

**FUNCTIONAL SERVICING AND  
STORMWATER MANAGEMENT REPORT**

**BLOCK 46, PEAKS MEADOWS SUBDIVISION  
TOWN OF THE BLUE MOUNTAINS**

**PREPARED FOR:  
PEPPERMILL CONSTRUCTION LTD.**

**PREPARED BY:**

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**JUNE 2016**

**CFCA FILE NO. 1117-4153**

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## 1.0 INTRODUCTION

C.F. Crozier and Associates (Crozier) was retained by Peppermill Construction Limited to provide engineering support for a Zoning By-law Amendment and Draft Plan Approval for Block 46 of the Peaks Meadows Subdivision; application to convert planning designation from sixty-five (65) medium density residential units to twelve (12) single family lots.

The Peaks Meadows residential subdivision currently consists of the ongoing development of 45 single family lots (Phase 1). The subdivision is bounded by the Camperdown Court Subdivision to the north, the Niagara Escarpment to the south, and Camperdown Road to the west. The site location plan is depicted in Figure 1. The area is legally described as Part of Lots 26 and 27, Concession 6, Town of The Blue Mountains, County of Grey.

The purpose of this report is to outline the proposed internal servicing and stormwater management strategies for Block 46. This report contains project background (Section 2.0), a description of the existing site conditions (Section 3.0), description of the proposed conditions (Section 4.0), and conclusions (Section 5.0).

An analysis of the impacts of this planning application on the existing public roadways and the proposed addition of driveways onto Dorothy Drive has been completed by Crozier and submitted under separate cover.

## 2.0 BACKGROUND

Engineering support for Draft Plan Approval, Plan of Subdivision and functional servicing and stormwater management of the overall Peaks Meadows development was completed by R.J. Burnside and Associates (March, 2003). These designs and approvals were completed accounting for the full build-out of Block 46 as a medium density development. Using reasonable assumptions as to the future land uses on this Block, a Stormwater Implementation Report was issued by Crozier in November 2004. This report was accompanied by detailed design drawings for the Peaks Meadows Subdivision that were accepted for construction by the municipality.

Today, the underground infrastructure (inclusive of utilities) and public roadways in Phase 1 have been constructed, including Dorothy Drive and Barton Boulevard. Details of project background and servicing design are further discussed in the relevant sections of this report. As recorded drawings of the infrastructure were prepared by Crozier in October, 2008.

## 3.0 BLOCK 46 EXISTING CONDITIONS

Block 46 (Phase 2) is located on the south side of the Peaks Meadows Subdivision between an existing road (Dorothy Drive) to the north and undeveloped area of the Niagara Escarpment to the south. Existing slopes on Block 46 range from 2.5 to 8 percent, with an average gradient of 5.5 percent. Currently, drainage from the undeveloped Block 46 flows uncontrolled towards Dorothy Drive.

Access to Block 46 is provided from Dorothy Drive. Water and sanitary infrastructure exists under the road and is discussed in further detail in the following sections.

## 4.0 BLOCK 46 PROPOSED CONDITIONS

The proposed development of Block 46 includes the construction of twelve (12) single family homes with associated driveways. The proposed Draft Plan of Subdivision (attached, Figure 2) was developed by KLM Planning Partners Inc. (May 31, 2016).

The development of Block 46 was accounted for in the servicing and stormwater management plans previously prepared by Crozier (November, 2004) on behalf of Barton Group Inc. for the public roadways in Phase 1 of the Peaks Meadows Subdivision development. As such, the proposed servicing, grading and stormwater management works for Block 46 have been selected in keeping with the approved designs and plans previously prepared by Crozier.

There are utilities located within the Dorothy Drive ROW, and services have been extended to the lots along the north side of Dorothy Drive. Utility designs for Block 46 as a medium density development had not been previously completed. Based on the proposed changes to twelve individual lots consultation will be required with the various utility service providers to coordinate the installation of services to each lot. This consultation will occur post acceptance of the revised Draft Plan of Subdivision.

### 4.1 Stormwater Management and Drainage

Stormwater management (SWM) for the proposed Block 46 must comply with the policies and standards of various agencies including the Town of The Blue Mountains (Town) and Grey Sauble Conservation Authority (GSCA).

#### 4.1.1 Stormwater Management Context

As noted previously, engineering design to service the development (including the subject lands) was completed by Crozier, and the works were constructed in 2008. Runoff from the Peaks Meadows subdivision was designed to be collected and directed to the stormwater management facility located at the Georgian Bay Club Hole 17.

The Block 46 lands were included as part of catchments A10 to A17 in the storm drainage plan for the subdivision. An RC value of 0.35 was used for all the catchments in the Peaks Meadows subdivision. Refer to Appendix A for the As Recorded Storm Drainage Plan (October, 2008) and updated Storm Sewer Design Sheet.

The minor system for the subdivision consisted of a series of catchbasins and storm sewers following the alignment of the roads in the Peaks Meadows Subdivision. The major system consisted of an overland flow route within the road allowance, overland drainage channels and interceptor ditches. A road sag located on the east side of Barton Boulevard was designed to facilitate overland flow to an existing ravine to the east of the subdivision. The tributary area to this sag includes the Block 46 lands.

Interceptor ditches located along the south boundary of Block 46 collect external flow from lands south of the property. The interceptor ditches were designed to direct runoff towards an existing watercourse to the east of the site.

#### 4.1.2 Proposed Stormwater Management

In keeping with the existing storm drainage plan, the subject lands (Block 46) are proposed to drain to Dorothy Drive. Minor drainage will be captured by the existing storm sewer network, and overland flow will be provided by way of the Dorothy Drive ROW. As the existing stormwater management system for the Peaks Meadows Subdivision was designed to accommodate sixty-five (65) medium density units in Block 46; therefore, there is sufficient capacity to service the proposed twelve (12) single family units (given the decrease of 53 units).

The catchments encompassing Block 46 were adjusted to reflect the updated Draft Plan. Catchment A17 was eliminated, and the lands were distributed to catchments A11 to A16 where appropriate. Runoff coefficient (RC) values for the catchments have been conservatively left unchanged despite a reduction in density of Block 46 due to the lower unit count. Figure 3 depicts the updated catchments.

Grading on the lots within Block 46 site will conform to Town standards, maintaining a minimum 2.0% longitudinal slope on the rear and side yard swales (where possible) with drainage aprons around all units to promote positive drainage. The grades of the individual driveways will also have to respect Town standards, such as the minimum and maximum slopes of 2% and 8% respectively. Figure 4 shows the proposed master grading design for the twelve lots, and this design has matched as close as possible the existing boulevard grades along Dorothy Drive and existing grades at the south boundary of Block 46.

As part of the future building permit applications for each new lot it will be required to prepared detailed lot grading plans that will present the siting of each home and the alignment and slopes of the drainage swales. Appropriate erosion and sediment controls will have to be implemented during construction of the homes on the lots in Block 46, and these controls will also have to be illustrated on the individual lot grading plans. Some examples of controls would be mud mats and silt fencing.

### 4.2 **Sanitary Servicing**

#### 4.2.1 Sanitary Servicing Context

Sanitary services for the proposed lots on Block 46 will connect directly into the existing 200mm diameter sanitary sewer running along Dorothy Drive, as shown in the As Recorded Peaks Meadows Subdivision Drawings (October, 2008). This sanitary sewer currently services the lots on the north side of Dorothy Drive.

Design sheets reflecting the As Recorded Peaks Meadows Subdivision Drawings (provided in Appendix B) and approved in November 2008 (per Certificate of Completion of Basic Services, provided in Appendix B) show that the downstream system was designed accounting for a contributing area of approximately 11.74 ha and population of 385 persons (at 3.5 p.p.u.) in forty-five (45) single family units (Phase 1) and sixty-five (65) medium density units (Phase 2/Block 46).

Consequently, there is adequate sanitary sewer capacity to service the proposed twelve (12) single family units in Block 46, per the revised Draft Plan of Subdivision, in place of the originally proposed sixty-five (65) medium density units.

These twelve (12) single family units would bring the anticipated Peaks Meadows Subdivision population to 200 persons resulting in a 3.77 L/sec. decline in the anticipated sanitary flow rate for the Peaks Meadows Subdivision, from 11.37 L/sec. to 7.60 L/sec.

#### 4.2.2 Proposed Sanitary Servicing

The development will be fully serviced by the existing 200mm diameter municipal sanitary sewer along Dorothy Drive. There are two (2) existing sanitary servicing stubs provided for the future servicing of Block 46. The sanitary servicing of Block 46 could make use of the easterly stub by servicing the proposed units via an internal sanitary sewer running along the frontage of these lots in a service easement. This parallel sewer would be owned and maintained by the Town. A second and the recommended option would be to connect individual sanitary service laterals for the twelve (12) units directly to the existing sanitary sewer on Dorothy Drive and to decommission the two stubs.

Sanitary sewer design sheets reflecting the updated servicing strategy for Block 46 are presented in Appendix B, and the proposed sanitary sewer system is reflected in Figure 4.

### 4.3 **Water Servicing**

#### 4.3.1 Water Servicing Context

Water servicing for Block 46 will be provided by connecting into the existing 150mm diameter watermain running along Dorothy Drive, as shown in the As Recorded Peaks Meadows Subdivision Drawings (October, 2008). This watermain, which currently services the lots on the north side of Dorothy Drive, is part of the Peaks Meadows water distribution system and was approved in November 2008 (per Certificate of Completion of Basic Services, provided in Appendix B).

A municipal water reservoir and booster station are located immediately adjacent Block 46 at the southwest corner of the site on Camperdown Road. This infrastructure was constructed in 2006 as a part of the Camperdown front-end financing projects. The reservoir and booster station were designed to provide storage and fire flows for the Camperdown Service Area, which includes the subject lands.

#### 4.3.2 Proposed Water Servicing

The development will be fully serviced by the existing 150mm diameter municipal watermain along Dorothy Drive. There are two (2) existing water servicing stubs provided for the future servicing of Block 46.

The water servicing of Block 46 has two options similar to the sanitary servicing strategy. It is possible to make use of the two stubs by servicing the proposed units via an internal public watermain, located within an easement along the frontage of the lots, with individual connections for each proposed lot. The recommended option would be to connect individual water services for the twelve (12) units directly to the existing watermain on Dorothy Drive and decommission the two stubs. The proposed water servicing strategy is presented in Figure 3.

As the existing water distribution system for the Peaks Meadows Subdivision was modelled and designed by the Town to accommodate sixty-five (65) medium density units in Block 46, it is assumed that there is sufficient capacity in the municipal network to service the proposed twelve (12) single family units (given the decrease of 53 units).

Fire protection will be provided by the existing municipal fire hydrants on Dorothy Drive, as shown in the As Recorded Peaks Meadows Subdivision Drawings (October, 2008). Hydrant flow tests have not been completed to verify existing pressures and available flows.

Fire flow requirements for Block 46 were calculated based on the Fire Underwriters Survey (FUS) and Ontario Building Code (OBC). Both methods of calculation account for unit size, construction material, and minimum setbacks, among other factors. Fire flow for a single detached home was calculated based on an assumed Single Detached unit size of 200 m<sup>2</sup> (2150 sqft). Setbacks were applied based on the Township of Collingwood Zoning By-Law No. 83-40 (1984) for Residential Third Density (R3) Zone. The resulting calculated fire flows for a single detached home was 100 L/sec per FUS and 45 L/sec per OBC.

The proposed water distribution system for Block 46 is reflected in Figure 4. Fire Flow Calculations can be found in Appendix C.

## 5.0 CONCLUSIONS

The qualitative and quantitative analysis presented herein provides a comprehensive stormwater management assessment and site servicing options for the proposed conversion of Block 46 from a medium density development of 65 units to twelve single detailed lots. The following conclusions have been reached:

- The development of Block 46 into a medium density residential block with a maximum unit count of sixty-five (65) was accounted for in the overall engineering design and approvals for the Peaks Meadows development. The Draft Plan presented herein proposes a low density residential block with twelve (12) single family units, resulting in a fifty-three (53) unit reduction.
- Drainage from Block 46 will utilize the existing stormwater management system in place. Minor events will be captured by a series of catchbasins and storm sewers on Dorothy Drive, while major events will utilize the Dorothy Drive ROW as an overland flow route.
- Sanitary servicing for the development will be provided by way of the existing municipal sanitary sewers on Dorothy Drive. Review of previous design work confirms that the downstream system was sized accounting for development of the subject lands.
- Water servicing for the development will be provided by way of the existing municipal watermain on Dorothy Drive. The development of Block 46 was anticipated during implementation of the watermains, and a reduction in density ensures sufficient capacity to service the block.

We can therefore support the submitted planning applications for Block 46.

Respectfully submitted,

### C.F. CROZIER & ASSOCIATES INC.



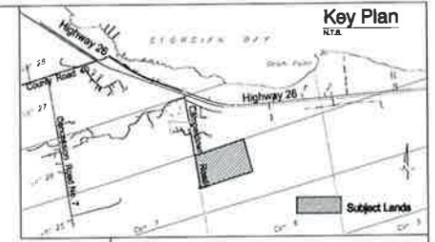
Kevin A. Morris. P.Eng.  
Partner  
KM/cw:ad

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# APPENDIX A

## Stormwater Management

# Peaks Meadows As Constructed Storm Drainage Plan.



LOCATION	STATION	TYPE	INVERT	T/GRATE
STREET 'A'	+0+07.0	CB	232.04	233.18
	+0+13.0	CB	230.31	231.38
	+0+19.0	CB	228.75	229.81
	+0+25.0	CB	227.73	228.91
	+0+30.5	CB	226.65	227.73
+0+36.0	CB	225.24	226.46	
+0+42.65	CB	225.39	226.49	
+0+28.42	CB	223.40	226.21	
+0+28.42	CB	223.37	225.91	
+0+34.62	CB	224.52	225.61	
+0+40.62	DCB	224.25	225.34	
+0+45.28	CB	224.41	225.61	

LOCATION	STORM MH	TYPE	OPSD	T/GRATE	UP STREAM	DOWN STREAM	
STORM EASEMENT	1	MH	701.013	223.00	E INV 220.800	S INV 220.240	
	2	MH	701.013	225.10	E INV 221.130	W INV 220.954	
	3	MH	701.012	224.73	S INV 221.285	W INV 221.245	
	4	MH	701.013	224.83	S INV 221.645	W INV 221.640	
	5	MH	701.012	226.34	S INV 221.730	N INV 221.730	
STREET 'B'	6	DCBMH	701.011	226.22	E INV 221.968	N INV 221.783	
	7	DCBMH	701.012	226.22	W INV 222.690	N INV 221.783	
	8	MH	701.011	226.51	E INV 222.216	W INV 222.146	
	9	MH	701.011	226.46	E INV 222.318	W INV 222.266	
	10	CBMH	701.011	226.21	W INV 222.546	W INV 222.466	
	11	CBMH	701.011	225.91	E INV 222.806	W INV 222.746	
	12	MH	701.011	225.76	E INV 222.930	W INV 222.870	
	13	CBMH	701.011	225.61	S INV 223.093	W INV 223.013	
	14	MH	701.011	225.46	S INV 223.283	N INV 223.193	
	15	DCBMH	701.011	225.34	S INV 223.488	N INV 223.378	
	16	MH	701.010	225.39	S INV 223.580	N INV 223.518	
	17	CBMH	701.010	225.61	S INV 223.894	N INV 223.795	
	STREET 'A'	18	MH	701.010	225.69	S INV 224.014	N INV 223.948
19		MH	701.010	226.10	W INV 224.415	N INV 224.325	
20		CBMH	701.010	226.46	W INV 224.761	E INV 224.707	
21		CBMH	701.010	227.73	W INV 226.082	E INV 226.013	
22		MH	701.010	228.12	W INV 226.520	E INV 226.440	
BLK 46 STUB		23	DCBMH	701.010	228.91	W INV 227.539	E INV 227.300
		24	MH	701.010	229.49	W INV 227.850	E INV 227.790
		25	CBMH	701.010	229.81	W INV 229.250	E INV 228.177
		26	CBMH	701.010	231.38	W INV 229.850	E INV 229.820
27		MH	701.010	232.53	W INV 231.040	E INV 230.950	
28	CBMH	701.010	233.18	N INV 231.890	E INV 231.680		
29	CBMH	701.010	226.45	E INV 224.907	W INV 225.178		

1. This drawing is the exclusive property of C.F. Crozier & Associates Inc. 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 counts on site and report any discrepancies to the engineer prior to construction.

3. This drawing is to be read and understood in conjunction with all other plans and documents related to this project.

4. Do not scale the drawings.

5. All existing underground utilities to be verified in the field by the contractor prior to construction.

**GEODEIC BENCHMARKS**

BM 2  
FINISHED FLOOR ELEVATION OF WATER STORAGE RESERVOIR @ SOUTH LANE IS 211' (DAPPERDOWN ROAD) ELEV = 244.05M

LOCAL BENCHMARKS REFER TO GENERAL SURVEYING PLANS OR LOCAL DATA & ELEVATIONS OF TOP OF HYDRANT FLANGE BENCHMARKS

**CONSTRUCTION RECORD**

NOTE: THIS DRAWING HAS BEEN PREPARED BY "CF CROZIER ASSOCIATES INC." TO REFLECT CONSTRUCTION RECORD INFORMATION AND IS BELIEVED TO BE CORRECT, HOWEVER, THOSE RELYING ON THIS INFORMATION ARE ADVISED TO OBTAIN INDEPENDANT VERIFICATION AS TO ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.

No.	Issue / Revision	Date MM/DD/YY
1	Issue for Review	11/25/04
2	Revised as per Town Comments	03/28/05
3	Issued for Construction	05/02/05
4	ISSUED FOR APPROVAL	07/25/05
5	Revised Structure Type	08/20/05
6	AS-CONSTRUCTED REVISIONS	10/01/08



PEAKS MEADOWS SUBDIVISION  
TOWN OF THE BLUE MOUNTAINS

STORM DRAINAGE PLAN

**CF CROZIER & ASSOCIATES INC.**  
LAND DEVELOPMENT ENGINEERS

110 FINE STREET  
COLLINGSWOOD ON  
L4P 2H8

T: 708-448-9810  
F: 708-448-9820  
CF@CROZIER.CA

Drawn by: V & R.C.C. Check by: K.A.M. Project No: **114-2517**

Scale: 1"=100' Date: 11/20/2004 Drawing No: **STM1 AC**

Peak Meadows As Constructed Storm Sewer Design Sheet



**CF CROZIER & ASSOCIATES INC**  
LAND DEVELOPMENT ENGINEERS

**PEAKS MEADOWS - STORM SEWER DESIGN SHEET**

FREQUENCY	5 YEARS - Owen Sound IDF		100 YEARS - Owen Sound IDF	
Coef. A=	28.5	Coef. B=	-0.726	Coef. A= 46.5
				Coef. B= -0.734

PROJECT: Peaks Meadows Subdivision  
PROJECT No.: 114-2517

Design: Ian McCutcheon  
Date: 07/05/04

Revised:

TIME OF CONCENTRATION 10.00 MANNINGS "n" 0.013

FILE: storm sewer design  
DATE: 6/27/2016 11:28

location	FR MH NO	TO MH NO	AREA (A) Ha	RUN-OFF COEFF	A x C	Cummul. A x C	TIME OF CONC. min	I mm/hr	Q l/sec	SLOPE %	PIPE DIA. mm	VEL. m/sec	LENGTH m	TIME OF FLOW min	CAPACITY l/sec	FALL m	GROUND ELEV. UPPER END LOWER END		PIPE INV. ELEV. UPPER END LOWER END		COVER UPPER END LOWER END	
<b>STREET A</b>																						
	28	27	0.77	0.38	0.29	0.293	10.00	104.66	85.13	2.78	300	2.28	23	0.17	161.31	0.64	233.18	232.53	231.680	231.040	1.20	1.19
	27	26	0.00	0.38	0.00	0.293	10.17	103.40	84.11	2.89	300	2.33	38	0.27	164.53	1.10	232.53	231.38	230.950	229.850	1.28	1.23
	26	25	0.36	0.38	0.14	0.429	10.44	101.44	121.09	2.62	300	2.22	60	0.45	156.62	1.57	231.38	229.81	229.825	228.251	1.26	1.26
	25	24	0.35	0.38	0.13	0.562	10.89	98.37	153.80	1.55	375	1.98	21	0.18	218.45	0.33	229.81	229.49	228.177	227.851	1.26	1.26
	24	23	0.00	0.38	0.00	0.562	11.07	97.23	152.01	1.22	375	1.75	37.8	0.36	193.41	0.46	229.49	228.91	227.795	227.335	1.32	1.20
	23	22	0.31	0.38	0.12	0.680	11.43	94.99	179.63	2.08	375	2.29	37.5	0.27	252.86	0.78	228.91	228.12	227.300	226.520	1.23	1.22
	22	21	1.34	0.38	0.51	1.189	11.70	93.38	308.76	2.06	450	2.57	17.4	0.11	408.95	0.36	228.12	227.73	226.440	226.082	1.23	1.20
	21	20	0.21	0.38	0.08	1.269	11.81	92.73	327.19	2.27	450	2.70	55.1	0.34	429.77	1.25	227.73	226.46	226.013	224.761	1.27	1.25
	20	19	0.31	0.38	0.12	1.387	12.15	90.84	350.27	1.78	450	2.39	16.4	0.11	380.43	0.29	226.46	226.10	224.707	224.415	1.30	1.24
	19	18	0.00	0.38	0.00	1.387	12.27	90.23	347.90	1.53	450	2.22	20	0.15	352.66	0.31	226.10	225.69	224.320	224.014	1.33	1.23
<b>STREET B</b>																						
	18	17	0.00	0.38	0.00	1.387	12.42	89.43	344.84	1.15	450	1.92	4.7	0.04	305.60	0.05	225.69	225.61	223.948	223.894	1.29	1.27
	17	16	0.14	0.38	0.05	1.440	12.46	89.22	357.21	0.66	525	1.61	32.2	0.33	348.96	0.21	225.61	225.39	223.795	223.583	1.29	1.28
	16	15	0.00	0.38	0.00	1.440	12.79	87.53	350.44	0.22	600	1.02	13.7	0.22	287.33	0.03	225.39	225.34	223.518	223.488	1.27	1.25
	15	14	0.72	0.38	0.27	1.714	13.02	86.43	411.78	0.32	600	1.23	28.5	0.38	348.86	0.09	225.34	225.46	223.375	223.283	1.37	1.58
	14	13	0.00	0.38	0.00	1.714	13.40	84.62	403.15	0.36	600	1.30	28	0.36	366.94	0.10	225.46	225.61	223.193	223.093	1.67	1.92
	13	12	0.57	0.38	0.22	1.930	13.76	83.01	445.46	0.29	675	1.26	28.4	0.38	451.68	0.08	225.61	225.76	223.013	222.931	1.92	2.15
	12	11	0.00	0.38	0.00	1.930	14.14	81.40	436.85	0.22	675	1.10	32	0.49	393.15	0.07	225.76	225.91	222.876	222.806	2.21	2.43
	11	10	0.70	0.38	0.27	2.196	14.62	79.43	485.01	0.35	675	1.40	56.6	0.68	499.68	0.20	225.91	226.21	222.746	222.546	2.49	2.99
	10	9	0.75	0.38	0.29	2.481	15.30	76.87	530.27	0.29	750	1.35	51.2	0.63	598.55	0.15	226.21	226.46	222.466	222.318	2.99	3.39
	9	8	0.00	0.38	0.00	2.481	15.93	74.65	514.96	0.21	750	1.15	24.2	0.35	506.04	0.05	226.46	226.51	222.266	222.216	3.44	3.54
	8	7	0.00	0.38	0.00	2.481	16.28	73.47	506.85	0.29	750	1.35	62	0.77	596.51	0.18	226.51	226.22	222.146	221.968	3.61	3.50
I=100 year	29	7	0.92	0.38	0.35	0.350	10.00	173.23	168.36	9.05	300	4.12	24.5	0.10	290.89	2.22	226.49	225.18	224.907	222.690	1.28	2.19
I=100 year	7	6	1.18	0.38	0.45	3.279	17.04	117.12	1067.75	0.60	825	2.08	8.5	0.07	1111.88	0.05	226.22	226.22	221.783	221.732	3.61	3.66
I=100 year	6	5	0.00	0.38	0.00	3.279	17.11	116.78	1064.63	1.47	825	3.25	5.8	0.03	1737.72	0.08	226.22	226.34	221.730	221.645	3.67	3.87
<b>STORM SEWER EASEMENT</b>																						
I=100 year	5	4	0.00	0.38	0.00	3.279	17.14	116.63	1063.28	0.40	900	1.80	89	0.83	1143.33	0.35	226.34	224.83	221.640	221.285	3.80	2.65
I=100 year	4	3	0.00	0.38	0.00	3.279	17.97	112.67	1027.20	0.46	900	1.94	45.6	0.39	1234.35	0.21	224.83	224.73	221.245	221.033	2.69	2.80
I=100 year	3	2	0.00	0.38	0.00	3.279	18.36	110.90	1011.07	0.45	900	1.91	34.3	0.30	1213.02	0.15	224.73	225.10	220.954	220.800	2.88	3.40
I=100 year	2	1	0.00	0.38	0.00	3.279	18.66	109.59	999.12	0.40	900	1.80	61	0.56	1144.94	0.24	225.10	223.52	220.740	220.496	3.46	2.12



**PEAKS MEADOWS - STORM SEWER DESIGN SHEET**

FREQUENCY	5 YEARS - Owen Sound IDF		100 YEARS - Owen Sound IDF	
Coef. A=	28.5	Coef. B=	-0.726	Coef. A= 46.5
				Coef. B= -0.734

PROJECT: Peaks Meadows Subdivision  
PROJECT No.: 114-2517

Design: Ian McCutcheon  
Date: 07/05/04

Revised:

TIME OF CONCENTRATION 10.00 MANNINGS "n" 0.013

FILE: storm sewer design  
DATE: 6/27/2016 11:32

location	FR MH NO	TO MH NO	AREA (A) Ha	RUN-OFF COEFF	A x C	Cummul. A x C	TIME OF CONC. min	I mm/hr	Q l/sec	SLOPE %	PIPE DIA. mm	VEL. m/sec	LENGTH m	TIME OF FLOW min	CAPACITY l/sec	FALL m	GROUND ELEV.		PIPE INV. ELEV.		COVER	
																	UPPER END	LOWER END	UPPER END	LOWER END	UPPER END	LOWER END
<b>STREET A</b>																						
	28	27	0.77	0.35	0.27	0.270	10.00	104.66	78.41	2.78	300	2.28	23	0.17	161.31	0.64	233.18	232.53	231.680	231.040	1.20	1.19
	27	26	0.00	0.35	0.00	0.270	10.17	103.40	77.47	2.89	300	2.33	38	0.27	164.53	1.10	232.53	231.38	230.950	229.850	1.28	1.23
	26	25	0.82	0.35	0.29	0.557	10.44	101.44	156.93	2.62	300	2.22	60	0.45	156.62	1.57	231.38	229.81	229.825	228.251	1.26	1.26
	25	24	0.69	0.35	0.24	0.798	10.89	98.37	218.23	1.55	375	1.98	21	0.18	218.45	0.33	229.81	229.49	228.177	227.851	1.26	1.26
	24	23	0.00	0.35	0.00	0.798	11.07	97.23	215.69	1.22	375	1.75	37.8	0.36	193.41	0.46	229.49	228.91	227.795	227.335	1.32	1.20
	23	22	0.52	0.35	0.18	0.980	11.43	94.99	258.80	2.08	375	2.29	37.5	0.27	252.86	0.78	228.91	228.12	227.300	226.520	1.23	1.22
	22	21	0.00	0.35	0.00	0.980	11.70	93.38	254.40	2.06	450	2.57	17.4	0.11	408.95	0.36	228.12	227.73	226.440	226.082	1.23	1.20
	21	20	0.55	0.35	0.19	1.173	11.81	92.73	302.26	2.27	450	2.70	55.1	0.34	429.77	1.25	227.73	226.46	226.013	224.761	1.27	1.25
	20	19	0.31	0.35	0.11	1.281	12.15	90.84	323.50	1.78	450	2.39	16.4	0.11	380.43	0.29	226.46	226.10	224.707	224.415	1.30	1.24
	19	18	0.00	0.35	0.00	1.281	12.27	90.23	321.31	1.53	450	2.22	20	0.15	352.66	0.31	226.10	225.69	224.320	224.014	1.33	1.23
<b>STREET B</b>																						
	18	17	0.00	0.35	0.00	1.281	12.42	89.43	318.48	1.15	450	1.92	4.7	0.04	305.60	0.05	225.69	225.61	223.948	223.894	1.29	1.27
	17	16	0.14	0.35	0.05	1.330	12.46	89.22	329.88	0.66	525	1.61	32.2	0.33	348.96	0.21	225.61	225.39	223.795	223.583	1.29	1.28
	16	15	0.00	0.35	0.00	1.330	12.79	87.53	323.62	0.22	600	1.02	13.7	0.22	287.33	0.03	225.39	225.34	223.518	223.488	1.27	1.25
	15	14	0.72	0.35	0.25	1.582	13.02	86.43	380.11	0.32	600	1.23	28.5	0.38	348.86	0.09	225.34	225.46	223.375	223.283	1.37	1.58
	14	13	0.00	0.35	0.00	1.582	13.40	84.62	372.15	0.36	600	1.30	28	0.36	366.94	0.10	225.46	225.61	223.193	223.093	1.67	1.92
	13	12	0.57	0.35	0.20	1.782	13.76	83.01	411.10	0.29	675	1.26	28.4	0.38	451.68	0.08	225.61	225.76	223.013	222.931	1.92	2.15
	12	11	0.00	0.35	0.00	1.782	14.14	81.40	403.15	0.22	675	1.10	32	0.49	393.15	0.07	225.76	225.91	222.876	222.806	2.21	2.43
	11	10	0.70	0.35	0.25	2.027	14.62	79.43	447.49	0.35	675	1.40	56.6	0.68	499.68	0.20	225.91	226.21	222.746	222.546	2.49	2.99
	10	9	0.75	0.35	0.26	2.289	15.30	76.87	489.15	0.29	750	1.35	51.2	0.63	598.55	0.15	226.21	226.46	222.466	222.318	2.99	3.39
	9	8	0.00	0.35	0.00	2.289	15.93	74.65	475.03	0.21	750	1.15	24.2	0.35	506.04	0.05	226.46	226.51	222.266	222.216	3.44	3.54
	8	7	0.00	0.35	0.00	2.289	16.28	73.47	467.55	0.29	750	1.35	62	0.77	596.51	0.18	226.51	226.22	222.146	221.968	3.61	3.50
I=100 year	29	7	0.92	0.35	0.32	0.322	10.00	173.23	155.07	9.05	300	4.12	24.5	0.10	290.89	2.22	226.49	225.18	224.907	222.690	1.28	2.19
I=100 year	7	6	1.18	0.35	0.41	3.024	17.04	117.12	984.60	0.60	825	2.08	8.5	0.07	1111.88	0.05	226.22	226.22	221.783	221.732	3.61	3.66
I=100 year	6	5	0.00	0.35	0.00	3.024	17.11	116.78	981.72	1.47	825	3.25	5.8	0.03	1737.72	0.08	226.22	226.34	221.730	221.645	3.67	3.87
<b>STORM SEWER EASEMENT</b>																						
I=100 year	5	4	0.00	0.35	0.00	3.024	17.14	116.63	980.47	0.40	900	1.80	89	0.83	1143.33	0.35	226.34	224.83	221.640	221.285	3.80	2.65
I=100 year	4	3	0.00	0.35	0.00	3.024	17.97	112.67	947.21	0.46	900	1.94	45.6	0.39	1234.35	0.21	224.83	224.73	221.245	221.033	2.69	2.80
I=100 year	3	2	0.00	0.35	0.00	3.024	18.36	110.90	932.33	0.45	900	1.91	34.3	0.30	1213.02	0.15	224.73	225.10	220.954	220.800	2.88	3.40
I=100 year	2	1	0.00	0.35	0.00	3.024	18.66	109.59	921.31	0.40	900	1.80	61	0.56	1144.94	0.24	225.10	223.52	220.740	220.496	3.46	2.12

# APPENDIX B

## Sanitary Servicing

# Peaks Meadows As Constructed Sanitary Sewer Design Sheet



**CF CROZIER & ASSOCIATES INC**  
LAND DEVELOPMENT ENGINEERS

Project No.: 114-2517  
File Name: sanitary sewer design  
Date: May 20/2005  
Rev.: Oct 02/2008

## PEAKS MEADOWS SUBDIVISION SANITARY SEWER DESIGN MODEL

DESIGN: I.McCutcheon  
CHECK: K.Morris

N = 0.013  
Population = 3.5 p.p.u.  
Peak Factor (M) =  $1 + (14/4 + (P/1000)^{0.5})$   
Daily/Capita Flow = 450 L/cap.d  
Q infiltration = 0.28 L/ha.s

location	FROM MH	TO MH	Length (m)	Area (Ha)	Units	Pop.	TOTAL trib pop	Peak Factor	Avg. Flow (l/s)	Max Flow (l/s)	Infiltr. (l/s)	TOTAL Infiltr.	Combined (l/s)	Pipe Diam (mm)	Upper Inv. El.	Lower Inv. El.	Slope (%)	Cap. (l/s)	Vel. (m/s)	Ground Upper	Ground Lower	Cover Upper	Cover Lower
<b>BLOCK 46</b>																							
	Block 46	17	13.0	0.73	15	52.5	53	4.31	0.27	1.18	0.20	0.20	<b>1.38</b>	200	230.700	230.390	2.4%	<b>50.65</b>	1.6	233.9	233.67	3.03	3.08
	Block 46	13	13.0	1.75	50	175.0	228	4.13	1.18	4.89	0.49	0.49	<b>5.38</b>	200	225.290	225.030	2.0%	<b>46.38</b>	1.5	228.5	228.27	3.04	3.04
<b>STREET A</b>																							
	18	17	25.1	0.24	1	3.5	4	4.45	0.02	0.08	0.07	0.07	<b>0.15</b>	200	231.180	230.390	3.1%	<b>58.19</b>	1.9	234.41	233.67	3.03	3.08
	17	16	24.8	0.20	1	3.5	60	4.30	0.31	1.33	0.06	0.33	<b>1.66</b>	200	230.330	229.650	2.7%	<b>54.31</b>	1.7	233.67	232.95	3.14	3.10
	16	15	65.2	0.57	3	10.5	70	4.28	0.36	1.56	0.16	0.49	<b>2.05</b>	200	229.580	228.187	2.1%	<b>47.94</b>	1.5	232.95	230.97	3.17	2.58
	15	14	65.8	0.42	2	7.0	77	4.27	0.40	1.71	0.12	0.60	<b>2.32</b>	200	228.120	226.620	2.3%	<b>49.52</b>	1.6	230.97	229.57	2.65	2.75
	14	13	73.5	0.59	3	10.5	88	4.26	0.46	1.94	0.17	0.77	<b>2.71</b>	200	226.550	225.015	2.1%	<b>47.40</b>	1.5	229.57	228.27	2.82	3.06
	13	12	100.0	0.48	2	7.0	322	4.07	1.68	6.82	0.13	1.39	<b>8.21</b>	200	224.980	222.795	2.2%	<b>48.48</b>	1.5	228.27	225.99	3.09	3.00
	12	11	14.0	0.03	0	0.0	322	4.07	1.68	6.82	0.01	1.40	<b>8.22</b>	200	222.735	222.485	1.8%	<b>43.83</b>	1.4	225.99	225.76	3.06	3.07
<b>STREET C</b>																							
	21	20	32.5	0.25	1	3.5	4	4.45	0.02	0.08	0.07	0.07	<b>0.15</b>	200	223.787	223.497	0.9%	<b>30.98</b>	1.0	228.00	227.50	4.01	3.80
	20	19	42.7	0.06	0	0.0	4	4.45	0.02	0.08	0.02	0.09	<b>0.17</b>	200	223.445	222.725	1.7%	<b>42.59</b>	1.4	227.50	226.50	3.86	3.58
	19	11	13.2	0.08	0	0.0	4	4.45	0.02	0.08	0.02	0.11	<b>0.19</b>	200	222.665	222.505	1.2%	<b>36.11</b>	1.1	226.50	225.76	3.64	3.06
<b>STREET B</b>																							
	11	10	42.3	0.73	3	10.5	336	4.06	1.75	7.10	0.20	1.72	<b>8.82</b>	200	222.443	222.243	0.5%	<b>22.55</b>	0.7	225.76	225.45	3.12	3.01
	10	9	35.7	0.43	2	7.0	343	4.05	1.79	7.24	0.12	1.84	<b>9.08</b>	200	222.188	222.046	0.4%	<b>20.69</b>	0.7	225.45	225.53	3.06	3.28
	9	8	29.5	0.40	2	7.0	350	4.05	1.82	7.38	0.11	1.95	<b>9.33</b>	200	221.989	221.888	0.3%	<b>19.19</b>	0.6	225.53	225.68	3.34	3.59
	8	7	30.3	0.36	2	7.0	357	4.05	1.86	7.52	0.10	2.05	<b>9.57</b>	200	221.808	221.685	0.4%	<b>20.90</b>	0.7	225.68	225.83	3.67	3.95
	7	6	29.5	0.39	2	7.0	364	4.04	1.90	7.66	0.11	2.16	<b>9.82</b>	200	221.610	221.503	0.4%	<b>19.75</b>	0.6	225.83	225.98	4.02	4.28
	6	1	73.3	1.02	6	21.0	385	4.03	2.01	8.08	0.29	2.44	<b>10.53</b>	200	221.429	221.151	0.4%	<b>20.20</b>	0.6	225.98	226.34	4.35	4.99
	5	4	32.5	0.72	3	10.5	11	4.41	0.05	0.24	0.20	0.20	<b>0.44</b>	200	224.779	223.459	4.1%	<b>66.10</b>	2.1	228.00	226.69	3.02	3.03
	4	3	91.0	1.41	7	24.5	35	4.34	0.18	0.79	0.39	0.60	<b>1.39</b>	200	223.374	222.936	0.5%	<b>22.75</b>	0.7	226.69	226.60	3.12	3.46
	3	2	28.0	0.20	1	3.5	39	4.34	0.20	0.87	0.06	0.65	<b>1.52</b>	200	222.886	221.571	4.7%	<b>71.08</b>	2.3	226.60	226.54	3.51	4.77
	2	1	39.0	0.68	4	14.0	53	4.31	0.27	1.18	0.19	0.84	<b>2.02</b>	200	221.506	221.151	0.9%	<b>31.29</b>	1.0	226.54	226.35	4.83	5.00
<b>EASEMENT</b>																							
	1	EX. MH4	93.1	0.00	0	0.0	438	4.00	2.28	9.12	0.00	3.29	<b>12.41</b>	200	221.091	220.190	1.0%	<b>32.27</b>	1.0	226.35	223.57	5.06	3.18
<b>Camperdown Court</b>																							
	EX. MH4	EX. MH3	87.2	2.20	8	28.0	466	3.99	2.42	9.67	0.62	3.90	<b>13.58</b>	200	220.093	219.670	0.5%	<b>22.84</b>	0.7	223.6	222.4	3.28	2.48
	EX. MH3	EX. MH2	60.5	1.80	5	17.5	483	3.98	2.52	10.02	0.50	4.41	<b>14.42</b>	200	219.660	219.300	0.6%	<b>25.30</b>	0.8	222.4	222.6	2.49	3.05
	** EX. MH2	MH1	60.4	0.00	0	0.0	483	3.98	2.52	10.02	0.00	4.41	<b>14.42</b>	200	219.290	219.054	0.4%	<b>20.50</b>	0.7	222.6	223.5	3.06	4.25

\* Design information on existing sanitary system provided by Gamsby & Mannerow Limited, as built drawings, May 15, 1981.

\*\* Proposed Sanitary Sewer on Camperdown Court installed by other. Sanitary sewer to connect to proposed sanitary sewer constructed on Camperdown Road.

**BLOCK 46, PEAKS MEADOWS SUBDIVISION**  
SANITARY SEWER DESIGN MODEL

DESIGN: I.McCutcheon  
CHECK: K.Morris

N = 0.013  
Population = 3.5 p.p.u.  
Peak Factor (M) =  $1 + (14/4 + (P/1000)^{0.5})$   
Avg. Daily/Capita Flow = 450 L/cap.d  
Q infiltration = 0.28 L/ha.s

LOCATION	FROM MH	TO MH	Length (m)	Area (Ha)	Units	Pop.	TOTAL Trib. Pop.	Peak Factor	Avg. Flow (l/s)	Max Flow (l/s)	Infiltr. (l/s)	TOTAL Infiltr.	Combined (l/s)	Pipe Diam (mm)	Upper Inv. El.	Lower Inv. El.	Slope (%)	Cap. (l/s)	Vel. (m/s)	Ground Upper	Ground Lower	Cover Upper	Cover Lower
<b>BLOCK 46</b>	Block 46	17	13.0	2.48	12	42.0	42	4.33	0.22	0.95	0.69	0.69	<b>1.64</b>	200	230.700	230.390	2.4%	<b>50.65</b>	1.6	233.9	233.67	3.03	3.08
<b>STREET A</b>																							
	18	17	25.1	0.24	1	3.5	4	4.45	0.02	0.08	0.07	0.07	<b>0.15</b>	200	231.180	230.390	3.1%	<b>58.19</b>	1.9	234.41	233.67	3.03	3.08
	17	16	24.8	0.20	1	3.5	49	4.32	0.26	1.10	0.06	0.82	<b>1.92</b>	200	230.330	229.650	2.7%	<b>54.31</b>	1.7	233.67	232.95	3.14	3.10
	16	15	65.2	0.57	3	10.5	60	4.30	0.31	1.33	0.16	0.98	<b>2.31</b>	200	229.580	228.187	2.1%	<b>47.94</b>	1.5	232.95	230.97	3.17	2.58
	15	14	65.8	0.42	2	7.0	67	4.29	0.35	1.49	0.12	1.09	<b>2.58</b>	200	228.120	226.620	2.3%	<b>49.52</b>	1.6	230.97	229.57	2.65	2.75
	14	13	73.5	0.59	3	10.5	77	4.27	0.40	1.71	0.17	1.26	<b>2.97</b>	200	226.550	225.015	2.1%	<b>47.40</b>	1.5	229.57	228.27	2.82	3.06
	13	12	100.0	0.48	2	7.0	84	4.26	0.44	1.87	0.13	1.39	<b>3.26</b>	200	224.980	222.795	2.2%	<b>48.48</b>	1.5	228.27	225.99	3.09	3.00
	12	11	14.0	0.03	0	0.0	84	4.26	0.44	1.87	0.01	1.40	<b>3.27</b>	200	222.735	222.485	1.8%	<b>43.83</b>	1.4	225.99	225.76	3.06	3.07
<b>STREET C</b>																							
	21	20	32.5	0.25	1	3.5	4	4.45	0.02	0.08	0.07	0.07	<b>0.15</b>	200	223.787	223.497	0.9%	<b>30.98</b>	1.0	228.00	227.50	4.01	3.80
	20	19	42.7	0.06	0	0.0	4	4.45	0.02	0.08	0.02	0.09	<b>0.17</b>	200	223.445	222.725	1.7%	<b>42.59</b>	1.4	227.50	226.50	3.86	3.58
	19	11	13.2	0.08	0	0.0	4	4.45	0.02	0.08	0.02	0.11	<b>0.19</b>	200	222.665	222.505	1.2%	<b>36.11</b>	1.1	226.50	225.76	3.64	3.06
<b>STREET B</b>																							
	11	10	42.3	0.73	3	10.5	98	4.25	0.51	2.17	0.20	1.72	<b>3.88</b>	200	222.443	222.243	0.5%	<b>22.55</b>	0.7	225.76	225.45	3.12	3.01
	10	9	35.7	0.43	2	7.0	105	4.24	0.55	2.32	0.12	1.84	<b>4.15</b>	200	222.188	222.046	0.4%	<b>20.69</b>	0.7	225.45	225.53	3.06	3.28
	9	8	29.5	0.40	2	7.0	112	4.23	0.58	2.47	0.11	1.95	<b>4.42</b>	200	221.989	221.888	0.3%	<b>19.19</b>	0.6	225.53	225.68	3.34	3.59
	8	7	30.3	0.36	2	7.0	119	4.22	0.62	2.62	0.10	2.05	<b>4.67</b>	200	221.808	221.685	0.4%	<b>20.90</b>	0.7	225.68	225.83	3.67	3.95
	7	6	29.5	0.39	2	7.0	126	4.21	0.66	2.77	0.11	2.16	<b>4.92</b>	200	221.610	221.503	0.4%	<b>19.75</b>	0.6	225.83	225.98	4.02	4.28
	6	1	73.3	1.02	6	21.0	147	4.19	0.77	3.21	0.29	2.44	<b>5.66</b>	200	221.429	221.151	0.4%	<b>20.20</b>	0.6	225.98	226.34	4.35	4.99
	5	4	32.5	0.72	3	10.5	11	4.41	0.05	0.24	0.20	0.20	<b>0.44</b>	200	224.779	223.459	4.1%	<b>66.10</b>	2.1	228.00	226.69	3.02	3.03
	4	3	91.0	1.41	7	24.5	35	4.34	0.18	0.79	0.39	0.60	<b>1.39</b>	200	223.374	222.936	0.5%	<b>22.75</b>	0.7	226.69	226.60	3.12	3.46
	3	2	28.0	0.20	1	3.5	39	4.34	0.20	0.87	0.06	0.65	<b>1.52</b>	200	222.886	221.571	4.7%	<b>71.08</b>	2.3	226.60	226.54	3.51	4.77
	2	1	39.0	0.68	4	14.0	53	4.31	0.27	1.18	0.19	0.84	<b>2.02</b>	200	221.506	221.151	0.9%	<b>31.29</b>	1.0	226.54	226.35	4.83	5.00
<b>SANITARY EASEMENT</b>	1	EX. MH4	93.1	0.00	0	0.0	200	4.15	1.04	4.31	0.00	3.29	<b>7.60</b>	200	221.091	220.190	1.0%	<b>32.27</b>	1.0	226.35	223.57	5.06	3.18
<b>CAMPERDOWN COURT</b>																							
	EX. MH4	EX. MH3	87.2	2.20	8	28.0	228	4.13	1.18	4.89	0.62	3.90	<b>8.79</b>	200	220.093	219.670	0.5%	<b>22.84</b>	0.7	223.6	222.4	3.28	2.48
	EX. MH3	EX. MH2	60.5	1.80	5	17.5	245	4.11	1.28	5.25	0.50	4.41	<b>9.66</b>	200	219.660	219.300	0.6%	<b>25.30</b>	0.8	222.4	222.6	2.49	3.05
**	EX. MH2	MH1	60.4	0.00	0	0.0	245	4.11	1.28	5.25	0.00	4.41	<b>9.66</b>	200	219.290	219.054	0.4%	<b>20.50</b>	0.7	222.6	223.5	3.06	4.25

\* Design information on existing sanitary system provided by Gamsby & Mannerow Limited, as built drawings, May 15, 1981.

\*\* Proposed Sanitary Sewer on Camperdown Court installed by other. Sanitary sewer to connect to proposed sanitary sewer constructed on Camperdown Road.



**CERTIFICATE OF COMPLETION  
FOR BASIC SERVICES**

**PEAKS MEADOW DEVELOPMENT AGREEMENT  
DATED JULY 11, 2008**

**REGISTRATION # GY10308**

**TOWN OF THE BLUE MOUNTAINS**

**COUNTY OF GREY**

This is to certify that the basic services for the following

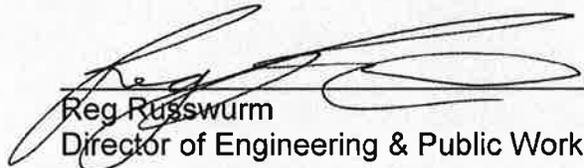
**Peaks Meadow Subdivision Phase 1**  
(save and except lots 24, 25, 36 and 37, Registered Plan 16M-20)

has been completed as of: November 17, 2008

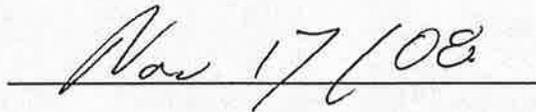
Name of Developer: 1713233 Ontario Inc.  
4-1280 Terwillegar Avenue  
Oshawa, ON L1J 7A5

Consultant of Record: C.F. Crozier & Associates Ltd.

Authorized Signature:

  
Reg. Russwurm  
Director of Engineering & Public Works

Date Certificate Signed:

  
Nov 17/08

Town of The Blue Mountains  
P.O. Box 310, 26 Bridge Street  
Thornbury, Ontario, NOH 2P0

# APPENDIX C

## Water Servicing and Fire Flow Calculations

**Water Supply for Public Fire Protection - 1999**  
**Fire Underwriters Survey**

**Part II - Guide for Determination of Required Fire Flow**

1. An estimate of fire flow required for a given area may be determined by the formula:

$$F = 220 * C * \text{sqrt } A$$

where

- F = the required fire flow in litres per minute
- C = coefficient related to the type of construction
  - = 1.5 for wood frame construction (structure essentially all combustible)
  - = 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
  - = 0.8 for non-combustible construction (unprotected metal structural components)
  - = 0.6 for fire-resistive construction (fully protected frame, floors, roof)
- A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building considered.

Proposed Buildings	ordinary construction
2 number of floors	1.0 C
200 sq.m. floor area	
400 sq.m. total floor area	

**Therefore F= 4,000 L/min (rounded to nearest 1000 L/min)**

Fire flow determined above shall not exceed:

- 30,000 L/min for wood frame construction
- 30,000 L/min for ordinary construction
- 25,000 L/min for non-combustible construction
- 25,000 L/min for fire-resistive construction

2. Values obtained in No. 1 may be reduced by as much as 25% for occupancies having low contents fire hazard or may be increased by up to 25% surcharge for occupancies having a high fire hazard.

Non-Combustible	-25%	Free Burning	15%
Limited Combustible	-15%	Rapid Buring	25%
Combustible	No Charge		

Low fire Hazard occupancy for dwellings	0% reduction
---	--------------

**0 L/min reduction**

**Note:** Flow determined shall not be less than 2,000 L/min

3. Sprinklers - The value obtained in No. 2 above maybe reduce by up to 50% for complete automatic sprinkler protection.

**Buildings will not have automatic sprinklers (typical 30% reduction)**  
**0 L/min reduction**

**Water Supply for Public Fire Protection - 1999**  
**Fire Underwriters Survey**

**Part II - Guide for Determination of Required Fire Flow**

4. Exposure - To the value obtained in No. 2, a percentage should be added for structures exposed within 45 metres by the fire area under consideration. The percentage shall depend upon the height, area, and construction of the building(s) being exposed, the separation, openings in the exposed building(s), the length and height of exposure, the provision of automatic sprinklers and/or outside sprinklers in the building(s) exposed, the occupancy of the exposed building(s) and the effect of hillside locations on the possible spread of fire.

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

**Exposed buildings**

Name	Distance			
Front Adjacent Dwelling	38	5%	200	
Back Adjacent Dwelling	N/A	0%	0	
Left Adjacent Dwelling	4	20%	800	
Right Adjacent Dwelling	4	20%	800	
				<b>1,800 L/min Surcharge</b>

**Determine Required Fire Flow**

No.1	4,000
No. 2	0 reduction
No. 3	0 reduction
No. 4	<u>1,800</u> surcharge

**Required Flow: 5,800 L/min**  
**Rounded to nearest 1000l/min: 6,000 L/min or 100.0 L/s**  
**1,585 USGPM**

**Required Duration of Fire Flow**

Flow Required L/min	Duration (hours)
2,000 or less	1.0
3,000	1.25
4,000	1.5
5,000	1.75
6,000	2.0
8,000	2.0
10,000	2.0
12,000	2.5
14,000	3.0
16,000	3.5
18,000	4.0
20,000	4.5
22,000	5.0
24,000	5.5
26,000	6.0
28,000	6.5
30,000	7.0
32,000	7.5
34,000	8.0
36,000	8.5
38,000	9.0
40,000 and over	9.5

**Determine Required Fire Storage Volume**

Flow from above 6,000 L/min

Required duration 3.00 hours

Therefore: 1,080,000 Litres or  
 1,080 cu.m. is the required fire storage volume.

**Fire Protection Water Supply Guideline  
Part 3 of the Ontario Building Code (2006)**

$$Q = KVS_{TOT}$$

Q = minimum supply of water in litres (L)

K = water supply coefficient

V = total building volume in cubic metres

S<sub>TOT</sub> = total of spatial coefficient values from property line exposures on all sides

K = 23.0 Group C building with combustible construction (Table 1)

V = 1800 600sqm total floor area by 3m height

S<sub>TOT</sub> = 2 S<sub>TOT</sub> Need Not Exceed 2.0

**Q = 82800 L**

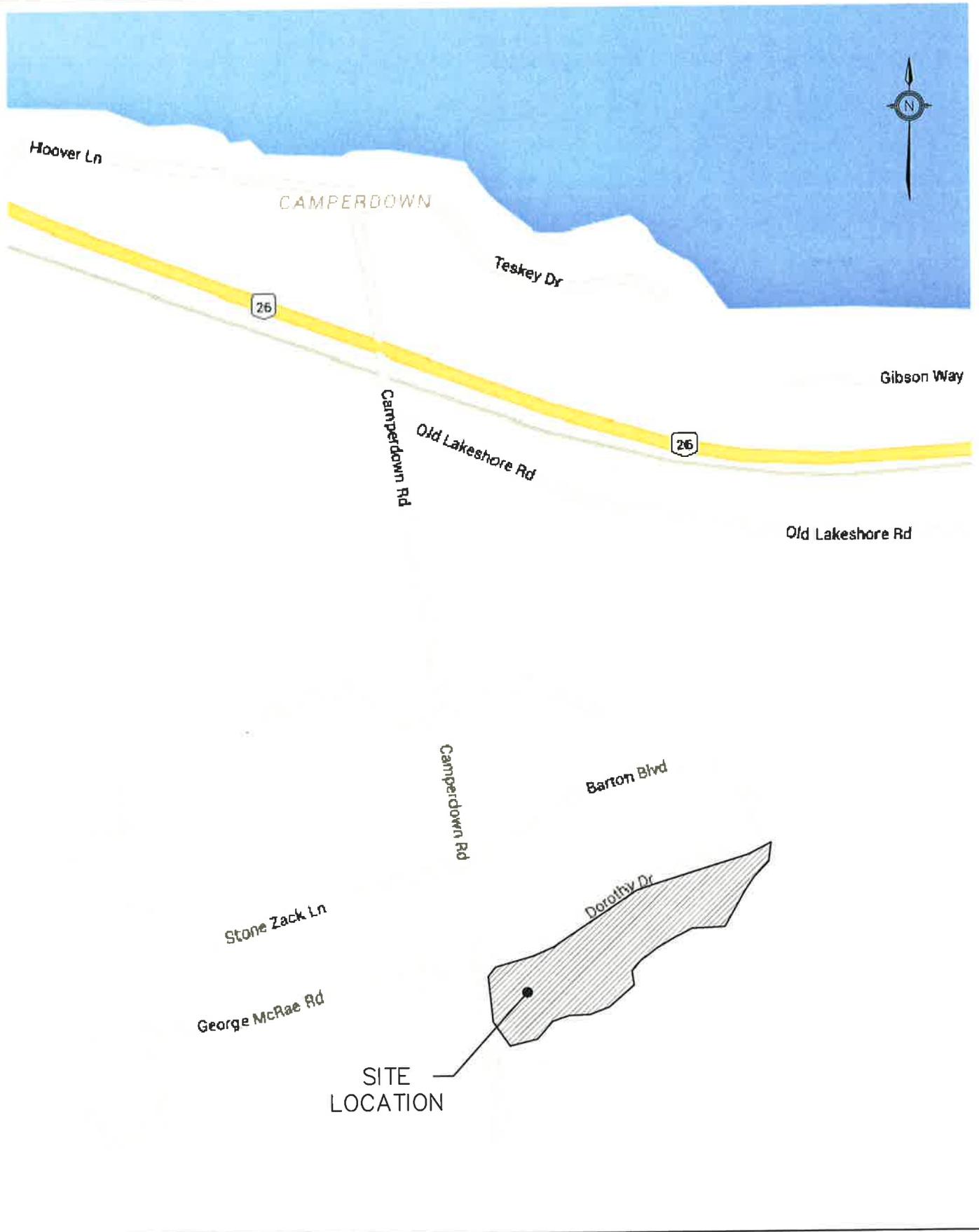
Based on ranges listed in Table 2, the required minimum water supply flow rate is **2700 L/min**

**45 L/s**

## LIST OF FIGURES

- |                  |                                      |
|------------------|--------------------------------------|
| <b>Figure 1:</b> | Site Location Plan                   |
| <b>Figure 2:</b> | Draft Plan of Subdivision            |
| <b>Figure 3:</b> | Grading and Stormwater Drainage Plan |
| <b>Figure 4:</b> | General Site Servicing Plan          |

J:\1100\1117-Peppermill Construction\4153-Peppermill Peaks Meadows\CAD\CIVIL\1SHEET\4153-001.dwg, FIG. 1, 6/27/2016 11:47:05 AM, cwilson



Legend

 = SUBJECT LANDS

Project  
BLOCK 46, PEAKS MEADOWS SUBDIVISION  
TOWN OF THE BLUE MOUNTAINS

Drawing

SITE LOCATION



**CROZIER & ASSOCIATES**  
Consulting Engineers

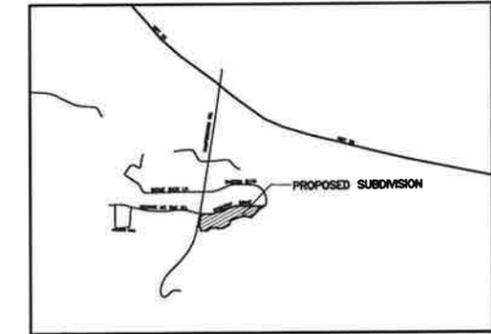
THE HARBOUREDGE BUILDING,  
40 HURON STREET, SUITE 301,  
COLLINGWOOD, ON L3Y 4R3  
705 446-3510 T  
705 446-3820 F  
WWW.CROZIER-CA.COM  
INFO@CROZIER-CA.COM

Drawn By	C.W.	Design By	C.W.	Project	1117-4153	
Scale	N.T.S.	Date	JUNE 17, 2016	Check By	K.M.	
					Drawing	FIG. 1

# DRAFT PLAN OF SUBDIVISION BLOCK 46, REGISTERED PLAN 16M-20 (FORMERLY TOWNSHIP OF COLLINGWOOD) TOWN OF THE BLUE MOUNTAINS

SCALE 1:750

DRAFT PLAN T-



KEY PLAN

N.T.S.

## SECTION 51, PLANNING ACT, ADDITIONAL INFORMATION

- A. AS SHOWN ON DRAFT PLAN
- B. AS SHOWN ON DRAFT PLAN
- C. AS SHOWN ON DRAFT PLAN
- D. SEE SCHEDULE OF LAND USE
- E. AS SHOWN ON DRAFT PLAN
- F. AS SHOWN ON DRAFT PLAN
- G. AS SHOWN ON DRAFT PLAN
- H. MUNICIPAL PIPED WATER AVAILABLE AT TIME OF DEVELOPMENT
- I. CLAY-LOAM
- J. AS SHOWN ON DRAFT PLAN
- K. SANITARY AND STORM SEWERS, GARBAGE COLLECTION, FIRE PROTECTION
- L. AS SHOWN ON DRAFT PLAN

## SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LAND TO BE SUBDIVIDED AS SHOWN ON THIS PLAN, AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE -----, 2016

PAUL R. THOMSEN OLS  
ZUBEK, EMO, PATTEN & THOMSEN LTD.  
COLLINGWOOD

## OWNER'S CERTIFICATE

I AUTHORIZE KLM PLANNING PARTNERS INC. TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE GREY COUNTY PLANNING DEPARTMENT FOR APPROVAL

OWNER

2399494 ONTARIO INC.

1270 VANDORF SIDEROAD  
AURORA, ONTARIO  
L4G 0N8

LEONIDAS ANAGNOSTAKOS  
A.S.O.

## SCHEDULE OF LAND USE

TOTAL AREA OF LAND TO BE SUBDIVIDED = 2.303±Ha. ( 5.691±Ac±)

DETACHED DWELLINGS	BLOCKS	LOTS	UNITS	±Ha.	±Ac±
LOTS 10-12 MIN. LOT FRONTAGE=31.1m. MIN. LOT AREA=1741.80sq.m.	3	3	3	0.505	1.248
LOTS 1-9 MIN. LOT FRONTAGE=23.3m. MIN. LOT AREA=1272.00sq.m.	9	9	9	1.796	4.443
<b>TOTAL</b>	<b>12</b>	<b>12</b>	<b>12</b>	<b>2.303</b>	<b>5.691</b>

NOTE - ELEVATIONS RELATED TO CANADIAN GEODETIC DATUM

PROJECT No. P-2591  
SCALE 1:750 MAY 31, 2016  
( 2591-DES1 ) X-REF: ( 2591MAS & 2591TOPO )

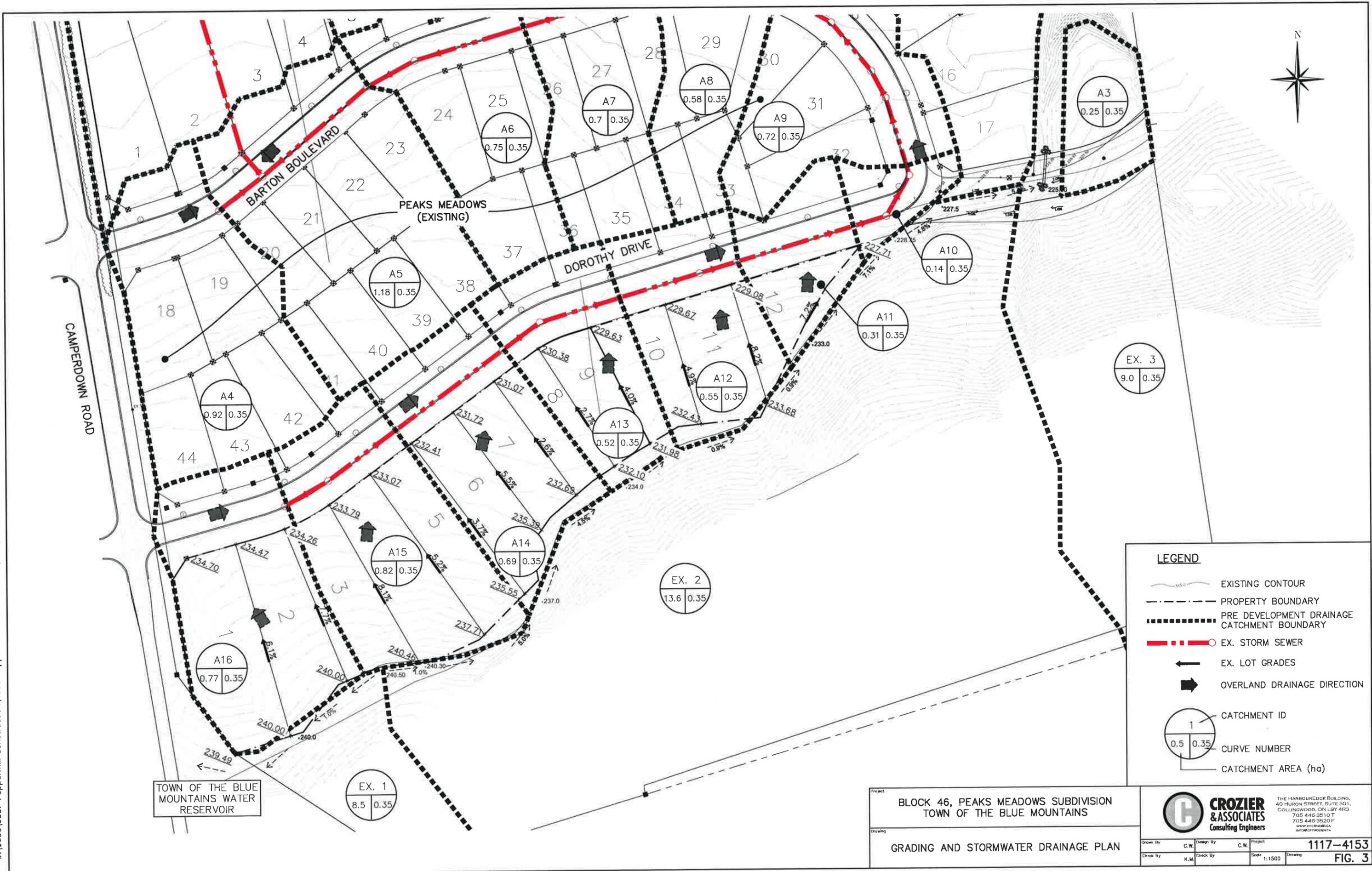
**KLM** DWG. No. - 16:1  
PLANNING PARTNERS INC. 84 JARDIN DRIVE - UNIT 1B, CONCORD ONTARIO L4K 3P3  
TEL: (905)869-4055 FAX: (905)869-0097 [design@klmplanning.com](mailto:design@klmplanning.com)

Planning • Design • Development



PART 1, 16R-8214  
LOT 25  
CONCESSION 6

J:\1100\1117-Peppermill Construction\4153-Peppermill Peaks Meadows\CAD\CIVIL\SHEET\4153-001.dwg, FIG. 3, 6/27/2016 12:06:08 PM, cwilson



**LEGEND**

- EXISTING CONTOUR
- PROPERTY BOUNDARY
- PRE DEVELOPMENT DRAINAGE CATCHMENT BOUNDARY
- EX. STORM SEWER
- EX. LOT GRADES
- OVERLAND DRAINAGE DIRECTION
- CATCHMENT ID
- CURVE NUMBER
- CATCHMENT AREA (ha)

TOWN OF THE BLUE MOUNTAINS WATER RESERVOIR

Project  
**BLOCK 46, PEAKS MEADOWS SUBDIVISION**  
 TOWN OF THE BLUE MOUNTAINS

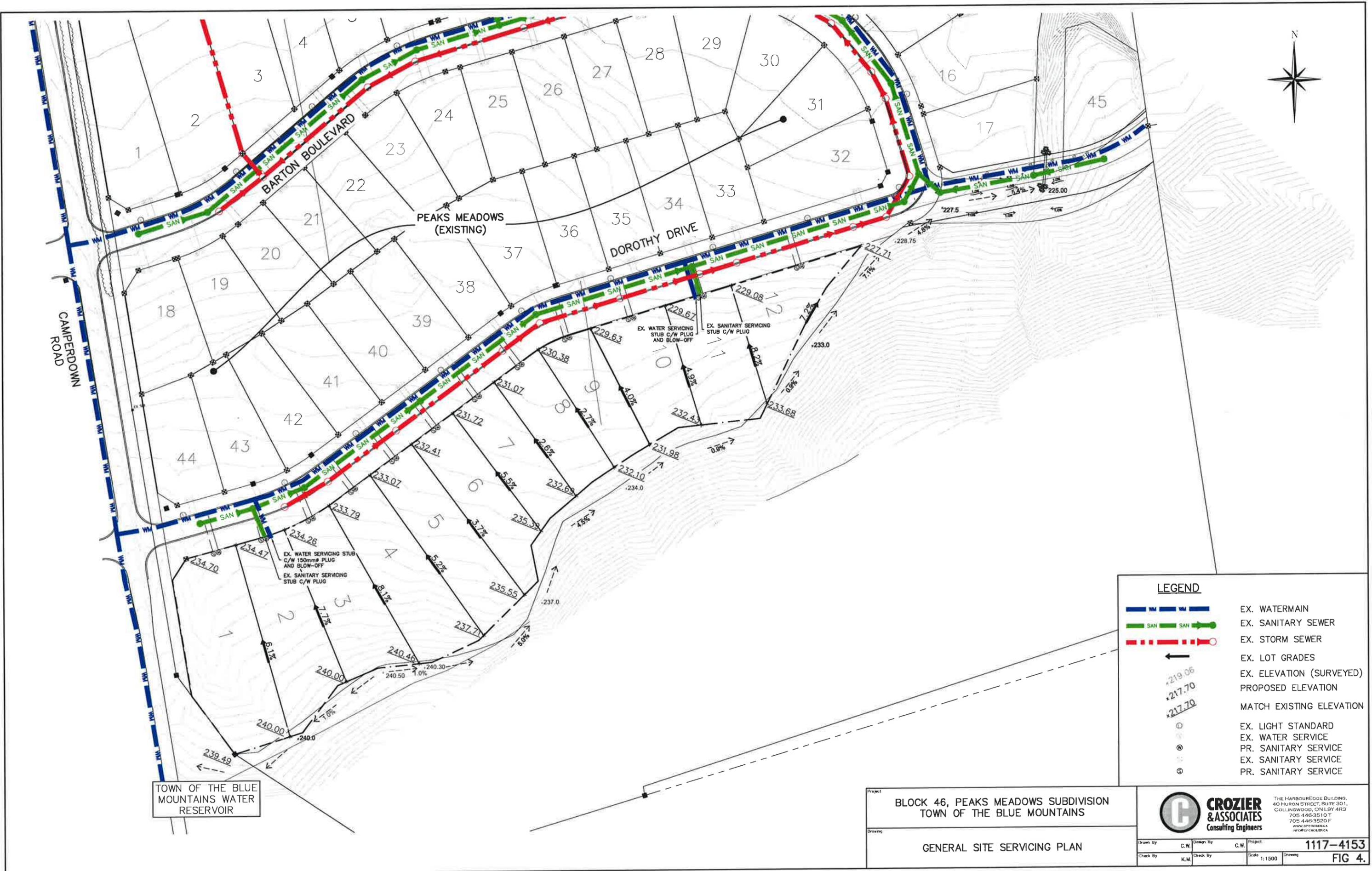
Drawing  
**GRADING AND STORMWATER DRAINAGE PLAN**

**CROZIER & ASSOCIATES**  
 Consulting Engineers

THE HARBOUREDGE BUILDING,  
 40 HURON STREET, SUITE 301,  
 COLLINGWOOD, ON L3Y 4R3  
 705 446-3510 T  
 705 446-3520 F  
 www.ccrozier.ca  
 info@ccrozier.ca

Drawn By	C.W.	Design By	C.W.	Project	<b>1117-4153</b>
Check By	K.M.	Scale	1:1500	Drawing	<b>FIG. 3</b>

J:\1100\1117-Peppermill Construction\4153-Peppermill Peaks Meadows\CAD\CIVIL\1SHEET\4153-001.dwg, FIG 4-, 6/27/2016 1:58:29 PM, cwilson



TOWN OF THE BLUE MOUNTAINS WATER RESERVOIR

Project: BLOCK 46, PEAKS MEADOWS SUBDIVISION  
TOWN OF THE BLUE MOUNTAINS

Drawing: GENERAL SITE SERVICING PLAN

**CROZIER & ASSOCIATES**  
Consulting Engineers

THE HARBOUREdge BUILDING,  
40 HURON STREET, SUITE 301,  
COLLINGWOOD, ON L9Y 4R3  
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705 446-3520 F  
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info@crozier.ca

Drawn By: C.W.	Design By: C.W.	Project: 1117-4153
Check By: K.M.	Check By:	Scale: 1:1500
		Drawing: FIG 4.