater main (threshold pipe size defined by current development charges background study for wastewater).

c. Individual studies shall be made on a case-by-case basis for special commercial establishments, major commercial areas, special industrial areas, and major industrial areas (e.g. hospitals etc.).

Table 3-1 Residential Dry Weather Flow

Type of Development	Equivalent Population Density (persons/hectare)	Unit Sewage Flow	
		m^3pcd	m^3/person/s
Single Family	55	0.275	0.003183×10^{-3}
Semi-detached, duplex and 4-plex	100	0.275	0.003183×10^{-3}
Townhouse, Maisonette (6 storey apt. or less)	135	0.275	0.003183×10^{-3}
Apartment (over 6 stories High)	285	0.275	0.003183×10^{-3}

Notes:
1) m^3pcd = metres^3 per capita per day
2) m^3/ha/s = metres^3 per hectare per second
3) m^3/ha/day = metres^3 per hectare per day

Table 3-2 Commercial, Industrial, and Community Dry Weather Flow

Type of Development	Equivalent Population Density (persons/hectare)	Unit Sewage Flow	
		m^3/ha/day	m^3/ha/s
Light Commercial Areas	90	24.750	0.28646×10^{-3}
Community Services	40	11.000	0.12732×10^{-3}
Light Industrial Areas	125	34.375	0.003183×10^{-3}
Hospitals	4 persons per bed	1.1 m^3/bed/day	0.0127×10^{-3} m^3/bed/s

Notes:
1) m^3pcd = metres^3 per capita per day
2) m^3/ha/s = metres^3 per hectare per second
3) m^3/ha/day = metres^3 per hectare per day

Appendix D
Stormwater Management Design Information

Greystone Engineering

Project:	**Bronte Heights Plaza**	Prepared by:	**Todd Ricketts**
Task:	**100 yr Post-Dev Uncontrolled to Bronte/Derry**	Checked by:	**Todd Ricketts**
Date:	**19-Sep-25**	Project # :	**25-201**

100-year Post-Development Flow — IDF Values: Town of Milton (New IDF)

A	1435	
B	5.2	
C	0.775	
Tc	10.0	min

Land Use Description	Runoff Coefficient	Intensity (mm/hr)	Area (ha)	Runoff (L/s)
UC to Bronte/Derry	0.9	174.15	0.166	72.3
Total			0.166	**72.3**

$$Q = \frac{CiA}{0.36}$$

= 72.3 L/s

Greystone Engineering

Project:	**Bronte Heights Plaza**	Prepared by:	**Todd Ricketts**
Task:	**100 yr Post-Dev Uncontrolled to CNR**	Checked by:	**Todd Ricketts**
Date:	**19-Sep-25**	Project # :	**25-201**

100-year Post-Development Flow — IDF Values: Town of Milton (New IDF)

A	1435	
B	5.2	
C	0.775	
Tc	10.0	min

Land Use Description	Runoff Coefficient	Intensity (mm/hr)	Area (ha)	Runoff (L/s)
UC to CNR Area	0.6	174.15	0.239	69.4
Total			0.239	**69.4**

$$Q = \frac{CiA}{0.36}$$

= 69.4 L/s

Greystone Engineering

Project:	**Bronte Heights Plaza**	Prepared by:	**Todd Ricketts**
Task:	**100 yr Post-Development Flowrates**	Checked by:	**Todd Ricketts**
Date:	**19-Sep-25**	Project # :	**25-201**

100-year Post-Development Flow — IDF Values: Town of Milton

A	1435	
B	5.2	
C	0.775	
Tc	10.0	min

Land Use Description	Runoff Coefficient	Intensity (mm/hr)	Area (ha)	Runoff (L/s)
Site minus U/C	0.88	174.15	4.030	1715.6
	0.25	174.15	0.000	0.0
	0.9	174.15	0.000	0.0
Total			4.030	**1715.6**

$$Q = \frac{CiA}{0.36}$$

= 1715.6 L/s

Greystone Engineering

Project:	**Bronte Heights Plaza**			Prepared by:	**Todd Ricketts**
Task	**100 yr - Storage Volume**			Checked by:	**Todd Ricketts**
Date:	**19-Sep-25**			Project no.:	**25-201**

100 - YR Design Storm

Milton - Updated IDF Curve

A= 1435.000
B= 5.200
C= 0.775

Rainfall (100 Year)

Runoff Coeff. (C):	0.88
Drainage Area (ha):	4.030
Control Flow (m3/s)	0.267

TIME min	I mm/HR	Inflow CIA/360 cms	Storage Rate cms	Max Stor Reqd (cu.m.)	
10.0	174.15	1.716	1.449	869.1	
15.0	139.70	1.376	1.109	998.3	
20.0	117.70	1.159	0.892	1070.9	
25.0	102.29	1.008	0.741	1111.1	
30.0	90.84	0.895	0.628	1130.2	
35.0	81.96	0.807	0.540	1134.7	max
40.0	74.84	0.737	0.470	1128.6	
45.0	68.99	0.680	0.413	1114.2	
50.0	64.10	0.631	0.364	1093.3	
55.0	59.93	0.590	0.323	1067.2	
60.0	56.34	0.555	0.288	1036.8	
65.0	53.20	0.524	0.257	1002.7	
70.0	50.44	0.497	0.230	965.6	
75.0	47.99	0.473	0.206	925.7	
80.0	45.79	0.451	0.184	883.5	
85.0	43.81	0.432	0.165	839.3	
90.0	42.02	0.414	0.147	793.3	
95.0	40.38	0.398	0.131	745.6	
100.0	38.89	0.383	0.116	696.4	
105.0	37.51	0.370	0.103	645.9	
110.0	36.24	0.357	0.090	594.2	
115.0	35.07	0.345	0.078	541.4	
120.0	33.98	0.335	0.068	487.7	

Original STC 750 Calculations

Stormceptor CD Sizing Program
Canada
Version 4.0.0

Project Details

Project	FC Milton - North Drainage	Project #	PTD 14679
Location	Bronte Rd and Derry St., Milton, ON	Company	RJ Burnside
Date	Nov 08	Contact	R Grech

Selected Rainfall Station

State	ONTARIO
Name	TORONTO CENTRAL
ID #	
Elev. (m)	100
Latitude	N 45 deg 30 min
Longitude	W 90 deg 30 min

Site Parameters

Total Area (ha)	.56
Imperviousness (%)	90.
Impervious Area (ha)	.50

Particle Size Distribution

Diam. (um)	Percent (%)	Spec. Gravity
20	20	1.30
60	20	1.80
150	20	2.20
400	20	2.65
2000	20	2.65

Stormceptor Sizing Table

Stormceptor Model	% Runoff Treated	% TSS Removal
STC 300	87	71
STC 750	95	80
STC 1000	95	81
STC 1500	95	82
STC 2000	98	84
STC 3000	98	86
STC 4000	99	88
STC 5000	99	89
STC 6000	99	91
STC 9000	100	93
STC 10000	100	93
STC 14000	100	95

Comments :

Upstream Quantity Storage

Storage (ha-m)	Flow (cms)
0.000	0.000
0.003	0.046

ORIGINAL STC 4000 CALCULATIONS

Stormceptor CD Sizing Program
Canada
Version 4.0.0

Project Details

Project	FC Milton - Catchment B	Project #	PTD 14679
Location	Bronte Rd and Derry St., Milton, ON	Company	RJ Burnside
Date	jan 09	Contact	R Grech

Selected Rainfall Station

State	ONTARIO
Name	TORONTO CENTRAL
ID #	
Elev. (m)	100
Latitude	N 45 deg 30 min
Longitude	W 90 deg 30 min

Site Parameters

Total Area (ha)	3.58
Imperviousness (%)	90.
Impervious Area (ha)	3.22

Particle Size Distribution

Diam. (um)	Percent (%)	Spec. Gravity
20	20	1.30
60	20	1.80
150	20	2.20
400	20	2.65
2000	20	2.65

Stormceptor Sizing Table

Stormceptor Model	% Runoff Treated	% TSS Removal
STC 300	60	37
STC 750	83	72
STC 1000	83	73
STC 1500	83	73
STC 2000	92	76
STC 3000	92	77
STC 4000	97	80
STC 5000	97	80
STC 6000	99	82
STC 9000	100	86
STC 10000	100	85
STC 14000	100	88

Comments :

Upstream Quantity Storage

Storage (ha-m)	Flow (cms)
0.000	0.000
0.105	0.173

R.J. Burnside & Associates Limited 1465 Pickering Parkway Suite 200 Pickering ON L1V 7G7 CANADA
telephone (905) 420-5777 **fax** (905) 420-5247 **web** www.rjburnside.com

BURNSIDE
[THE DIFFERENCE IS OUR PEOPLE]

February 17, 2017 (Revised April 18, 2017)

Via: Email

Kiet Ngo
Director, Development
First Capital Realty
400-85 Hanna Avenue
Toronto ON M6K 3S3

Dear Kiet:

Re: Derry Heights Updated Stormwater Management Design
Project No.: PTD146790.0000

The purpose of this letter is to identify the proposed updates and associated Stormwater Management Design for the Derry Heights commercial development located at Bronte Street and Derry Road in the Town of Milton. Attached to this letter is the initial Stormwater Management Report prepared for this site in January 2009 by R.J. Burnside & Associates Limited which considered the future expansion that is currently being proposed. This letter provides the detailed information of how this development aligns with the approved stormwater management measures for the site.

Existing Conditions

The existing site is currently comprised of four commercial buildings (Buildings B, C, D, and E) that were constructed as part of the proposed work outlined in the January 2009 report mentioned above. The site also includes a metal clad 1-storey building on the southwest corner which is part of the proposed re-development area. The total site area is approximately 4.20 ha.

The existing Stormwater Management Design has a maximum permissible 5-year release rate from the site to the Bronte Road sewer of 292 L/s based on the capacity of the receiving storm sewer system downstream (for more information refer to January 2009 report appended). Actual release rate will be 267 L/s including controlled drainage from Catchment B & C and a small amount of uncontrolled drainage from Catchment B-UN. A 200 mm orifice tube is used in Catchment B and a 100 mm orifice tube is used in Catchment C to attenuate discharge to the Bronte Street storm system. Maximum storage volumes required in Catchment B and C are 592 m^3 and 22 m^3 respectively on the parking lot surface. A total of 1,219 m^3 and 39 m^3 of storage is currently provided in Catchment B and C respectively. Rooftop controls are in use to attenuate storm discharge on Buildings B, C, D and E. The existing building locations and catchment areas are shown on Figure 1 which is attached.

Stormwater quality controls for this development are provided with an Oil Grit Separator as per the recommendations of the Ministry of the Environment. Two oil grit separators are provided on the site to provide 80 % TSS removal ('enhanced' level control) for the proposed development, and should be maintained a minimum once every year. The first unit is a Stormceptor 750 and is located at the outlet to Catchment C. The second unit is a Stormceptor 4000 and is located at the outlet to Catchment B. Full development conditions were assumed for the sizing of the unit at the outlet to Catchment B.

Existing Derry Road Ditch Drainage

The drainage area to the ditch running to the west along Derry Road currently receives flow from 0.71 ha of the site (Catchment A on Figure 1). Based on the report prepared in 2009, the peak flow from this catchment is approximately 218 L/s and the downstream culvert can only convey 153 L/s (with no backwater conditions). This was a significant improvement from the previous drainage scenario where the entire 4.20 ha site drained to this ditch at a peak flow rate of 878 L/s. The final build out of the site will result in a further reduction to 34.5 L/s.

Proposed Development

The proposed development on the site includes the addition of three buildings, Building A in the south corner of the site, Building F in the west corner of the site and Building G on the southeast side of the site adjacent to the Derry Road entrance. Refer to revised Figure 2 (attached) for the new site plan layout and proposed catchment boundaries.

In keeping with the 2009 overall SWM concept, the existing drainage that is currently directed to Derry Road (Catchment A) will be re-directed to be captured by the internal storm sewer as identified in the report mentioned above. The report completed in 2009 accounted for future development of this site in the stormwater design and it is intended that the stormwater controls for quality and quantity will remain unchanged. Table 1 outlines the site statistics under proposed conditions.

Table 1: Site Statistics for Proposed Development

Location	Area (ha)
Proposed Building Area	0.45
Existing Building Area	0.51
Asphalt Area	2.91
Landscaped Area	0.33
Total:	4.20

As expected and mentioned in the original report, the southwest corner of the site has been raised such that the catch basin tops in this area are at 199.46 m and will drain east as originally designed for the ultimate development of the property. It is proposed that Building A and Building F will have rooftop controls. Using new IDF values from the Town of Milton, storage requirements in Catchment B have been calculated to be 902 m^3 in the 100-year storm event, which is less than the 1,466 m^3 provided. Given that the system will act in the same manner

hydraulically as the existing condition, no changes to peak flows will occur. A small amount of drainage previously included in Catchment C now drains into Catchment B. The revised storage calculations for Catchment C have been attached to this letter.

Table 2 outlines the proposed stormwater management for the entire site including the new proposed buildings.

Table 2: Summary of Proposed Stormwater Management

	Target Release Rate	Storage Provided (m^3)	Area (ha)	Peak Flow (L/s)	Storage Required (m^3)
Catchment A	153	0	0.17	35	0
Catchment B	276	1,466	3.43	267	902
Catchment B-UN		0	0.09		0
Catchment C		39	0.51		31

As outlined in the existing conditions section above, the stormwater quality component of the design was accounted for in the initial design. Refer to Appendix C of the January 2009 SWM Report for sizing information.

Proposed Derry Road Ditch Drainage

The drainage area to the ditch running to the west along Derry Road has been reduced from the existing condition. Currently Catchment A (0.71ha) drains to the ditch along Derry Road and 0.17 ha will drain to the ditch under post-development conditions as shown on revised Figure 2. This uncontrolled area is comprised of the site entrance and the landscape buffer along Derry Road and the CNR lands and could not be avoided based on the tie in grades at Derry Road and Region of Halton Property (located between CN and FCR properties). A composite runoff coefficient (RC = 0.42) was used for this area as it is primarily comprised of landscape areas and a RC value of 0.9 does not reflect the land cover conditions.

The peak flow from Catchment A has been reduced from 218 L/s in the existing condition, to approximately 35 L/s. Given that the downstream culvert can convey 153 L/s (with no backwater conditions); this will greatly improve drainage in the area and remove the overloading of this culvert.

In summary, the proposed development is in keeping with the originally approved stormwater management design.

If you have any questions or require additional information please contact the undersigned with any questions.

Yours truly,

R.J. Burnside & Associates Limited



Todd Ricketts, P.Eng.
Leader, Commercial Development
TR:cv

Laura Garner, P.Eng.
Project Engineer

Enclosure(s) Stormwater Management Report dated Dec 2008 - Revised Jan 2009
Figure 1 – Existing Development Drainage Areas
Figure 2 – Post Development Drainage Areas
5-year and 100-year Storage Requirements
Post Development Peak Flow Calculations

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Bronte Street & Derry Road
Milton, ON
Stormwater Management Report

Prepared by

R.J.Burnside & Associates Limited
1053 Brock Road, Suite 202 Pickering ON L1W 3T7 Canada

December 2008 – Revised January 2009

File No: PTD14679

The material in this report reflects best judgement in light of the information available at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. R. J. Burnside & Associates Limited accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

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A Storm Sewer Plans – Bronte Meadows Subdivision and Bronte Street
B Stormwater Management Design Calculations
C Stormceptor Sizing Summary

1.0 INTRODUCTION

1.1 General Information

R. J. Burnside and Associates Limited have been retained by First Capital Holdings Trust to prepare a Stormwater Management Report for a proposed commercial development in the Town of Milton. The property is located on the northwest corner of the Derry Rd. and Bronte St. intersection, as shown in **Figure 1**.

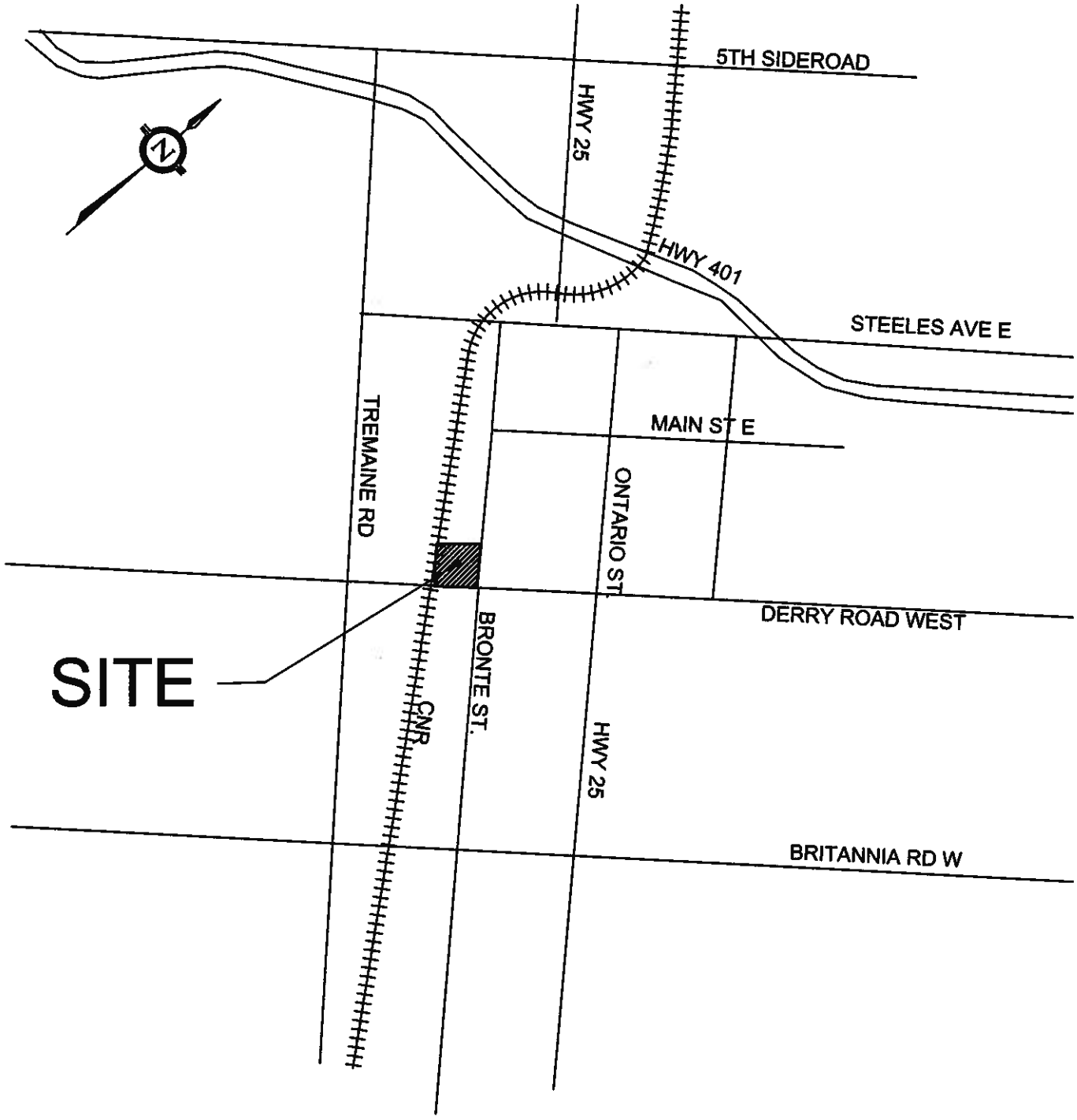
This Stormwater Management Report will support the Site Plan Application and subsequent Building Permit Application for the proposed development of the site. Detailed engineering designs and drawings related to site servicing and grading will incorporate the functional concepts of the Stormwater Management (SWM) measures outlined in this report.

1.2 Objectives

The objectives of this Stormwater Management Report are to:

- Calculate the allowable runoff rates from the property
- Determine the governing storm water management criteria, specifically:
  - Allowable post-development runoff rate
  - Required stormwater quality control
- Determine suitable methods for attenuation and treatment of stormwater runoff
- Examine the theoretical performance of proposed attenuation measures and demonstrate compliance with the governing stormwater management criteria.

All of the above will be done in accordance with accepted engineering practices.



Drawing Title

LOCATION PLAN

BURNSIDE

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web www.rjburnside.com

Client

FIRST CAPITAL HOLDINGS TRUST
BRONTE ST AND DERRY RD

Drawn By	Checked By	Drawing No.
C.C.R.	R.G.	1
Scale: N.T.S.	Project No.: PTD14679	

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1.3 Existing Conditions

The subject site has a total area of 5.01 ha. The lands are presently vacant and covered in grass with some trees onsite. Generally, the topography slopes from northeast to southwest, with approximately a 2m grade differential (**Refer to Figure 2**). The site is bound by:

- Bronte Street to the east;
- Derry Road to the south;
- An existing car dealership and industrial building to the north;
- A CN railway to the west.

Currently the site drains towards the south and west to the intersection of Derry Road and the CN railway ditch (**Refer to Figure 2**).

There is an existing metal clad one (1) storey building on the southwest corner of the site which is to remain.

1.4 Proposed Development

The proposed development consists of the construction of four (4) new buildings on site and associated parking as shown in **Figure 3**.

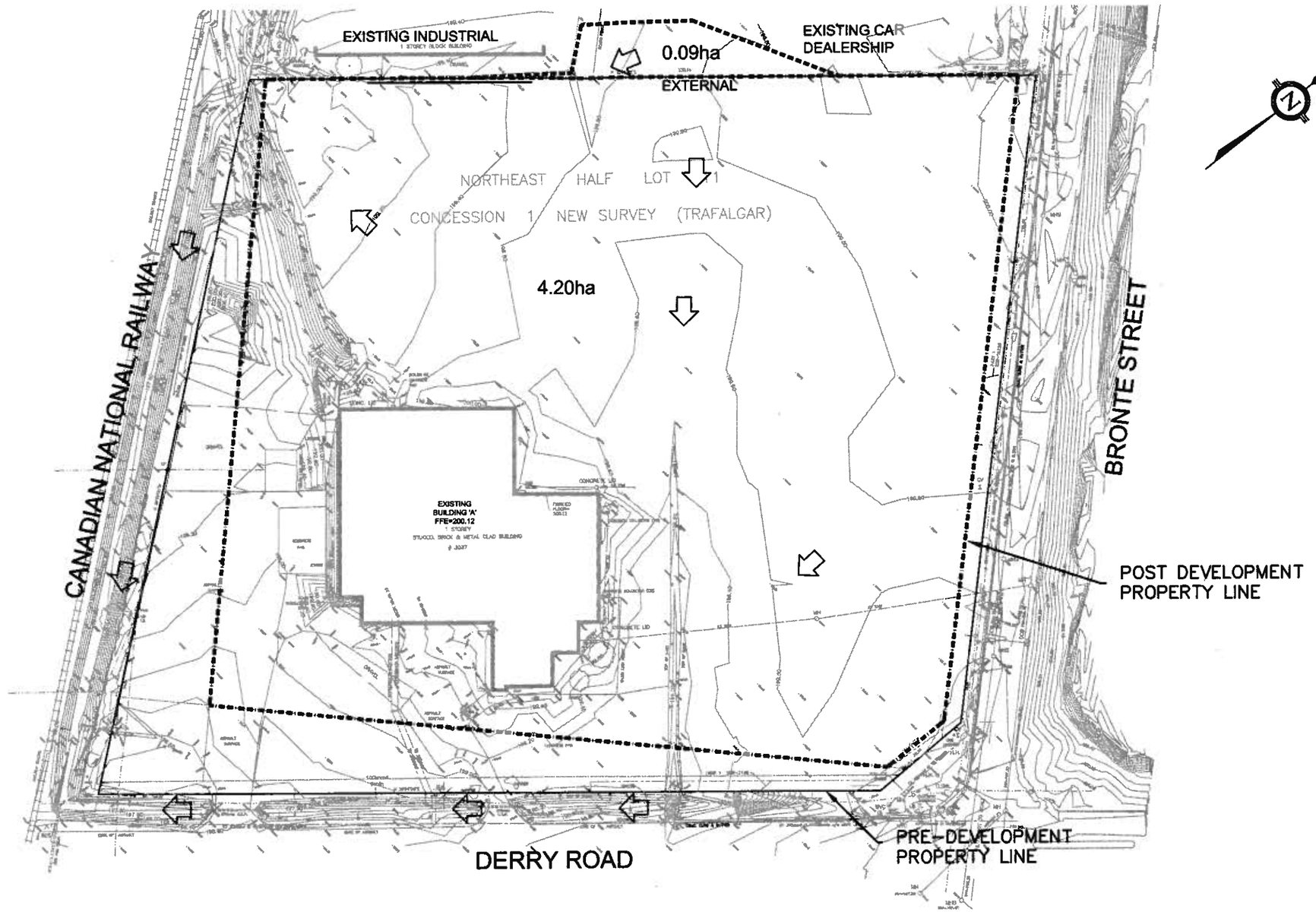
Through co-operation with CN Rail, Halton Region, and the Town of Milton the proposed development concept will accommodate the following:

- Future widening of Derry Road
- Future underpass at Derry Road and CN railway tracks west of the site.
- All associated Rights of Way needed for future works as approved by Halton Region, CN Rail and the Town of Milton
- Bronte Street Road Improvements, Signalization and associated Right of Ways.

After land conveyences to CN Rail, Halton Region and the Town of Milton approximately 4.20 ha remains as the proposed development as outlined in **Table 1** and shown in **Figure 3**.

Table 1 Site Statistics for Proposed Development

Location	Area (ha)
Proposed Building Area	0.51
Existing Building Area	0.46
Asphalt Area	2.97
Landscaped Area	0.26
Total:	4.20



LEGEND

- POST DEVELOPMENT PROPERTY LINE
- PRE-DEVELOPMENT PROPERTY LINE
- EXISTING CONTOURS
- EXISTING OVERLAND FLOW ROUTE

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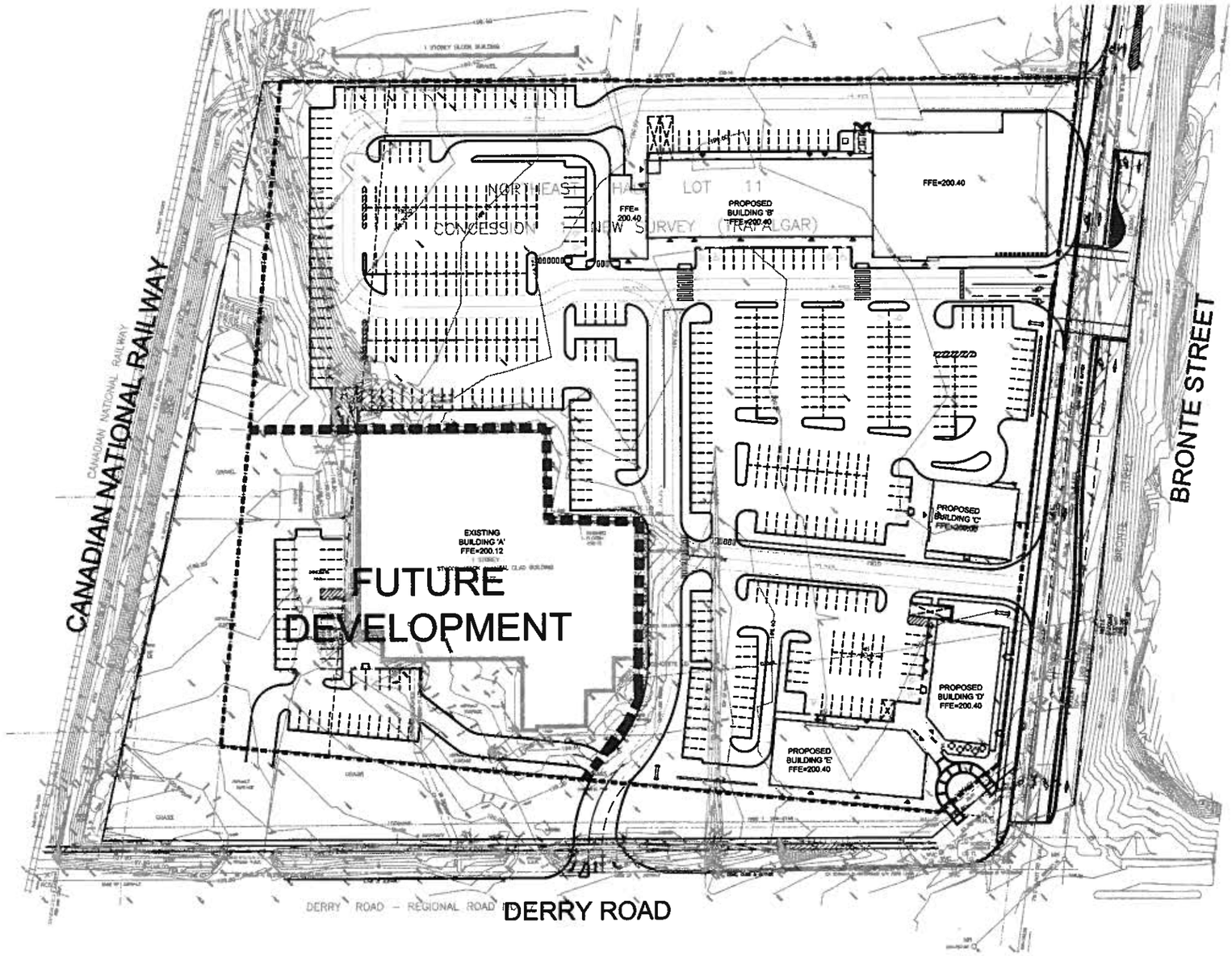
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PRE DEVELOPMENT DRAINAGE AREAS

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LEGEND

PROPOSED DEVELOPMENT AREA

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BRONTE ST AND DERRY RD

Drawing Title

PROPOSED DEVELOPMENT CONCEPT

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2.0 Stormwater Management Analysis

2.1 Bronte Street - Derry Road Analysis

The proposed development has been included in the Sixteen Mile Creek Watershed (**Refer to Appendix A**) although the site currently drains southwest into the Indian Creek watershed.

In order to determine the optimal location to drain the site, an assessment was undertaken of possible outlets in the area. This includes the ditch running west along Derry Road on the south end of the site as well as the Bronte Road Storm Sewer running north adjacent to the site and into the Bronte Meadows Subdivision on Vanier Drive.

The existing ditch on the north side of Derry Road and the existing CN rail ditch on the west side of the site convey all flows (4.20 ha) to the southwest corner of the site. An existing 525mm diameter CSP conveys this flow south across Derry Road and has a conservative capacity of 153.0 L/s.

The existing storm sewer system located on Bronte Street was constructed in 1983 and consisted of a 300 mm diameter storm sewer picking up local road drainage, then increasing to a 600 mm diameter approximately 65 m north of Derry Road. At Vanier Drive the storm system increases in size as it makes it way through the Bronte Meadows subdivision. In discussions with Halton Region, the storm sewer was later extended south (300 mm diameter) during Derry Road Intersections Improvements to the south side of Derry Road and picks up drainage on either side of the intersection.

Although storm sewer design sheets were unavailable, the storm drainage plan was obtained from the Town of Milton, and was originally prepared by R.V. Anderson and Associates (**Refer to Appendix A**).

As shown in R.V. Anderson Drawing 1210-STM, the subdivision storm sewers have been sized to allow for 4.5 ha of external drainage into the Vanier Drive storm sewers (at a runoff coefficient of 0.7). External drainage mapping was performed based on a site visit and available topographic mapping. The analysis revealed that external drainage includes the car dealership north of the site and the Bronte Street Road Right of Way extending from Derry Road to Vanier Drive. As shown on the Bronte Road profiles provided by the Town of Milton (**See Appendix A**), a high point exists at Vanier Drive. Drainage north of Vanier Drive is conveyed through a separate storm sewer on Bronte Road to the Anne Boulevard storm system.

In order to verify the storm sizing shown on the drawings, a storm sewer design sheet was created to determine the available capacity of the storm sewers on Laurier Drive using the Bronte Meadows area drainage plan and the external drainage plan shown in **Appendix A**. The analysis focused on the mainline of the sewer from the Bronte Street

and Derry Road intersection to the connection of the 1200mm storm sewer on Vanier Drive the 2100mm line that drains into Sixteen Mile Creek to the east.

Areas feeding the mainline were lumped in with initial time of concentration of 10 minutes to be conservative, since the exercise was to confirm that the 4.51 ha of external area was included in the mainline design. As a confirmation of this approach, the first crescent (Clover Park) was descritized to confirm that pipe capacity would increase resulting in a 50% increase in available capacity in the mainline at MH 36 A

The analysis of the Vanier Drive storm sewer revealed that under existing conditions, the minimum available capacity downstream of the proposed storm system is located on Bronte Street, adjacent to the site and not through the subdivision. While the storm sewer located on Vanier Drive was designed to accommodate a drainage area of 4.51 ha, the upstream system does not have capacity to convey these flows. **Table 2** illustrates the available capacity in each pipe length along the mainline of the storm sewer from the Derry Road and Bronte Street intersection to the connection of the Bronte Meadows subdivision at the east end of Vanier Drive. Given that the 1200mm pipe is not flowing at full capacity, and is connected downstream to a 2100mm line, it is not expected that capacity issues exist downstream of this connection.

Table 2 Existing Storm Sewer Capacity

Upstream Manhole	Downstream Manhole	Pipe Size (mm)	Pipe Slope (%)	Actual Flow (L/s)	Total Capacity (L/s)	% Full	Available Capacity (L/s)
MH3	MH4	675	0.43	174.54	575.04	30.4%	400.51
MH4	**MH26A**	675	0.54	**352.48**	**644.41**	**54.7%**	**291.93**
MH26A	MH36A	750	0.50	404.22	821.24	49.2%	417.03
MH36A	MH40A	975	0.30	736.09	1280.55	57.5%	544.46
MH40A	MH46A	975	0.50	933.95	1653.18	56.5%	719.23
MH46A	MH53	1200	0.30	1204.53	2227.76	54.1%	1023.23
MH53	MH55	1200	0.30	1400.70	2227.76	62.9%	827.06
MH55	MH58	1200	0.40	1460.52	2572.39	56.8%	1111.88
MH58	MH62	1200	2.00	1593.43	5752.05	27.7%	4158.62
MH62	EX	1200	2.00	1831.73	5752.05	31.8%	3920.32

As shown in **Table 2**, the available capacity in the mainline of the Vanier Street storm sewer is much larger than that available on Bronte Street downstream of the proposed connection. For this reason, outflows for the site must be restricted to the available capacity of 292 L/s within the 675mm pipe length connecting the Bronte Street system to the Bronte Meadows subdivision storm sewers. The entire storm sewer analysis has been provided in **Appendix A**.

2.2 Method of Analysis

The Modified Rational Method was used to calculate flows from the site under pre and post- development conditions.

Intensity-Duration-Frequency curves for the Town of Milton were used with a 10-minute initial time of concentration to complete the required calculations.

Refer to **Appendix B** for calculations.

3.0 Stormwater Management Plan

3.1 Allowable Release Rates

As stated in **Section 2.1**, the capacity of the Bronte Street receiving sewer is 292 L/s and the existing 525 mm diameter crossing Derry Road has a capacity of 153 L/s.

With onsite controls, both outlets are viable options however, the future Derry Road underpass proposes to accept additional drainage from Derry Road to the existing 525 m and as such, could utilize the additional capacity. For this reason, drainage should be re-directed to the Bronte Street storm system where possible. Post development flows should be restricted to below the five year pre-development level of 276 L/s.

3.2 Proposed Storm Drainage System

The proposed storm drainage system and grading with overland flow routes is shown on **Drawings S1** and **G1**. The proposed storm drainage catchments are shown in **Figure 4**.

The drainage for the majority of the site will be redirected to the Bronte Street Storm Sewer. Parking located southwest of the existing building is to continue to flow overland to the ditch on Derry Road/CN rail for the interim. Future re-development of this parcel is anticipated. At that time all flow will be directed to the Bronte Street connection. Additional fill/retaining walls will be required to make this connection.

3.2.1 Quantity Control

Bronte Street Storm Sewer – Before Future Development

Quantity controls are necessary in order to limit the 2:100-year storm events for the proposed development to the allowable release rate. The site has been graded to allow water to pond temporarily on the surface of the parking area in order to attenuate peak flows. Roof drains for the site will provide temporary ponding on rooftops, and limit peak flows to 42 L/s/ha from the rooftops.

In order to attenuate peak flows, the upstream drainage area (current development) to Bronte Street has been separated into two catchments (**B & C, as shown in Figure 4**). As per Town of Milton standards, parking lot ponding is not to exceed a depth of 0.3 m. For this reason, the maximum ponding elevation on the site is 199.76m within Catchment B (as shown in **drawing G1**) and 200.00m in Catchment C. While the site is designed for the 100-year storm, if a blockage occurs or the 100-year storm is exceeded, an overland flow route has been provided at the south end of the site.

In Catchment B, the total storage volume available to attenuate peak flows from the site is 1219 m^3, while the storage volume available in Catchment C is 39 m^3. As a factor of safety, pipe storage has not been counted in the storage calculations.

An orifice control structure will be placed at the outlet to each of the catchments in order to attenuate flows and create ponding areas. A 100mm orifice tube has been sized at the outlet to Catchment C, restricting flows to 49 L/s, and requiring 22 m^3 of storage. A 200mm orifice tube has been sized at the outlet to Catchment B, restricting flows to 186 L/s, and requiring 592 m^3 of storage.

A small area located on the east side of the site will flow uncontrolled to the existing storm system on Bronte Street. This area is approximately 0.09 ha, and is represented in **Figure 4** as Catchment B-UN.

The peak flow to the Bronte Street storm system will therefore be 235 L/s from the controlled site areas and 31 L/s from the uncontrolled site, resulting in a peak flow of 620 L/s in the limiting 675mm pipe on Bronte Street (approximately 96% capacity).

For associated stormwater management calculations, see **Appendix B.**

Derry Road Ditch

The drainage area to the ditch running to the west along Derry Road has been greatly reduced from the pre-development condition. While the entire site (4.20 ha) drained to the ditch under existing conditions, only 0.71 ha will drain to the ditch under post-development conditions as an interim measure and to the Bronte Street system when the existing facility is re-developed.

For this reason, the peak flow from this Catchment has been reduced from 878 L/s in the pre-development condition, to approximately 218 L/s. Given that the downstream culvert can only convey 153 L/s (with no backwater conditions), this will greatly improve drainage in the area.

For associated stormwater management calculations, see **Appendix B.**

Bronte Street Drainage – Full Development

It is expected that the catchment draining to Derry Road will eventually be re-developed, with drainage being re-directed to Bronte Street through the proposed onsite storm drainage system (Catchment B). The Bronte Street drainage system has been designed to accommodate future development in this area, with extra storage volume provided. During the first stage of development, only 592 m^3 of storage is required, out of the 1219 m^3 provided. By re-directing flows through Catchment B, the available storage volume will be employed.

The southeast corner of the site will be raised such that the catch basin tops in this area are above 199.46m. This will prevent the backwater effects of the Catchment B orifice structures from causing flooding in this area, and allow the system to work as it has been designed under interim conditions. To model this system, the 0.71 ha currently draining to the Derry Road ditch has been assumed to be 100 % impervious, with no surface storage or building controls. Storage requirements in Catchment B will be elevated to 839 m^3, which is still much less than the 1219 m^3 provided. Given that the system will act in the same manner hydraulically, no changes to peak flows will occur.

Summary

A summary of proposed stormwater management has been provided in **Table 3** below.

Table 3: Summary of Proposed Stormwater Management

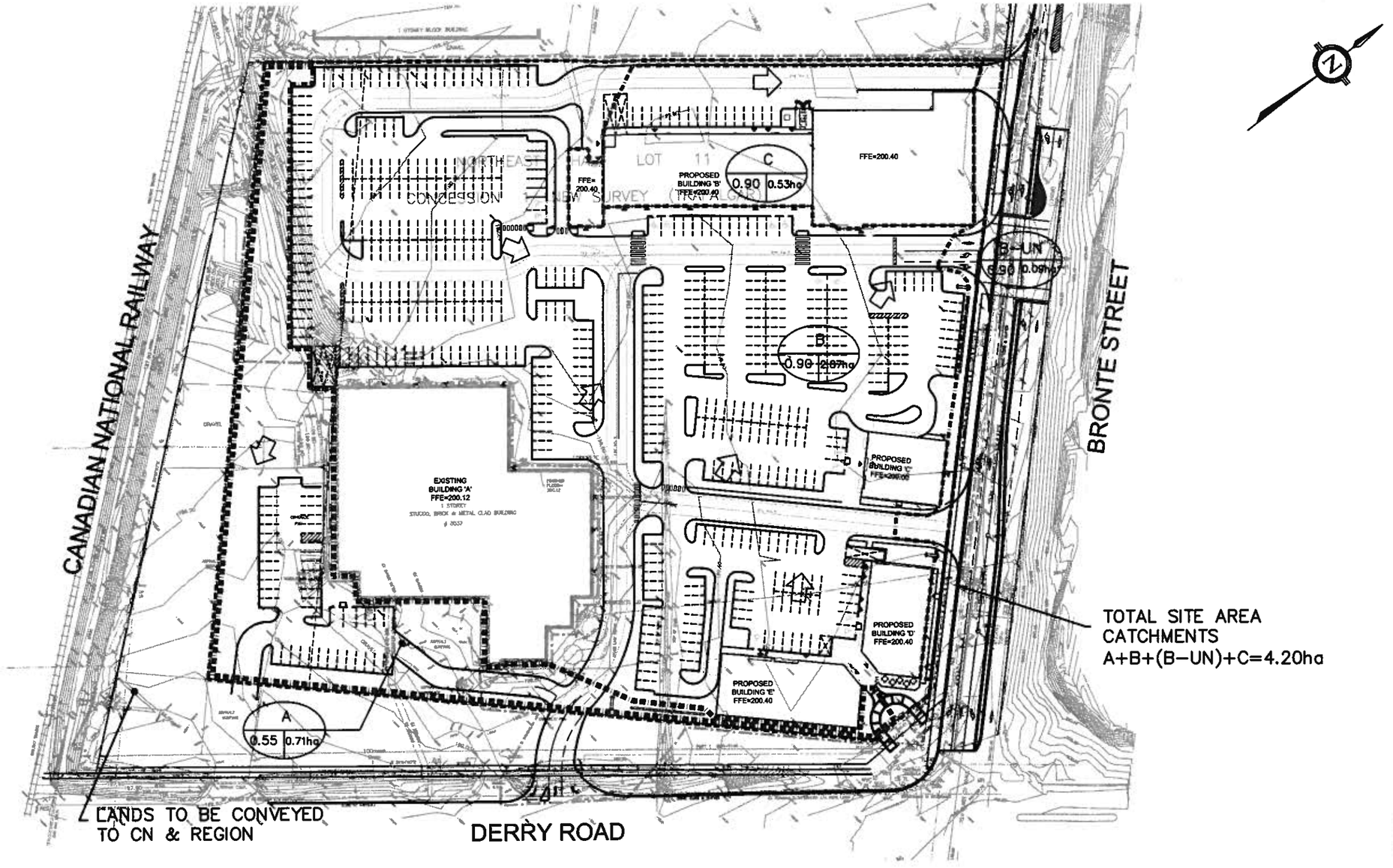
	Target Release Rate	Storage Provided	Currently Proposed Development			Full Development		
			Area (ha)	Peak Flow (L/s)	Storage Required (m^3)	Area (ha)	Peak Flow (L/s)	Storage Required (m^3)
Catchment A	153	0	0.71	246	0	0	0	0
Catchment B	276	1219	2.87	267	592	3.58	267	839
Catchment B-UN		0	0.09		0	0.09		0
Catchment C		39	0.53		22	0.53		22

3.2.2 Quality Control

Stormwater Quality Controls for this development will be provided within an Oil Grit Separator as per the recommendations of the Ministry of the Environment.

Two oil grit separators will be provided on the site to provide 80 % TSS removal ('enhanced' level control) for the proposed development, and should be maintained a minimum once every year. The first unit will be located at the outlet to Catchment C, and has been sized as a Stormceptor 750 (or equivalent). The second unit will be installed at the outlet to Catchment B, and has been sized as a Stormceptor 4000 (or equivalent). Full development conditions have been assumed for the sizing of the unit at the outlet to Catchment B.

Please see **Appendix D** for sizing information.



LEGEND

- PROPOSED DEVELOPMENT AREA
- PROPOSED DRAINAGE SUB-CATCHMENTS
- A / 0.55 0.67ha — BASIN # / AREA IN ha / RUNOFF COEFFICIENT
- PROPOSED OVERLAND FLOW ROUTE

BURNSIDE

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Client

FIRST CAPITAL HOLDINGS TRUST
BRONTE ST AND DERRY RD

Drawing Title

POST DEVELOPMENT DRAINAGE AREAS

Drawn By	Checked By	Figure Number
RG	TR	4
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4.0 Erosion and Sediment Control

Given the generally flat topography, the subject lands are considered to have a low to moderate erosive potential. The construction phase for the project should be relatively short in terms of duration, whereas its activity level is expected to be high. Nonetheless, effective environmental and sedimentation controls must be in place on a temporary basis both during the construction period, and as permanent features of the completed development of the site.

To ensure stormwater quality control during construction, it is imperative that effective environmental and sedimentation control be in place on a temporary basis throughout the entire area prior to construction activities. It is therefore recommended that during the construction phase the following practices be implemented and maintained throughout to mitigate the off-site transportation of eroded soils:

- Restoration of exposed surfaces with vegetative and non-vegetative material as soon as construction schedules permit;
- Provision of silt control fences for the duration of construction activities in all areas where surface drainage flows over disturbed areas and off the site;
- Installation of rip rap check dams and geotextile fences in key locations as deemed necessary; and,
- Designation of fuelling areas and fuel storage areas, and ensuring that these areas are properly treated to contain leaks and other surface spills. Further, a maintenance plan will be prepared to ensure the up-keep of these designated areas.

Prior to the commencement of construction activities, a proposed 1.2 m high siltation control fence should be installed in strategic locations so as to filter such surface runoff (**Refer to Drawing ES1** for some suggested locations). This fence will delineate areas for construction activities.

All proposed catchbasins and catchbasin manholes on site shall have the underside of the grates covered with Terrafix 240R non-woven geotextile material during the construction period. The contractor shall regularly clean the sediment and debris filtered out by these structures. The contractor shall remove and dispose of the geotextile material at the end of the construction period.

To assist in minimizing the tracking of mud off-site, it is proposed that temporary mud mat systems be provided at the entrances to the site. The mud mats will consist of 50 mm diameter clear stone to a minimum depth of 250 mm. This mud mat will be installed only for a short term during the majority of the building construction period.

Through the implementation of the proposed construction practices discussed above and regular maintenance of these controls, it can be ensured that satisfactory protection of the surrounding areas will occur during the construction stage of the proposed development.

5.0 Conclusions and Recommendations

Stormwater management measures for the site can be summarized as follows:

- The maximum permissible 5-year release rate from the site to the Bronte Road sewer is 292 L/s based on the capacity of the receiving storm sewer. Actual release rate will be 267 L/s;
- A 200mm orifice tube will be used in Catchment B to attenuate discharge to the Bronte Street storm system, while a 100mm orifice tube will be used in Catchment C, requiring a maximum of 839m^3 and 22 m^3 of storage respectively on the parking lot surface;
- A total of 1219m^3 and 39m^3 of storage has been provided in Catchment B and C respectively;
- Rooftop controls will be used to attenuate storm discharge on proposed buildings.
- Stormwater quality will be provided by a STC 4000 and STC 750 or equivalent; and
- Measures for mitigation of silt-laden runoff leaving the site have been identified in this report.

In summary, the site can be serviced with an on-site stormwater management system capable of satisfying the applicable SWM criteria. Accordingly, we hereby recommend the adoption of this report as it relates to the provision of SWM works, and for the purposes of the Site Plan Application.

Prepared by:

R. J. Burnside & Associates Limited



Todd Ricketts, P. Eng.
Leader, GTA Development

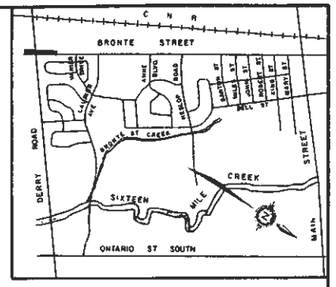
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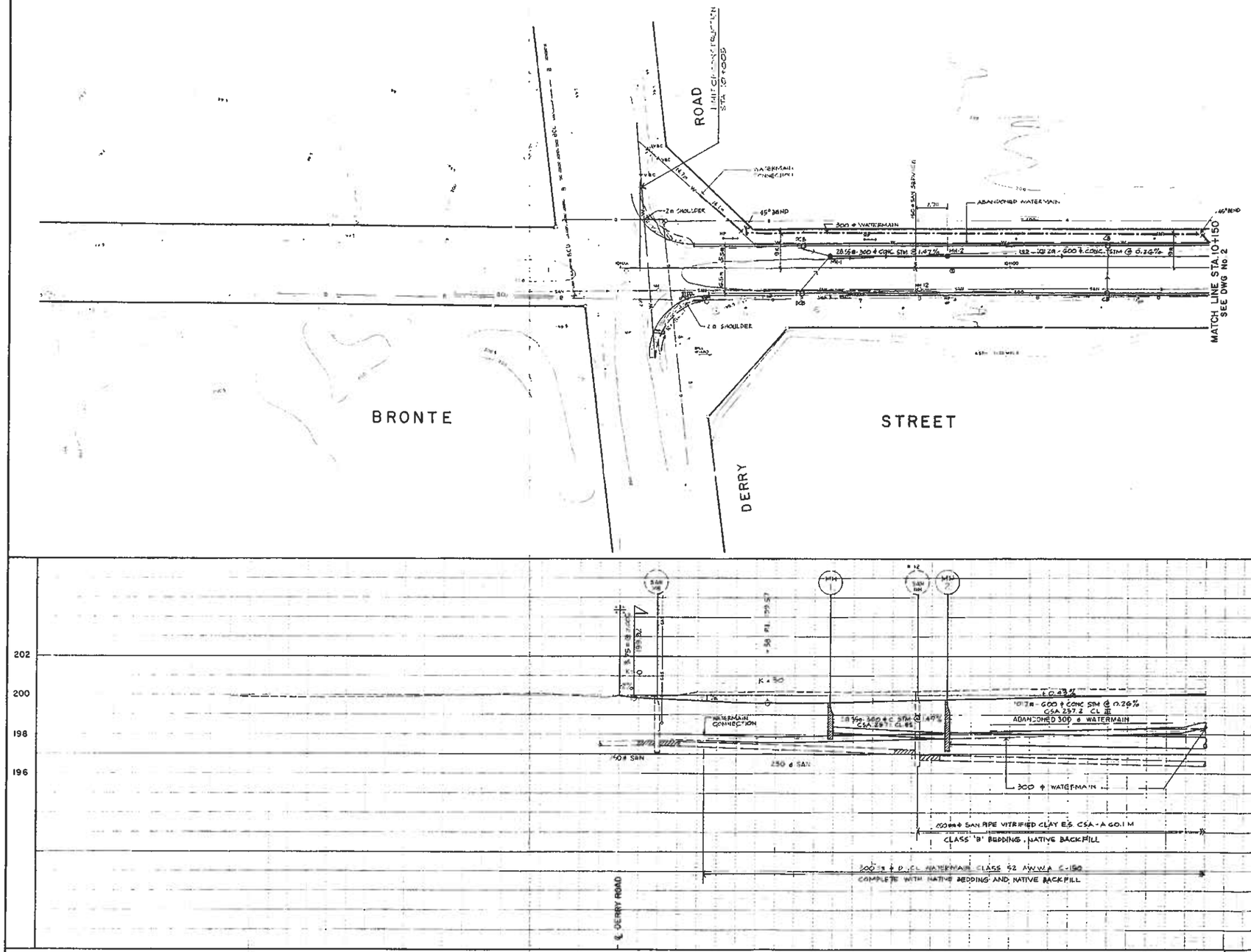
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Appendix A
Storm Sewer Plans
Bronte Meadows Subdivision and Bronte

METRIC





No	Date	By	REVISIONS
4	DEC/88	K.B.M.	AS CONSTRUCTED
3	A.G/83	T.H.M.	ASPHALT ADDED AFTER PRESTO SEAL
2	JULY/83	T.H.M.	WATERMAIN LOCATION REVISED AND SAN MH RELOCATED FROM STA 9+950
1	NOV/82	T.H.M.	AS ENGINEERED

Design	A.B.O.	Checked	T.H.M.
Drawn		Checked	T.H.M.

Date: MAY 1983

Scale: HORIZONTAL 1 : 500, VERTICAL 1 : 100

REFERENCES

FIELD NOTES

APPROVALS

Municipal

DIRECTOR OF PUBLIC WORKS

Regional

DIRECTOR OF PUBLIC WORKS

MANAGER OF DESIGN & CONSTRUCTION

STAMP: T. H. McCOLM, LICENCE OF ONTARIO

CONSULTANT

Anderson Associates Ltd.
CONSULTING ENGINEERS AND PLANNERS
TORONTO MILLAND THUNDER BAY EDMONTON

MUNICIPALITY

TOWN OF MILTON

TITLE

BRONTE STREET RECONSTRUCTION

STA 9+850 TO STA 10+150

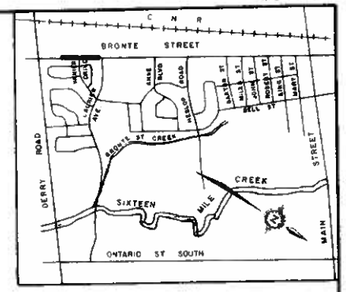
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REGIONAL DRAWING NO

CONTRACT NO

SHEET 1 OF 12

METRIC

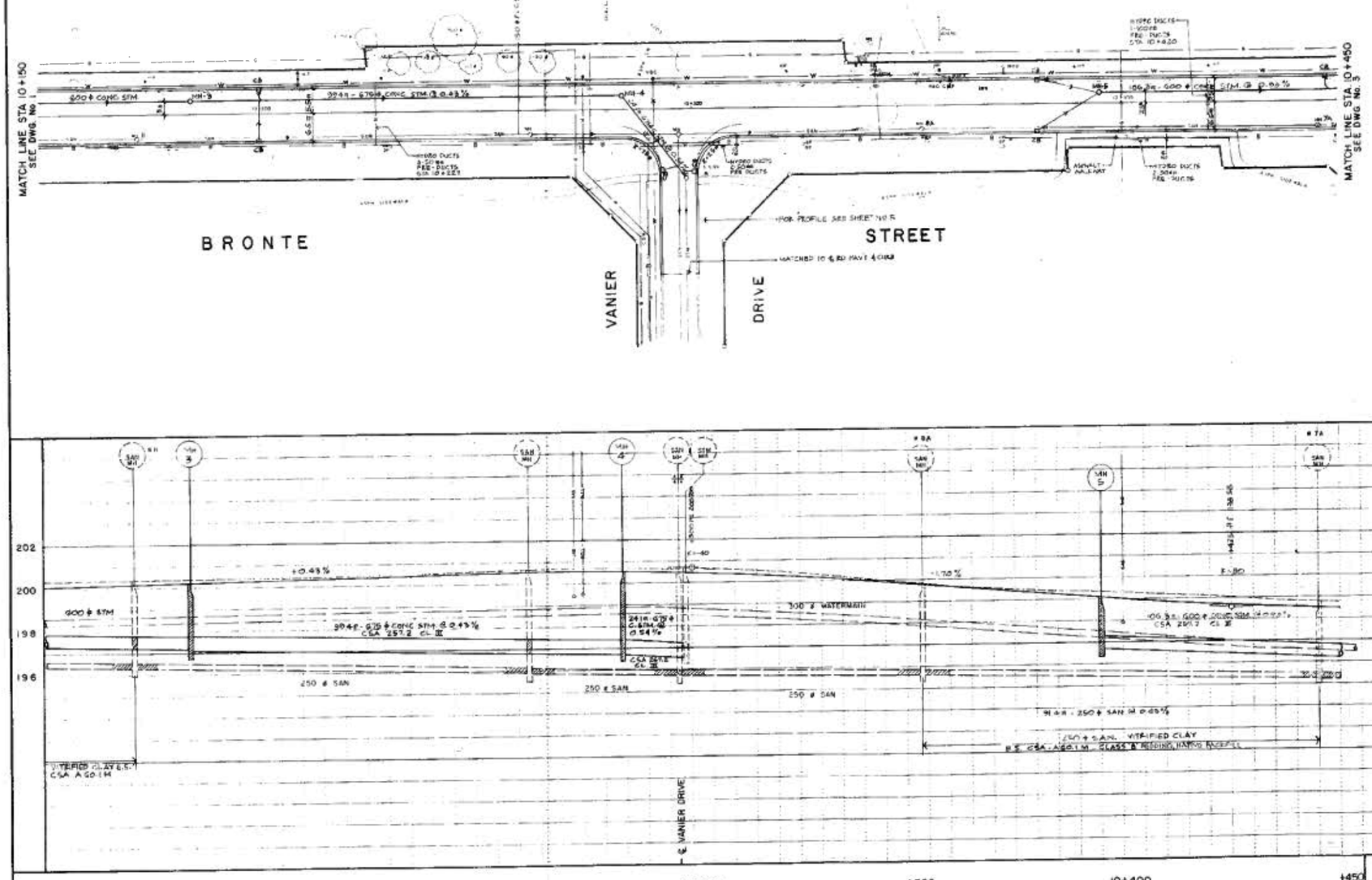


MATCH LINE STA 10+150 SEE DWG. No 4

MATCH LINE STA 10+450 SEE DWG No. 5

BRONTE STREET

VANIER DRIVE



+150	10+200	+250	10+300	+350	10+400	+450	STATIONS
							STORM SEWER
							SAN. SEWER

NO	Date	By	REVISIONS
4	DEC 85	T.H.M	AS CONSTRUCTED
3	JUL 85	T.H.M	ASPHALT WORK DELETED AS PER HEATHER'S LETTER
2	DEC 84	T.H.M	DRAINAGE DITCHING REVISED, 600ϕ STM ADDED, SAN SEWER ABOVE WATER MAIN DELETED
1	JUL 84	T.H.M	AS TENDERED

Design A.B.D. | Checked T.H.M | Date MAY 1983

Drawn | Checked T.H.M

Scale HORIZONTAL 1:500 VERTICAL 1:100

APPROVALS

Municipal

DIRECTOR OF PUBLIC WORKS

Regional

DIRECTOR OF PUBLIC WORKS

MANAGER OF DESIGN & CONSTRUCTION

REFERENCES

FIELD NOTES

STAMP: T. H. McCLAM

CONSULTANT: Anderson Associates Ltd. CONSULTING ENGINEERS AND PLANNERS TORONTO BRAMPTON THUNDER BAY EDMONTON

MUNICIPALITY: TOWN OF MILTON

TITLE: BRONTE STREET RECONSTRUCTION STA 10+150 TO STA 10+450

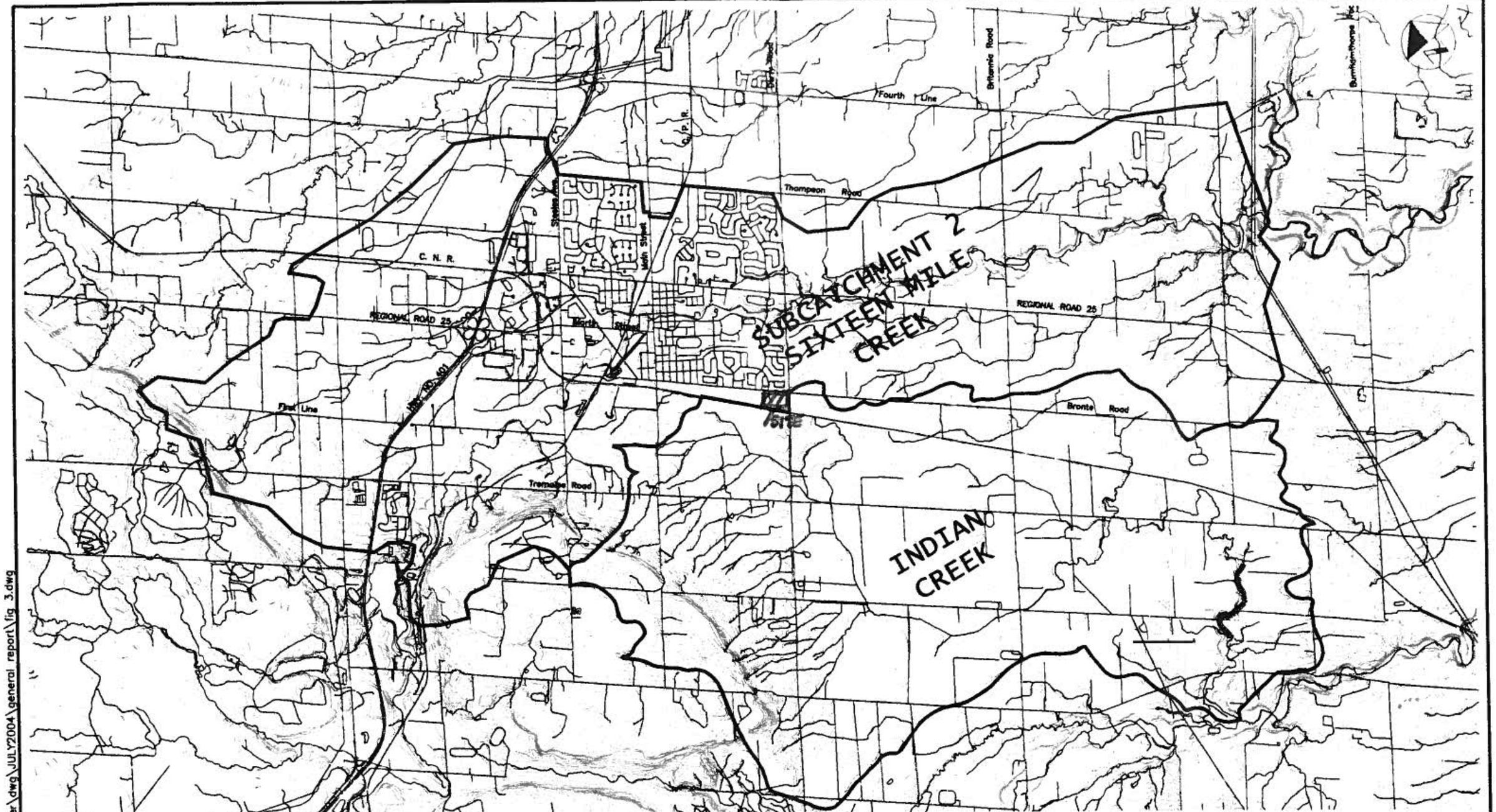
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REGIONAL DRAWING NO

CONTRACT NO

SHEET 2 OF 12

Cons-0080



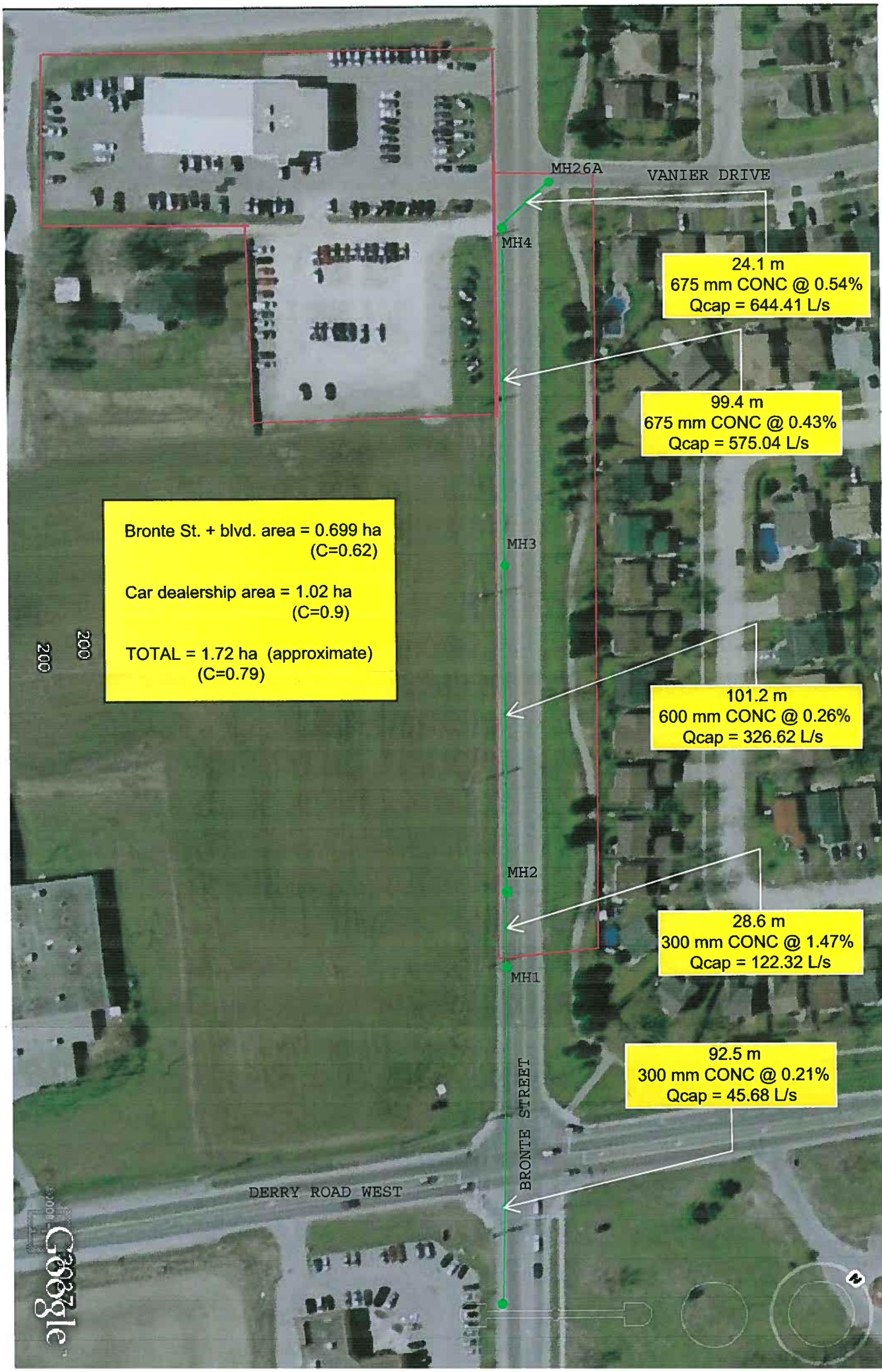
SHERWOOD SURVEY (PHASE 2)
INDIAN CREEK / 16 MILE CREEK
TOWN OF MILTON
SUBWATERSHED LOCATION AND TOPOGRAPHY

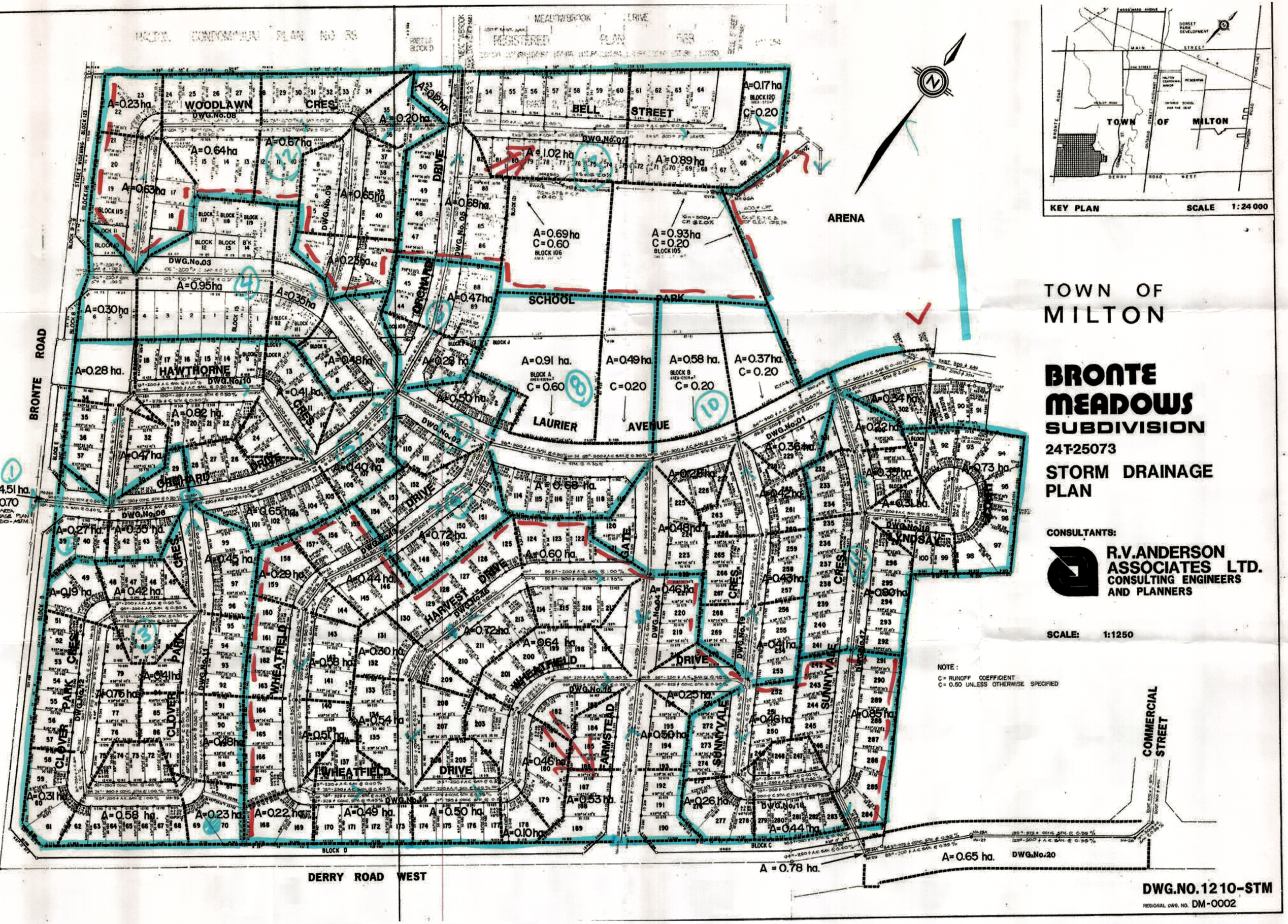
PHILLIPS ENGINEERING

Project No.	101081A
Date	JULY 2004
Scale	1:50,000
Figure No.	3

JULY 29/04 – MS

G:\Work\101081A\Water\dwg\JULY2004\general report\fig 3.dwg


MH26A
VANIER DRIVE
MH4
24.1 m
675 mm CONC @ 0.54%
Qcap = 644.41 L/s
99.4 m
675 mm CONC @ 0.43%
Qcap = 575.04 L/s
Bronte St. + blvd. area = 0.699 ha
(C=0.62)
Car dealership area = 1.02 ha
(C=0.9)
TOTAL = 1.72 ha (approximate)
(C=0.79)
MH3
101.2 m
600 mm CONC @ 0.26%
Qcap = 326.62 L/s
MH2
28.6 m
300 mm CONC @ 1.47%
Qcap = 122.32 L/s
MH1
92.5 m
300 mm CONC @ 0.21%
Qcap = 45.68 L/s
BRONTE STREET
DERRY ROAD WEST
200
200
Google


MEADOWBROOK DRIVE
REGISTERED PLAN 683
WOODLAWN CRES.
DWG.No.08
BELL STREET
DWG.No.07
DRIVE
DWG.No.05
ORCHARD
DWG.No.03
SCHOOL
PARK
ARENA
BRONTE ROAD
HAWTHORNE
DWG.No.10
LAURIER AVENUE
DWG.No.02
DWG.No.01
DWG.No.06
DWG.No.09
DWG.No.13
DWG.No.15
DWG.No.16
DWG.No.04
DWG.No.19
DWG.No.18
DWG.No.17
DWG.No.12
DWG.No.11
DWG.No.14
CLOVER PARK CRES.
WHEATFIELD DRIVE
HARVEST GATE
FARMSTEAD CRES.
SUNNYVALE CRES.
SUNNYVALE DRIVE
COMMERCIAL STREET
DWG.No.20
DERRY ROAD WEST
BLOCK D
BLOCK C
A=0.23 ha.
A=0.64 ha
A=0.67 ha
A=0.63 ha
A=0.65 ha
A=0.20 ha.
A=0.02 ha.
A=0.68 ha.
A=0.25 ha
A=0.95 ha
A=0.35 ha
A=0.30 ha
A=0.28 ha.
A=0.48 ha
A=0.41 ha.
A=0.82 ha.
A=0.47 ha.
A=0.40 ha.
A=0.65 ha.
A=0.27 ha.
A=0.55 ha.
A=0.45 ha.
A=0.29 ha.
A=0.44 ha.
A=0.19 ha.
A=0.42 ha.
A=0.41 ha.
A=0.76 ha.
A=0.48 ha.
A=0.31 ha.
A=0.58 ha.
A=0.23 ha.
A=0.22 ha.
A=0.49 ha.
A=0.50 ha.
A=0.10 ha.
A=0.53 ha.
A=0.46 ha.
A=0.54 ha.
A=0.51 ha.
A=0.30 ha.
A=0.38 ha.
A=0.72 ha.
A=0.60 ha.
A=0.64 ha.
A=0.72 ha.
A=0.47 ha.
A=0.50 ha.
A=0.28 ha.
A=0.91 ha.
A=0.49 ha.
A=0.58 ha.
A=0.37 ha.
A=0.69 ha
C=0.60
BLOCK 106
A=0.93 ha
C=0.20
BLOCK 105
A=0.17 ha
BLOCK 120
C=0.20
A=0.89 ha
A=1.02 ha
A=0.28 ha.
A=0.42 ha.
A=0.48 ha.
A=0.46 ha.
A=0.43 ha.
A=0.41 ha.
A=0.25 ha.
A=0.46 ha.
A=0.50 ha.
A=0.26 ha.
A=0.44 ha.
A=0.34 ha.
A=0.22 ha.
A=0.36 ha.
A=0.39 ha.
A=0.51 ha.
A=0.73 ha.
A=0.60 ha.
A=0.85 ha.
A=0.78 ha.
A=0.65 ha.
KEY PLAN
SCALE 1:24 000
TOWN OF MILTON
DORSET PARK DEVELOPMENT
MAIN STREET
DERRY ROAD WEST
BRONTE ROAD
ONTARIO STREET
TOWN OF MILTON
TOWN OF MILTON
BRONTE MEADOWS SUBDIVISION
24T-25073
STORM DRAINAGE PLAN
CONSULTANTS:
R.V.ANDERSON ASSOCIATES LTD.
CONSULTING ENGINEERS AND PLANNERS
SCALE: 1:1250
NOTE :
C = RUNOFF COEFFICIENT
C = 0.50 UNLESS OTHERWISE SPECIFIED
DWG.NO. 1210-STM
REGIONAL DWG. NO. DM-0002

BURNSIDE

Appendix B
Stormwater Management Design Calculations

STORM SEWER DESIGN SHEET
5 YEAR AND 25 YEAR STORMS

Location	Upstream Manhole	Downstream Manhole	A at R=0.20 (ha)	A at R=0.50 (ha)	A at R=0.75 (ha)	A at R=0.90 (ha)	A x R this section (ha)	Acc. AR (ha)	t (min)	I (5yr) (mm/hr)	Q (5yr) (l/s)	Pipe	Pipe (mm)	Grade (%)	Capacity (l/s)	Velocity (m/s)	Length (m)	Time (min)	Total Time (min)	Available Capacity (l/s)	% Capacity
Bronte St. South of Derry	DICB	MH1			0.30		0.210	0.210	10.00	78.76	45.94	IMPERIAL	300	0.21	46.23	0.63	92.5	2.43	12.43	0.29	99.4%
Bronte St.	MH1	MH2				0.25	0.225	0.435	12.43	77.79	94.00	IMPERIAL	300	1.47	122.31	1.68	28.6	0.28	12.72	28.31	76.9%
Bronte St.	MH2	MH3				0.25	0.225	0.660	12.72	74.03	135.72	IMPERIAL	600	0.26	326.62	1.12	80.0	1.19	13.91	190.91	41.6%
Bronte St.	MH3	MH4				0.25	0.225	0.885	13.91	71.00	174.54	IMPERIAL	675	0.43	575.04	1.56	99.4	1.06	14.97	400.51	30.4%
Bronte St.	MH4	MH26A				1.02	0.918	1.803	14.97	70.38	352.48	IMPERIAL	675	0.54	644.41	1.74	24.1	0.23	15.20	291.93	54.7%
Bronte St. and Vanier Drive	MH26A	MH36A		0.62			0.310	2.113	15.20	68.87	404.22	IMPERIAL	750	0.50	821.24	1.80	63.0	0.58	15.79	417.03	49.2%
Clover Park Cres.	MH31	MH36A		3.10			1.550	1.550	10.00	76.32	328.59	IMPERIAL	600	0.50	452.95	1.55	295.0	3.17	13.17	124.35	72.5%
Vanier Drive	MH36A	MH40A		0.65			0.325	3.988	15.79	66.45	736.09	IMPERIAL	975	0.30	1280.55	1.66	99.5	1.00	16.78	544.46	57.5%
Hawthorne Cres.	MH37A	MH40A		1.98			0.990	0.990	10.00	76.67	210.84	IMPERIAL	450	0.63	236.08	1.44	264.0	3.06	13.06	25.24	89.3%
Vanier Drive	MH40A	MH46A		0.40			0.200	5.178	16.78	64.93	933.95	IMPERIAL	975	0.50	1653.18	2.15	86.0	0.67	17.45	719.23	56.5%
Laurier Drive W.	MH63	MH46A		2.08			1.040	1.040	10.00	74.91	216.41	IMPERIAL	450	0.50	[redacted]	1.28	278.0	3.62	13.62	-6.09	102.9%
Orchard Drive	MH44A	MH46A		0.75			0.375	0.375	10.00	81.70	85.10	IMPERIAL	375	0.50	129.34	1.13	110.0	1.62	11.62	44.23	65.8%
Vanier Drive	MH46A	MH53		0.50			0.250	6.843	17.45	63.37	1204.53	IMPERIAL	1200	0.30	2227.76	1.91	83.5	0.73	18.18	1023.23	54.1%
Wheatfield Dr.	MH1A	MH53		0.72			0.360	0.360	10.00	82.53	82.53	IMPERIAL	300	1.00	100.88	1.38	116.0	1.40	11.40	18.36	81.8%
Vanier Drive	MH53	MH55	0.49	0.68	0.91		1.075	8.278	18.18	60.91	1400.70	IMPERIAL	1200	0.30	2227.76	1.91	141.0	1.23	19.41	827.06	62.9%
Farmstead Gate	MH16A	MH55		0.48			0.240	0.240	10.00	83.80	55.87	IMPERIAL	300	1.00	100.88	1.38	89.0	1.07	11.07	45.02	55.4%
Vanier Drive	MH55	MH58	0.58	0.28			0.256	8.774	19.41	59.93	1460.52	IMPERIAL	1200	0.40	2572.39	2.20	70.0	0.53	19.94	1111.88	56.8%
Sunnyvale Cres. W.	MH18A	MH58		1.26			0.630	0.630	10.00	80.20	140.34	IMPERIAL	375	1.00	182.91	1.60	195.0	2.03	12.03	42.57	76.7%
Vanier Drive	MH58	MH62	0.37	0.36			0.254	9.658	19.94	59.39	1593.43	IMPERIAL	1200	2.00	5752.05	4.93	86.5	0.29	20.24	4158.62	27.7%
Sunnyvale Cres. E.	MH23	MH62		2.72			1.360	1.360	10.00	81.32	307.22	IMPERIAL	525	0.80	401.29	1.80	185.0	1.72	11.72	94.07	76.6%
Vanier Drive	MH62	EX		0.34			0.170	11.188	20.24	58.94	1831.73	IMPERIAL	1200	2.00	5752.05	4.93	75.5	0.26	20.49	3920.32	31.8%
					21.34															291.93	

PROJECT :	Bronte Meadows Subdivision
PROJECT NUMBER :	PTD 14679
CLIENT :	
DATE :	November 18, 2008

NOTES

$$I_{5YR} = \frac{697.4}{(t+5)^{0.763}}$$

Designed By RG

Checked By : TR

BURNSIDE	Project:	**First Capital Milton**	Prepared by: **RG**
	Title:	**Pre Development Peak Flow to Derry Rd.**	Checked by: **TR**
	Date:	**January 27, 2009**	Project no.: **PTD 14679**

5 year Pre Development Flow

a	697.4	
b	5	
c	0.763	
Tc	15.00	Minutes

Description	C	i (mm/hr)	A (ha)	Q (L/s)
Grassland	0.25	70.9	3.66	180.3
Asphalt/Building	0.9	70.9	0.54	95.7
Gravel	0.6	70.9	0.00	0.0
				276.0

QAllowable Release = CiA □ 0.36

= 276 L/s

100 year Pre Development Flow

a	1114.2	
b	5	
c	0.761	
Tc	15	Minutes

Description	C	i□(mm/hr)	A□(ha)	Q□(L/s)
Grassland	0.625	114.0	3.66	724.3
		114.0		
Asphalt/Building	0.9		0.54	153.9
Gravel	0.6	114.0	0.00	0.0
				878.2

QAllowable Release = CiA □ 0.36

= 878.2 L/s

BURNSIDE	Project:	**First Capital Milton**	Prepared by: **RG**
		Post Development Peak Flow Calculations - Derry Rd.	Checked by: **TR**
	Date:	**January 27, 2009**	Project no.: **PTD 14679**

5 year

a	697.4	
b	5	
c	0.763	
Tc	10.00	Minutes

Description	C	i (mm/hr)	A (ha)	Q (L/s)
Total Site	0.61	88.3	0.71	106.6
				106.6

QAllowable Release = CiA
0.36
= 106.6 L/s

100 year

a	1114.2	
b	5	
c	0.761	
Tc	10.00	Minutes

Description	C	i (mm/hr)	A (ha)	Q (L/s)
Total Site	0.78	141.9	0.71	217.7
				217.7

QAllowable Release = CiA
0.36
= 217.7 L/s

Culvert Calculator Report
Worksheet-1

Solve For: Discharge

Culvert Summary			
Allowable HW Elevation	0.54 m	Headwater Depth/Height	0.82
Computed Headwater Elev	0.54 m	Discharge	0.1530 m³/s
Inlet Control HW Elev.	0.50 m	Tailwater Elevation	0.00 m
Outlet Control HW Elev.	0.54 m	Control Type	Outlet Control

Grades			
Upstream Invert	0.10 m	Downstream Invert	0.00 m
Length	10.00 m	Constructed Slope	0.010000 m/m

Hydraulic Profile			
Profile	M2	Depth, Downstream	0.26 m
Slope Type	Mild	Normal Depth	0.31 m
Flow Regime	Subcritical	Critical Depth	0.26 m
Velocity Downstream	1.41 m/s	Critical Slope	0.017200 m/m

Section			
Section Shape	Circular	Mannings Coefficient	0.024
Section Material	CMP	Span	0.53 m
Section Size	525 mm	Rise	0.53 m
Number Sections	1		

Outlet Control Properties			
Outlet Control HW Elev.	0.54 m	Upstream Velocity Head	0.07 m
Ke	0.90	Entrance Loss	0.06 m

Inlet Control Properties			
Inlet Control HW Elev.	0.50 m	Flow Control	Unsubmerged
Inlet Type	Projecting	Area Full	0.2 m²
K	0.03400	HDS 5 Chart	2
M	1.50000	HDS 5 Scale	3
C	0.05530	Equation Form	1
Y	0.54000		

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RJ Burnside & Associates Ltd
37 Brookside Road Waterbury, CT 06708 USA +1-203-755-1666

BURNSIDE

Project:	First Capital Milton - Catchment B	Prepared by:	RG
Task:	5 Year Storm Modelling	Checked by:	TR
Date:	January 27, 2009	Project no.:	PTD 14679

Drainage to Bronte Street

5 Year
a 697.4
b 5
c 0.763

Runoff Coeff. (C):	0.90	
Drainage Area (A):	2.74	ha
Controlled Flow m3/s:	180.4	L/s
	0.180	m^3/s

TIME	i 5-year	Inflow CIA/360	Flow Stored	Max Stor Required	
minutes	(mm/hr)	(m^3/s)	(m^3/s)	(m^3)	
10	88.3	0.604	0.424	254.4	
15	70.9	0.485	0.305	274.4	
20	59.8	0.409	0.229	274.7	max
25	52.1	0.356	0.176	263.7	
30	46.3	0.317	0.136	245.3	
35	41.8	0.286	0.106	221.8	
40	38.2	0.261	0.081	194.5	
45	35.3	0.241	0.061	164.2	
50	32.8	0.224	0.044	131.7	
55	30.7	0.210	0.030	97.4	
60	28.9	0.197	0.017	61.5	
65	27.3	0.187	0.006	24.2	
70	25.9	0.177	0.000	0.0	
75	24.6	0.169	0.000	0.0	
80	23.5	0.161	0.000	0.0	
85	22.5	0.154	0.000	0.0	
90	21.6	0.148	0.000	0.0	
95	20.8	0.142	0.000	0.0	
100	20.0	0.137	0.000	0.0	
105	19.3	0.132	0.000	0.0	
110	18.7	0.128	0.000	0.0	
115	18.1	0.124	0.000	0.0	
120	17.5	0.120	0.000	0.0	
125	17.0	0.116	0.000	0.0	

Building Roofs

Runoff Coeff. (C):	0.90	
Drainage Area (A):	0.13	ha
Controlled Flow m3/s (based on 42 L/s/ha):	5.6	L/s
	0.006	m^3/s

Inflow CIA/360	Flow Stored	Max Stor Required	
(m^3/s)	(m^3/s)	(m^3)	
0.030	0.024	14.4	max
0.024	0.018	10.9	
0.020	0.014	8.6	
0.017	0.012	7.1	
0.016	0.010	5.9	
0.014	0.008	5.0	
0.013	0.007	4.3	
0.012	0.006	3.7	
0.011	0.005	3.2	
0.010	0.005	2.8	
0.010	0.004	2.4	
0.009	0.004	2.1	
0.009	0.003	1.8	
0.008	0.003	1.6	
0.008	0.002	1.3	
0.008	0.002	1.1	
0.007	0.002	1.0	
0.007	0.001	0.8	
0.007	0.001	0.6	
0.006	0.001	0.5	
0.006	0.001	0.4	
0.006	0.000	0.3	
0.006	0.000	0.1	
0.006	0.000	0.0	

BURNSIDE	Project:	First Capital Milton - Catchment B	Prepared by: RG
	Task:	100 Year Storm Modelling	Checked by: TR
	Date:	January 27, 2009	Project no.: PTD 14679

100 Year
a 1114.2
b 5
c 0.761

Drainage to Bronte Street

Runoff Coeff. (C):	0.90	
Drainage Area (A):	2.74	ha
Controlled Flow m3/s:	180.4	L/s
	0.180	m^3/s

TIME	i 100-year	Inflow CIA/360	Flow Stored	Max Stor Required	
minutes	(mm/hr)	(m^3/s)	(m^3/s)	(m^3)	
10	141.9	0.971	0.791	474.3	
15	114.0	0.780	0.600	539.7	
20	96.2	0.658	0.478	573.4	
25	83.7	0.573	0.393	588.8	
30	74.5	0.509	0.329	592.4	max
35	67.3	0.460	0.280	587.8	
40	61.5	0.421	0.240	577.0	
45	56.8	0.388	0.208	561.6	
50	52.8	0.361	0.181	542.5	
55	49.4	0.338	0.158	520.4	
60	46.5	0.318	0.138	495.8	
65	43.9	0.301	0.120	469.1	
70	41.7	0.285	0.105	440.6	
75	39.7	0.272	0.091	410.5	
80	37.9	0.259	0.079	379.1	
85	36.3	0.248	0.068	346.5	
90	34.8	0.238	0.058	312.8	
95	33.5	0.229	0.049	278.2	
100	32.3	0.221	0.040	242.7	
105	31.2	0.213	0.033	206.5	
110	30.1	0.206	0.026	169.5	
115	29.2	0.199	0.019	131.9	
120	28.3	0.193	0.013	93.7	
125	27.4	0.188	0.007	55.0	

Building Roofs

Runoff Coeff. (C):	0.90	
Drainage Area (A):	0.13	ha
Controlled Flow m3/s (based on 42 L/s/ha):	5.6	L/s
	0.006	m^3/s

Inflow CIA/360	Flow Stored	Max Stor Required	
(m^3/s)	(m^3/s)	(m^3)	
0.048	0.042	25.1	max
0.038	0.033	19.5	
0.032	0.027	16.0	
0.028	0.022	13.5	
0.025	0.019	11.6	
0.023	0.017	10.1	
0.021	0.015	9.0	
0.019	0.013	8.0	
0.018	0.012	7.2	
0.017	0.011	6.6	
0.016	0.010	6.0	
0.015	0.009	5.5	
0.014	0.008	5.0	
0.013	0.008	4.6	
0.013	0.007	4.2	
0.012	0.007	3.9	
0.012	0.006	3.6	
0.011	0.006	3.4	
0.011	0.005	3.1	
0.010	0.005	2.9	
0.010	0.004	2.7	
0.010	0.004	2.5	
0.009	0.004	2.3	
0.009	0.004	2.1	

BURNSIDE			
	Project:	**First Capital Milton - Catchment B**	Prepared by: **RG**
	Task:	**Orifice Sizing**	Checked by: **TR**
	Date:	**27-Jan-09**	Project no.: **PTD 14679**

Outlet Orifice Plate

Head =	2.52	m
$Q_{control\ rate}$ =	0.186	m^3/s
C =	0.84	
d_{orfice} =	200	mm (minimum)
r_{orfice} =	100	mm
$Q_{Orifice}$ =	0.1855	m^3/s
Difference =	0.0005	m^3/s

$Q = CA(\sqrt{2gh})$ Discharge Coefficients Plate = 0.62, Tube = 0.84

BURNSIDE	Project:	**First Capital Milton - Catchment B**	Prepared by: **RG**
		Uncontrolled Flow to Bronte Street (Catchment B-UN)	Checked by: **TR**
	Date:	**January 27, 2009**	Project no.: **PTD 14679**

5 year

a	697.4	
b	5	
c	0.763	
Tc	10.00	Minutes

Description	C	i (mm/hr)	A (ha)	Q (L/s)
Landscaped	0.25	88.3	0.00	0.0
Hard Surfaced	0.9	88.3	0.09	19.9
Gravel	0.75	88.3	0.00	0.0
				19.9

QAllowable Release = CiA
0.36
= 19.9 L/s

100 year

a	1114.2	
b	5	
c	0.761	
Tc	10.00	Minutes

Description	C	i (mm/hr)	A (ha)	Q (L/s)
Landscaped	0.63	141.9	0.00	0.0
Hard Surfaced	0.9	141.9	0.09	31.9
Gravel	0.75	141.9	0.00	0.0
				31.9

QAllowable Release = CiA
0.36
= 31.9 L/s

BURNSIDE	Project:	First Capital Milton - Catchment C	Prepared by: RG
	Task:	5 Year Storm Modelling	Checked by: TR
	Date:	January 27, 2009	Project no.: PTD 14679

5 Year
a 697.4
b 5
c 0.763

Drainage to Bronte Street

Runoff Coeff. (C):	0.90	
Drainage Area (A):	0.20	ha
Controlled Flow m3/s:	34.7	L/s
	0.035	m^3/s

TIME	i 5-year	Inflow CIA/360	Flow Stored	Max Stor Required		Inflow CIA/360	Flow Stored	Max Stor Required	
minutes	(mm/hr)	(m^3/s)	(m^3/s)	(m^3)		(m^3/s)	(m^3/s)	(m^3)	
10	88.3	0.044	0.010	5.8	max	0.072	0.059	35.2	max
15	70.9	0.036	0.001	0.8		0.058	0.044	26.6	
20	59.8	0.030	0.000	0.0		0.049	0.035	21.2	
25	52.1	0.026	0.000	0.0		0.043	0.029	17.3	
30	46.3	0.023	0.000	0.0		0.038	0.024	14.5	
35	41.8	0.021	0.000	0.0		0.034	0.020	12.3	
40	38.2	0.019	0.000	0.0		0.031	0.018	10.5	
45	35.3	0.018	0.000	0.0		0.029	0.015	9.1	
50	32.8	0.016	0.000	0.0		0.027	0.013	7.9	
55	30.7	0.015	0.000	0.0		0.025	0.011	6.8	
60	28.9	0.014	0.000	0.0		0.024	0.010	5.9	
65	27.3	0.014	0.000	0.0		0.022	0.009	5.2	
70	25.9	0.013	0.000	0.0		0.021	0.007	4.5	
75	24.6	0.012	0.000	0.0		0.020	0.006	3.9	
80	23.5	0.012	0.000	0.0		0.019	0.006	3.3	
85	22.5	0.011	0.000	0.0		0.018	0.005	2.8	
90	21.6	0.011	0.000	0.0		0.018	0.004	2.4	
95	20.8	0.010	0.000	0.0		0.017	0.003	2.0	
100	20.0	0.010	0.000	0.0		0.016	0.003	1.6	
105	19.3	0.010	0.000	0.0		0.016	0.002	1.2	
110	18.7	0.009	0.000	0.0		0.015	0.002	0.9	
115	18.1	0.009	0.000	0.0		0.015	0.001	0.6	
120	17.5	0.009	0.000	0.0		0.014	0.001	0.4	
125	17.0	0.009	0.000	0.0		0.014	0.000	0.1	

Building Roofs

Runoff Coeff. (C):	0.90	
Drainage Area (A):	0.33	ha
Controlled Flow m3/s (based on 42 L/s/ha):	13.8	L/s
	0.014	m^3/s

BURNSIDE				
Project:	First Capital Milton - Catchment C	Prepared by:	RG	
Task:	100 Year Storm Modelling	Checked by:	TR	
Date:	January 27, 2009	Project no.:	PTD 14679	

Drainage to Bronte Street

100 Year	Runoff Coeff. (C):	0.90	
a 1114.2	Drainage Area (A):	0.20	ha
b 5	Controlled Flow m3/s:	34.7	L/s
c 0.761		0.035	m^3/s

TIME	i 100-year	Inflow CIA/360	Flow Stored	Max Stor Required		**Building Roofs** Inflow CIA/360	Flow Stored	Max Stor Required	
minutes	(mm/hr)	(m^3/s)	(m^3/s)	(m^3)		(m^3/s)	(m^3/s)	(m^3)	
10	141.9	0.071	0.037	21.9	max	0.116	0.103	61.5	max
15	114.0	0.057	0.023	20.3		0.093	0.080	47.8	
20	96.2	0.048	0.014	16.3		0.079	0.065	39.1	
25	83.7	0.042	0.007	11.0		0.069	0.055	32.9	
30	74.5	0.037	0.003	4.8		0.061	0.047	28.4	
35	67.3	0.034	0.000	0.0		0.055	0.041	24.8	
40	61.5	0.031	0.000	0.0		0.050	0.037	22.0	
45	56.8	0.029	0.000	0.0		0.047	0.033	19.7	
50	52.8	0.027	0.000	0.0		0.043	0.030	17.7	
55	49.4	0.025	0.000	0.0		0.041	0.027	16.0	
60	46.5	0.023	0.000	0.0		0.038	0.024	14.6	
65	43.9	0.022	0.000	0.0		0.036	0.022	13.4	
70	41.7	0.021	0.000	0.0		0.034	0.020	12.2	
75	39.7	0.020	0.000	0.0		0.033	0.019	11.3	
80	37.9	0.019	0.000	0.0		0.031	0.017	10.4	
85	36.3	0.018	0.000	0.0		0.030	0.016	9.6	
90	34.8	0.018	0.000	0.0		0.029	0.015	8.9	
95	33.5	0.017	0.000	0.0		0.027	0.014	8.2	
100	32.3	0.016	0.000	0.0		0.026	0.013	7.6	
105	31.2	0.016	0.000	0.0		0.026	0.012	7.1	
110	30.1	0.015	0.000	0.0		0.025	0.011	6.6	
115	29.2	0.015	0.000	0.0		0.024	0.010	6.1	
120	28.3	0.014	0.000	0.0		0.023	0.009	5.6	
125	27.4	0.014	0.000	0.0		0.022	0.009	5.2	

Building Roofs

Runoff Coeff. (C):	0.90	
Drainage Area (A):	0.33	ha
Controlled Flow m3/s (based on 42 L/s/ha):	13.8	L/s
	0.014	m^3/s

BURNSIDE

Project:	**First Capital Milton - Catchment C**	Prepared by: **RG**
Task:	**Orifice Sizing**	Checked by: **TR**
Date:	**27-Jan-09**	Project no.: **PTD 14679**

Outlet Orifice Plate

Head =	2.75	m
$Q_{control\ rate}$ =	0.049	m^3/s
C =	0.84	
d_{orfice} =	100	mm (minimum)
r_{orfice} =	50	mm
$Q_{Orifice}$ =	0.0484	m^3/s
Difference =	0.0001	m^3/s

$Q = CA(\sqrt{2gh})$ Discharge Coefficients Plate = 0.62, Tube = 0.84

BURNSIDE	Project:	First Capital Milton - Catchment B (Full Development)	Prepared by: RG
	Task:	5 Year Storm Modelling	Checked by: TR
	Date:	January 27, 2009	Project no.: PTD 14679

5 Year
a 697.4
b 5
c 0.763

Drainage to Bronte Street

Runoff Coeff. (C): 0.90
Drainage Area (A): 3.45 ha
Controlled Flow m3/s: 180.4 L/s
0.180 m^3/s

Building Roofs

Runoff Coeff. (C): 0.90
Drainage Area (A): 0.13 ha
Controlled Flow m3/s (based on 42 L/s/ha): 5.6 L/s
0.006 m^3/s

TIME	i 5-year	Inflow CIA/360	Flow Stored	Max Stor Required		Inflow CIA/360	Flow Stored	Max Stor Required	
minutes	(mm/hr)	(m^3/s)	(m^3/s)	(m^3)		(m^3/s)	(m^3/s)	(m^3)	
10	88.3	0.761	0.581	348.5		0.030	0.024	14.4	max
15	70.9	0.611	0.431	387.7		0.024	0.018	10.9	
20	59.8	0.516	0.335	402.2		0.020	0.014	8.6	
25	52.1	0.449	0.268	402.3	max	0.017	0.012	7.1	
30	46.3	0.399	0.218	393.1		0.016	0.010	5.9	
35	41.8	0.360	0.180	377.5		0.014	0.008	5.0	
40	38.2	0.329	0.149	357.2		0.013	0.007	4.3	
45	35.3	0.304	0.123	333.2		0.012	0.006	3.7	
50	32.8	0.282	0.102	306.3		0.011	0.005	3.2	
55	30.7	0.264	0.084	277.0		0.010	0.005	2.8	
60	28.9	0.249	0.068	245.8		0.010	0.004	2.4	
65	27.3	0.235	0.055	213.0		0.009	0.004	2.1	
70	25.9	0.223	0.043	178.8		0.009	0.003	1.8	
75	24.6	0.212	0.032	143.4		0.008	0.003	1.6	
80	23.5	0.203	0.022	106.9		0.008	0.002	1.3	
85	22.5	0.194	0.014	69.4		0.008	0.002	1.1	
90	21.6	0.186	0.006	31.2		0.007	0.002	1.0	
95	20.8	0.179	0.000	0.0		0.007	0.001	0.8	
100	20.0	0.172	0.000	0.0		0.007	0.001	0.6	
105	19.3	0.166	0.000	0.0		0.006	0.001	0.5	
110	18.7	0.161	0.000	0.0		0.006	0.001	0.4	
115	18.1	0.156	0.000	0.0		0.006	0.000	0.3	
120	17.5	0.151	0.000	0.0		0.006	0.000	0.1	
125	17.0	0.147	0.000	0.0		0.006	0.000	0.0	

BURNSIDE	Project:	First Capital Milton - Catchment B (Full Development)	Prepared by: RG
	Task:	100 Year Storm Modelling	Checked by: TR
	Date:	January 27, 2009	Project no.: PTD 14679

100 Year
a 1114.2
b 5
c 0.761

Drainage to Bronte Street

Runoff Coeff. (C): 0.90
Drainage Area (A): 3.45 ha
Controlled Flow m3/s: 180.4 L/s
0.180 m^3/s

Building Roofs

Runoff Coeff. (C): 0.90
Drainage Area (A): 0.13 ha
Controlled Flow m3/s (based on 42 L/s/ha): 5.6 L/s
0.006 m^3/s

TIME	i 100-year	Inflow CIA/360	Flow Stored	Max Stor Required		Inflow CIA/360	Flow Stored	Max Stor Required	
minutes	(mm/hr)	(m^3/s)	(m^3/s)	(m^3)		(m^3/s)	(m^3/s)	(m^3)	
10	141.9	1.223	1.042	625.4		0.048	0.042	25.1	max
15	114.0	0.982	0.802	721.8		0.038	0.033	19.5	
20	96.2	0.829	0.649	778.3		0.032	0.027	16.0	
25	83.7	0.722	0.541	811.7		0.028	0.022	13.5	
30	74.5	0.642	0.461	830.3		0.025	0.019	11.6	
35	67.3	0.580	0.399	838.5		0.023	0.017	10.1	
40	61.5	0.530	0.350	839.0	max	0.021	0.015	9.0	
45	56.8	0.489	0.309	833.7		0.019	0.013	8.0	
50	52.8	0.455	0.275	823.6		0.018	0.012	7.2	
55	49.4	0.426	0.245	809.8		0.017	0.011	6.6	
60	46.5	0.401	0.220	792.8		0.016	0.010	6.0	
65	43.9	0.379	0.198	773.2		0.015	0.009	5.5	
70	41.7	0.359	0.179	751.4		0.014	0.008	5.0	
75	39.7	0.342	0.162	727.6		0.013	0.008	4.6	
80	37.9	0.327	0.146	702.0		0.013	0.007	4.2	
85	36.3	0.313	0.132	675.0		0.012	0.007	3.9	
90	34.8	0.300	0.120	646.6		0.012	0.006	3.6	
95	33.5	0.289	0.108	617.1		0.011	0.006	3.4	
100	32.3	0.278	0.098	586.4		0.011	0.005	3.1	
105	31.2	0.268	0.088	554.8		0.010	0.005	2.9	
110	30.1	0.260	0.079	522.3		0.010	0.004	2.7	
115	29.2	0.251	0.071	489.0		0.010	0.004	2.5	
120	28.3	0.244	0.063	454.9		0.009	0.004	2.3	
125	27.4	0.236	0.056	420.2		0.009	0.004	2.1	

BURNSIDE

Appendix C
Stormceptor Sizing Summary

Stormceptor CD Sizing Program
Canada
Version 4.0.0

Project Details

Project	FC Milton - North Drainage	Project #	PTD 14679
Location	Bronte Rd and Derry St., Milton, ON	Company	RJ Burnside
Date	Nov 08	Contact	R Grech

Selected Rainfall Station

State	ONTARIO
Name	TORONTO CENTRAL
ID #	
Elev. (m)	100
Latitude	N 45 deg 30 min
Longitude	W 90 deg 30 min

Site Parameters

Total Area (ha)	.56
Imperviousness (%)	90.
Impervious Area (ha)	.50

Particle Size Distribution

Diam. (um)	Percent (%)	Spec. Gravity
20	20	1.30
60	20	1.80
150	20	2.20
400	20	2.65
2000	20	2.65

Stormceptor Sizing Table

Stormceptor Model	% Runoff Treated	% TSS Removal
STC 300	87	71
STC 750	95	80
STC 1000	95	81
STC 1500	95	82
STC 2000	98	84
STC 3000	98	86
STC 4000	99	88
STC 5000	99	89
STC 6000	99	91
STC 9000	100	93
STC 10000	100	93
STC 14000	100	95

Comments :

Upstream Quantity Storage

Storage (ha-m)	Flow (cms)
0.000	0.000
0.003	0.046

Stormceptor CD Sizing Program
Canada
Version 4.0.0

Project Details			
Project	FC Milton - Catchment B	Project #	PTD 14679
Location	Bronte Rd and Derry St., Milton, ON	Company	RJ Burnside
Date	jan 09	Contact	R Grech

Selected Rainfall Station	
State	ONTARIO
Name	TORONTO CENTRAL
ID #	
Elev. (m)	100
Latitude	N 45 deg 30 min
Longitude	W 90 deg 30 min

Site Parameters	
Total Area (ha)	3.58
Imperviousness (%)	90.
Impervious Area (ha)	3.22

Particle Size Distribution		
Diam. (um)	Percent (%)	Spec. Gravity
20	20	1.30
60	20	1.80
150	20	2.20
400	20	2.65
2000	20	2.65

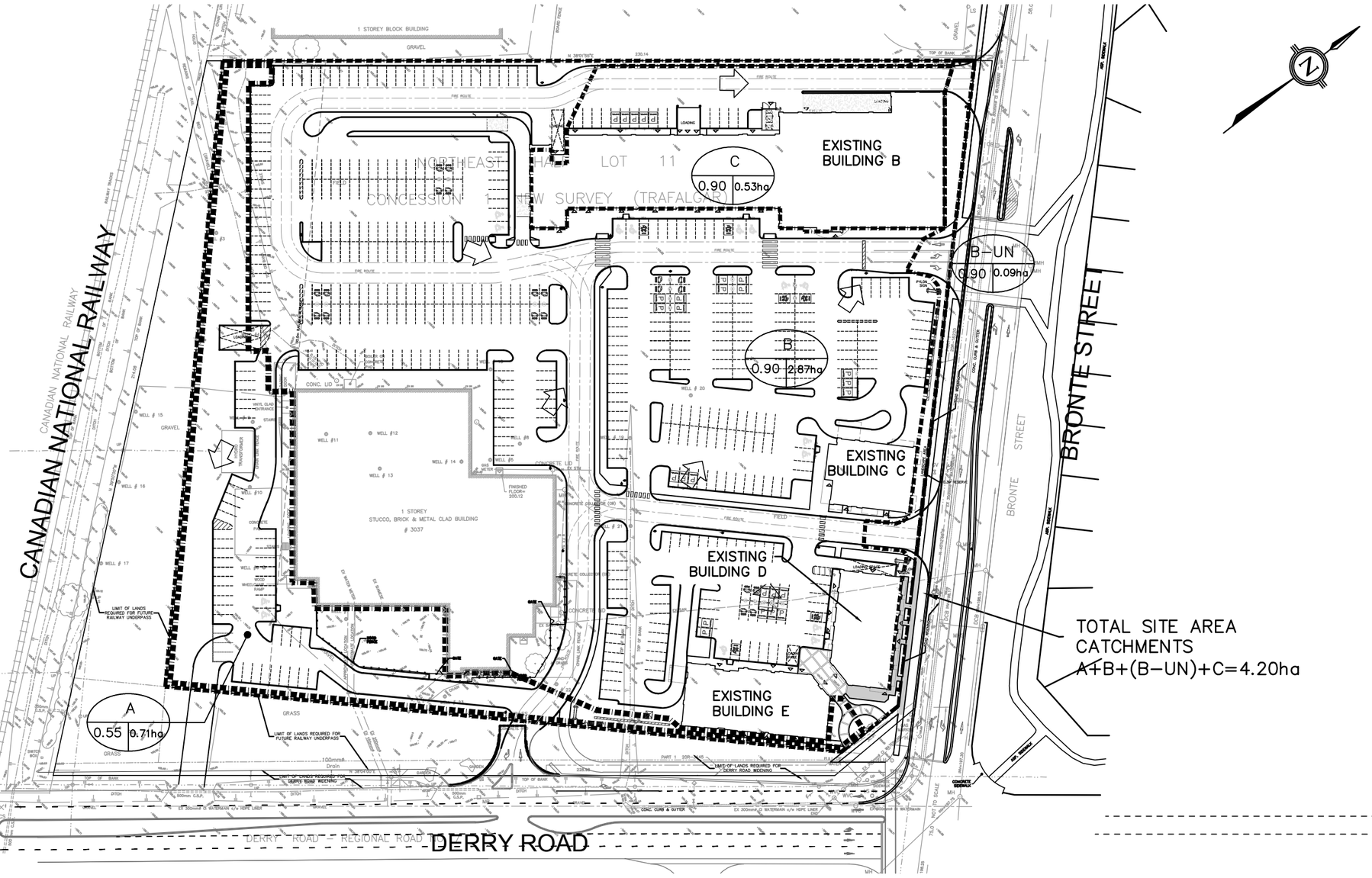
Stormceptor Sizing Table

Stormceptor Model	% Runoff Treated	% TSS Removal
STC 300	60	37
STC 750	83	72
STC 1000	83	73
STC 1500	83	73
STC 2000	92	76
STC 3000	92	77
STC 4000	97	80
STC 5000	97	80
STC 6000	99	82
STC 9000	100	86
STC 10000	100	85
STC 14000	100	88

Comments :

Upstream Quantity Storage

Storage (ha-m)	Flow (cms)
0.000	0.000
0.105	0.173



LEGEND

- DEVELOPMENT AREA
- EXISTING DRAINAGE SUB-CATCHMENTS
- A / 0.55 | 0.67ha — BASIN # / AREA IN ha / RUNOFF COEFFICIENT
- EXISTING OVERLAND FLOW ROUTE

BURNSIDE

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Client

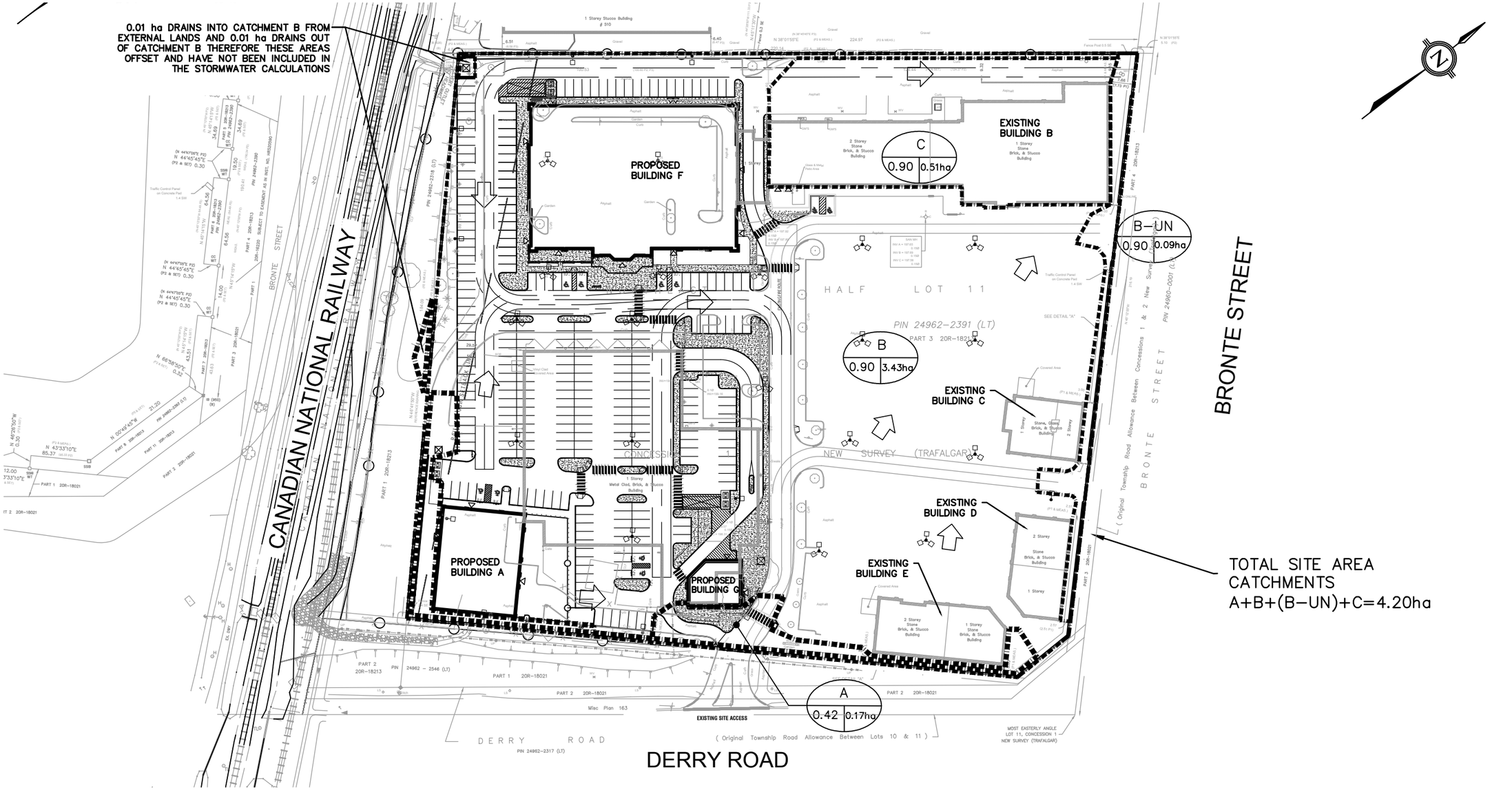
FIRST CAPITAL HOLDINGS TRUST
BRONTE ST AND DERRY RD

Drawing Title

EXISTING DEVELOPMENT DRAINAGE AREAS

Drawn By	Checked By	Figure Number
LG	TR	1
Scale	Project No.	
1:1500	PTD14679	

0.01 ha DRAINS INTO CATCHMENT B FROM EXTERNAL LANDS AND 0.01 ha DRAINS OUT OF CATCHMENT B THEREFORE THESE AREAS OFFSET AND HAVE NOT BEEN INCLUDED IN THE STORMWATER CALCULATIONS



DERRY ROAD

LEGEND

- PROPOSED DEVELOPMENT AREA
- PROPOSED DRAINAGE SUB–CATCHMENTS
- A / 0.55 0.67ha — BASIN # / AREA IN ha / RUNOFF COEFFICIENT
- PROPOSED OVERLAND FLOW ROUTE

BURNSIDE

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Client

FIRST CAPITAL HOLDINGS TRUST
BRONTE ST AND DERRY RD

Drawing Title

POST DEVELOPMENT DRAINAGE AREAS

Drawn By	Checked By	Figure Number
LG	TR	2
Scale	Project No.	
1:1500	PTD14679	

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Date Plotted: Apr 17, 2017 – 12:44pm
Plotted By: LGarner

BURNSIDE	Project:	**First Capital Milton - Catchment B (Full Development)**	Prepared by: **LG**
	Task:	**5 Year Storm Modelling**	Checked by: **TR**
	Date:	**April 17, 2017**	Project no.: **PTD 14679**

5 Year
a = 959
b = 5.7
c = 0.8024

Drainage to Bronte Street

Runoff Coeff. (C): 0.90
Drainage Area (A): 2.88 ha
Controlled Flow m3/s: 162.9 L/s = 0.163 m^3/s

Building Roofs

Runoff Coeff. (C): 0.90
Drainage Area (A): 0.55 ha
Controlled Flow m3/s (based on 42 L/s/ha): 23.1 L/s = 0.023 m^3/s

TIME	i 5-year	Inflow CIA/360	Flow Stored	Max Stor Required		Inflow CIA/360	Flow Stored	Max Stor Required	
minutes	(mm/hr)	(m^3/s)	(m^3/s)	(m^3)		(m^3/s)	(m^3/s)	(m^3)	
10	105.3	0.758	0.595	356.9		0.145	0.122	73.1	max
15	84.3	0.607	0.444	399.6		0.116	0.093	55.8	
20	70.9	0.510	0.347	416.8		0.098	0.074	44.7	
25	61.5	0.442	0.279	419.2	max	0.085	0.061	36.9	
30	54.4	0.392	0.229	412.3		0.075	0.052	31.1	
35	49.0	0.353	0.190	398.8		0.067	0.044	26.6	
40	44.7	0.321	0.159	380.6		0.061	0.038	23.0	
45	41.1	0.296	0.133	358.8		0.057	0.033	20.1	
50	38.1	0.274	0.111	334.2		0.052	0.029	17.6	
55	35.6	0.256	0.093	307.3		0.049	0.026	15.5	
60	33.4	0.240	0.077	278.5		0.046	0.023	13.7	
65	31.5	0.227	0.064	248.2		0.043	0.020	12.1	
70	29.8	0.214	0.052	216.5		0.041	0.018	10.7	
75	28.3	0.204	0.041	183.7		0.039	0.016	9.5	
80	27.0	0.194	0.031	149.9		0.037	0.014	8.4	
85	25.8	0.185	0.023	115.2		0.035	0.012	7.4	
90	24.7	0.178	0.015	79.8		0.034	0.011	6.5	
95	23.7	0.171	0.008	43.7		0.033	0.009	5.7	
100	22.8	0.164	0.001	7.0		0.031	0.008	4.9	
105	22.0	0.158	0.000	0.0		0.030	0.007	4.3	
110	21.2	0.153	0.000	0.0		0.029	0.006	3.6	
115	20.5	0.147	0.000	0.0		0.028	0.005	3.0	
120	19.8	0.143	0.000	0.0		0.027	0.004	2.5	
125	19.2	0.138	0.000	0.0		0.026	0.003	2.0	

Controlled Roof Area - 0.13 ha existing building + 0.42 ha (Bld A & F)

BURNSIDE	Project:	**First Capital Milton - Catchment B (Full Development)**	Prepared by: **LG**
	Task:	**100 Year Storm Modelling**	Checked by: **TR**
	Date:	**April 17, 2017**	Project no.: **PTD 14679**

100 Year
a 1435
b 5.2
c 0.7751

Drainage to Bronte Street

Runoff Coeff. (C): 0.90
Drainage Area (A): 2.88 ha
Controlled Flow m3/s: 162.9 L/s = 0.163 m^3/s

Building Roofs

Runoff Coeff. (C): 0.90
Drainage Area (A): 0.55 ha
Controlled Flow m3/s (based on 42 L/s/ha): 23.1 L/s = 0.023 m^3/s

TIME	i **100-year**	Inflow CIA/360	Flow Stored	Max Stor Required		Inflow CIA/360	Flow Stored	Max Stor Required	
minutes	(mm/hr)	(m^3/s)	(m^3/s)	(m^3)		(m^3/s)	(m^3/s)	(m^3)	
10	174.1	1.253	1.090	654.2		0.240	0.217	129.9	max
15	139.7	1.005	0.842	758.2		0.192	0.169	101.5	
20	117.7	0.847	0.684	820.9		0.162	0.139	83.3	
25	102.3	0.736	0.573	859.8		0.141	0.118	70.6	
30	90.8	0.654	0.491	883.4		0.125	0.102	61.1	
35	81.9	0.590	0.427	896.4		0.113	0.090	53.8	
40	74.8	0.538	0.376	901.5	max	0.103	0.080	47.9	
45	69.0	0.496	0.334	900.6		0.095	0.072	43.1	
50	64.1	0.461	0.298	895.0		0.088	0.065	39.0	
55	59.9	0.431	0.268	885.6		0.082	0.059	35.6	
60	56.3	0.405	0.243	873.0		0.078	0.054	32.6	
65	53.2	0.383	0.220	857.8		0.073	0.050	30.1	
70	50.4	0.363	0.200	840.3		0.069	0.046	27.8	
75	48.0	0.345	0.182	820.8		0.066	0.043	25.7	
80	45.8	0.329	0.167	799.6		0.063	0.040	23.9	
85	43.8	0.315	0.152	776.9		0.060	0.037	22.3	
90	42.0	0.302	0.139	752.9		0.058	0.035	20.8	
95	40.4	0.291	0.128	727.7		0.056	0.032	19.5	
100	38.9	0.280	0.117	701.5		0.054	0.030	18.2	
105	37.5	0.270	0.107	674.2		0.052	0.028	17.1	
110	36.2	0.261	0.098	646.1		0.050	0.027	16.0	
115	35.1	0.252	0.089	617.2		0.048	0.025	15.1	
120	34.0	0.244	0.082	587.5		0.047	0.024	14.2	
125	32.9	0.237	0.074	557.2		0.045	0.022	13.3	

Controlled Roof Area - 0.13 ha existing building + 0.42 ha (Bld A & F)

BURNSIDE	Project:	**First Capital Milton - Catchment C**	Prepared by: **LG**
	Task:	**5 Year Storm Modelling**	Checked by: **TR**
	Date:	**April 17, 2017**	Project no.: **PTD 14679**

Drainage to Bronte Street

5 Year
a = 959
b = 5.7
c = 0.8024

Runoff Coeff. (C): 0.90
Drainage Area (A): 0.20 ha
Controlled Flow m3/s: 35.5 L/s = 0.035 m^3/s

Building Roofs

Runoff Coeff. (C): 0.90
Drainage Area (A): 0.31 ha
Controlled Flow m3/s (based on 42 L/s/ha): 13.0 L/s = 0.013 m^3/s

TIME	i 5-year	Inflow CIA/360	Flow Stored	Max Stor Required		Inflow CIA/360	Flow Stored	Max Stor Required	
minutes	(mm/hr)	(m^3/s)	(m^3/s)	(m^3)		(m^3/s)	(m^3/s)	(m^3)	
2	186.4	0.093	0.058	6.9		0.144	0.131	15.8	max
7	124.8	0.062	0.027	11.3	max	0.097	0.084	10.0	
12	95.6	0.048	0.012	8.9		0.074	0.061	7.3	
17	78.3	0.039	0.004	3.7		0.061	0.048	5.7	
22	66.7	0.033	0.000	0.0		0.052	0.039	4.6	
27	58.4	0.029	0.000	0.0		0.045	0.032	3.9	
32	52.1	0.026	0.000	0.0		0.040	0.027	3.3	
37	47.2	0.024	0.000	0.0		0.037	0.024	2.8	
42	43.1	0.022	0.000	0.0		0.033	0.020	2.5	
47	39.8	0.020	0.000	0.0		0.031	0.018	2.1	
52	37.0	0.019	0.000	0.0		0.029	0.016	1.9	
57	34.6	0.017	0.000	0.0		0.027	0.014	1.7	
62	32.6	0.016	0.000	0.0		0.025	0.012	1.5	
67	30.8	0.015	0.000	0.0		0.024	0.011	1.3	
72	29.2	0.015	0.000	0.0		0.023	0.010	1.2	
77	27.7	0.014	0.000	0.0		0.022	0.008	1.0	
82	26.5	0.013	0.000	0.0		0.021	0.007	0.9	
87	25.3	0.013	0.000	0.0		0.020	0.007	0.8	
92	24.3	0.012	0.000	0.0		0.019	0.006	0.7	
97	23.3	0.012	0.000	0.0		0.018	0.005	0.6	
102	22.4	0.011	0.000	0.0		0.017	0.004	0.5	
107	21.6	0.011	0.000	0.0		0.017	0.004	0.5	
112	20.9	0.010	0.000	0.0		0.016	0.003	0.4	
117	20.2	0.010	0.000	0.0		0.016	0.003	0.3	

BURNSIDE	Project:	**First Capital Milton - Catchment C**	Prepared by:	**LG**
	Task:	**100 Year Storm Modelling**	Checked by:	**TR**
	Date:	**April 17, 2017**	Project no.:	**PTD 14679**

100 Year		**Drainage to Bronte Street**		
a	1435	Runoff Coeff. (C):	0.90	
		Drainage Area (A):	0.20	ha
b	5.2	Controlled Flow m3/s:	35.5	L/s
c	0.7751		0.035	m^3/s

TIME	i	Inflow	Flow	Max Stor
	100-year	CIA/360	Stored	Required
minutes	(mm/hr)	(m^3/s)	(m^3/s)	(m^3)
5	237.2	0.119	0.083	24.9
10	174.1	0.087	0.052	30.9
15	139.7	0.070	0.034	30.9
20	117.7	0.059	0.023	28.0
25	102.3	0.051	0.016	23.5
30	90.8	0.045	0.010	17.9
35	81.9	0.041	0.005	11.5
40	74.8	0.037	0.002	4.6
45	69.0	0.034	0.000	0.0
50	64.1	0.032	0.000	0.0
55	59.9	0.030	0.000	0.0
60	56.3	0.028	0.000	0.0
65	53.2	0.027	0.000	0.0
70	50.4	0.025	0.000	0.0
75	48.0	0.024	0.000	0.0
80	45.8	0.023	0.000	0.0
85	43.8	0.022	0.000	0.0
90	42.0	0.021	0.000	0.0
95	40.4	0.020	0.000	0.0
100	38.9	0.019	0.000	0.0
105	37.5	0.019	0.000	0.0
110	36.2	0.018	0.000	0.0
115	35.1	0.018	0.000	0.0
120	34.0	0.017	0.000	0.0

max

Building Roofs		
Runoff Coeff. (C):	0.90	
Drainage Area (A):	0.31	ha
Controlled Flow m3/s (based on 42 L/s/ha):	13.0	L/s
	0.013	m^3/s

Inflow	Flow	Max Stor	
CIA/360	Stored	Required	
(m^3/s)	(m^3/s)	(m^3)	
0.184	0.171	51.2	max
0.135	0.122	36.6	
0.108	0.095	28.6	
0.091	0.078	23.4	
0.079	0.066	19.9	
0.070	0.057	17.2	
0.063	0.050	15.1	
0.058	0.045	13.5	
0.053	0.040	12.1	
0.050	0.037	11.0	
0.046	0.033	10.0	
0.044	0.031	9.2	
0.041	0.028	8.5	
0.039	0.026	7.8	
0.037	0.024	7.2	
0.035	0.022	6.7	
0.034	0.021	6.3	
0.033	0.020	5.9	
0.031	0.018	5.5	
0.030	0.017	5.1	
0.029	0.016	4.8	
0.028	0.015	4.5	
0.027	0.014	4.2	
0.026	0.013	4.0	

Project:	**First Capital Milton**	Prepared by:	**LG**
	Post Development Peak Flow Calculations - Derry Rd.	Checked by:	**TR**
BURNSIDE Date:	**April 17, 2017**	Project no.:	**PTD 14679**

5 year

a	959						
b	5.7						
c	0.8024						
Tc	10.00	Minutes					

Description	C	i (mm/hr)	A (ha)	Q (L/s)
Catchment A	0.42	105.3	0.17	20.9

QAllowable Release = CiA
0.36

20.9 L/s

100 year

a	1435						
b	5.2						
c	0.7751						
Tc	10.00	Minutes					

Description	C	i (mm/hr)	A (ha)	Q (L/s)
Catchment A	0.42	174.1	0.17	34.5

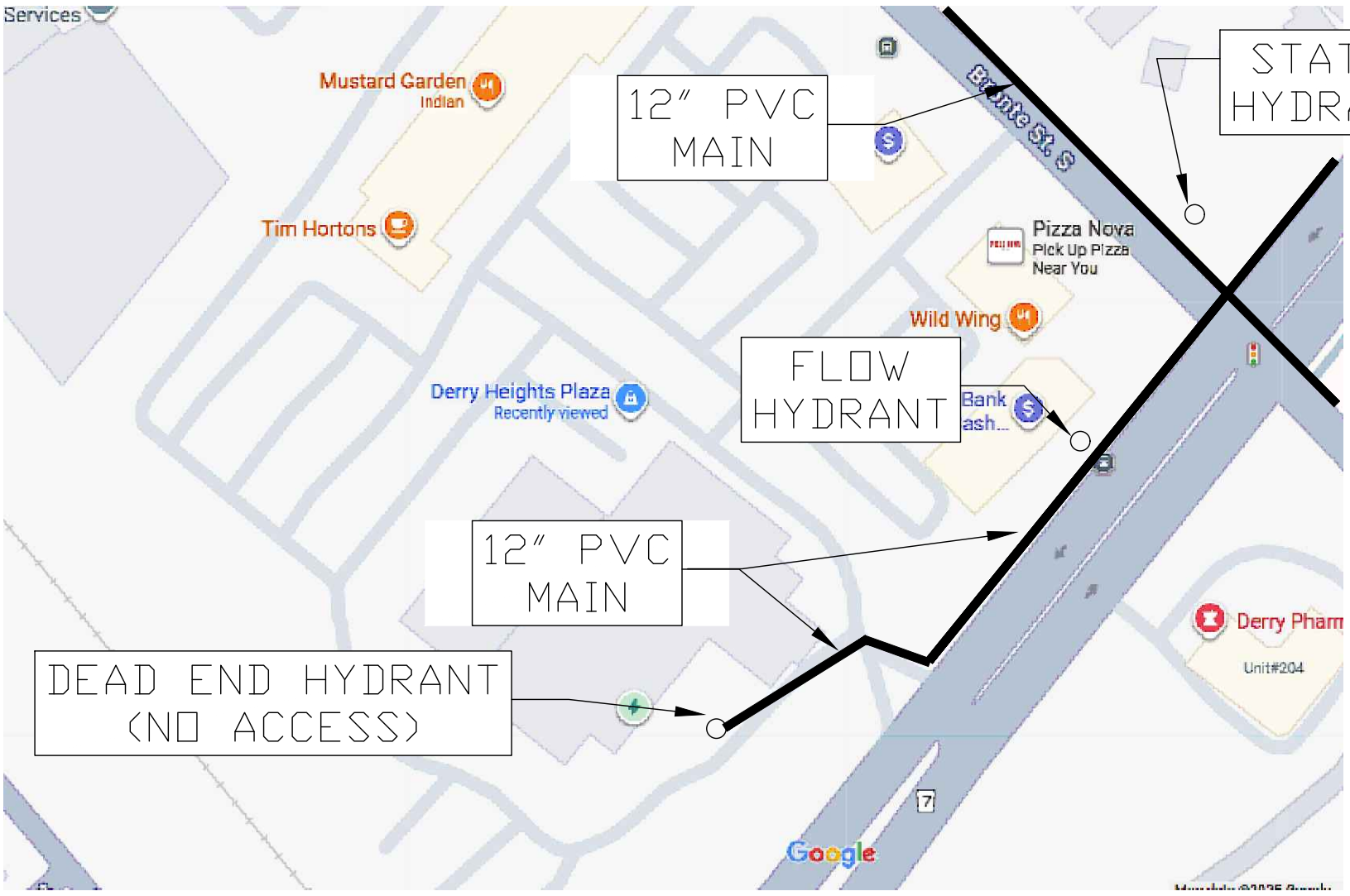
QAllowable Release = CiA
0.36

34.5 L/s

Appendix E
Water Design Information

FIRE HYDRANT FLOW TEST REPORT

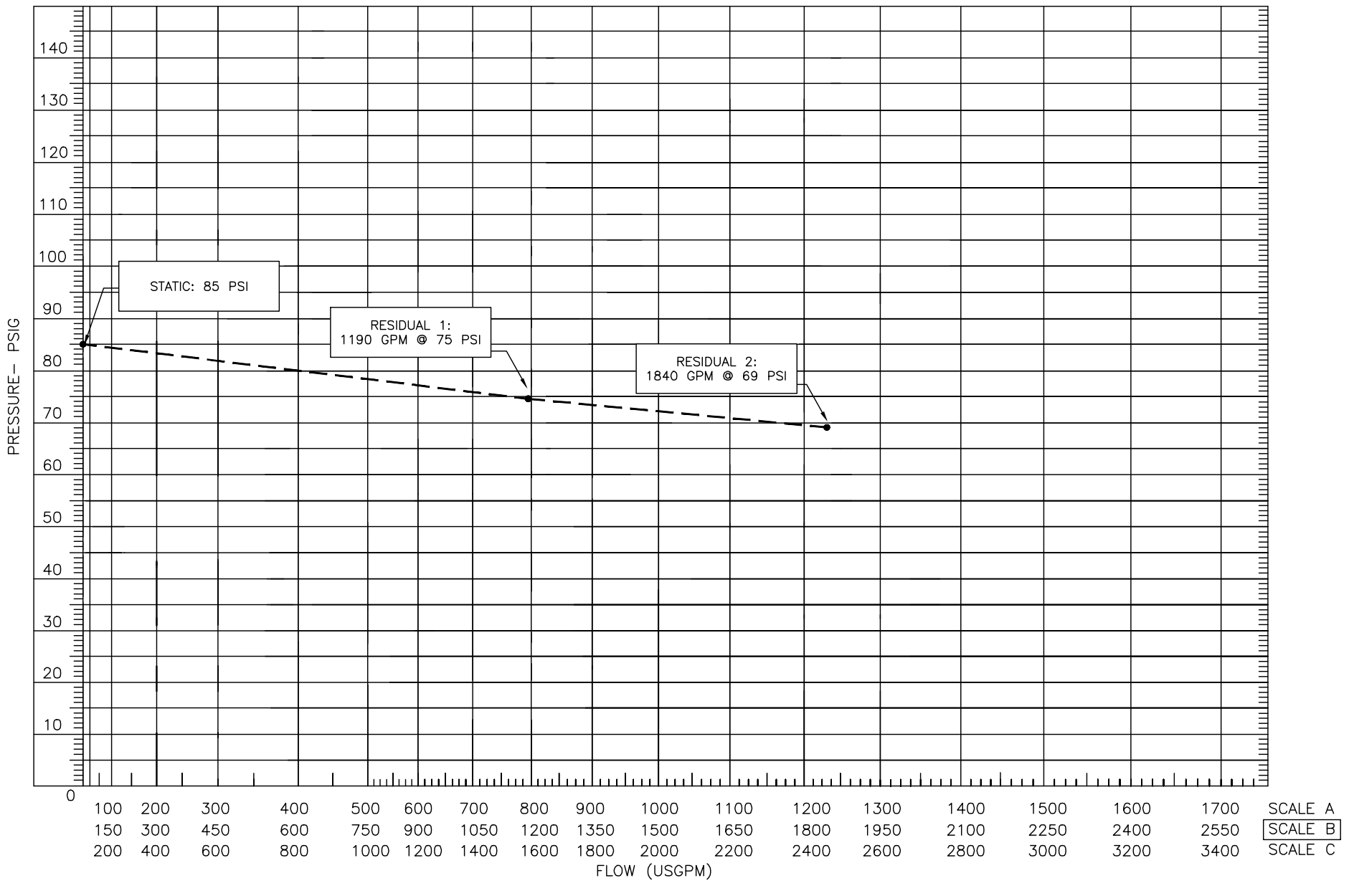
LOCATION:	6941 DERRY RD., MILTON, ONT
TEST DATE:	29/08/2025
TIME:	09:00 AM
CONDUCTED BY:	EPIC FIRE PROTECTION
WITNESSED BY:	CITY OF MILTON WATER WORKS DEPARTMENT



FLOW TEST RESULT DATA

TEST NO.	STATIC (PSI)	FLOW (USGPM)	# OF PORTS
1	82	0	0
2	75	1190	1X2½"
3	69	1840	2X2½"

WATER SUPPLY FLOW TEST GRAPH



Project Name: Bronte and Derry
Project Number: 25-201
Date: 08-Jun-65

Design by: T.Ricketts
Title: **WATER DEMAND AND FIRE FLOW CALCULATION**

Based on Fire Underwriters Survey

1 F= 220 C (sqrt (A))

Where F= Fire flow in Lpm
C= construction type coefficient
= 0.6 fire resistive construction
A = total floor area in sq.m. excluding basements (garage or areas with 50% underground)

Floor	Area (sq.m)	%
Bldg F Floor 2	3,612	25%
Bldg F Floor 1	3,612	100%
No basement	0	25%

Vertical openings protected (1 hr rating)
Largest Floor plus 25% of each adjoining floor

Largest Area= 4,515 sq.m
F = 8,870 L/min

Round to nearest 1000 l/min
F = 9,000 L/min

2 Occupancy Reduction
25% reduction for non-combustible
Reduction = 2250 L/min
F = 6,750 L/min

3 Separation Charge

0%	North Side	90 m			
0%	East Side	49 m			
0%	South Side	>45m			
0%	West Side	>45m			
0%		Total Separation Charge,	**0**	L/min	

F = 6,750 L/min

Separation	Charge
0 to 3 m	25%
3.1 to 10 m	20%
10.1 to 20 m	15%
20.1 to 30 m	10%
30.1 to 45 m	5%
45 m >	0%

4 Sprinkler Reduction
40% Reduction for NFPA Sprinkler System
Reduction = **2700** L/min

5 Domestic Flow Calculations
Population 396 Full Site (90 per/ha Halton Region Std)
Ave. Day Demand = 275 L/cap/day (Halton Region std)
76 L/min
Max. Day Peaking Factor = 2.3 Commercial
Max. Domestic Flow Rate F_{dom} = **170** L/min

Water Demand = Fire Flow - Sprinkler Reduction + Domestic Flow (F_3 - F_4 + F_5)

F = 6,750 - 2700 + 170 = 4,220 l/min
F = 70 L/s
F = **1114** GPM