TRAFALGAR ENGINEERING LTD.

#1 - 481 Morden Road
Oakville Ontario
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FUNCTIONAL SERVICING REPORT

Water, Wastewater and Stormwater Management

for

2087 – 2103 Prospect Street, Burlington

Proposed Residential Re-Development

PREPARED BY

TRAFALGAR ENGINEERING LTD.

PROJECT: 1629

December 11, 2017

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- Storm Drainage Area Plan; Dwg. No.1629-S2 (Post-development)

1.0 INTRODUCTION

1.1 Scope of Functional Servicing Report

This report has been prepared in support of the Official Plan and Zoning Amendments being sought for the subject lands located at 2087–2103 Prospect Street in the City of Burlington.

This report discusses how the re-development of these lands can be serviced by the existing infrastructure for water, wastewater, and storm drainage. Furthermore, the report shows how the proposed type of dwelling is compatible with the existing site topographic boundary conditions. The designs provided in this report can be used to evolve further detail designs as the various elements of the proposed development progress through the City's development approval process.

Background information regarding existing services is based on information obtained from the City of Burlington and the Region of Halton as well as site reconnaissance to ascertain the location of the existing services on the property.

1.2 Site Location and Description

The site is located on the north side of Prospect Street, close to the major intersection of Brant Street and Fairview Street in Ward 2. The site is surrounded by similar uses/density to the west, low density residential to the north and community facilities to the east. There is also a small cluster of street townhomes immediately to the east of the site. The area of the subject lands is 0.96 ha. The site is currently occupied by an eight storey mid-rise apartment building (65 units) on the south half and two fourplex buildings (8 units) on the north half having a total combined unit count of 73 units. Other existing features include landscaped areas, outdoor amenities, surface parking and drive aisles, and quasi-underground parking.

Attached in Appendix 'A' is the topographic survey of the property depicting the above features. The site gently slopes from north to south. It is currently serviced for storm drainage (minimally), wastewater and water from the municipal services on Prospect Street.

1.3 Proposed Development

The Proponent proposes to re-develop the site by introducing a stacked townhouse product at the rear of the property. The existing low-rise dwellings at the rear will be demolished while the existing mid-rise apartment building is proposed to remain as is. The re-development includes a re-organization of the existing surface parking as well as the construction of new surface parking and associated drive aisles. The existing drop off area in front of the apartment building will be reconfigured to provide parking as well. A total of 50 new dwelling units are proposed.

A copy of the proposed site plan and typical sections showing the above are provided in Appendix 'A' for reference purposes.

2.0 MUNICIPAL SERVICES (Water and Sanitary Drainage)

Re-development of the subject lands will require adequately sized water and wastewater services that comply with the Ontario Building Code, Region of Halton standards and City of Burlington standards. In order to design the services that would be required for the proposed units, it was necessary to verify the location of the existing services on the property. Terra Discovery was retained to locate the services throughout the site. The located services are in Appendix 'B' as well as on the Site Servicing Plan in Appendix 'C' of the report. Sewer video services will be retained at a later time to confirm the location, connectivity and condition of the existing site services that were unable to be located by geophysical means.

It is worthwhile noting that the rear portion of the subject site is serviced (sanitary) by the property to the west. This will be discussed in the forthcoming section of the report.

The findings of the above investigations were used to advance the design of the proposed water and sanitary drainage systems.

2.1 Water

Plans obtained from the Region of Halton indicate that there is an existing 350mm diameter asbestos cement watermain on Prospect Street. The watermain is located on the south side of the municipal road allowance. The information regarding the watermain is appended in Appendix 'D' of the report. Jackson Waterworks was retained to undertake flow testing for the adjacent site, the results of which are appended in Appendix 'D' of the report. The flow tests indicate the following:

Static Pressure	54 psig
Residual Pressure	52 psig @ 1140 US gpm
Residual Pressure	48 psig @ 2120 US gpm
Theoretical Flow of 5255 US gpm @ 20 psi	

The above results are within the Region's normal operating conditions and fire flow conditions. The water demands as a result of the net addition of 50 residential dwelling units will have negligible impact on the existing infrastructure.

A fire flow of approximately 4000 L/min is determined using the Fire Underwriters Survey (FUS) methodology (calculations attached in Appendix 'D'), however Part 1 of the FUS indicates that 6000 L/min minimum flow is required for a 2-hour duration fire. Demand calculations were undertaken based on the Region's Water and Wastewater Linear Design Manual Section 2.3.1., 1.62 persons per unit (ppu) for high density and 2.44 ppu for medium density development in Burlington—taken from the Sustainable Halton Water and Wastewater Master Plan—along with

the projected unit counts from the site plan statistics, and are summarized below (refer to calculations in Appendix 'D').

Average Demand	=	43 L/min
Max. Daily Demand	=	98 L/min
Max. Hourly Peak	=	174 L/min
Max. Daily Plus Fire	=	6000 L/min + 98 L/min = 6098 L/min

The site is currently serviced by a single 150mm diameter connection to the existing 350mm diameter watermain on Prospect Street as shown on the plans provided in Appendices 'B' and 'D'. The service is located directly in front of the existing apartment building. Terra Discovery was unable to locate the water services for the existing low-rise dwellings at the rear of the property, however it is assumed they are serviced from the apartment building to the south. There is a municipal fire hydrant on Prospect Street in close proximity to the subject lands.

We are proposing that the re-development of the site include a private water system within the subject lands consisting of a 150mm diameter looped private watermain including a proposed connection to the existing 350 mm watermain on Prospect Street. The proposed watermain will provide both domestic water and a hydrant for fire protection to the stacked townhouses. The proposed dwelling units will be serviced directly from the proposed private watermain. Each stacked group of dwelling units will be provided with a water service lateral that services five dwelling units.

The proposed private water servicing configuration is shown on the Servicing Plan in Appendix 'C' of the report.

2.2 Sanitary Drainage

Plans obtained from the Region of Halton indicate that there are two existing 250mm diameter PVC sanitary sewers on Prospect Street, each flowing in opposite directions and along the middle

of the street and with their respective high points in front of the subject lands. The site is currently serviced by a 150 mm sanitary lateral draining to the east, however it appears that in the 2005 reconstruction of the west sewer, a plugged lead was provided to the site; it is unknown why the lead was provided. The sewer is located generally along the center of the road and is approximately 1.5 m deep. Information regarding the sewer is appended in Appendix 'E' of the report.

Terra Discovery was unable to locate a private sanitary sewer to service the fourplexes. During the recent development of the lands to the west, it was determined that the existing fourplexes were serviced in the private sanitary sewer on said lands. Arrangements were made to continue servicing the fourplexes in this manner until such time that the subject lands are developed. Development of the subject lands will require all buildings to be serviced by a private sewer connection directly to Prospect Street.

We are proposing that the re-development of the site include a private sanitary sewer system within the site connecting to the existing manhole at the street line. The proposed dwellings will be serviced by the proposed private sanitary sewer. Each stacked group of dwelling units will be provided with a single building sewer that services five dwelling units. The proposed private sewer reconfiguration is shown on the Servicing Plan in Appendix 'C' of the report.

3.0 STORM DRAINAGE AND STORMWATER MANAGEMENT

The re-development of the subject lands will require adequately sized storm sewers that comply with the Ontario Building Code and the City of Burlington standards for site servicing. Section 2.0 of the report outlined the need to locate the existing water and sanitary drainage systems. It is also necessary to ascertain the location of the existing storm drainage system on the property in order to design the required storm drainage system for the site's re-development. Sewer video services will be retained to determine the location, connectivity and condition of the existing

system at a later date. It is worthwhile noting that an area at the rear of the site is serviced by the private storm sewer on the site to the west. This will be further discussed in the following section.

3.1 Minor Storm System

Plans obtained from the City of Burlington show that there is an existing 375 mm diameter storm sewer on Prospect Street. The sewer drains in an easterly direction and is located generally south of the centreline and is approximately 1.2 m deep to the invert. The subject lands are currently serviced by a single 300 mm diameter storm sewer lateral located in the easterly driveway entrance. During the redevelopment of the lands to the west, it was determined that some of the parking along the west side of the subject site was serviced by a private storm sewer on the lands to the west. Arrangements were made to continue conveying storm drainage in this manner until such time that the subject lands are redeveloped. Development of the subject lands will require all storm drainage to be conveyed in a private storm sewer with a direct connection from the site to the municipal storm sewer on Prospect Street.

We are proposing that the re-development of the site include the replacement of the existing storm sewer system, and that it be extended to service the proposed area of re-development. The proposed system is shown on the Site Servicing Plan appended in Appendix 'C'. The proposed system has been designed to incorporate underground detention storage as outlined in Section 3.3.1 of this report.

There is an external drainage area of 1617 m^2, which sheet flows into the site from the north. The external areas are shown on the Storm Drainage Area Plan, Figure 1, included in Appendix 'F'. The external drainage has been accounted for in the design of the site's storm sewer system.

The proposed storm sewer system will have minimal cover throughout the site given the shallow depth of the existing storm sewer on Prospect Street. This precludes the ability to drain the foundation weepers of the proposed dwellings by gravity and necessitates pumping of the

foundation weepers. In light of this, it is proposed that drainage collected by the foundation weepers be conveyed to a central storm pumping station via a separate dedicated storm sewer system. The pumped flows will discharge to the site's storm sewer system that collects surface drainage. The location of the foundation weeper collection system and the pumping station is shown on the Site Servicing Plan in Appendix 'C'.

3.2 Major Storm System

As outlined in Section 3.3.1, the proposed storm sewer system will incorporate an underground storage facility. An overland flow route to Prospect Street is provided in the event of system failure and/or a storm event greater than the 100-yr storm. The site's grading design is such that overland flows can be conveyed overland over grassed areas as well as the parking/drive aisles. The major system ensures that dwellings are not inundated with stormwater and provides a level of protection over and above that of the minor system.

3.3 Stormwater Management

3.3.1 Quantity Control (100-yr post-development controlled to 5-yr pre-development)

The quantity control criteria is satisfied by providing below grade storage of stormwater within proposed the Cultec 280HD stormwater detention system—providing approximately 64 m^3 of storage—and by providing approximately 59 m^3 of storage within the storm pipes. The allowable flow has been determined by using a pre-development run-off coefficient of 0.6 and the drainage areas shown on the Pre-development Drainage Area Plan; Dwg. No.1629-S2. The plans can be found in Appendix F of this report. Based on the above, the calculated 5-yr pre-development flow (allowable flow) is 165 L/s.

An orifice tube on the downstream side of STM MH-3 will be used to control the site storm drainage to the municipal system. Orifice calculations indicate that a short segment of 200 mm

diameter pipe is adequate to control the flow to the allowable release rate, at a maximum water level of 93.85m—the lowest catch basin elevation—which is located at the driveway entrance to the site. There is sufficient storage such that no surface storage is utilized up to and including the 100-year storm; local ponding at catch basin inlets in the order of 0.05–0.10 m may occur due to inlet capacity during higher intensity events.

We have determined the re-development of the site results in a composite runoff coefficient of 0.70. Given the total internal and external areas of 1.12 ha, the 100-year peak inflow is calculated to be 0.310 m/s. The required storage to attenuate the 100-year storm event is calculated to be 122 m^3. The storage volume provided is calculated to be 123 m^3. Supporting stormwater management calculations are provided in Appendix 'F'.

3.3.2 Quality Control

Runoff from the roofs, yards, roadways, and parking areas will be collected and conveyed to oversized storm sewers before discharging into the municipal storm sewer on Prospect Street. Catch basins immediately upstream of the sewers will provide primary treatment to separate and remove grit. A 0.60m deep sump on all catch basins in paved areas will be provided to collect grit.

Water quality control to the MOECC Enhanced level of protection is required, providing an overall long term removal of 80% of total suspended solids. A Stormceptor STC-2000 or approved equivalent is proposed as a means of satisfying the water quality criteria. Stormceptor sizing is provided in Appendix 'F' for reference.

3.3.3 Sustainable Stormwater Management Measures

The above sections, namely 3.3.1 and 3.3.2, describe the sustainable measures being proposed for stormwater quantity and quality control. By implementing these measures, the existing downstream infrastructure will benefit as a result of a reduction of peak flows, reduced run-off volumes and overall stormwater quality improvement. In addition to the above, the existing parking lot decks will be enhanced to provide useable amenity space. The enhancements include a vegetative cover similar to a "green roof" or "bio-retention system".

3.3.4 Sediment and Erosion Control (Construction Stage)

Prior to any construction activity, all sediment and erosion control measures shall be implemented. These measures include a perimeter sediment control fence, mud mat and catch basin sediment control.

All controls shall be inspected on a regular basis and after rainfall events that generate runoff. Of particular importance are the controls placed at catch basins. If not maintained, the tendency is for these to become obstructed is high and hence there is a potential for significant pooling and/or drainage issues.

4.0 SITE GRADING

The proposed site grading for the re-development of the site has been designed to account for the existing boundary conditions, proposed building type and existing site elevations. Given the inherent shallow storm sewer system, it is necessary to elevate the rear half of the site. This will necessitate a perimeter retaining wall along the north, west and east boundary of the site in order to match the existing elevations on the abutting properties. The proposed elevation at the top and base of the wall are shown on the Grading Plan.

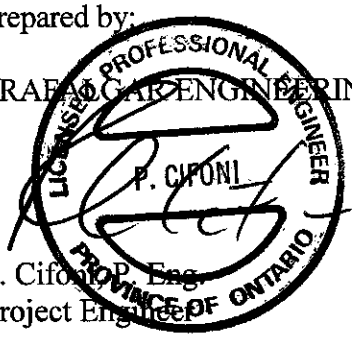
The Grading Plan is included in Appendix 'C'.

5.0 CONCLUSION

Our review of the background information as provided in this report confirms that there are adequate municipal services to support the proposed planning amendments and re-development of the property. This report and the drawings included in the report have evolved throughout the course of the planning approval process. We have consulted with other team consultants and our client to ensure that the designs outlined in this report can be implemented accordingly.

Prepared by:

TRAFALGAR ENGINEERING LTD.



P. Cifoni, P. Eng.
Project Engineer

PC:ht
Enclosures

P:\1629 2095 Prospect St\Reports\2017-12-04 FSR\2017-12-11 FSR.doc

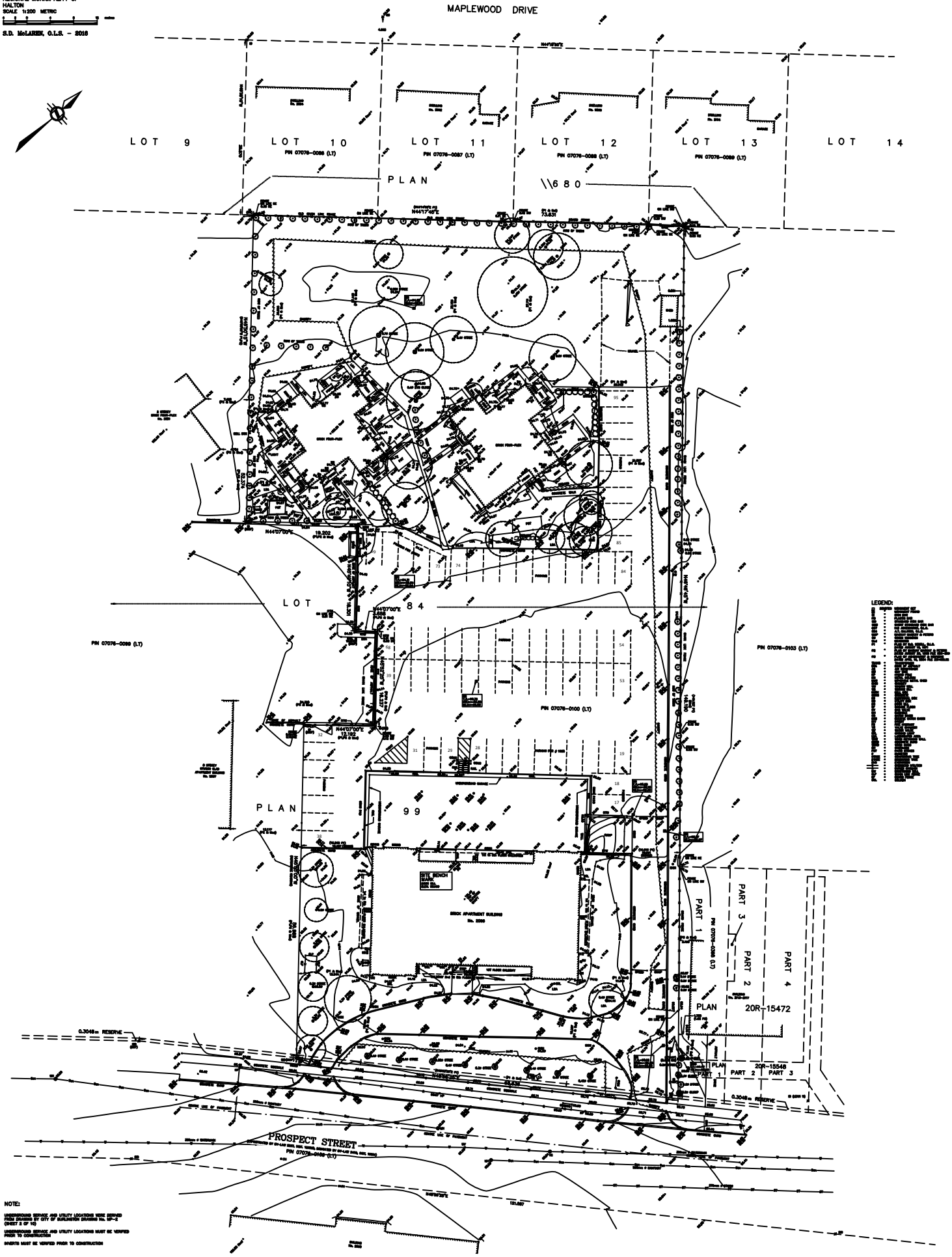
Appendix ‘A’

Topographic Survey

Site Plan

TOPOGRAPHIC SURVEY
OF PART OF
LOT 84
REGISTERED PLAN 99
IN THE
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF
HALTON
SCALE 1:200 METRIC

S.D. McLAREN, O.L.S. – 2016



NOTE:

UNDERGROUND SERVICE AND UTILITY LOCATIONS WERE OBTAINED FROM DRAWINGS BY CITY OF BURLINGTON DRAWING No. SP-2 (SHEET 2 OF 10)

UNDERGROUND SERVICE AND UTILITY LOCATIONS MUST BE VERIFIED PRIOR TO CONSTRUCTION

INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION

BENCHMARK:

No. 301

Benchmark set on City plate confirmed correct on site at Central Public School, Locke Street, Dundas 60.063m.

ELEVATION 90.653 metric

METRIC NOTE

DISTANCES SHOWN ON THIS PLAN ARE IN METRIC UNITS AND CAN BE CONVERTED TO FEET BY DIVISION BY 0.3048

BEARING NOTE:

BEARINGS ARE ASTRONOMIC AND ARE DERIVED FROM THE SOUTHERLY LIMIT OF PIN 07076-0098 AS SHOWN ON PLAN BY MACKAY MACKAY & PETERS DATED AUGUST 28, 1990 AS BEING N44°07'00"E

SURVEYOR'S CERTIFICATE:

1. THIS SURVEY AND PLAN IS CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE THEREUNDER.
2. THE FIELD SURVEY WAS COMPLETED ON THE 19th DAY OF AUGUST, 2016

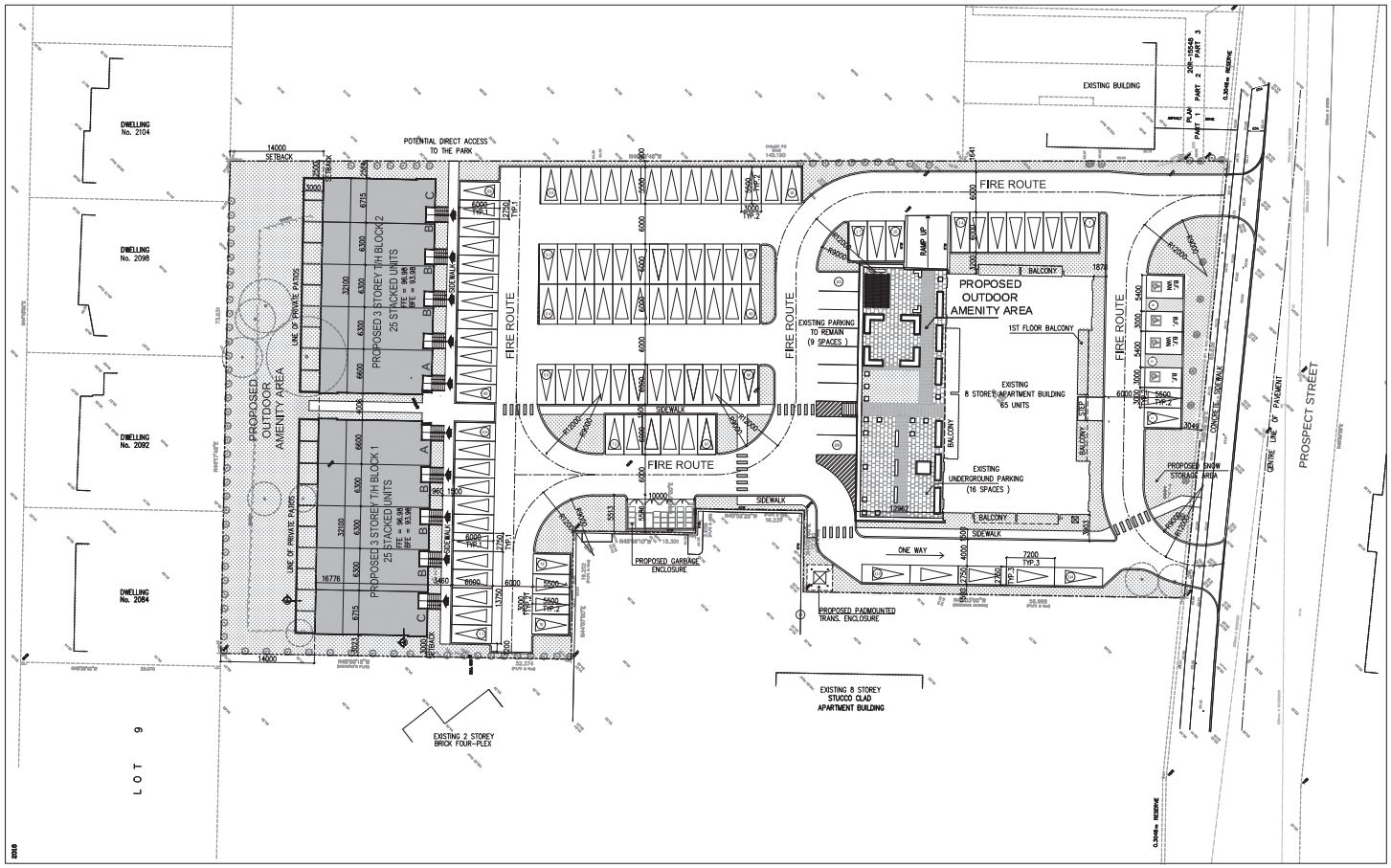
OCTOBER 25, 2016
DATE

S. DAN McLAREN, O.L.S.

A.T. McLaren Limited
Geomatics Consultants

49 JACKSON STREET WEST
HAMILTON, ONTARIO L8P 1K9
TEL: (905) 528-8761 FAX: (905) 528-4156

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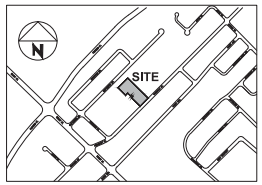
NOTES:

–FOR SITE LANDSCAPE PLEASE REFER TO LANDSCAPE DRAWINGS.
–FOR SITE GRADING AND SERVICE PLEASE REFER TO GRADING PLAN.

01 A011 SITE PLAN 1:350

SURVEY INFORMATION TAKEN FROM:
S.D. McLAREN, O.L.S.
TOPOGRAPHIC SURVEY OF PART OF LOT 84
REGISTERED PLAN 99
IN THE
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF
HALTON

2016



02 A011 KEY PLAN N.T.S.

STATISTICS :

LOT AREA: 9607.6 m2
TOTAL GFA OF PROPOSED TOWNHOUSES : 4044 m2
DENSITY : 119.7 UNITS/ HECTARE
BUILDING HEIGHT : 13.0 m

STACKED TOWNHOUSES :

TYPE	UNIT	AREAS BASEMENT m2	BASEMENT ft2	GROUND m2	GROUND ft2	2ND m2	2ND ft2	3RD m2	3RD ft2	TOTAL AREA m2	TOTAL AREA ft2
END BLOCK	1	53.4	574.8							53.4	574.8
	2	53.8	579.1							53.8	579.1
	3			86.0	925.7					86.0	925.7
	4			6.2	66.7	50.9	547.9	57.6	620.0	114.7	1234.6
	5			5.4	58.1	90.4	972.9	42.7	459.6	138.6	1490.4
TOTAL AREA PER FLOOR		107.2	1153.9	100.6	1082.9	107.6	1158.2	100.3	1079.6	415.7	4474.6

TYPE	UNIT	AREAS BASEMENT m2	BASEMENT ft2	GROUND m2	GROUND ft2	2ND m2	2ND ft2	3RD m2	3RD ft2	TOTAL AREA m2	TOTAL AREA ft2
MIDDLE BLOCK	1	53.8	579.1							53.8	579.1
	2	48.8	525.3							48.8	525.3
	3			83.1	895.0					83.1	895.0
	4			6.2	66.7	49.5	532.8	55.0	592.0	110.7	1191.6
	5			5.9	63.5	53.2	572.5	40.7	438.1	99.1	1066.7
TOTAL AREA PER FLOOR		102.6	1104.4	95.2	1024.7	102.7	1105.3	95.7	1030.1	396.2	4264.7

TYPE	UNIT	AREAS BASEMENT m2	BASEMENT ft2	GROUND m2	GROUND ft2	2ND m2	2ND ft2	3RD m2	3RD ft2	TOTAL AREA m2	TOTAL AREA ft2
END BLOCK	1	59.2	637.2							59.2	637.2
	2	48.8	525.3							48.8	525.3
	3			87.7	944.0					87.7	944.0
	4			6.2	66.7	53.6	577.0	57.5	618.9	117.3	1262.6
	5			5.9	63.5	58.0	602.8	42.7	459.6	104.6	1125.9
TOTAL AREA PER FLOOR		108.0	1162.5	99.8	1074.2	109.6	1179.7	100.2	1078.6	417.6	4495.0

OUTDOOR AMENITY :

LANDSCAPED OUTDOOR AMENITY (PROPOSED TOWN HOUSES):	1129.0 m2
SUNDECK (EXISTING BUILDING):	457.0 m2
BALCONIES (EXISTING BUILDING):	853.0 m2
BALCONIES (PROPOSED TOWN HOUSES):	90.0 m2
TOTAL OUTDOOR AMENITY AREA:	2528.0 m2
OUTDOOR AMENITY PER UNIT FOR 115 PROPOSED AND EXISTING UNITS:	21.9 m2

VEHICLE PARKING REQUIRED :

EXISTING APARTMENT BUILDING

PARKING REQUIRED	AREA	UNITS	RATIO	REQ
BACHELOR	N/A	1	1.25	1.25
1BD	N/A	30	1.25	37.5
2BD		34	1.50	51
TOTAL		65		90

PROPOSED TOWNHOSES

PARKING REQUIRED	AREA	UNITS	PROPOSED RATIO	REQ
BACHELOR	N/A	N/A	N/A	N/A
1BD	N/A	20	1.25	25
2BD/2BD+D	N/A	30	1.50	45
TOTAL		50		70

VISITORS

PARKING REQUIRED	AREA	UNITS	RATIO	REQ
BACHELOR	N/A	1	0.35	0.35
1BD	N/A	50	0.35	17.5
2BD	N/A	64	0.35	22.4
TOTAL		115		40

VEHICLE PARKING PROVIDED :

EXISTING APARTMENT BUILDING

PARKING REQUIRED	AREA	UNITS	PROPOSED RATIO	REQ
BACHELOR	N/A	1	0.94	0.94
1BD	N/A	30	0.94	28.2
2BD		34	0.94	31.96
TOTAL		65		61.1

PROPOSED TOWNHOSES

PARKING REQUIRED	AREA	UNITS	PROPOSED RATIO	REQ
BACHELOR	N/A	N/A	N/A	N/A
1BD	N/A	20	0.94	18.8
2BD	N/A	30	0.94	28.2
TOTAL		50		47

VISITORS

PARKING REQUIRED	AREA	UNITS	PROPOSED RATIO	REQ
BACHELOR	N/A	1	0.175	0.175
1BD	N/A	50	0.175	8.75
2BD	N/A	64	0.175	11.2
TOTAL		115		20.1

VEHICLE PARKING REQUIRED :

APARTMENT BUILDING	90
STACKED TOWNHOUSE	70
VISITORS	40
TOTAL	200

VEHICLE PARKING PROVIDED :

RESIDENTIAL PARKING	108
VISITOR PARKING	21
EXTRA	1
TOTAL	130

SURFACE PARKING	114
UNDERGROUND PARKING	16
TOTAL	130

SOLID WASTE REQUIREMENTS :

UNITS	NUMBER
BACHELOR UNITS	1
1 BEDROOM UNITS	50
2 BEDROOM UNITS	64
TOTAL	115

GARBAGE BINS REQUIRED	REQUIRED	PROPOSED
6yd3/61–120 UNITS(NOT COMPACTED)	6yd3	2 X 3yd3

RECYCLE BINS REQUIRED	REQUIRED	PROPOSED
1 SEMI AUTOMATED CHART/7 UNITS	16.8	17

ORGANIC BINS REQUIRED	REQUIRED	PROPOSED
1 SEMI AUTOMATED CHART/25 UNITS	4.6	5

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NO.	REVISION/ISSUE	DATE
07	ISSUED FOR COORDINATION	NOV 24, 2017
06	ISSUED FOR COORDINATION	NOV 21, 2017
05	ISSUED FOR COORDINATION	SEP 13, 2017
04	ISSUED FOR CLIENT REVIEW	JULY 04, 2017
03	ISSUED FOR CLIENT REVIEW	JUNE 30, 2017
02	ISSUED FOR CLIENT REVIEW	JUNE 08, 2017
01	ISSUED FOR CLIENT REVIEW	MAY 29, 2017
NO.	REVISION/ISSUE	DATE

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NORTH
TRUE
CONS.

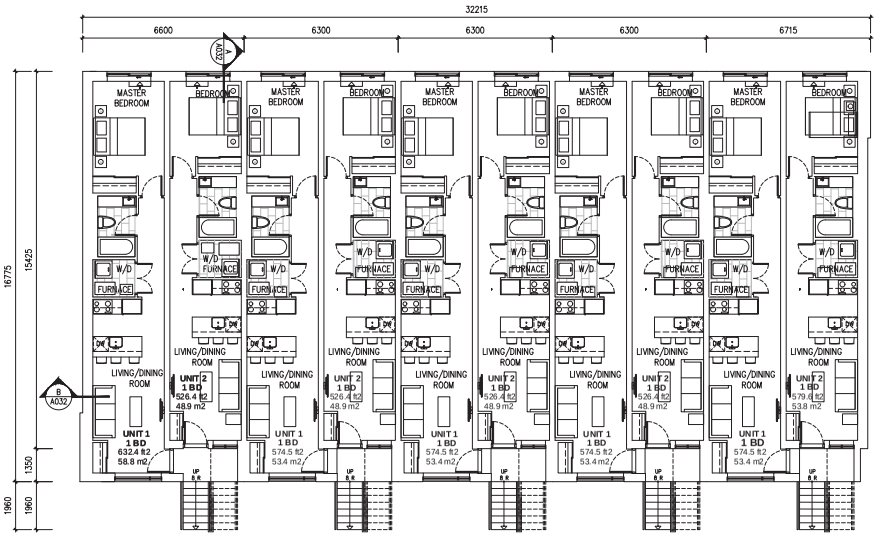
SEAL

PROJECT TITLE
PROPOSED 3 STOREY STACKED TOWNHOUSES
2087-2103 PROSPECT STREET- BURLINGTON - ONTARIO

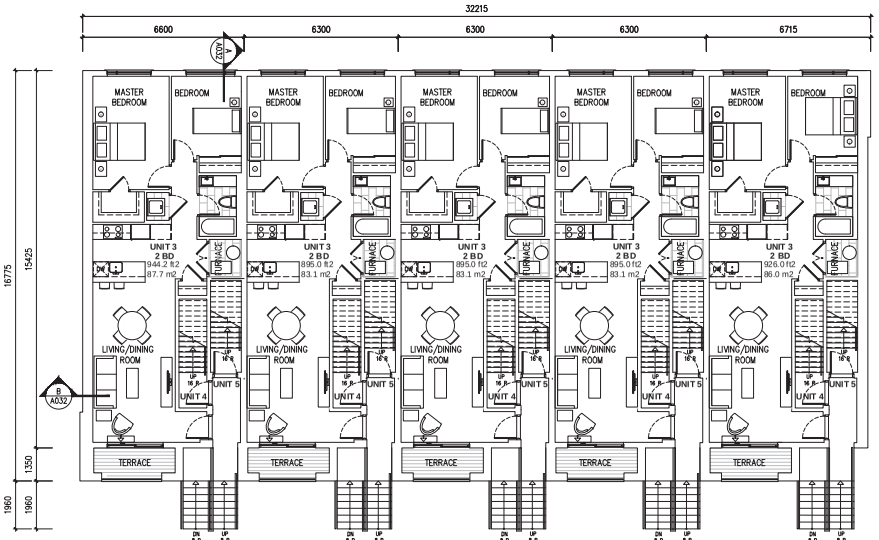
CLIENT NAME AND LOGO

DRAWING TITLE
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SCALE
AS NOTED
Date:
SEP 13, 2017
Project No.
17108
Drawn by:
MF
Checked by:
RE
Drawing No.
A011

ICON ARCHITECTS



01 A021 BASEMENT FLOOR PLAN
1:100



02 A021 GROUND FLOOR PLAN
1:100

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07	ISSUED FOR COORDINATION	NOV 24, 2017
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NORTH

SEAL

PROJECT TITLE
PROPOSED 3 STOREY STACKED TOWNHOUSES
2087-2103 PROSPECT STREET- BURLINGTON - ONTARIO

CLIENT NAME AND LOGO

DRAWING TITLE
FLOOR PLANS

SCALE
1:100

Date:
NOV. 24, 2017

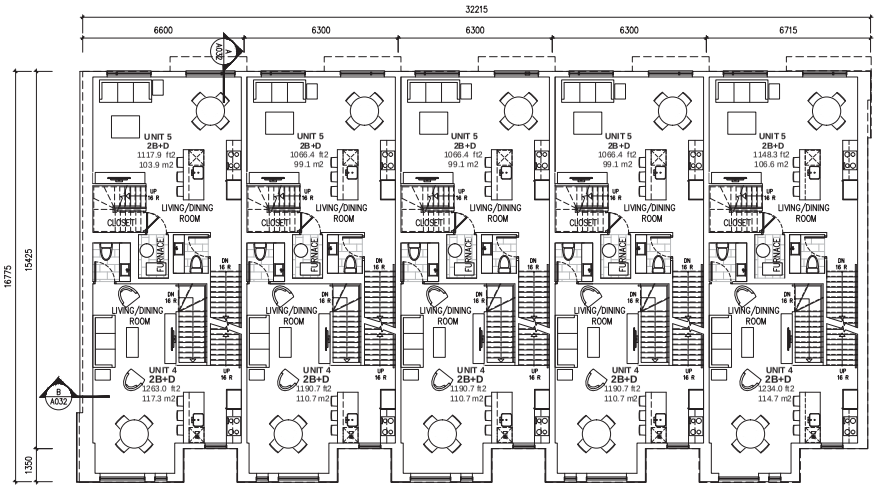
Project No.
17108

Drawn by:
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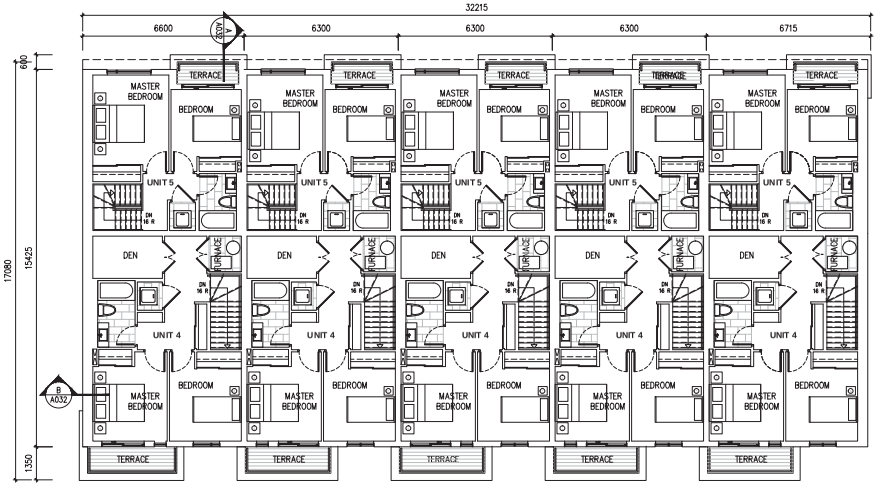
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Drawing No.
A021

ICON ARCHITECTS



01 A022 SECOND FLOOR PLAN
1:100



02 A022 THIRD FLOOR PLAN
1:100

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DRAWING TITLE
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SCALE
1:100

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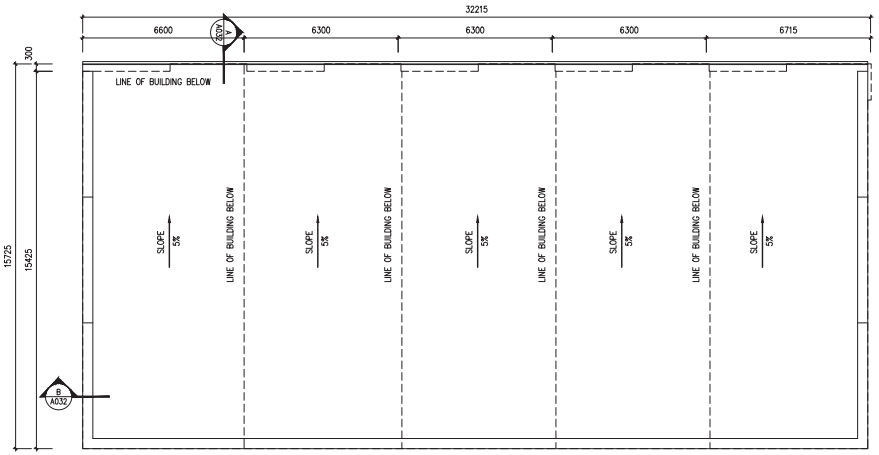
Project No.
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Checked by:
RE

Drawing No.
A022

ICON ARCHITECTS



01 A023 ROOF PLAN
1:100

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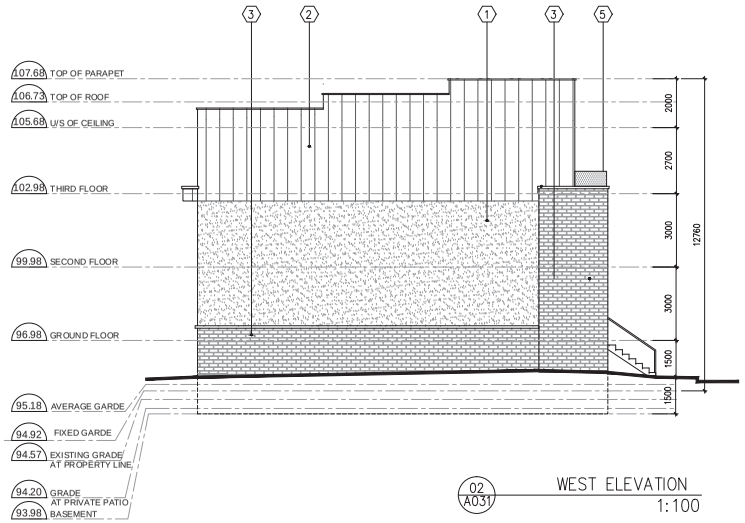
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ICON ARCHITECTS



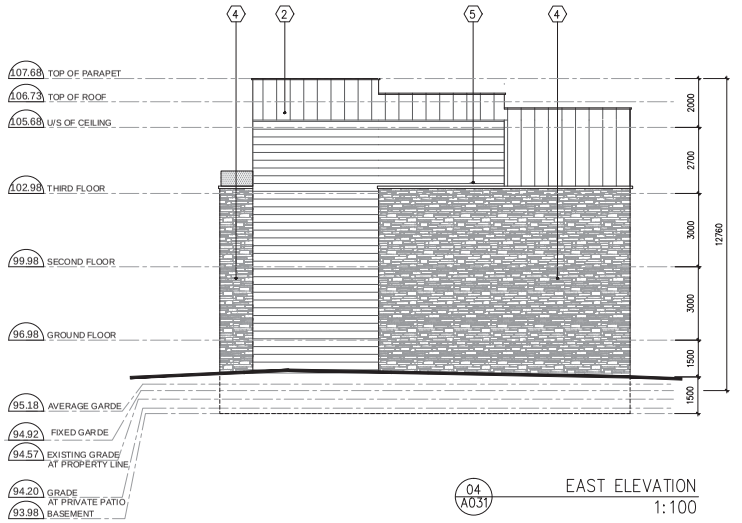
01 A031 SOUTH ELEVATION
1:100



02 A031 WEST ELEVATION
1:100



03 A031 NORTH ELEVATION
1:100



04 A031 EAST ELEVATION
1:100

1. STUCCO – LIGHT COLOR
2. METAL PANEL – GRAY
3. BRICK VENNER
4. LEXA STONE
   COLOUR RANGE CAMEO BEIGE
5. ALUMINUM SIDING (LONGBOARD)
6. GLASS RAILING
7. PRECAST CONCRETE SILL/CAP

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SEAL

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2087-2103 PROSPECT STREET- BURLINGTON - ONTARIO

CLIENT NAME AND LOGO

DRAWING TITLE
ELEVATIONS

SCALE
1:100

Date:
SEP 24, 2017

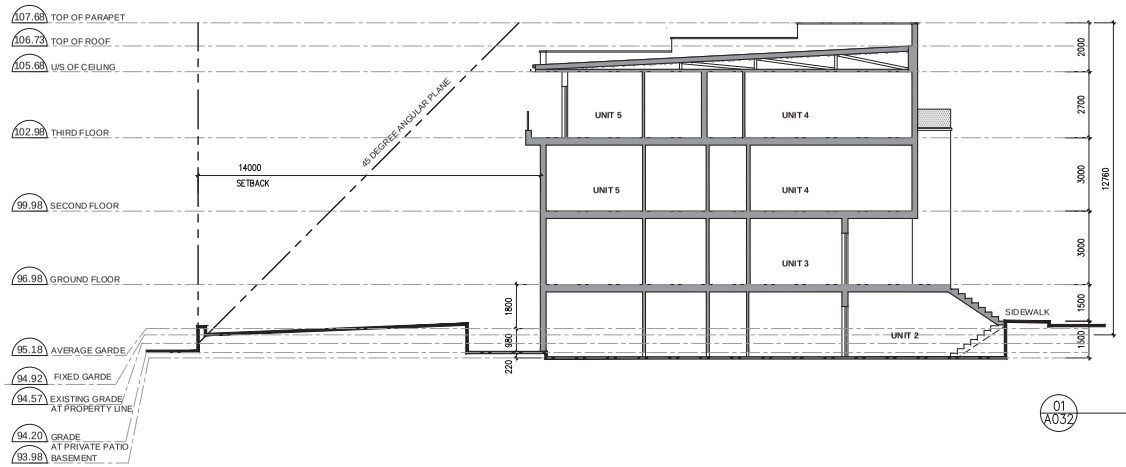
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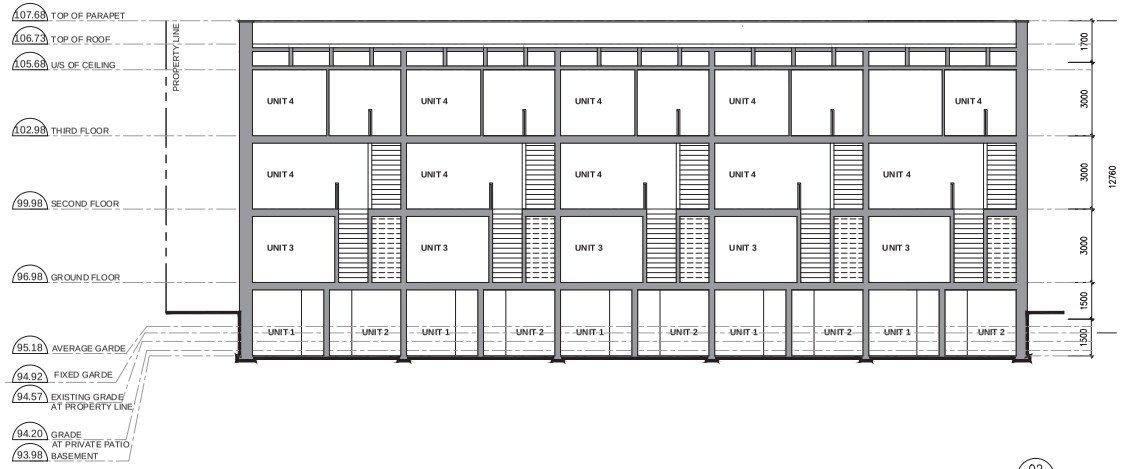
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Drawing No.
A031

ICON ARCHITECTS



01 A032 SECTION A–A
1:100



02 A032 SECTION B–B
1:100

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PROJECT TITLE
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2087-2103 PROSPECT STREET- BURLINGTON - ONTARIO

CLIENT NAME AND LOGO

DRAWING TITLE
SECTIONS AND PERSPECTIVES

SCALE
1:100

Date:
NOV 24, 2017

Project No.
17108

Drawn by:
MF

Checked by:
RE

Drawing No.
A032

ICON ARCHITECTS



01 A033 PERSPECTIVE N.T.S



02 A033 PERSPECTIVE N.T.S



03 A033 PERSPECTIVE N.T.S



04 A033 PERSPECTIVE N.T.S

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2087-2103 PROSPECT STREET- BURLINGTON - ONTARIO

CLIENT NAME AND LOGO

DRAWING TITLE
PERSPECTIVES

SCALE
N.T.S

Date:
NOV 24, 2017

Project No.
17108

Drawn by:
MF

Checked by:
RE

Drawing No.
A033

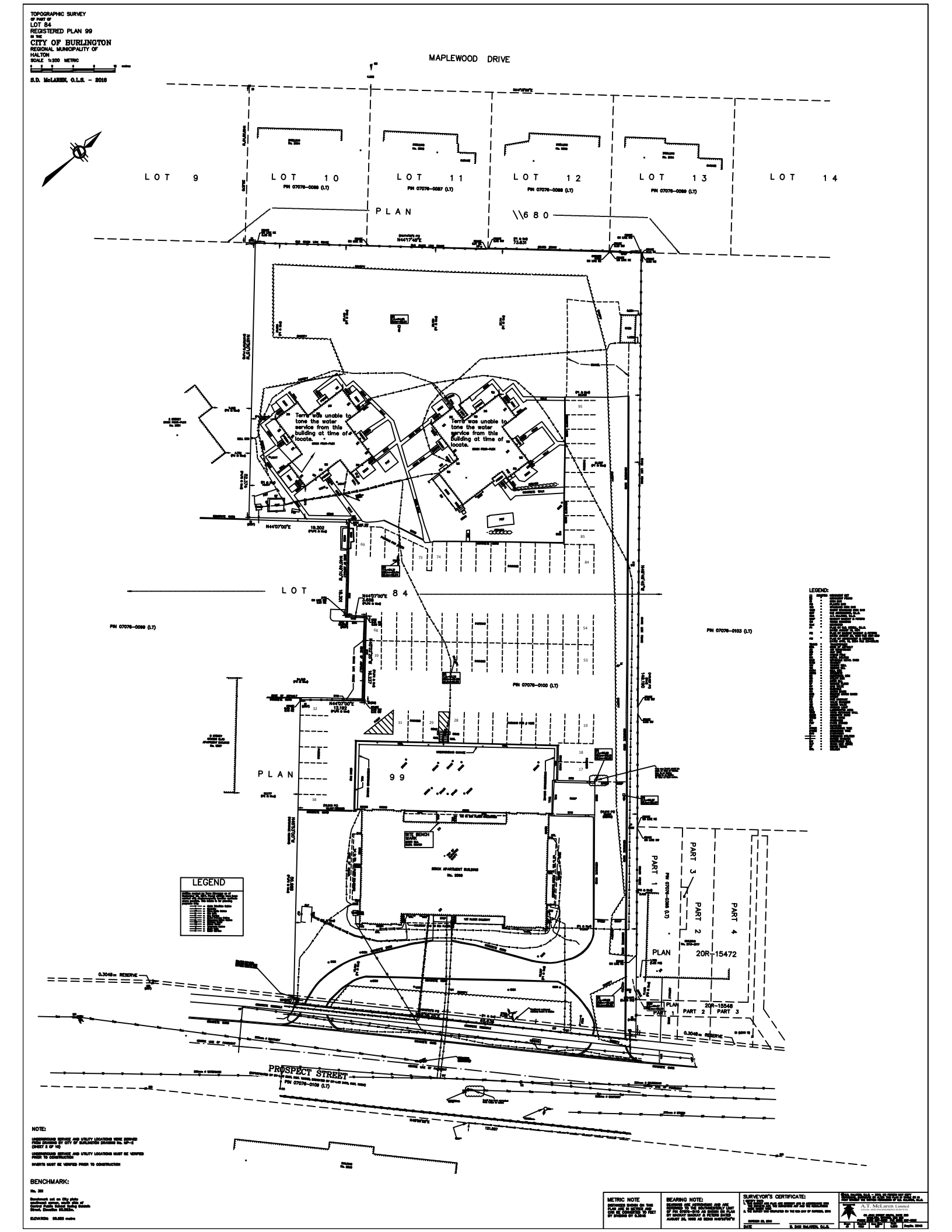
ICON ARCHITECTS

Appendix ‘B’

Utility Locates (Terra Discovery)

TOPOGRAPHIC SURVEY
OF PART OF
LOT 84
REGISTERED PLAN 99
IN THE
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF
HALTON
SCALE 1:200 METRIC

S.D. McLAREN, O.L.S. – 2016



NOTE:

UNDERGROUND SERVICE AND UTILITY LOCATIONS WERE OBTAINED FROM DRAWING BY CITY OF BURLINGTON DRAWING No. SP-2 (SHEET 2 OF 10)

UNDERGROUND SERVICE AND UTILITY LOCATIONS MUST BE VERIFIED PRIOR TO CONSTRUCTION

INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION

BENCHMARK:

No. 301

Benchmark set on City plate confirmed correct on the date of survey. Found being Adelaide Street, Elevation 93.563m.

ELEVATION 93.563 metric

METRIC NOTE

DISTANCES SHOWN ON THIS PLAN ARE IN METRIC AND CAN BE CONVERTED TO FEET BY DIVISION BY 0.3048

BEARING NOTE:

BEARINGS ARE ASTRONOMIC AND ARE DERIVED FROM THE NORTHERLY LIMIT OF PIN 07076-0114 AS SHOWN ON PLAN BY MACKAY MACKAY & PETERS DATED AUGUST 30, 1988 AS BEING N44°07'00"E

SURVEYOR'S CERTIFICATE:

I CERTIFY THAT:
1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT AND THE REGULATIONS MADE UNDER IT.
2. THE FIELD WORK WAS COMPLETED ON THE 19th DAY OF OCTOBER, 2016

OCTOBER 25, 2016
DATE

S. DAN McLAREN, O.L.S.

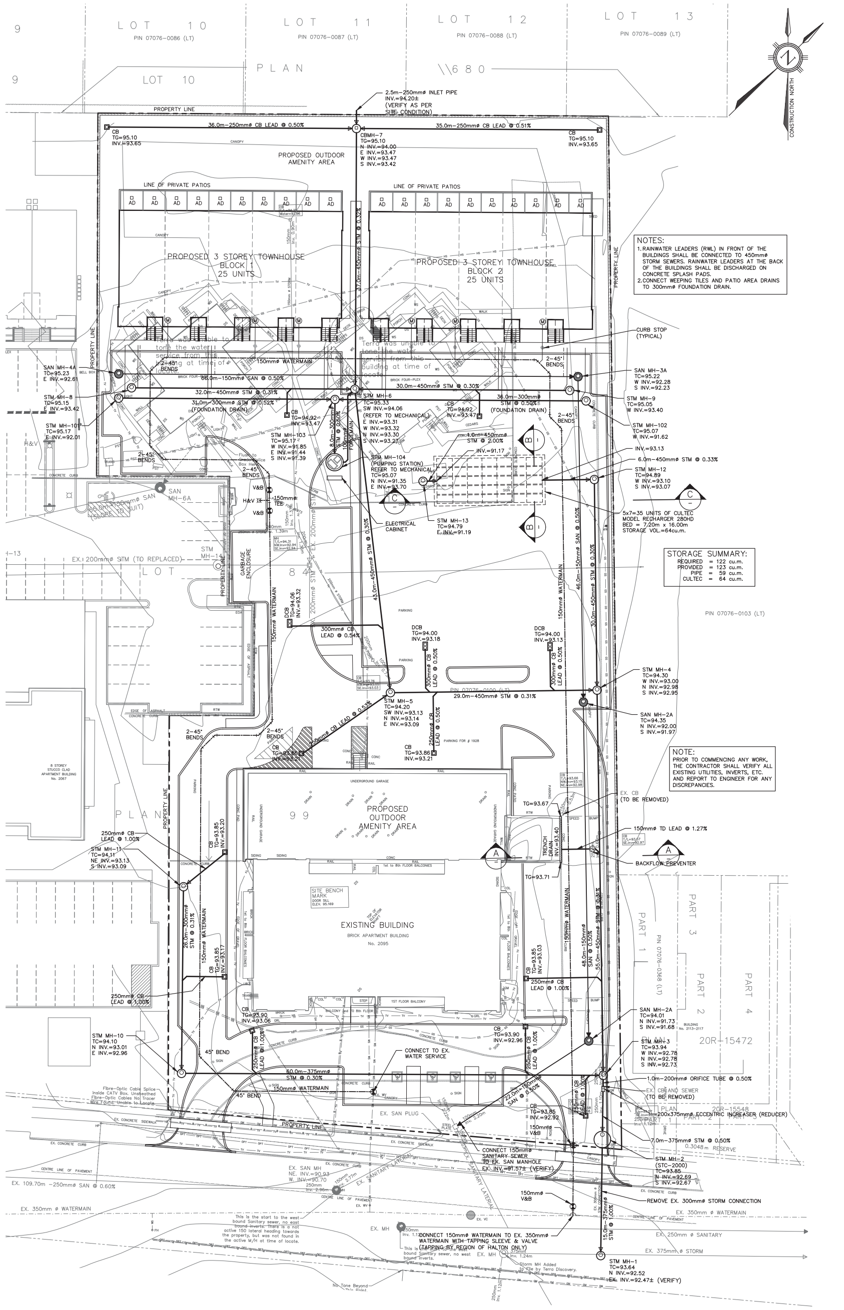
A.T. McLaren Limited
Surveying • Engineering • Planning

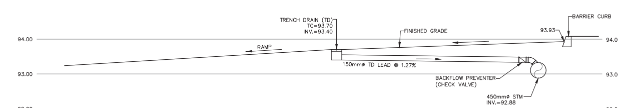
Rev.	By	Chkd	Date	Description
01	SDM	SDM	2016	Topo. Survey

Appendix ‘C’

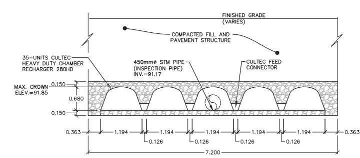
Site Servicing Plan: Dwg. No. 1629-S1

Site Grading Plan: Dwg. No. 1629-G1

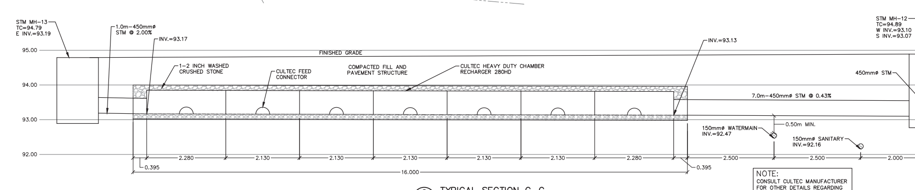




SECTION A – A
1:50



TYPICAL SECTION B–B
1:50



TYPICAL SECTION C–C
1:50

GENERAL NOTES

1. ALL THE CONSTRUCTON WORK FOR THIS PROJECT SHALL COMPLY WITH THE STANDARD DRAWINGS AND SPECIFICATIONS OF THE CITY OF BURLINGTON AND THE ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS.
2. ALL SURFACE DRAINAGE SHALL BE COLLECTED AND DISCHARGED AT A LOCATION TO BE APPROVED PRIOR TO THE ISSUANCE OF A BUILDING PERMIT. DRAINAGE OF ABUTTING PROPERTIES SHALL NOT BE ADVERSELY AFFECTED.
3. PROPOSED ELEVATIONS ALONG SITE PROPERTY LINES MUST MATCH EXISTING ELEVATIONS.
4. A SILT FENCE MUST BE PLACED AROUND THE PERIMETER OF THE SITE.
5. AT ALL ENTRANCES TO THE SITE, THE ROAD CURB AND SIDEWALK WILL BE CONTINUOUS THROUGH THE DRIVEWAY. THE DRIVEWAY GRADE WILL BE COMPATIBLE WITH THE EXISTING SIDEWALK AND A CURB DEPRESSION WILL BE PROVIDED FOR AT EACH ENTRANCE.
6. SIDEWALK TO BE REMOVED AND REPLACED AS PER CITY STD. S–121.
7. THE PORTION OF THE DRIVEWAY WITHIN THE MUNICIPAL BOULEVARD MUST BE PAVED WITH 40mm HL3 AND 50mm HL8. BASE TO BE 150mm GRANULAR "A" (OR 130mm OF 20mm CRUSHER RUN LIMESTONE) AND 300mm GRANULAR "B" (OR 225mm OF 50mm CRUSHER RUN LIMESTONE) COMPACTED TO 100% STANDARD PROCTOR DENSITY.
8. A UTILITY CLEARANCE RADIUS OF 1.2 METRES BETWEEN THE PROPOSED DRIVEWAY ENTRANCE CURB RETURN AND ALL ABOVE GROUND UTILITIES MUST BE MAINTAINED.
9. ROAD OCCUPANCY / ACCESS PERMIT MUST BE OBTAINED 48 HOURS PRIOR TO COMMENCING ANY WORKS WITHIN THE MUNICIPAL ROAD ALLOWANCE.
10. THE SERVICE CONNECTION TRENCH WITHIN THE TRAVELED PORTION OF THE ROAD ALLOWANCE SHALL BE BACKFILLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ROAD OCCUPANCY / ACCESS PERMIT APPLICATION.
11. WITHIN THE CITY'S RIGHT–OF–WAY, STORM SEWERS AND STORM SEWER CONNECTIONS MUST BE CONCRETE, OR APPROVED EQUAL, WITH TYPE "B" BEDDING THROUGHOUT. THE STRENGTH OF THE CONCRETE PIPE MUST BE AS PER CITY STANDARD AND OF MINIMUM 65–D FOR REINFORCED PIPE.
12. THE MINIMUM CATCHBASIN LEAD DIAMETER ALLOWED IS 250mm.
13. ALL CATCHBASIN MANHOLES AND MANHOLES WITH INLET CONTROL DEVICES MUST HAVE A MINIMUM 0.3 METRE SUMP AND TOP AS PER MUNICIPAL STANDARDS.

STORM SEWERS

1. STORM SEWERS (250mm TO 450mmø) SHALL BE PVC, CSA B182.2 SDR 35 WITH LOCK–IN RUBBER SEALING RING.
2. STORM SEWERS (525mmø AND LARGER) SHALL BE REINFORCED CONCRETE, SEALED JOINTS WITH GASKETS AND 65–D.
3. SEWER BEDDING AS PER OPSD 802.010 OR 802.013 FOR FLEXIBLE PIPES AND OPSD 802.030 OR 802.013 FOR RIGID PIPES, CLASS 'B' BEDDING OR APPROVED BY CITY ENGINEER.
4. ALL MANHOLES AND CATCH BASINS SHALL BE AS FOLLOWS:
   - A. OPSD 701.010 (1200mmø)
   - B. OPSD 701.011 (1500mmø)
   - C. OPSD 701.012 (1800mmø)
   - D. OPSD 705.010 (600X600mm) FOR CB'S.
   - E. RH 301.01 FOR CB ON LANDSCAPE AREAS.
5. MANHOLE AND CATCH BASIN (LANDSCAPE) COVER/ GRATING SHALL BE AS FOLLOWS:
   - A. OPSD 401.010, TYPE 'A' – CLOSED COVER FOR MANHOLE AND STAMPED "DANGER–STORM"
   - B. CITY STD. S–176 – BEEHIVE CATCH BASIN FRAME AND COVER FOR CB ON LANDSCAPE AREAS
6. SINGLE CATCHBASIN SHALL BE OPSD 705.010 WITH OPSD 400.020 GRATING.
7. DOUBLE CATCHBASIN SHALL BE OPSD 705.020 WITH OPSD 400.020 GRATING (IF APPLICABLE).
8. ALL MANHOLES TO BE BENCHED THROUGHOUT TO THE SPRING LINE.
9. SURROUND ALL MANHOLES AND CATCHBASINS WITH A MINIMUM OF 1.0 METRE GRANULAR 'A' OR APPROVED EQUAL BY THE CITY ENGINEER COMPACTED TO 100% S.P.D.

WATERMAINS

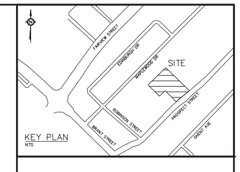
1. ALL MATERIALS AND CONSTRUCTION METHODS MUST CORRESPOND TO THE CURRENT REGION OF HALTON WORKS STANDARDS AND SPECIFICATIONS.
2. WATERMAIN AND / OR WATER SERVICE MATERIALS 100mm (4") AND LARGER MUST BE AWWA C–900–75 POLYVINYL CHLORIDE (PVC) DR18 INSTALLED WITH A 12 GAUGE TWH SOLID COPPER LIGHT COLOURED PLASTIC COATED TRACER WIRE BROUGHT TO THE SURFACE AT EACH VALVE BOX. SIZE 50mm (2") AND SMALLER COPPER TYPE "K" SOFT COPPER TUBING.
3. 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.
4. 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 THE PARKING LOT OR DOWN THE DRAIN. ON FIRE LINES, FLUSHING OUTLET TO BE 100mm (4") DIAMETER MINIMUM ON A HYDRANT.
5. ALL CURB STOPS TO BE 3.0m (10') OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED.
6. HYDRANT AND VALVE AS PER OPSD 1105.010.
7. 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.
8. WATERMAINS MUST HAVE A MINIMUM VERTICAL CLEARANCE OF 0.30m (12") OVER / 0.50m (20") UNDER SEWERS AND ALL OTHER UTILITIES WHEN CROSSING.
9. ALL PROPOSED WATER PIPING MUST BE ISOLATED FROM EXISTING LINES IN ORDER TO ALLOW INDEPENDENT PRESSURE TESTING AND CHLORINATING FROM EXISTING SYSTEMS.
10. ALL LIVE TAPPING AND OPERATION OF REGION OF WATER VALVES SHALL BE ARRANGED THROUGH THE REGIONAL INSPECTOR ASSIGNED OR BY CONTACTING THE OPERATIONS AND MAINTENCE DIVISION.

ADDITIONAL NOTES:

1. LOCATION OF ALL EXISTING UTILITIES IN THE FIELD TO BE ESTABLISHED BY THE CONTRACTOR.
2. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE FOR LOCATES, EXPOSING, SUPPORTING AND PROTECTING OF ALL UNDERGROUND AND OVERHEAD UTILITIES AND STRUCTURES EXISTING AT THE TIME OF CONSTRUCTION IN THE AREA OF HIS WORK. WHETHER SHOWN ON THE PLAN OR NOT, AND FOR ALL REPAIRS AND CONSEQUENCES RESULTING FROM DAMAGE TO SAME.
3. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE TO GIVE 72 HOURS WRITTEN NOTICE TO UTILITIES PRIOR TO CROSSING SUCH UTILITIES, FOR THE PURPOSE OF INSPECTION BY THE CONCERNED UTILITY. THIS INSPECTION WILL BE FOR THE DURATION OF THE CONSTRUCTION, WITH THE CONTRACTOR RESPONSIBLE FOR ALL COST ARISING FROM SUCH INSPECTION.

SANITARY SEWERS

1. ALL SANITARY SEWERS SHALL BE SDR–28 PVC PIPE.
2. ALL BEDDING FOR SANITARY SEWERS SHALL BE IN ACCORDANCE WITH REGION OF HALTON STD. DWG. WITH GRANULAR COVER MATERIAL HAVING STONE SIZE NO GREATER THAN 25mm COMPACTED TO 95% SPMDD.
3. ALL MANHOLES SHALL BE IN ACCORDANCE WITH OPSD 701.010, OPSD 401.010 TYPE–A CLOSED COVER AND STAMPED "DANGER–SANITARY" AND BENCHING THROUGHOUT TO THE CROWN OF ALL PIPES ON A VERTICAL PROJECTION FROM SPRING LINE.



KEY PLAN
NTS

LEGEND

- PROPOSED CATCHBASIN
- PROPOSED DOUBLE CATCHBASIN
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED DOUBLE CATCHBASIN MANHOLE
- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED FIRE HYDRANT
- PROPOSED VALVE & BOX
- PROPOSED PLUG
- PROPOSED WATER METER
- PROPOSED DETECTOR VALVE IN CHAMBER
- PROPOSED DOUBLE HOUSE SERVICES
- PROPOSED SINGLE HOUSE SERVICE
- PROPOSED WATER SERVICE
- PROPOSED TRENCH DRAIN
- RWL PROPOSED RAIN WATER LEADER
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED DRAINAGE DIRECTION
- PROPOSED SWALE DRAINAGE DIRECTION

BENCHMARK

BENCHMARK SET ON CITY PLATE SOUTHWEST CORNER, SOUTH SIDE OF CENTRAL PUBLIC SCHOOL FACING BALDWIN STREET. ELEVATION 90.583M.

THE TOPOGRAPHIC DETAIL SHOWN HEREON WAS COMPLETED ON OCT. 12th, 2016 BY S. DAN McLAREN, O.L.S. , ONTARIO LAND SURVERYORS.

FOR OPA / REZONING

NOT FOR CONSTRUCTION

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: ______________________

INFRASTRUCTURE PLANNING AND POLICY

The Applicant show be aware that the approval of the water system on private property is the responsibility of the Local Municipality. Regardless, the Applicant must ensure that the Region of Halton's standards and specifications are met. (the Water and Wastewater Linear Deign Manual may be obtained from the Data Management Group at 905–825–6032) Furthermore, all water quality tests must be completed to Halton Region's satisfaction, before the water supply can be turned on.

No	Date	By/DRN	REVISIONS
1	DEC 11/17	PC/jy	ISSUED FOR OPA & RZA APPLICATION

Designed JRE	Chk'd PC	Cad File 1629GS.dwg
Drawn JY	Chk'd PC	Plot Date 12/11/17
Scale 1:300 (0 5 10 15m)		References
APPROVALS		Field Notes

Bell ☐ Hydro ☐ Gas ☐ Cable ☐ Traf. ☐ Water ☐

Consultant
TRAFALGAR ENGINEERING LTD.
481 MORDEN ROAD OAKVILLE, ONTARIO L6K 3W6
TEL: (905) 338–3366 FAX: (905) 338–7734
tel@trafalgareng.com

Municipality
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

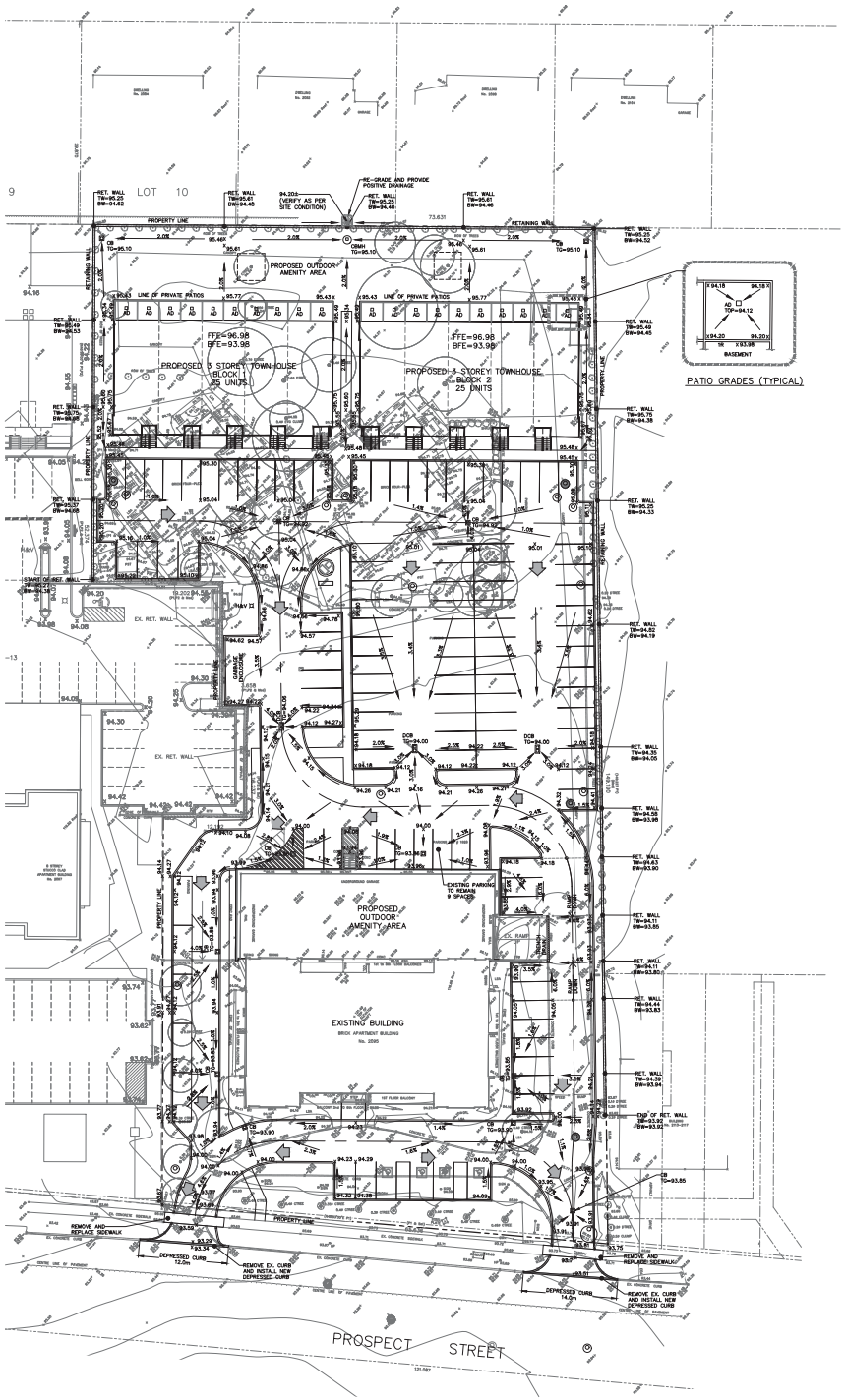
Title
PROPOSED RESIDENTIAL RE–DEVELOPMENT
SERVICING PLAN
2087–2103 PROSPECT STREET

Municipal No.	Regional No.
Contract No. –	Consultant No. 1629–S1
	Sheet

FILENAME: P:\1629 2095 Prospect St\Drawings\DWG\1629GS.dwg
PLOTDATE: Dec 11, 2017 – 5:06pm

GRADING NOTES :

1. ALONG ADJOINING PROPERTIES GRADE TO MEET EXISTING OR PROPOSED ELEVATIONS WITH SODDED SLOPES (MIN. 3H TO 1V).
2. SLOPES OF SWALES FOR "SPLIT" DRAINAGE SHALL BE NO LESS THAN 2.0% GRADE AND NO GREATER THAN 33% GRADE (3:1 SLOPES).
3. WHERE GRADING TO EXISTING PROPERTIES WHERE A 2.0% GRADE CANNOT BE ACHIEVED, A 1.5% GRADE IS PERMITTED PROVIDED A 150mm SUB-DRAIN IS INSTALLED BELOW THE BOTTOM OF THE SWALE AND DRAINED TO A SUITABLE OUTLET, (WITH A MINIMUM 0.3M COVER OVER THE SUB-DRAIN), OR OTHER MITIGATION MEASURES.
4. UNLESS OTHERWISE NOTED, THE GROUND BETWEEN BUILDINGS AND ADJOINING ON SIDE LOTS SHALL BE GRADED AS A STRAIGHT LINE.
5. TOP OF FOUNDATION WALLS FOR BUILDINGS SHALL BE 150mm (MIN) ABOVE FINISHED GRADE.
6. ALL FILL PLACED ON LOTS SHALL BE COMPACTED TO A MINIMUM 95% SPD (UNLESS OTHERWISE RECOMMENDED BY THE GEOTECHNICAL ENGINEER). ALL MATERIAL SHALL BE FREE OF ORGANIC OR DELETERIOUS MATERIAL.
7. FOR DELINEATION OF TREE PROTECTION ZONES, BUFFERS, REMOVALS AND PROTECTION SCHEMATICS, ETC., REFER TO TREE PROTECTION PLAN.
8. LOT GRADING SHALL CONFORM STRICTLY WITH THIS PLAN. ANY CHANGES SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.





CONSTRUCTION NORTH

LEGEND

94.34	EXISTING ELEVATION
× 94.38	PROPOSED ELEVATION
94.34	EXISTING ELEVATION TO REMAIN
	EXISTING CONTOURS
	PROPOSED SWALE DIRECTION
	PROPOSED DRAINAGE DIRECTION
	PROPOSED EMERGENCY OVERLAND FLOW DIRECTION
	PROPOSED SLOPE
	EXISTING CATCHBASIN
	EXISTING DOUBLE CATCHBASIN
	EXISTING CATCHBASIN MANHOLE
	EXISTING STORM MANHOLE
	EXISTING SANITARY MANHOLE
	EXISTING FIRE HYDRANT
	EXISTING VALVE & BOX
	PROPOSED CATCHBASIN
	PROPOSED DOUBLE CATCHBASIN
	PROPOSED CATCHBASIN MANHOLE
	PROPOSED DITCH INLET MANHOLE
	PROPOSED STORM MANHOLE
	PROPOSED SANITARY MANHOLE
	PROPOSED VALVE & BOX
	PROPOSED TRENCH DRAIN
RWL○	PROPOSED RAIN WATER LEADER
	EXISTING TREE TO BE REMOVED
	EXISTING TREE TO REMAIN

FOR OPA / REZONING
NOT FOR CONSTRUCTION

BENCHMARK

BENCHMARK SET ON CITY PLATE SOUTHWEST CORNER, SOUTH SIDE OF CENTRAL PUBLIC SCHOOL FACING BALDWIN STREET. ELEVATION 90.583M.

THE TOPOGRAPHIC DETAIL SHOWN HEREON WAS COMPLETED ON OCT. 12th, 2016 BY S. DAN McLAREN, O.L.S. , ONTARIO LAND SURVEYORS.

No	Date	By/DR	REVISIONS
1	REC'D/ISS'D	PC/jy	ISSUED FOR OPA & RZA APPLICATION

Designed JHE Chk'd PC — Cad File 1629GS.dwg
Drawn JY Chk'd PC — Plot Date 12/11/17
Scale 1:250 (0, 2.5, 5, 10m) — References
APPROVALS — Field Notes
Bell ☐ Hydro ☐ Gas ☐ Cable ☐ Trnt ☐ Water ☐

Consultant
TRAFALGAR ENGINEERING LTD.
481 MORDEN ROAD, OAKVILLE, ONTARIO L6K 3W6
TEL: (905) 338-1366 FAX: (905) 338-7734
bell@trafalgareng.com

Municipality
CITY OF BURLINGTON
REGIONAL MUNICIPALITY OF HALTON

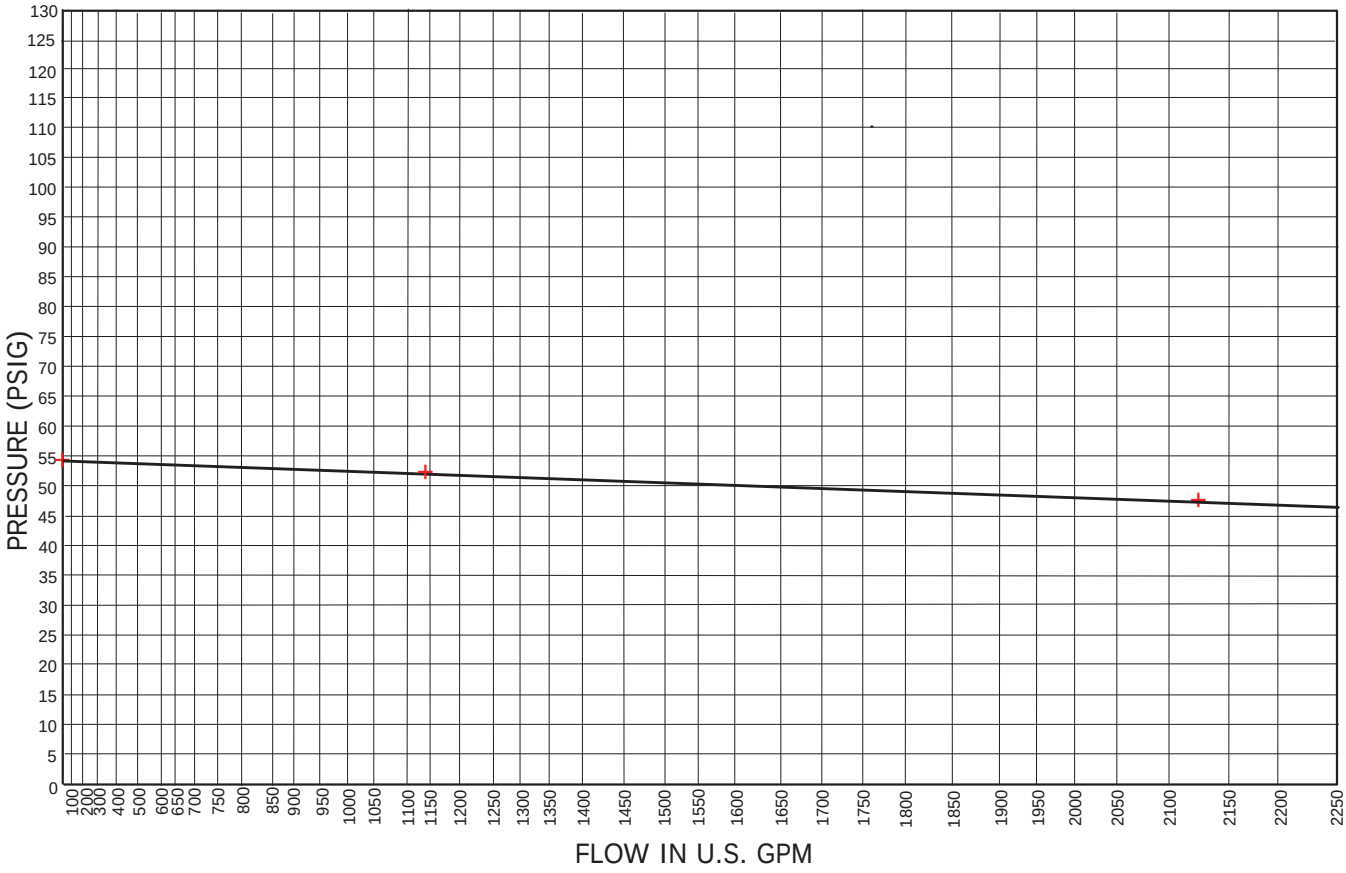
Title
PROPOSED RESIDENTIAL RE-DEVELOPMENT
GRADING PLAN
2087-2103 PROSPECT STREET

Municipal No. — Regional No.
Contract No. – — Consultant No. 1629-G1
Sheet

PLOTTED: Dec 12, 2017 - 2:09pm
PLOTTED BY: Jay Yang
DRAWING: N:\1629 - 2087 Prospect St\Drawings\Civil\1629GS.dwg

Appendix ‘D’

Water Information



PORT No.	PORT DIA. (in/mm)	PITOT (psig)	FLOW (usgpm)	RESIDUAL (psig)
1	2.50/63,5	46	1140	52
2	2.50/63,5	40/40	2120	48
THEORETICAL FLOW @ 20psi			5255	

General Data	
Test Date	24 June 2014
Test Time	10:00am
Pipe Dia.	350mm AC
Static	54psig

Site Information	
Site or Developer Name	Unknown
Site Address/Municipality	Prospect Street, Burlington (Region of Halton)
Location of Test Hydrant	2056 Prospect Street
Location of Base Hydrant	2090 Prospect Street
Technician's Comments	No conversion factor used for flow calculation based on round and flush internal nozzle configuration. Refer to attached letter for any further comments.
	Verified By: Mark Schmidt

TRAFALGAR ENGINEERING LTD.

THEORETICAL DEMAND PRESSURE (AT MAIN)

Project: 2095 Prospect Street
Desc: First Submission RZA

Project No.: 1629
Prepared By: JN
Checked By: PC

Hydrant Residual Flow (Refer to Attached Flow Test Results)

Coefficient	C=	0.9	
Port Diameter	D=	2.5	(inch)
Pitot Pressure	P_{pit} =	46	(psig)
Residual Flow	Q_R =	1138	(us gpm)
Residual Flow	Q_R =	4307	(L/min)

Hydrant Theoretical Flow (Refer to Attached Flow Test Results)

Static Pressure	P_{stat} =	54	(psig)
Residual Pressure	P_{res} =	52	(psig)
Theoretical Pressure	P_{theo} =	20	(psig)
Theoretical Flow	Q_T =	5255	(us gpm)
Theoretical Flow	Q_T =	19890	(L/min)

Max. Demand Pressure

Maximum Demand	Q_D =	6098	(L/min)
Maximum Demand	Q_D =	1611	(us gpm)
Calculated Pressure	P=	50	(psig)

Where:

$$Q_R = 29.84 \times C \times D^2 \times P_{pit}^{0.5}$$

$$Q_T = Q_R \times [(P_{stat} - P_{theo})/(P_{stat} - P_{res})]^{0.54}$$

$$P = P_{stat} - (Q_D/Q_R)^{1.852} \times (P_{stat} - P_{res})$$

Notes:

Refer to attached hydrant flow test results for 350mm main on Prospect Street prepared by Jackson Waterworks dated June 24, 2014.

AECOM

Population Densities

Municipality	Residential Classification	PPU
Burlington	Low Density	3.00
	Medium Density	2.44
	High Density	1.62
Halton Hills	Low Density	3.12
	Medium Density	2.60
	High Density	1.94
Milton	Low Density	3.07
	Medium Density	2.64
	High Density	1.84
Oakville	Low Density	3.25
	Medium Density	2.59
	High Density	1.82

TRAFALGAR ENGINEERING LTD.

ESTIMATED WATER DEMAND

Project: 2095 Prospect Street
Desc: First Submission RZA

Project No.: 1629
Prepared By: JN
Checked By: PC

	Occupancy Data					Peaking Factors			Demand Flow		
Land Use / Occupancy Type	Unit Count	Population Density (ppu)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Demand (L/min)	Min. Hour	Peak Hour	Max. Daily	Min. Hour Demand (L/min)	Max. Hour Demand (L/min)	Max. Daily Demand (L/min)
Existing Apartment Building	65	1.62	105	275	20	1.00	4.00	2.25	20	80	45
Proposed Stacked Townhouses	50	2.44	122	275	23	1.00	4.00	2.25	23	93	52
TOTAL	**115**		**227**		**43**				**43**	**174**	**98**

**PPU FROM WATER DESIGN CRITERIA, REGION OF HALTON WATER AND WASTEWATER MASTER PLAN

Average Daily Demand: **43 (L/min)**
Minimum Hourly Demand: **43 (L/min)**
Maximum Hourly Demand: **174 (L/min)**
Maximum Daily Demand: **98 (L/min)**
Max. Daily Plus Fire: **6098 (L/min)**

Fire Flow
Using Fire Underwriters Survey Methodology:

1. **An estimate of the fire flow is given by the formula** $F = 220C\sqrt{A}$

Where:
F = The required fire flow in litres per minute
C = Coefficient related to the type of construction
A = The total floor area in square metres (including all storeys but excluding basements at least 50% below grade)

Type of Construction: Ordinary Coefficient: 1.00 Total Floor Area: 322 (m^2)

F = 4000 (L/min) Adequately Protected Vertical Openings: No

Area Note: For fire resistive buildings, consider the two largest adjoining floors plus 50% of the remaining floors up to eight, when openings are inadequately protected. For adequately protected vertical openings consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors

2. **Adjust the value in No. 1 for occupancy surcharge/reduction**

Occupancy Contents: Limited Combustible Factor: -15%

F = 3400 (L/min)

3. **Adjust the value in No. 2 for sprinkler**

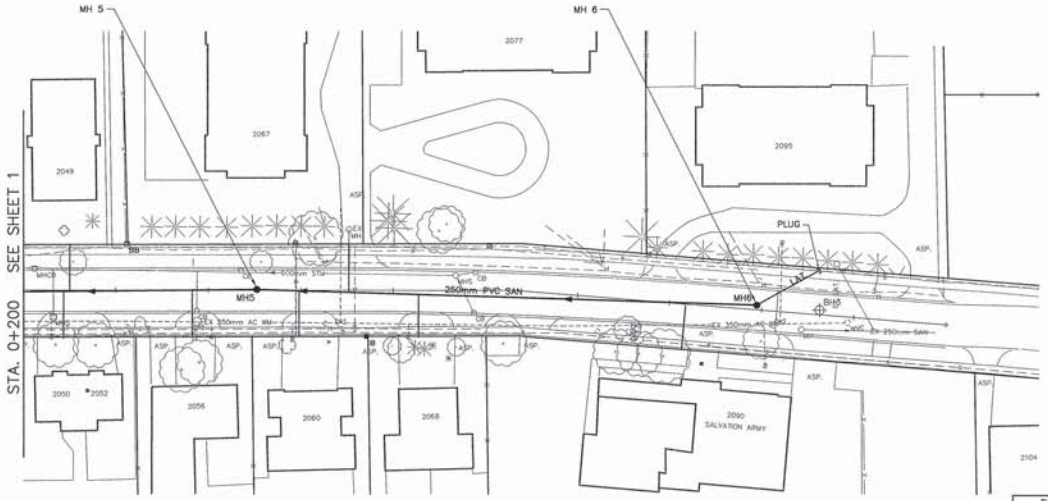
NFPA 13 Sprinkler:	No	Reduction:	0%
Standard Water Supply:	Yes	Reduction:	10%
Fully Supervised:	No	Reduction:	0%
		Total Reduction:	**10%**
		Sprinkler Reduction:	**340 (L/min)**

4. Adjust the value in No. 2 for exposure

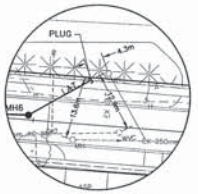
	Separation (m)	Charge
North	50	0%
East	6	20%
South	70	0%
West	6	20%
Total Charge:		**40%**
Exposure Charge:		**1360 (L/min)**

5. **Estimated Fire Flow is value in No. 2 less *Sprinkler Reduction* plus *Exposure Charge*, rounded to the nearest 1000**

F = 4000 (L/min) ***A 2-HOUR DURATION FIRE REQUIRES A MINIMUM OF 6000 L/min, WHICH BECOMES THE GOVERNING CRITERIA.



PROSPECT STREET





LEGEND

- BH1 — BOREHOLES– REFER TO TROW CONSULTANT REPORT #HAGE–0058031–A
- WATER BOXES
- EX. HYDRANT REMOVAL
- EX. G.V. & BOX REMOVAL
- EX. WVC OR EX. MH REMOVAL
- E–3 — PLUG
- *2095 — LATERAL TO BE LOCATED IN THE FIELD
- BORE & JACK

RESTRAINED LENGTHS FOR PVC WATERMAIN				
PIPE SIZE	45° H. BEND	SIZE ON SIZE TEE	VALVE, HYD., DEAD END	45° V. OFFSET*
150mm	1.71m	BR. ONLY	9.72m	4.21m / 2.23m

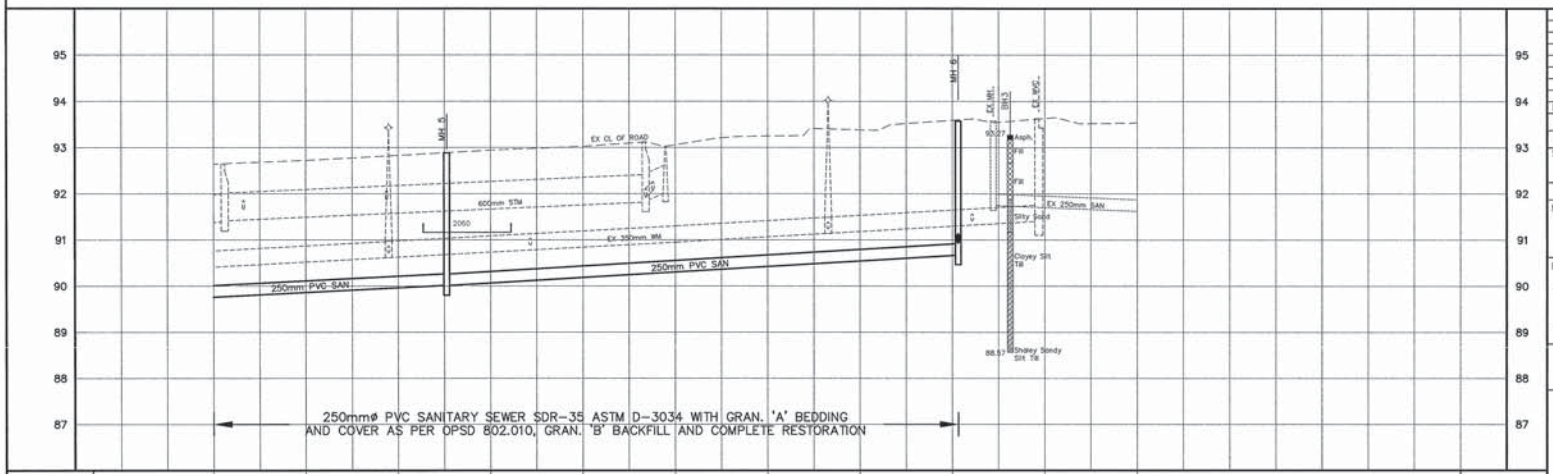
RESTRAINED LENGTHS FOR DUCTILE IRON WATERMAIN				
PIPE SIZE	45° H. BEND	SIZE ON SIZE TEE	VALVE, HYD., DEAD END	45° V. OFFSET*
150mm	1.3m	BR. ONLY	5.5m	6.4m / 1.0m

RESTRAINED LENGTHS FOR POLYETHYLENE–ENCASED DUCTILE IRON WATERMAIN				
PIPE SIZE	45° H. BEND	SIZE ON SIZE TEE	VALVE, HYD., DEAD END	45° V. OFFSET*
150mm	1.7m	BR. ONLY	15.4m	5.8m / 0.9m

200x150mm REDUCING TEE: BRANCH ONLY, ASSUMING 3m MIN. ATTACHED RUN LENGTH
*FIRST NUMBER REPRESENTS THE DOWN BEND
SECOND NUMBER REPRESENTS THE UP BEND

REGIONAL MUNICIPALITY OF HALTON, ITS EMPLOYEES, OFFICERS AND AGENTS ARE NOT RESPONSIBLE FOR ANY ERRORS, OMISSIONS OR INACCURACIES, WHETHER DUE TO THEIR NEGLIGENCE OR OTHERWISE. ALL INFORMATION SHOULD BE VERIFIED

FOR GENERAL NOTES SEE SHEET 1



ELEVATIONS	93.83 … 93.53	ELEVATIONS
SANITARY SEWER INVERTS	140m @ 0.50% … 110.7m @ 0.60% (WSO.03, EBO.04, WSO.70, NSO.83)	SANITARY SEWER INVERTS
CHAINAGE	0+220 … 0+400 (0+250.49, 0+261.28)	CHAINAGE

NO	Date	By	REVISIONS	MANU	CAD
	03/04/05	D.C.	AS CONSTRUCTED	X	X

Design: WLT/JP — Ch'kd — Date: MAY 2004
Drawn: LC/DC — Ch'kd
Scale: Horiz. 1:500, Vert. 1:50
References
Field Notes
Stamp

APPROVALS
Municipal
Regional
Director, Design and Construction Services
Manager, Design Services

Halton

TITLE
250mm SANITARY SEWER REPLACEMENT
PROSPECT STREET
IN THE CITY OF BURLINGTON
FROM HOUSE #2050 TO #2095

Consultant File NO: B- 10572
CONTRACT NO: WS–1982–04
Drawing NO: SHEET 2 OF 6

B- 10572
PR–1982–04 2 of 6

Appendix ‘E’

Sanitary Drainage Information and Calculations

AECOM

Population Densities

Municipality	Residential Classification	PPU
Burlington	Low Density	3.00
	Medium Density	2.44
	High Density	1.62
Halton Hills	Low Density	3.12
	Medium Density	2.60
	High Density	1.94
Milton	Low Density	3.07
	Medium Density	2.64
	High Density	1.84
Oakville	Low Density	3.25
	Medium Density	2.59
	High Density	1.82

TRAFALGAR ENGINEERING LTD.

ESTIMATED SANITARY FLOW

Project: 2095 Prospect Street
Desc: First Submission RZA

Project No.: 1629
Prepared By: JN
Checked By: PC

Residential

Land Use / Occupancy Type	Unit Count	Population Density (ppu)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Dry Weather Flow (L/s)
Existing Apartment Building	65	1.62	105	275	0.3
Proposed Stacked Townhouses	50	2.44	122	275	0.4

**PPU FROM WATER DESIGN CRITERIA, REGION OF HALTON WATER AND WASTEWATER MASTER PLAN

TOTAL	**115**		**227**		**0.7**

Industrial / Commercial / Institutional

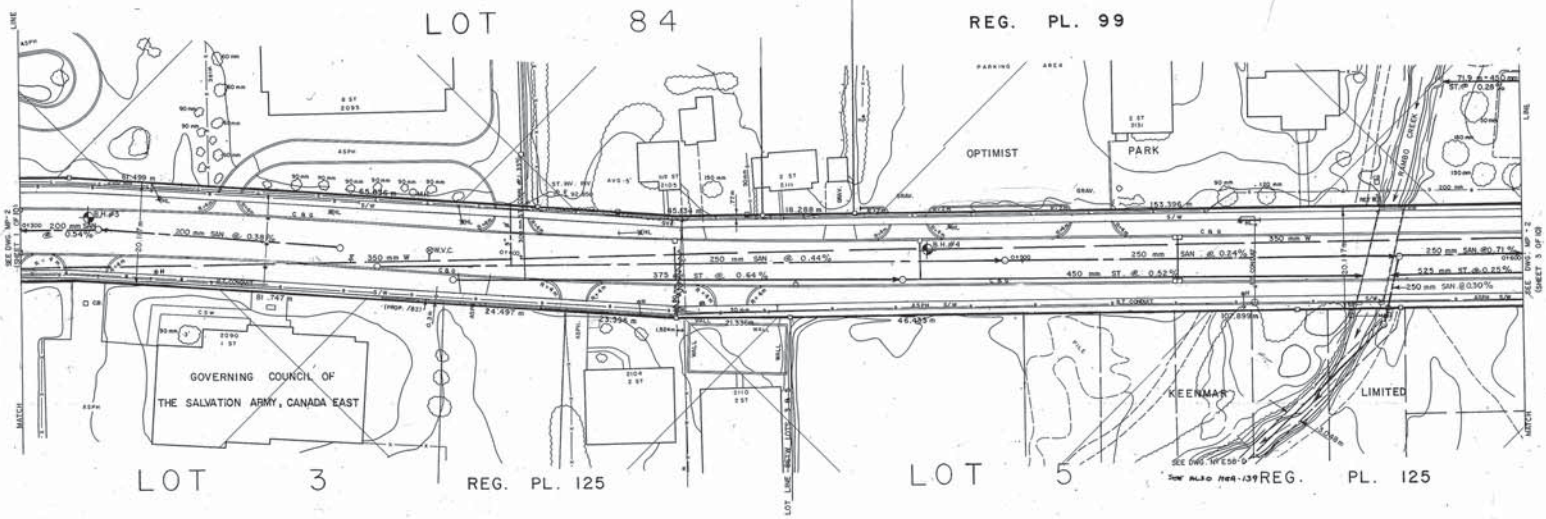
Land Use / Occupancy Type	GFA	Population Density (pers/ha)	Eq. Population (cap.)	Per Cap. Demand (L/Ha. Day)	Average Daily Dry Weather Flow (L/s)

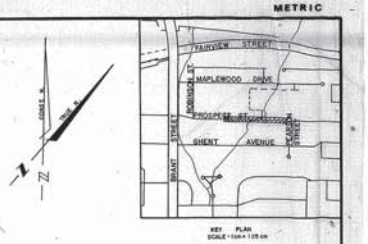
TOTAL	**0**		**0**		**0.0**

Residential Peaking Factor:	4.13	
ICI Peaking Factor:		
Include ICI Peaking?	No	
Total Drainage Area:	0.96	(ha)
Infiltration Allowance:	0.286	(L/s ha)
Foundation Drain Allowance:	0.00	(L/s ha)
Residential Average Flow:	1.0	(L/s)
ICI Average Flow:	0.0	(L/s)
Groundwater Discharge:	0.0	(L/s)
Total Average Flow:	**1.0**	**(L/s)**
Residential Peak Flow:	3.3	(L/s)
ICI Peak Flow:	0.0	(L/s)
Groundwater Discharge:	0.0	(L/s)
Total Peak Flow:	**3.3**	**(L/s)**

METRIC

MP-2
SH. 2





For typical X-section, see Dwg. Nº MMS-74-D

1929 DATUM

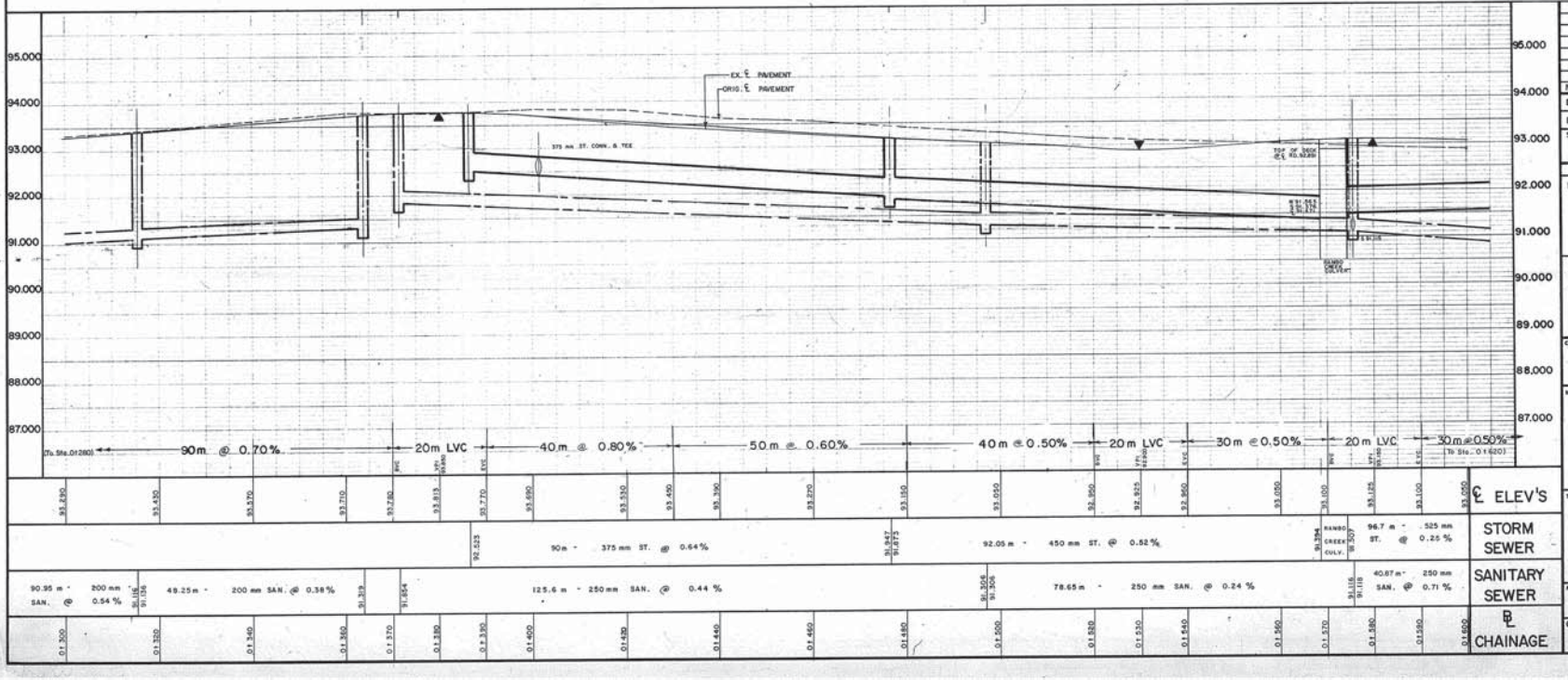
B.M. 2194 JOYCE STREET, LOT 5, REG. PLAN 1419, BRASS CAP, EASTERLY WALL, 0.435 m SOUTH OF NORTHEASTERLY CORNER, 0.076 m ABOVE GRADE. ELEVATION 95.344.

B.M. B.M. SET ON PLAQUE ON NORTHWEST FACE OF BRIDGE ABUTMENT NORTH SIDE OF PROSPECT STREET OVER CREEK BETWEEN OPTIMIST PARK POOL AND TOM THOMPSON SCHOOL. BRIDGE 38.100 m, WEST OF CENTRE LINE OF PEARSON STREET, 10.363 m, NORTH OF CENTRE LINE OF PROSPECT STREET, 0.152 m WEST OF MOST NORTHERLY CORNER AT SIDEWALK LEVEL. ELEVATION 93.226.

EXISTING ROAD BASE

YEAR CONSTRUCTED 1980

40 mm H.M. 3
60 mm H.M. 5
400 mm MIN. GRAN. "A"



Nº	Date	By	REVISIONS
2.	DEC/81	S.E.S.	AS CONSTRUCTED 80-41, P. 273, P.455
1.	JULY 3/80	S.E.S.	DESIGN, ZOOM DWG AND ADJUSTMENTS AS PER UNION GAS SUBMISSION

Design	J. HODSON	Checked	Date
Drawn	S. SEDGWICK	Checked	MARCH, 1980
Scale	Hor. 1:500, Vert. 1:50		

REFERENCES
S-1124-A-6
S-1125-A-6
S-1126-A-6
S-1130-A-6
S-1209-A-6

APPROVALS

Municipal

DIRECTOR OF PUBLIC WORKS

DATE

Regional

FIELD NOTES

STAMP

CONSULTANT

MUNICIPALITY

CITY OF BURLINGTON

DEPARTMENT OF PUBLIC WORKS

TITLE

PROSPECT STREET

300 m E. OF BRANT ST. - 7m W. OF PEARSON ST.

MUNICIPAL DRAWING Nº	REGIONAL DRAWING Nº
MP-2	
CONTRACT Nº	SHEET 2 OF 10

S-GM
MP-2

Appendix ‘F’

Storm Drainage Information

Stormwater Management Calculations

Storm Drainage Area Plan; Dwg. No. 1629-S2 (Post-development)

Project: Proposed Residential Re-development Project No.: 1629
Location: 2095 Prospect Street, Burlington, ON
Subject: SWM Calculations

A. Allowable Flows for the Whole Site:

A.1 $I_{5\text{-year}} = 697.40 / (T + 5)^{0.764}$
$= 697.40 / (10 + 5)^{0.764}$
$= 88.09$ mm/hr

where: T = 10 minutes
c = 0.60
Site Area = 0.9608 ha
External Area = 0.1617 ha
A_T = 1.1225 ha

$Q_{Allowable}$ = cIA /360
= (0.60 x 88.09 x 1.1225) / 360
= 0.165 m^3/s (to the storm sewer on Prospect Street)

B. Post-Development Flow for the Whole Site:

B.1 5-year Post Dev. Flow:

$Q_{Post\text{-}Dev}$ = cIA /360
= (0.70 x 88.09 x 1.1225) / 360
= 0.192 m^3/s

where: T = 10 minutes
c = 0.70

B.2 100-year Post Dev. Flow:

$Q_{Post\text{-}Dev}$ = (0.70 x 141.89 x 1.1225) / 360
= 0.310 m^3/s

where: T = 10 minutes
c = 0.70

C. Actual Release Rate (Orifice Discharge) and Orifice Tube Diameter:

Actual Release Rate (Orifice Discharge) at Elev. of 93.85 = 0.114 m^3/s
Orifice Tube Diameter = 200mmØ

Note:
The orifice tube discharge should be equal or less than the 5-year allowable flow. The orifice size was based on the water elevation of 93.85. This is lowest CB elevation and the crown elevation of Cultec storage system. The orifice tube discharge (0.114 m^3/s) is the flow discharging into the storm sewer and should be used to calculate storage volume. See Orifice Calculation in a separate sheet.

D. Storage Volume Required:

Storage Volume Required = 122m^3

Note:
The storage volume was based on 200mmø orifice tube discharge (0.114 m^3/s) at maximum water elevation of 93.85m. See Storage Calculation in a separate sheet.

E. Storage Provided:

E.1 Pipe Storage:

450mmø pipe (263m) = 41.8 m^3
375mmø pipe (60m) = 6.6 m^3
300mmø pipe (51m) = 3.6 m^3
250mmø pipe (135m) = 6.6 m^3
Volume = 59 m^3

Note:
Neglect volume at MH's and CB's.

E.2 Cultec Storage:

Using 35 Units of Cultec Recharger 280HD at 1.83m^3/unit
Volume = 64 m^3

E.3 Total Storage Provided = 59 + 64 =123 m^3

TRAFALGAR ENGINEERING LTD.

RUNOFF COEFFICIENT CALCULATIONS

Project: **Proposed Residential Re-development**
Location: **2095 Prospect Street, Burlington, ON**

Pre-Development Condition:

Item	Catchment Area (m^2)	Runoff Coefficient "c"
Impervious Area	5,241	0.90
Pervious Area	4,367	0.25
External	1,617	0.40
Total	11,225	0.58

Note: Use C = 0.60

Post-Development Condition:

Item	Catchment Area (m^2)	Runoff Coefficient "c"
Impervious Area	7,444	0.90
Pervious Area	2,164	0.25
External	1,617	0.40
Total	11,225	0.70

Project: **2095 Prospect Street, Burlington, Ontario** Project No.: 1629

Subject: **Post-Development Run-off Coefficient**

A. Site Area and Runoff Coefficient:

Item No.	Total Area (Ha)	Impervious	Runoff Coef.	Pervious (Ha)	Runoff Coef.	Composite 'c'
1	0.0446	0.0236	0.90	0.0210	0.25	0.59
2	0.0821	0.0289	0.90	0.0532	0.25	0.48
3	0.0424	0.0133	0.90	0.0291	0.25	0.45
4	0.0975	0.0863	0.90	0.0112	0.25	0.83
5	0.0873	0.0787	0.90	0.0086	0.25	0.84
6	0.0629	0.0478	0.90	0.0151	0.25	0.74
7	0.0666	0.0642	0.90	0.0024	0.25	0.88
8	0.0692	0.0647	0.90	0.0045	0.25	0.86
9	0.0237	0.0216	0.90	0.0021	0.25	0.84
10	0.0380	0.0346	0.90	0.0034	0.25	0.84
11	0.0276	0.0196	0.90	0.0080	0.25	0.71
12	0.0188	0.0144	0.90	0.0044	0.25	0.75
13	0.0419	0.0234	0.90	0.0185	0.25	0.61
14	0.0430	0.0276	0.90	0.0154	0.25	0.67
15	0.0227	0.0151	0.90	0.0076	0.25	0.68
16	0.0273	0.0210	0.90	0.0063	0.25	0.75
17	0.0287	0.0231	0.90	0.0056	0.25	0.77
18	0.1365	0.1365	0.90	0.0000	0.25	0.90
Total	**0.9608**	**0.7444**	0.90	**0.2164**	0.25	**0.75**

B. External Area and Runoff Coefficient:

Area	0.1617 Ha
Runoff Coef.	**0.40**

C. Composite Runoff Coefficient:

Item	Area (Ha)	Runoff Coef.
Site Area	0.9608	0.75
External	0.1617	0.40
Total	1.1225	**0.70**

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ORIFICE SIZE CALCULATIONS

Project Name:	**2087 Prospect Street**	
Project No.:	**1629**	
Orifice Formula:	**$Q = CA\,(2gh)^{1/2}$**	
Gravitational Acceleration, g	**9.807**	**m/sec^2**
Pre-Development Flow (m^3/s)	**0.165**	**(m^3/s)**
Uncontrolled Flow (m^3/s)	**0**	**(m^3/s)**
Allowable Flow (m^3/s)	**0.165**	**(m^3/s)**
Control Device:	**Orifice Tube**	

Parameters	Values	Remarks
Orifice Outlet Coefficient "C"	0.81	
Ponding Elevation (m)	93.85	
Invert Elevation (m)	92.73	
Orifice Diameter (mm)	200	
Area of the Orifice (m^2)	0.0314	
Hydraulic Head, h (m)	1.020	
Orifice Discharge (m^3/s)	0.114	Okay

Notes:
1. Ponding Elevation is the maximum water level.
2. Invert Elevation is the invert of the orifice.
3. Hydraulic Head is measured from the centre line of the orifice up to the maximum water level.
4. Orifice Discharge shall be used to calculate storage volume.

Conclusion:
1. Orifice Discharge (0.114 m^3/s) is less than the allowable discharge (0.165 m^3/s). Therefore, a 200 diameter orifice can be used for quantity control.

TIME minutes	100-year INTENSITY mm/hr	Post Q (100-year Post) m^3/s	Control Q (Orifice Q) m^3/s	Q Stored m^3/s	STORAGE m^3
0	0.0	0.000	0.114		
10	141.89	0.310	0.114	0.196	117.42
11	135.09	0.295	0.114	0.181	119.36
12	129.00	0.282	0.114	0.168	120.64
13	123.51	0.270	0.114	0.156	121.35
14	118.53	0.259	0.114	0.145	121.56
15	113.99	0.249	0.114	0.135	121.33
16	109.84	0.240	0.114	0.126	120.71
17	106.02	0.231	0.114	0.117	119.75
18	102.49	0.224	0.114	0.110	118.48
19	99.23	0.217	0.114	0.103	116.93
20	96.19	0.210	0.114	0.096	115.14
21	93.36	0.204	0.114	0.090	113.12
22	90.72	0.198	0.114	0.084	110.89

Site - Controlled

Area (ha)	1.1225

Pre-Development

Area (ha)	1.1225	
C	0.60	
Tc (min)	10.00	
Intensity mm/hr	88.09	
Qc	0.165	(m^3/s)
less uncontrolled (see below left)	0.0000	(m^3/s)
Qcontrol	0.165	(m^3/s)

Post-Development

C	0.70
Time Incr.	1.0

Return Period 5-year
Intensity
$i = a/(T+b)^c$ (mm/hr)
where,
c = 0.764
b = 5
a = 697.40

Orifice Discharge:
0.114 (m^3/s)

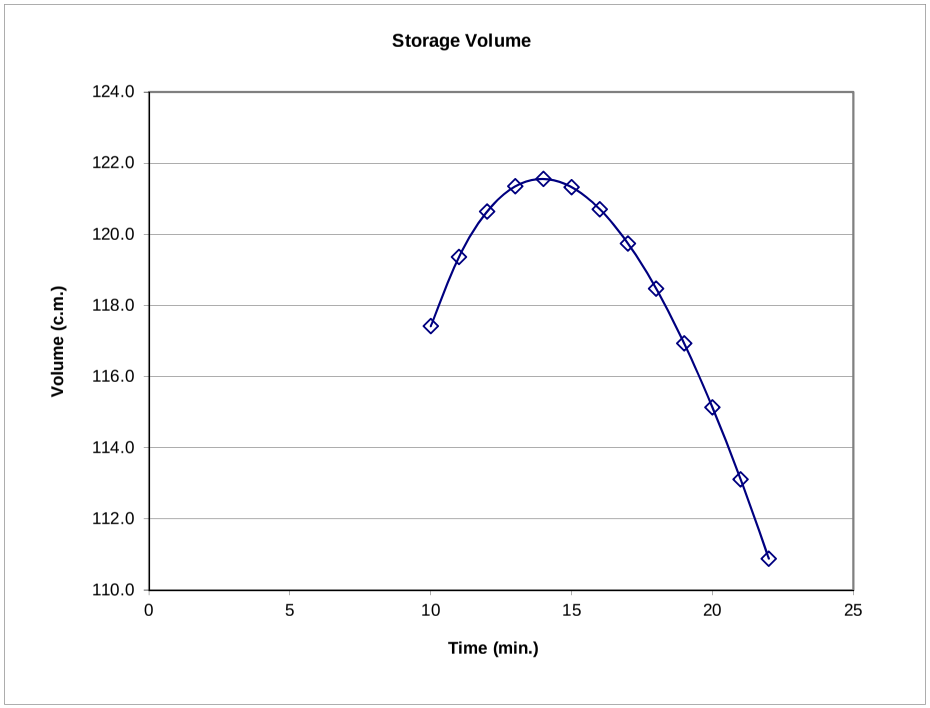
Post Storm

Return Period Intensity	100-year
$i = a/(T+b)^c$ (mm/hr) where,	
c =	0.761
b =	5
a =	1114.20

Site - Uncontrolled

Area (ha)	0.0000
C	0.25
Tc (min)	10.00
Intensity mm/hr	141.89
Qun-control(m^3/s)	0.0000

Max. Storage in m^3:
Volume: 122
(Rounded)



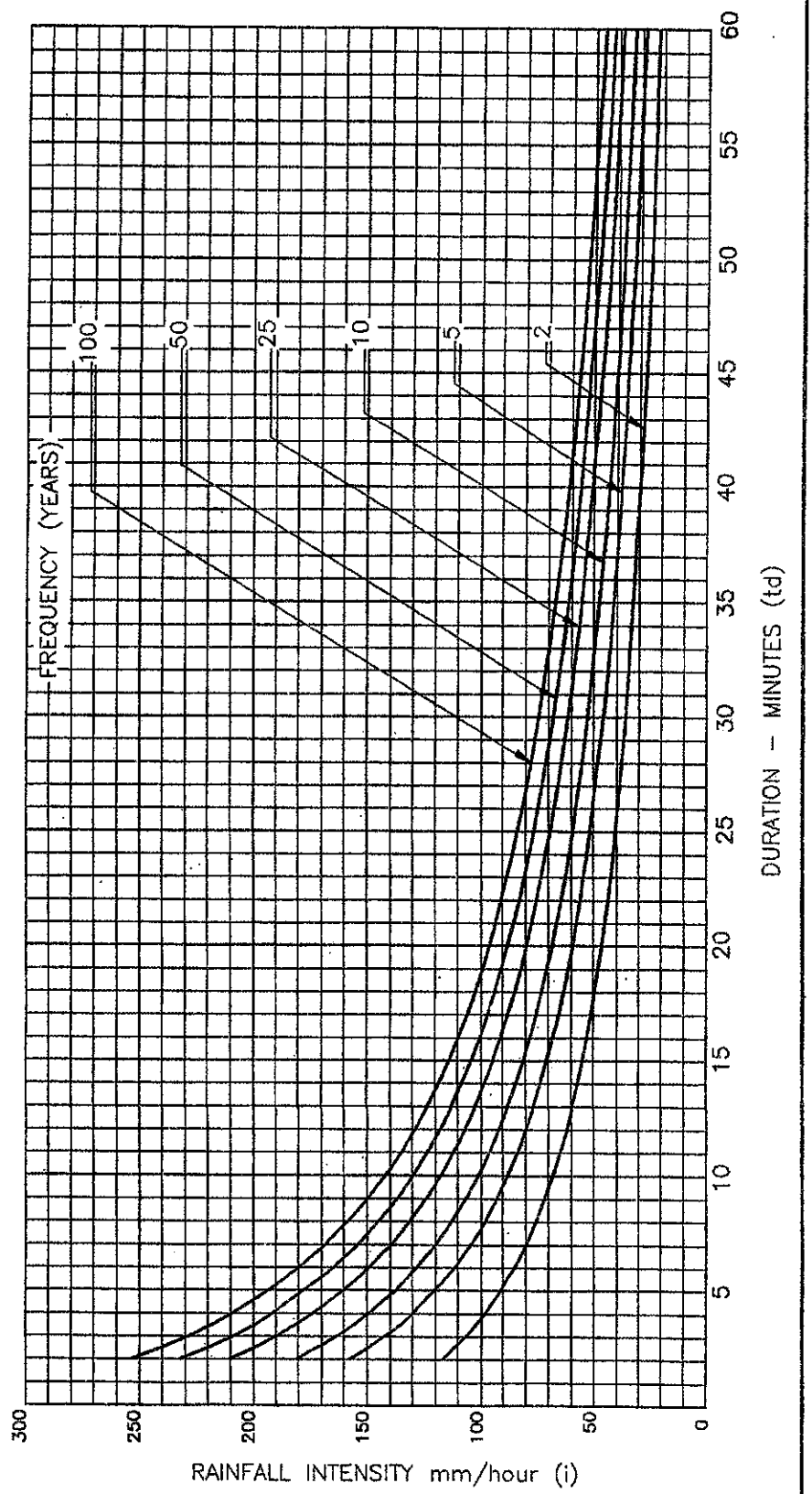
DATE: JUNE/98	REV. 2

EQUATION OF CURVE

$$i_{100} = \frac{1114.20}{(td+5)^{0.761}} \qquad i_{10} = \frac{798.50}{(td+5)^{0.763}}$$

$$i_{50} = \frac{1019.40}{(td+5)^{0.761}} \qquad i_{5} = \frac{697.40}{(td+5)^{0.764}}$$

$$i_{25} = \frac{926.90}{(td+5)^{0.762}} \qquad i_{2} = \frac{592.60}{(td+6)^{0.780}}$$



APPROVED	CITY OF BURLINGTON	METRIC
F. Eichenbaum DIRECTOR OF ENGINEERING DATE: Feb. 17/99	ENGINEERING DEPARTMENT	SCALE: N.T.S.
	INTENSITY, DURATION, FREQUENCY CURVES	DWG. NO. S-IDF



IMPERVIOUS = 5,241 m^2
PERVIOUS = 4,367 m^2
TOTAL SITE AREA = 9,608 m^2

COMPOSITE "C":

$$C = \frac{5{,}241\ (0.90) + 4{,}367\ (0.25)}{9{,}608}$$

$C = 0.60$

LEGEND

IMPERVIOUS

PERVIOUS

PROJECT No. 1629

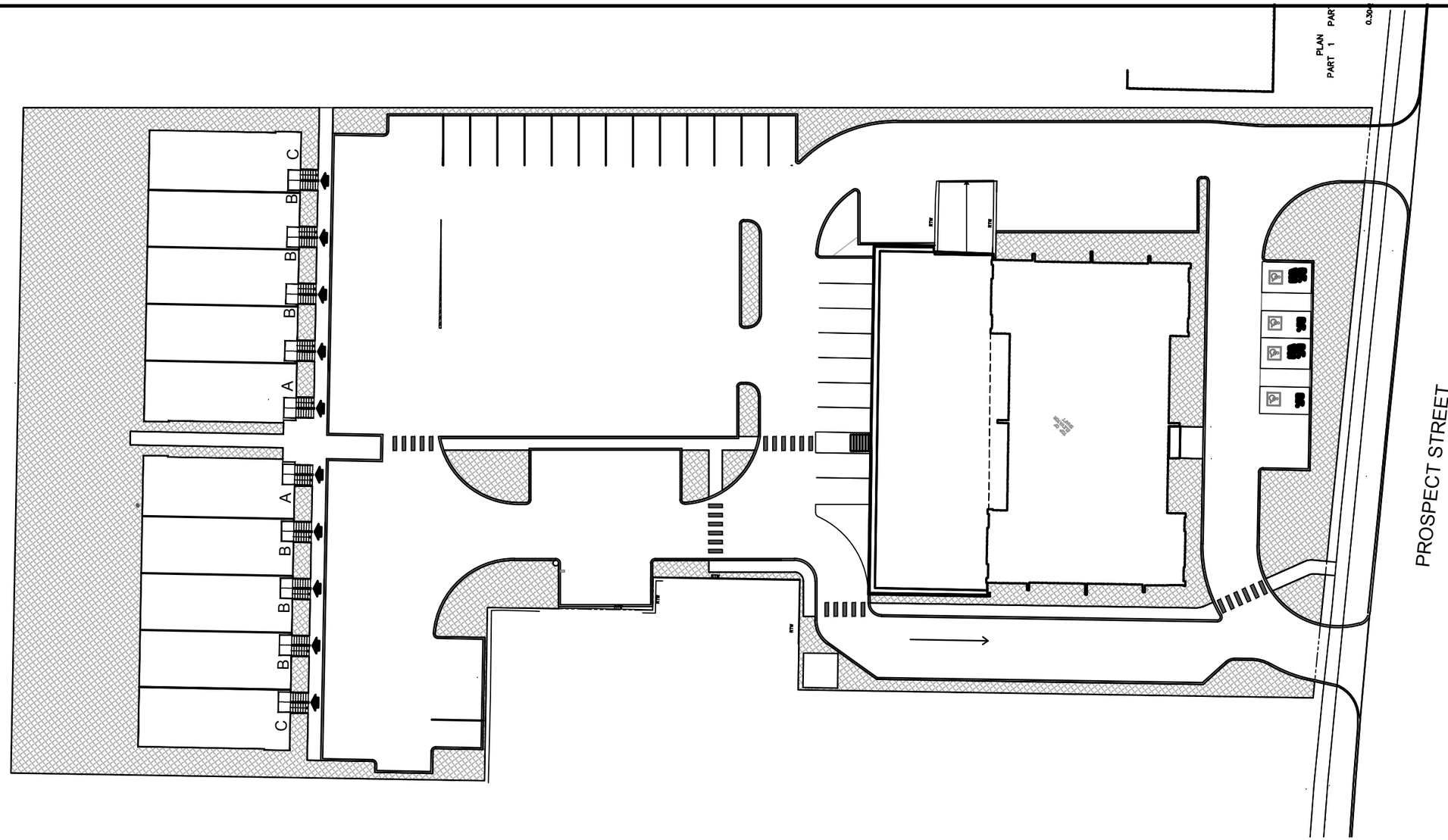
PROJECT TITLE
PROPOSED RESIDENTIAL RE-DEVELOPMENT
2087-2103 PROSPECT STREET

DRAWING TITLE
PRE-DEVELOPMENT RUN-OFF COEFFICIENT

TRAFALGAR ENGINEERING LTD.
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tel@trafalgareng.com

DESIGNED BY	JRE	SCALE	1:500	DRAWING No.
DRAWN BY	JY	DATE	AUGUST, 2017	FIG.1

FILENAME: P:\1629 2095 Prospect St\Drawings\DWG\1629-postdev.dwg
PLOTDATE: Dec 11, 2017 - 5:12pm



IMPERVIOUS = 7,444 m^2
PERVIOUS = 2,164 m^2
TOTAL SITE AREA = 9,608 m^2

COMPOSITE "C":

$$C = \frac{7{,}444\ (0.90) + 2{,}164\ (0.25)}{9{,}608}$$

$C = 0.75$

LEGEND

IMPERVIOUS

PERVIOUS

PROJECT No.1629

PROJECT TITLE
PROPOSED RESIDENTIAL RE-DEVELOPMENT
2087-2103 PROSPECT STREET

DRAWING TITLE
POST-DEVELOPMENT RUN-OFF COEFFICIENT

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DESIGNED BY	JRE	SCALE	1:500	DRAWING No.
DRAWN BY	JY	DATE	AUGUST, 2017	FIG.2

FILENAME: P:\1629 2095 Prospect St\Drawings\DWG\1629-postdev.dwg
PLOTDATE: Dec 11, 2017 - 5:12pm

Brief Stormceptor Sizing Report - 2095 Prospect Street

Project Information & Location			
Project Name	2095 Prospect Street	**Project Number**	1629
City	Burlington	**State/ Province**	Ontario
Country	Canada	**Date**	12/4/2017
Designer Information		**EOR Information (optional)**	
Name	James Nelson	**Name**	
Company	Trafalgar Engineering Ltd	**Company**	
Phone #	905-338-3366	**Phone #**	
Email	jnelson@trafalgareng.com	**Email**	

Stormwater Treatment Recommendation

The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	2095 Prospect Street
Target TSS Removal (%)	80
TSS Removal (%) Provided	81
Recommended Stormceptor Model	STC 2000

The recommended Stormceptor Model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected particle size distribution.

Stormceptor Sizing Summary		
Stormceptor Model	**% TSS Removal Provided**	**% Runoff Volume Captured Provided**
STC 300	66	84
STC 750	77	93
STC 1000	78	93
STC 1500	78	93
STC 2000	81	97
STC 3000	82	97
STC 4000	85	99
STC 5000	86	99
STC 6000	88	99
STC 9000	91	100
STC 10000	91	100
STC 14000	93	100
StormceptorMAX	Custom	Custom

Stormceptor®

FORTERRA

Sizing Details

Drainage Area	
Total Area (ha)	1.12
Imperviousness %	70.0

Rainfall	
Station Name	TORONTO CENTRAL
State/Province	Ontario
Station ID #	0100
Years of Records	18
Latitude	45°30'N
Longitude	90°30'W

Water Quality Objective	
TSS Removal (%)	80.0
Runoff Volume Capture (%)	90.00
Oil Spill Capture Volume (L)	
Peak Conveyed Flow Rate (L/s)	114.00
Water Quality Flow Rate (L/s)	

Up Stream Storage	
Storage (ha-m)	Discharge (cms)
0.000	0.000
0.013	0.114

Up Stream Flow Diversion	
Max. Flow to Stormceptor (cms)	

Particle Size Distribution (PSD)
The selected PSD defines TSS removal

Fine Distribution		
Particle Diameter (microns)	Distribution %	Specific Gravity
20.0	20.0	1.30
60.0	20.0	1.80
150.0	20.0	2.20
400.0	20.0	2.65
2000.0	20.0	2.65

Notes

• Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules.
• Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed.
• For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

For Stormceptor Specifications and Drawings Please Visit:
http://www.imbriumsystems.com/technical-specifications