Final Report
Stormwater Management Report

3400 Dufferin Street & 8 Jane Osler Boulevard, City of Toronto

Prepared for Dufferin – 401 Properties Limited & Collecdev Inc.
by IBI Group
IBI Group Project #139570
August 9, 2022

Document Control Page

CLIENT:	Dufferin – 401 Properties Limited & Collecdev Inc.
PROJECT NAME:	3400 Dufferin Street & 8 Jane Osler Boulevard, City of Toronto
REPORT TITLE:	Stormwater Management Report
IBI REFERENCE:	IBI Group Project #139570
VERSION:	1
DIGITAL MASTER:	139570 3400 Dufferin Street_City of Toronto - Internal Documents\6.0_Technical\6.04_Civil\03_Reports\Revision 1\SWM
ORIGINATOR:	Shirley Beaudoin, CAD Technologist, Land Engineering
REVIEWER:	Neil Short, Director, Sr. Practice Lead, Land Engineering
AUTHORIZATION:	Jason Jenkins, P.Eng., P.E., Associate Manager, Land Engineering
HISTORY:	**Identification Date Description of Issued and/or Revision**
	SWM, August 09, 2022, 1st Submission (ZBA, SPA, & Plan of Subdivision)

AUTHORIZED FOR ISSUE BY:
IBI GROUP

Jason Jenkins, P.Eng., P.E.
Associate Manager
Land Engineering

Table of Contents

List of Tables

List of Figures

List of Drawings

Appendices

1 Introduction

1.1 Background

IBI Group Professional Services (Canada) Inc. (IBI Group) has been retained by Dufferin – 401 Properties Limited & Collecdev Inc. (the "Owner") to prepare a Stormwater Management Report (SWM Report) to support the Draft Plan of Subdivision, Zoning By-Law Amendment (ZBA), and Site Plan Application (SPA) processes for a proposed mixed-use development located at 3400 Dufferin Street & 8 Jane Osler Boulevard (the "Subject Site"), in the City of Toronto (the "City"). The purpose of this report is to provide a municipal servicing strategy for storm drainage and stormwater management. More specifically, the report will evaluate Stormwater Management (SWM) opportunities and constraints, including:

- Calculate allowable and proposed runoff rates for the development;
- Evaluate suitable methods for attenuation and treatment of stormwater runoff; and
- Develop on-site control measures and examine theoretical performance to satisfy the City's Wet Weather Flow Management Guidelines (WWFMG).

The following documents have been obtained from various sources:

- City of Toronto plan and profile drawings for Dufferin Street and Jane Osler Boulevard;
- City of Toronto Public Utilities Coordinating Committee (TPUCC) mapping;
- Grading and Servicing plans for 3450 Dufferin Street prepared by Schaeffer & Associates Ltd. (Schaeffer's), dated July 2021;
- Dufferin Street Avenue Study Infrastructure Master Plan prepared by Fabian Papa and Partners, dated November 2014;
- Topographic Survey prepared by KRCMAR Surveyors Ltd., dated June 2022;
- Functional Road Design prepared by BA Group, dated July 2022; and,
- Architectural plans and site statistics prepared by gh3 Architects.

1.2 Existing Site Description

Located at 3400 Dufferin Street & 8 Jane Osler Boulevard in the City of Toronto at postal code M6A 2V1, the 1.668 ha subject site is bounded by Dufferin Street to the east, several single family dwellings and Jane Osler Boulevard to the south, an existing commercial building to the west, and 3450 Dufferin Street to the north which is currently under construction. Please see **Figure 1** following the report for an aerial view of the site.

It should be noted that a separate development application has been submitted by others for 3450 Dufferin Street which includes (2) new municipal road dedications immediately north of the subject site; Street A (North) and Street B (North). This will be discussed in greater detail in subsequent sections. Sample site plan drawings for the adjacent development application can be found in **Appendix A** for reference.

The site currently hosts an existing commercial building and an asphalt parking surface. The site is relatively flat with ground surface elevations ranging from 190.6 m to 189.2 m and is self-contained with a small external drainage area along the southern limit.

The subject site is located within the Basement Flooding Study Area (BFA) #16 which was completed in 2012, and the Dufferin Street Avenue Study which was completed in 2014. Excerpt copies of each study can be found within the appendices of this report.

1.3 Site Proposal

The proposed development includes the division of the site into various blocks as follows:

- Block A: 1,825 m^2 municipal road to be dedicated to the City as a new 23 m public road (Street A) which shall align with Street A (North) at 3450 Dufferin Street and continue to Dufferin Street within Block F of the development.
- Block B: 4,046 m^2 mixed-use block consisting of a 29-storey building (Building A) with (2) levels of underground parking.
- Block C: 1,049 m^2 municipal road to be dedicated to the City as a new 18.5 m public road (Street B) which shall align with Street B (North) at 3450 Dufferin Street and connect to Street A within Block F of the development.
- Block D: 4,079 m^2 mixed-use block consisting of a 29-storey building (Building B) with (2) levels of underground parking.
- Block E: 1,811 m^2 mixed-use block consisting of a 10-storey building (Building C) with (2) levels of underground parking.
- Block F: 3,870 m^2 municipal road to be dedicated to the City as a new 23 m public road (Street A) which shall connect Street A (North) to Dufferin Street.

In summary, Blocks A, C, and F shall be dedicated to the City as new municipal rights-of-way (ROW), and Blocks B, D, and E shall be developed as mixed-use blocks. Sample architectural drawings and the functional road design can be found in **Appendix A** for reference.

1.4 Service Connections

While a development site can typically share a single storm service connection, individual sanitary and domestic services are required for each built form to satisfy City's servicing policy. Accordingly, each building shall be serviced independently.

Furthermore, the Ontario Building Code (OBC) requires two fire service connections separated by an isolation value for any building above 84 m in height. As Building A and Building B exceed this threshold, a secondary fire service will be required for each. The following represents the number of service connections for each development block:

- Block B (Building A): (1) storm, (1) sanitary, (2) fire, and (1) domestic service;
- Block D (Building B): (1) storm, (1) sanitary, (2) fire, and (1) domestic service; and,
- Block E (Building C): (1) storm, (1) sanitary, (1) fire, and (1) domestic service.

Site servicing requirements will be discussed in greater detail in subsequent sections.

2 Terms of Reference and Methodology

2.1 Terms of Reference

The terms of reference used for the scope of this report have been based on the City of Toronto Design Criteria for Sewers and Watermains, dated January 2021, the City of Toronto Wet Weather Flow Management Guidelines, dated November 2006, and the Dufferin Street Avenue Study Infrastructure Master Plan, dated November 2014.

2.2 Methodology: Stormwater Management

As the proposed development has a total site area less than 5.0 ha (Table 7, Section 2, WWFMG), the following SWM criteria shall apply:

Quantity Control
Per the WWFMG, the allowable release rate to the municipal storm sewer system from the development site during a 2- year design storm event must not exceed the peak runoff rate from the site under pre-development conditions during the same storm event, the existing capacity of the receiving storm sewer, and per the Dufferin Street Avenue Study the allowable release rate shall be limited to 75 L/s/ha, whichever is more restrictive.

A maximum runoff coefficient of 0.5 shall be used in calculating the pre-development peak runoff. An overland flow route (major system) shall be provided within the developed site to direct runoff in excess of the 100-year storm to an approved overland flow outlet.

Quality Control
Long-term average removal of 80% of the total suspended solids (TSS) on an annual loading basis must be achieved. TSS removal efficiency is to be based on 100% of the runoff leaving the site from all storm events that occurs in an average year.

Water Balance
The criteria provided in the City's WWFMG outlines that controls should be in place, such that the runoff resulting from a 5 mm rainfall event must be retained on-site for rainwater re-use, infiltration, and/or evapotranspiration.

3 Stormwater Management

3.1 Pre-Development Conditions

Local storm infrastructure consists of:

- A 600 mm storm sewer within Dufferin Street, which conveys flows in a southerly direction; and,
- A 600 mm storm sewer within Jane Osler Boulevard which conveys flows in a westerly direction.

As previously mentioned, (2) new municipal roads are proposed immediately north of the subject site as part of a separate development application, which will include various storm infrastructure. As the proposed storm infrastructure within the adjacent development has not been sized to accommodate flows from the subject site, it shall not be considered as a suitable outlet for the subject site.

The site currently hosts an existing building and a surface asphalt parking lot resulting in a pre-development runoff coefficient in excess of 0.50, however as the WWFMG limits the allowable release rate using a pre-development runoff coefficient of 0.50, this shall govern.

3.2 Grading

Under pre-development conditions, the rear yards of the adjacent residential lots fronting Jane Osler Boulevard drain to the subject site. This external area will be taken into consideration as part of the overall stormwater management strategy.

Emergency overland flow route in excess of a 100-year storm is directed to both Jane Osler Boulevard and Dufferin Street under pre-development conditions. Existing drainage patterns shall be maintained wherever feasible. Please refer to drainage area plans **STM-1** and **STM-2**.

3.3 Allowable Release Rate

As previously mentioned, per the WWFMG the allowable release rate for each development block and the overall subdivision is the 2-year pre-development flow, calculated using the City's IDF data and a maximum runoff coefficient of 0.50 and per the Dufferin Street Avenue Study release rates in the area must be further controlled to 75 L/s/ha. This is summarized in the following table.

Table 3.1 Allowable Release Rates

CATCHMENT	AREA (ha)	PER WWFMG (L/s)	PER AVENUE STUDY (L/s)
Municipal ROW	0.6641	81.3	49.8
Block B (Building A)	0.4046	49.6	30.3
Block D (Building B)	0.4002	49.0	30.0
Block E (Building C)	0.1652	20.2	12.4
Total Subdivision (Less Dufferin Widening)	1.634	200.2	122.6

As shown above, the post-development release rate for the subdivision shall be limited per the Dufferin Street Avenue Study to 122.6 L/s, as this is the more conservative rate. Please see the associated pre-development drainage area plan **STM-1** as part of the subdivision package.

3.4 Quantity Control

As previously mentioned, the post-development release rate for the subject site shall be limited to 75 L/s/ha per the Dufferin Street Avenue Study, which has been calculated to be **122.6 L/s.** Each block will require on-site underground storage and an orifice control. The 100-year peak orifice discharge for each block has been calculated using the following orifice discharge equation:

$$Q_{Orifice} = K \times A \times \sqrt{2 \times g \times h}$$

Block B (Building A)

To attenuate flows, a stormwater management tank with a minimum storage area of 95.0 m^2 and a 95 mm orifice plate shall be installed within the P1 level. Limiting the 100-year storage depth at 1.80 m the attenuated orifice discharge is calculated as follows:

$$Q_{Block\ B} = (0.63) \times \frac{\pi \times (0.095)^2}{4} \times \sqrt{2 \times 9.81 \times (1.80\text{-}0.095/2)} \times \frac{1000\ L}{1\ m^3} = 26.2\ L/s$$

Block D (Building B)

To attenuate flows, a stormwater management tank with a minimum storage area of 87.0 m^2 and a 95 mm orifice plate shall be installed within the P1 level. Limiting the 100-year storage depth at 1.44 m the attenuated orifice discharge is calculated as follows:

$$Q_{Block\ D} = (0.63) \times \frac{\pi \times (0.095)^2}{4} \times \sqrt{2 \times 9.81 \times (1.44\text{-}0.095/2)} \times \frac{1000\ L}{1\ m^3} = 23.3\ L/s$$

Block E (Building C)

To attenuate flows, a stormwater management tank with a minimum storage area of 53.0 m^2 and a 75 mm orifice plate shall be installed within the P1 level. Limiting the 100-year storage depth at 0.88 m the attenuated orifice discharge is calculated as follows:

$$Q_{Block\ E} = (0.63) \times \frac{\pi \times (0.075)^2}{4} \times \sqrt{2 \times 9.81 \times (0.88\text{-}0.075/2)} \times \frac{1000\ L}{1\ m^3} = 11.3\ L/s$$

Overall Subdivision

A 165 m length of 1,200 mm storm sewer and 200 mm orifice tube shall be installed within the new municipal roadways to attenuate flows for the subdivision, including flows from the external drainage area to the south. Limiting the 100-year storage depth at 1.21 m the attenuated orifice discharge is calculated as follows:

$$Q_{subdivision} = (0.82) \times \frac{\pi \times (0.200)^2}{4} \times \sqrt{2 \times 9.81 \times (1.21\text{-}0.200/2)} \times \frac{1000\ L}{1\ m^3} = 120.1\ L/s$$

The following is a summary of the stormwater management parameters pertaining to quantity control:

Table 3.2 Quantity Control Summary

CATCHMENT	STORAGE REQ'D (m^3)	STORAGE PROVIDED (m^3)	ALLOWABLE RELEASE RATE (L/s)	ORIFICE RELEASE RATE (L/s)	UN-CONTROLLED FLOW (L/s)	TOTAL RELEASE RATE (L/s)
Block B	117.4	134.9	30.3	26.2	0.0	26.2
Block D	112.6	168.4	30.0	23.3	0.0	23.3
Block E	46.8	105.4	12.4	11.3	0.0	11.3
Subdivision	192.1	197.9	122.6	120.1	0.0	120.1

As shown above, the total peak flow from the subdivision is calculated to be 120.1 L/s which is less than the allowable release rate of 122.6 L/s. By providing on-site storage and an orifice control for each development block and the municipal ROW, the City's objectives for quantity control have been met. Please see detailed calculations which can be found in **Appendix B**.

It should be noted that regular inspection and maintenance of any storage element and orifice control should be conducted on a regular basis to ensure that the system is functioning as designed.

3.5 Quality Control

As previously mentioned, 80% TSS removal is required in order to meet the City's WWFMG's. The following discusses the water quality strategies for each block and the new municipal road.

Private Development Blocks

Based on the proposed site conditions and surface treatment, the following tables summarize each development block's inferred TSS removal rate:

Table 3.3 TSS Performance: Building A

SURFACE TYPE	AREA (m^2)	EFFECTIVE TSS REMOVAL	OVERALL TSS REMOVAL
Conv. Roof	1,387	80	27.4
Intensive Green Roof	1,088	80	21.5
Landscape	0	80	0.0
Landscape over P1	225	80	4.4
Permeable Pavers	0	80	0.0
Impervious	1,346	0	0.0
TOTAL	**4,046**		**53.4**

Table 3.4 TSS Performance: Building B

SURFACE TYPE	AREA (m^2)	EFFECTIVE TSS REMOVAL	OVERALL TSS REMOVAL
Conv. Roof	1,399	80	27.4
Intensive Green Roof	1,026	80	20.1
Landscape	0	80	0.0
Landscape over P1	571	80	11.4
Permeable Pavers	0	80	0.0
Impervious	1,006	0	0.0
TOTAL	**4,002**		**59.9**

Table 3.5 TSS Performance: Building C

SURFACE TYPE	AREA (m^2)	EFFECTIVE TSS REMOVAL	OVERALL TSS REMOVAL
Conv. Roof	672	80	29.7
Intensive Green Roof	362	80	16.0
Landscape	0	80	0.0
Landscape over P1	183	80	8.9
Permeable Pavers	0	80	0.0
Impervious	435	0	0.0
TOTAL	**1,652**		**58.9**

Left untreated, each block will not achieve the City's requirement for 80% TSS removal. Therefore, it is proposed that a Stormfilter© system complete with media cartridges be installed for each block. All “dirty” areas within the drive aisle shall first be directed to the Contech chamber, whereas all other areas can be considered clean and routed directly to the stormwater management tank. Please refer to the Contech Sizing Report which can be found in **Appendix B**.

The Stormfilter© system is accepted as a standalone off-line treatment unit and meets the City of Toronto's criteria for 80% TSS per the WWMFG's. Any proposed substitutions will require approval from both the engineer of record and the City of Toronto.

It is recommended that the Stormfilter© system be inspected on a regular basis to ensure proper operation. Per Contech's recommendations, inspection and maintenance should be carried out at a minimal interval of 12 months with inspections prior to each winter season with filter replacements as required.

Municipal Right-of-Way

Based on the proposed site conditions and surface treatment, the following table summarizes the municipal ROW’s inferred TSS removal rate:

Table 3.6 TSS Performance

SURFACE TYPE	AREA (m^2)	EFFECTIVE TSS REMOVAL	OVERALL TSS REMOVAL
Landscape	1,771	80	21.3
Impervious	4,870	0	0.0
TOTAL	**6,641**		**21.3**

As shown above, the new municipal roadway will not satisfy the City’s criteria for quality control due to the high percentage of impervious surface. It is therefore proposed that a Contech CDS® 5-C oil-grit separator (OGS) (or approved equal) be installed downstream of the orifice control. By installing a City approved quality control unit, the City’s requirements for quality control have been satisfied. Please see **Appendix B** for the detailed design sheet and OGS specification.

It should be noted that regular inspection and maintenance of any water quality control device should be conducted on a regular basis to ensure that the system is functioning as designed.

By adding City-approved stormwater quality treatment units for each development block and the municipal ROW, the City requirements for quality control (i.e. minimum 80% TSS removal) have been satisfied.

3.6 Water Balance

As required by the City's TGS Tier 1, a rainfall depth of 5 mm must be retained over the entire area of development. In order to achieve the required volume, a combination of initial abstraction and water re-use will be incorporated. The following discusses the water balance targets for the overall subdivision and each development block independently.

Overall Subdivision

The water balance targets for the subdivision are summarized as follows:

Table 3.7 Water Balance Targets (Overall Subdivision)

CATCHMENT	AREA (m^2)	DEPTH (mm)	TOTAL REQUIRED VOLUME (m^3)
Municipal ROW	6,641	5.0	33.2
Block B (Building A)	4,046	5.0	20.2
Block D (Building B)	4,002	5.0	20.0
Block E (Building C)	1,652	5.0	8.3
Subdivision	**16,341**	**--**	**81.7**

New Municipal Roadways

As Blocks A, C, and F are to be dedicated to the City as new municipal roadways, a rainfall depth of 5 mm must be retained over the total area to be dedicated.

Based on initial abstraction values for each surface type, the total abstraction is calculated as follows:

Table 3.8 Initial Abstraction: Municipal ROW

AREA	AREA (m^2)	INITIAL ABSTRACTION	TOTAL (m^3)
Landscape	1,771	5	8.9
Impervious	4,870	1	4.9
TOTAL	**6,641**		**13.7**

As shown above, the new municipal roadways will be short of meeting the required water balance volume by 19.5 m^3 (33.2 m^3 – 13.7 m^3) and will only achieve an aggregate depth of 2.1 mm. It is therefore proposed that each private development block (Blocks B, D, and E) be required to compensate for this shortfall on a pro-rated basis.

Overall Subdivision (Adjusted)

The following table summarizes the adjusted water balance targets for each development block.

Table 3.9 Water Balance Targets (Overall Subdivision, Adjusted)

CATCHMENT	AREA (m^2)	DEPTH (mm)	TOTAL REQUIRED VOLUME (m^3)
Municipal ROW	6,641	2.1	13.7
Block B (Building A)	4,046	7.0	28.4
Block D (Building B)	4,002	7.0	28.0
Block E (Building C)	1,652	7.0	11.6
Subdivision	**16,341**	**--**	**68.0**

As shown above, each private development block shall retain an additional 2.0 mm to compensate for the new municipal roadway. Please see **Appendix B** for the detailed design calculations.

Block B (Building A)

With an area of 4,046 m^2 and an adjusted water balance target of 7.0 mm, the corresponding water balance volume to be retained on-site is calculated to be **28.4 m^3**. Based on initial abstraction values for each surface type, the total abstraction is calculated as follows:

Table 3.10 Initial Abstraction: Block B

AREA	AREA (m^2)	INITIAL ABSTRACTION	TOTAL (m^3)
Conv. Roof	1,387	1	1.4
Intensive Green Roof	1,088	7	7.6
Landscape	0	5	0.0
Landscape over P1	225	5	1.1
Permeable Pavers	0	5	0.0
Impervious	1,346	1	1.3
TOTAL	**4,046**		**11.5**

As shown above, 11.5 m^3 is retained on-site through initial abstraction. The balance of 16.9 m^3 will be retained through water re-use purposes such as landscape irrigation and / or toilet flushing. Confirmation from the irrigation and mechanical consultants shall be provided in a future submission. An adequate sump within the stormwater management tank will be provided within the P1 level to retain the total water re-use volume. Please see **Appendix B** for the detailed design sheet and detailed drawing **SS-01**.

Block D (Building B)

With an area of 4,002 m^2 and an adjusted water balance target of 7.0 mm, the corresponding water balance volume to be retained on-site is calculated to be **28.0 m^3**. Based on initial abstraction values for each surface type, the total abstraction is calculated as follows:

Table 3.11 Initial Abstraction: Block D

AREA	AREA (m^2)	INITIAL ABSTRACTION	TOTAL (m^3)
Conv. Roof	1,399	1	1.4
Intensive Green Roof	1,026	7	7.2
Landscape	0	5	0.0
Landscape over P1	571	5	2.9
Permeable Pavers	0	5	0.0
Impervious	1,006	1	1.0
TOTAL	**4,002**		**12.4**

As shown above, 12.4 m^3 is retained on-site through initial abstraction. The balance of 15.6 m^3 will be retained through water re-use purposes such as landscape irrigation and / or toilet flushing. Confirmation from the irrigation and mechanical consultants shall be provided in a future submission. An adequate sump within the stormwater management tank will be provided within the P1 level to retain the total water re-use volume. Please see **Appendix B** for the detailed design sheet and detailed drawing **SS-01**.

Block E (Building C)

With an area of 1,652 m^2 and an adjusted water balance target of 7.0 mm, the corresponding water balance volume to be retained on-site is calculated to be **11.6 m^3**. Based on initial abstraction values for each surface type, the total abstraction is calculated as follows:

Table 3.12 Initial Abstraction: Block E

AREA	AREA (m^2)	INITIAL ABSTRACTION	TOTAL (m^3)
Conv. Roof	672	1	0.7
Intensive Green Roof	362	7	2.5
Landscape	0	5	0.0
Landscape over P1	183	5	0.9
Permeable Pavers	0	5	0.0
Impervious	435	1	0.4
TOTAL	**1,652**		**4.6**

As shown above, 4.6 m^3 is retained on-site through initial abstraction. The balance of 7.0 m^3 will be retained through water re-use purposes such as landscape irrigation and / or toilet flushing. Confirmation from the irrigation and mechanical consultants shall be provided in a future submission. An adequate sump within the stormwater management tank will be provided within the P1 level to retain the total water re-use volume. Please see **Appendix B** for the detailed design sheet and detailed drawing **SS-01**.

3.7 Municipal Storm Sewers

As previously mentioned, it is proposed that a new 1,200 mm concrete storm sewer at a 0.20% slope be installed within Street A to provide storage specifically for the municipal ROW for stormwater attenuation. The storage element shall be connected to an oil-grit separator with a 1.0 m length of 200 mm PVC storm sewer (orifice control) and a 2.8 m length of 450 mm storm sewer at a 0.50% slope. The oil-grit separator shall be connected to the existing 600 mm storm sewer within Dufferin Street with a 17.3 m length of 450 mm PVC storm sewer installed at a 0.50% slope.

The following table illustrates the peak flow and corresponding capacity of the proposed storm sewer:

Table 3.13 Storm Sewer Performance

FROM	TO	STORM SEWER SIZE (mm)	SEWER SLOPE	PEAK FLOW (L/s)	CAPACITY (L/s)	PERCENT OF FULL FLOW
MH7 (OGS)	MH8	450	0.50%	120.1	201.60	60%

As shown above, the proposed storm sewer can easily convey its respective storm flow while operating at 60% of full flow capacity. Please refer to the detailed design calculations which can be found in **Appendix B**, and the design drawings **SS-01** and **SS-02**.

3.8 Storm Service Connection

It is proposed that each block be connected to the proposed municipal storm sewer with a PVC storm service. The following table illustrates the peak flow and corresponding capacity of each service:

Table 3.14 Storm Service Performance

BLOCK	FROM	TO	STORM SERVICE SIZE (mm)	SERVICE SLOPE	PEAK FLOW (L/s)	CAPACITY (L/s)	PERCENT OF FULL FLOW
Block B (Building A)	Ctrl MH1	1,200 mm (Street A)	200	2.0 %	26.2	46.4	56%
Block D (Building B)	Ctrl MH2	MH6 (Street A)	200	2.0%	23.3	46.4	50%
Block E (Building C)	Ctrl MH3	1,200 mm (Street A)	200	2.0%	11.3	46.4	24%

As shown above, the proposed storm service connections can easily convey the controlled discharge from each block while operating at 56% (or less) of full flow capacity. Please refer to the detailed design calculations which can be found in **Appendix B**, and the design drawings **SS-01** and **SS-02**.

3.9 Emergency Overflow

It is recommended that rooftop scuppers be installed to ensure emergency overflow from roof areas should rooftop drains become plugged.

All areas at grade level have been designed with positive drainage (away from the building).

Each stormwater management tank shall be designed with an emergency outlet to allow storm flows to spill to the adjacent municipal right-of-way in an emergency situation.

Maximum ponding within the development site shall not exceed City requirements of 0.30 m.

3.10 Erosion and Sediment Control

It is recommended that a sediment control fence per T-219.130-1 be installed along the perimeter of the site as required during demolition activities. All existing and proposed catch basins within close proximity of the subject site shall be protected with a geotextile fabric. A mud mat shall be installed as required to minimize distribution of mud into the public realm.

4 Conclusions and Recommendations

Quantity Control
By incorporating stormwater storage and an orifice control, each block shall be attenuated on-site and released to the municipal storm sewer within the new municipal roadways at an appropriate discharge rate. By incorporating stormwater storage (oversize pipe) and an orifice control within the new municipal roadway, the new municipal roadway will meet the City's target for quantity control.

Quality Control
By adding a water quality unit within each private development block and an oil-grit separator within the new municipal roadway, the overall subdivision will meet the City's target for quality control.

Water Balance
While the new municipal roadway will fall short of meeting the City's water balance target, Development Blocks B, D, and E will overcompensate for this shortfall. Through initial abstraction and graywater re-use (irrigation and toilet flushing), the overall subdivision will meet the City's target for water balance.

Summary
In summary, it can be concluded that the Zoning By-Law Amendment, Draft Plan of Subdivision application, and Site Plan application can be supported from both a storm servicing and a stormwater management perspective.

CLIENT: DUFFERIN - 401 PROPERTIES LIMITED & COLLECDEV INC.	PROJECT NAME: 3400 DUFFERIN STREET & 8 JANE OSLER BOULEVARD		
	SCALE: NTS	DATE: 2022-06-20	FIGURE NAME: AERIAL PLAN
	PROJECT ENG: JMJ	DRAWN BY: SB	FIGURE NO.: FIG.1
	CHECKED BY: JMJ	APPROVED BY: JMJ	REVISION: 1
	PROJECT NO: 139570		

IBI GROUP
Unit 300 – 8133 Warden Avenue
Markham ON L6G 1B3 Canada
tel 905 763 2322 fax 905 763 9983
ibigroup.com

Appendix A
Background Information

Plan and Profile Drawings (City of Toronto)

TPUCC Mapping (City of Toronto)

Excerpt Dufferin Street Avenue Study (Fabian Papa & Partners)

Topographic Survey (KRCMR)

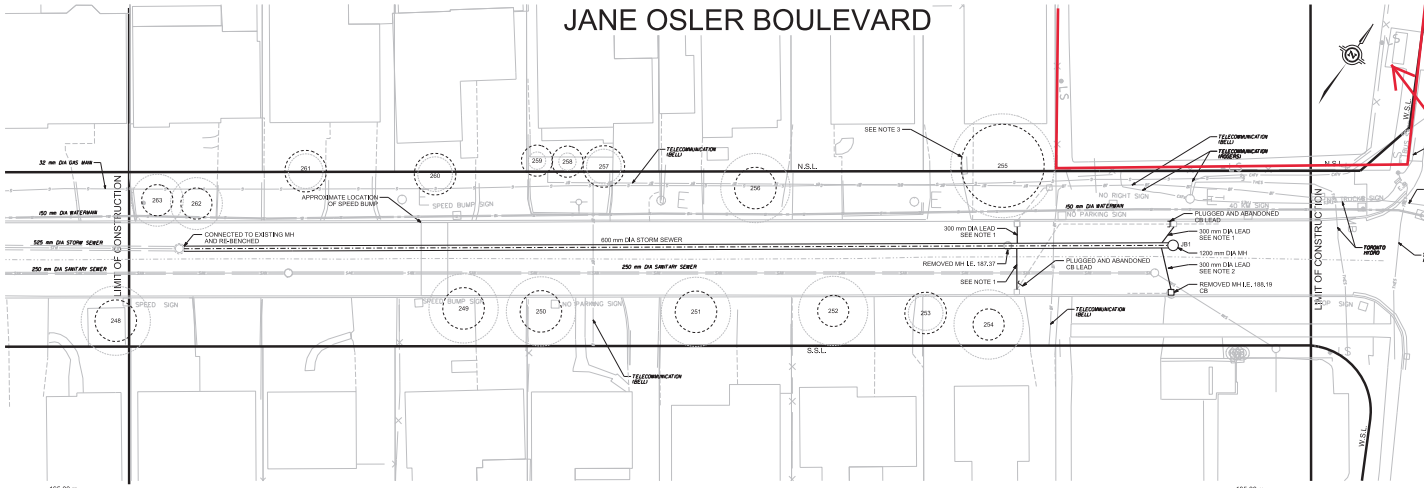
3450 Dufferin Site Grading and Servicing Plans (Schaeffer's)

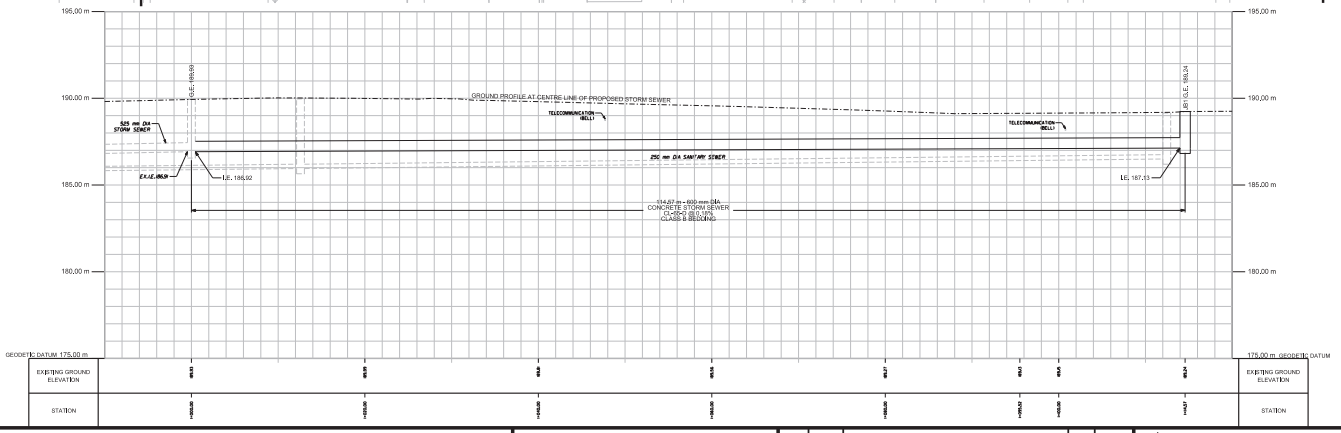
Sample Architectural Drawings (gh3)

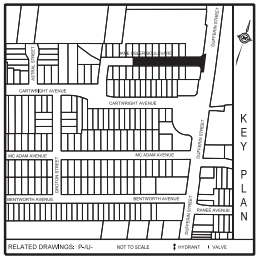
Functional Road Design (BA Group)

Subsurface Utility Engineering Study (Urban X)

JANE OSLER BOULEVARD







MH NO.	NORTHING	EASTING
JB1	4842514.938	308201.820

NOTE:

1. REPLACE AND RELOCATE EXISTING CATCH BASIN LEADS TO PROPOSED STORM SEWER, 250 mm DIA FOR SINGLE CATCH BASIN LEAD AND 300 mm DIA FOR DOUBLE CATCH BASIN LEAD.
2. CONNECT PROPOSED CATCH BASIN TO THE PROPOSED STORM SEWER, 250 mm DIA LEAD FOR SINGLE CATCH BASIN AND 300 mm DIA LEAD FOR DOUBLE CATCH BASIN.
3. EXCAVATION WITHIN BOULEVARD IS NOT PERMITTED WITHOUT PRIOR APPROVAL FROM THE CITY, IN CASE WHERE HEAVY EQUIPMENT HAS TO ENCROACH SOFT SURFACE BETWEEN CURB AND THE EXISTING TREE, THE TREE PROTECTION ZONE (TPZ) HAS TO BE PROTECTED WITH STEEL PLATING AND MULCH AGAINST SOIL COMPACTION AND ROOT DAMAGE. TREE TRUNK TO BE PROTECTED WITH TRUNK FENCE, SEE SPECIFICATIONS FOR DETAILS.
4. ANY SPEED BUMPS THAT ARE IMPACTED DURING CONSTRUCTION MUST BE REINSTATED TO EXISTING OR BETTER CONDITIONS.

THESE AS-BUILT DOCUMENTS HAVE BEEN PREPARED BASED ON INFORMATION PROVIDED BY OTHERS. THE DESIGN PROFESSIONAL HAS NOT VERIFIED THE ACCURACY AND/OR COMPLETENESS OF SUCH INFORMATION AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

AS-BUILT DRAWING

CH2MHILL CONSULTANTS

NOTE: ORIGINAL SEAL BY M. PARENTE DATED 05-27-2014

DIGITAL INFORMATION			
SURVEY(2013)	y13274svy.dgn		
DESIGN	y13274stm.dgn, y13274stmpf.dgn, y13274sec.dgn		
UTILITY	y13274ugs.dgn		
MAPPING	y13274top.dgn		
STREETLINE	y13274sll.dgn		

No.	DATE	REVISIONS	INITIAL	SIGNED
1	07-20-2015	AS-BUILT DRAWING PREPARED BY CH2M HILL CANADA LTD. USING DATA PROVIDED BY THE CITY. STORM SEWERS CONSTRUCTED IN 2015.		

TORONTO Engineering and Construction Services

TED BOWERING, P. ENG. ACTING DIRECTOR WATER INFRASTRUCTURE MANAGEMENT

NANCY BONHAM, P. ENG ACTING DIRECTOR ENGINEERING AND CONSTRUCTION SERVICES CAPITAL WORKS DELIVERY

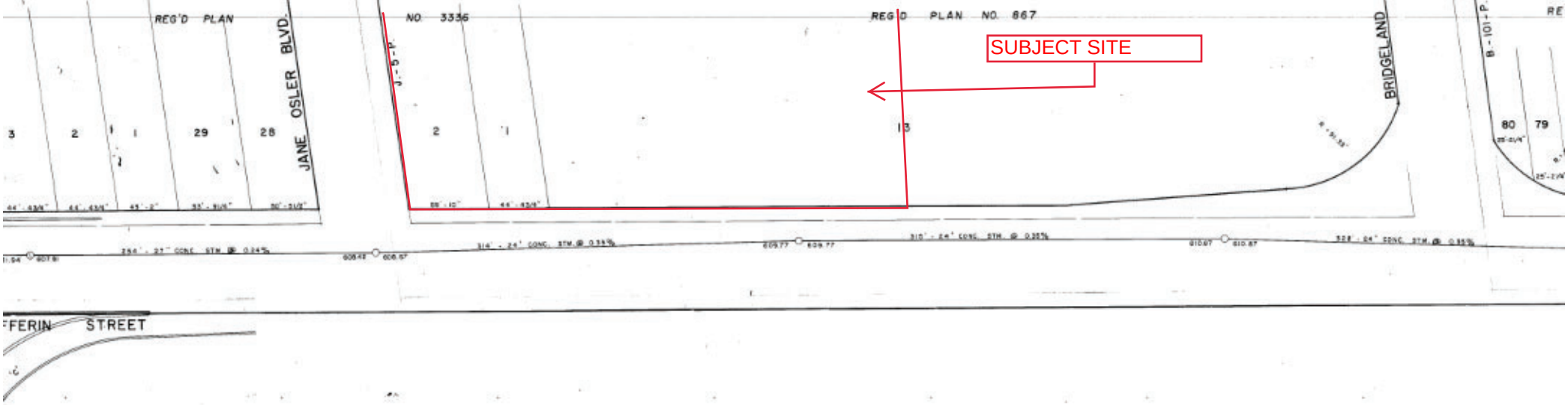
JANE OSLER BOULEVARD

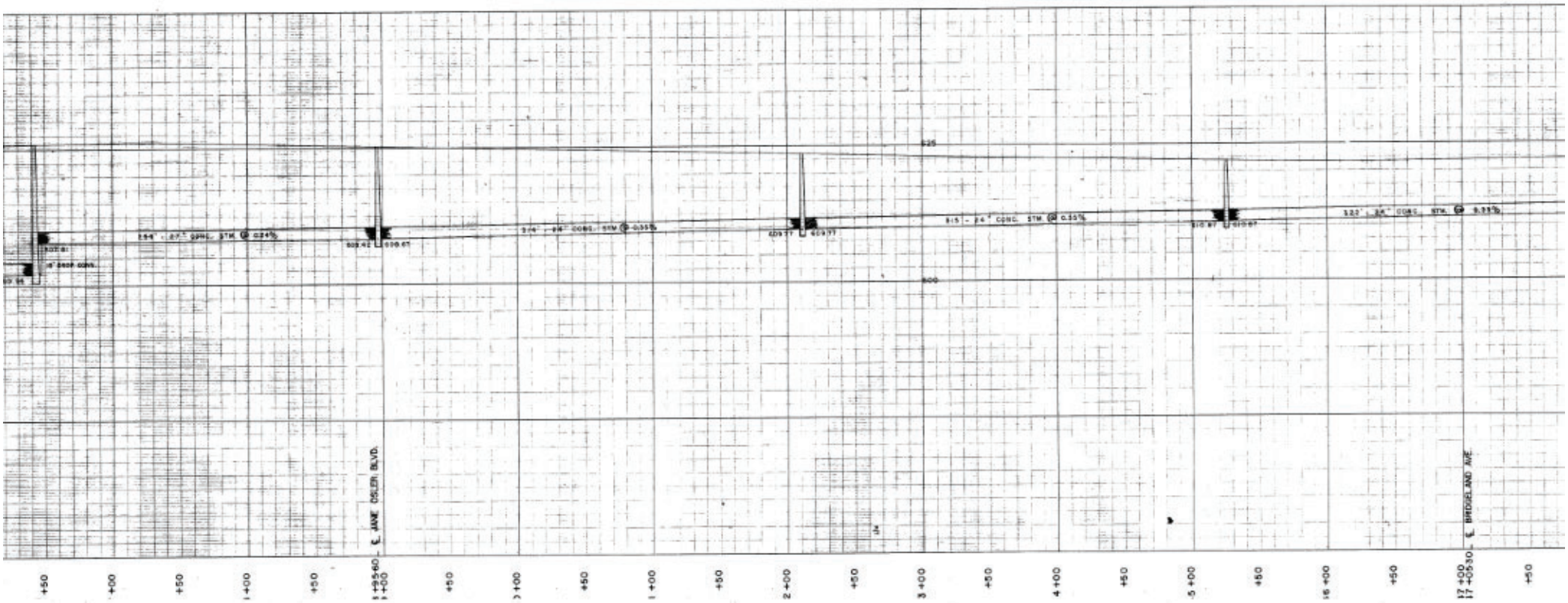
FROM WEST OF DUFFERIN STREET

STORM SEWER SEWER RE-CONSTRUCTION

DESIGN	P.K.	DRAWN	A.G.	CHECKED	M.P.	CONTRACT No. 14FS-08WP
SCALE:	HORIZONTAL 1:200 VERTICAL 1:100			DRAWING NUMBER	U-5907-001	SHEET 10 OF 13
DATE:	FEBRUARY 13, 2014					

Mo,Day,Yr: SEP.1.E88


REG'D PLAN
NO. 3336
REG'D PLAN NO. 867
SUBJECT SITE
JANE OSLER BLVD.
BRIDGELAND
FERIN STREET


E. JANE OSLER BLVD.
E. BRIDGELAND AVE.

CUMAP (CITY UTILITY MAPPING)

DATA SETS

WATER MAIN
STORM SEWER
SANITARY SEWER
COMBINED SEWER

RELEASE AND INDEMNIFICATION AGREEMENT
FOR THE USE OF CITY OF TORONTO DIGITAL SEWER \ WATER MAPPING

In consideration of the City of Toronto, hereinafter called the City, providing the above data (the "Data") to CompanyName, (the "Applicant"), the Applicant hereby releases, remises and forever discharges the City, its successors and assigns from and of all manner of actions, causes of actions, debts, claims and demands whatsoever which against the said City, its successors or assigns the Applicant ever had or which the Applicant's heirs, executors, administrators or assigns or any of them hereinafter can, shall or may have for or by reason of the use or otherwise of the Data provided by the City to the Applicant and the Applicant will from time to time hereafter well and truly defend, save harmless and fully indemnify the City, its successors and assigns from and against all claims and demands which may be brought against or made upon the City, its successors or assigns and against all loss, cost and damage which the City, its successors or assigns may sustain, suffer or be put to in any way incidental to providing the Data to the Applicant.

The Data is protected by copyright of which the City is the sole owner. The applicant acknowledges and agrees that the Applicant is granted only a non-exclusive, restricted license to use the Data for the Applicant's own educational purposes. Neither the Applicant nor any of its Representatives may reproduce, modify or alter the Data by any means for any purpose other than the Applicant's own educational purposes without the prior written consent of the City. Except as expressly permitted herein, the Data, or any portion of the Data, shall not be sold, licensed or otherwise transferred by the Applicant or any of its Representatives to any third parties either voluntarily or by operation of law. This agreement may not be assigned by the Applicant without the prior written consent of the City, which shall not be unreasonably withheld.

The Applicant acknowledges and agrees that the City makes no warranties with respect to the Data provided under this agreement as to content, completeness, accuracy, merchantable quality, or fitness for a particular purpose, express or implied, or arising by law or by statute, or by usage of trade or course of dealing. The entire risk as to the results and performance of the City's data is assumed by the Applicant and the City, its successors and assigns shall have no liability for reliance placed upon the Data by the Applicant or any other person or entity.

Dufferin Street Avenue Study

Infrastructure Master Plan

FINAL REPORT
November 2014

fabian papa & partners

216 Chrislea Road, Suite 501 | Woodbridge, Ontario | L4L 8S5
Tel: 905-264-2420 | www.fabianpapa.com

Contents

Storm Drainage & Stormwater Management (SWM)

The City's Wet Weather Flow Management Guidelines (WWFMG) provide a comprehensive methodology for guiding the design of stormwater management measures for developments and are expected to result in an overall reduction in stormwater volumes and peak flows to levels which are at or below the capacity of the receiving drainage system. For instance, the WWFMG considers the detention of drainage for storms up to the 100-year return period frequency with a stringently controlled discharge rate. It is expected that many of the properties in the study area currently do not deliver this level of performance and, therefore, upon re-development, the adoption of such practices are expected to reduce the hydraulic loading on the receiving drainage systems. In addition to runoff quantity control, the WWFMG contains provisions for water balance – which reduces the amount of runoff exiting the site – and water quality control.

As noted earlier, the recommendations of the Basement Flooding Study Area Class EAs provide significant guidance on system improvements required to minimize the probability and frequency of flooding in the drainage sheds relevant to this study area. As at the time of preparation, the scheduled infrastructure upgrades in the vicinity of the study area resulting from the Basement Flooding Study Area work include improvements on Jane Osler Boulevard in 2014[23]. The purpose of this study is not to address current basement flooding issues, but rather to identify improvements needed to service growth in the study area and without exacerbating current conditions.

Given the configuration of the study area and the nature of Dufferin Street and other existing roadways, there is generally little opportunity to implement centralized measures to address stormwater management objectives. On the other hand, the re-development of individual sites will necessitate observance of the WWFMG, thereby resulting in the improved rainfall-runoff characteristics of, and potential reductions in overland flow within, the overall study area relative to current conditions.

Additional information is provided in Appendix C.

STORMWATER MANAGEMENT OBJECTIVES

All existing properties and anticipated development blocks in the study area are expected to be less than 5.0 ha in size, qualifying as "small new developments" pursuant to the WWFMG document. The following are the applicable objectives and requirements for such developments:

Water Balance

Developments are required to retain all runoff from a 5 mm rainfall event through infiltration, evapotranspiration and rainwater reuse. Despite this, it may be worthwhile considering a higher target for developments in this study area given the known historic flooding concerns associated with heavy rainfalls. A review of the available geotechnical information suggests that the underlying soils in the study area, while expected to capable of modest amounts of infiltration, are not expected to be suitable for more aggressive targets in this regard (see Appendix C). Accordingly, the target 5 mm volume noted above is to be maintained for developments in the study area. Of course, higher captured runoff volumes (rainfall depths) should be welcomed and encouraged, offering the simultaneous benefit of assisting to achieve water quality objectives.

Measures which can be considered to achieve water balance objectives include (but are not necessarily limited to):

- Green[24] or Blue[25] Roofs
- Infiltration Chambers/Galleries

[23] K. Crowther, personal communication, 05 September 2013
[24] Relevant Resources: Toronto Green Roof By-Law; Toronto Green Roof Biodiverse Guidelines; Toronto Green Roof Construction Standards; Toronto Green Standard. See www.toronto.ca/greenroofs.
[25] Blue roofs are non-vegetated source controls that detain stormwater, preferably with light coloured roofing material.

- Permeable Pavement
- Bioretention
- Rainwater Harvesting

It is important to note that the appropriateness of each of these measures, used alone or in some combination, is dependent upon a variety of factors including development size, actual soil characteristics, capital cost and maintenance considerations as well as intensity of demand for reuse in the case of rainwater harvesting. It is expected that the larger sites will have opportunities to implement several of these measures, while the smaller sites will be quite limited. As with current protocols for development in the City, it will be the development proponent's responsibility to demonstrate that the water balance objective is being achieved.

Water Quality

Developments are required to achieve a long-term average total suspended solids (TSS) removal from runoff of 80% on an annual loading basis, with the overall site removal efficiency including runoff retention and other on-site controls (i.e., treatment train approach). An example of a linkage between measures which provide the dual benefit of water balance and water quality is captured in the following passage:

> *Bioretention provides effective removal for many pollutants as a result of sedimentation, filtering, soil adsorption, microbial processes and plant uptake. It is also important to note that there is a relationship between the water balance and water quality functions. If a bioretention cell infiltrates and evaporates 100% of the runoff from a site, then there is essentially no pollution leaving the site in surface runoff.* [26]

Similar to the case for water balance, smaller sites are anticipated to be somewhat more challenged at meeting the water quality criterion and limited in the options available to be practically deployed. Historically, oil-grit separators have been used in such situations, however, the performance of most such technologies are deemed by Toronto to achieve at most 50% TSS removal and such devices must be accompanied by other measures in a treatment train to achieve the desired 80% TSS removal target. Media filtration devices with small footprints and capable of controlling finer particles (pollutants), comparable in size to traditional oil-grit separators, are available and which are capable of achieving the water quality target have been deployed on development projects elsewhere in the City, as an alternative. It is noted that operational and cost considerations may favour low impact development (LID) technologies over oil-grit separators.

Flood Flow Management

As noted earlier, the primary cause of historic flooding complaints has been the overwhelming of the capacity of the existing storm and sanitary sewage conveyance systems in response to heavy rainfalls. Although it is not the mandate of this study to resolve the existing causes of flooding as these are being handled under the City's Basement Flooding Protection Program; however, measures to decrease flows from the re-development sites will be required through the WWFMG, and are expected to relieve some of the stress of the receiving drainage system.

Discharge Criteria to Municipal Infrastructure

The allowable release rate to the municipal storm sewer system is governed by the lesser of the peak pre-development runoff rate or the available capacity of the receiving sewer. To estimate the pre-development peak runoff rate, a maximum runoff coefficient of 0.5 may be used, irrespective of the actual pre-development imperviousness of the site.

[26] "Low Impact Development Stormwater Management Planning and Design Guide", CVC/TRCA, 2010, Page 4-71.

ALTERNATIVES

The following is a brief description of the Master Plan alternatives considered in the context of storm drainage:

Alternative 1: Do Nothing

This alternative considers no changes to the existing system.

Alternative 2: Expand and/or Upgrade Existing Infrastructure

This alternative considers the implementation of infrastructure to extend the existing storm drainage system such as the case of new roadways to be implemented. The City's current Wet Weather Flow Management Policy requires that flows be controlled to within the limits of the existing system's capacity, subject to additional considerations, and therefore the option of upgrading existing infrastructure (i.e., increasing conveyance) is not applicable in this context.

Alternative 3: Implement On-Site Best Practices

In the context of storm drainage, this alternative considers the implementation of stormwater management measures both on individual development sites as well as within potential roadways. Stormwater management measures would have the effect of reducing and/or controlling runoff volumes exiting the site. They also offer water quality benefits and may also address water balance objectives, depending on site suitability. The City has adopted a Wet Weather Flow Management Guideline (WWFMG) document that has detailed information to guide design practices in this regard.

Alternative 4: Limit Community Growth

This alternative is deemed to not be applicable in this context and is accordingly not considered further for evaluation, but is presented here for the sake of completeness and consistency with the remainder of this document. The rationale underlying this position is based on the fact that this option does not decrease storm runoff. Moreover, the existing hydrology within the study area is characterized by hard surfaces such that any re-development of the lands would not materially exacerbate this condition given that the WWFMG would continue to be applied as per current City policy.

ASSESSMENT & EVALUATION OF ALTERNATIVES

Table 7 Assessment & Evaluation of Alternatives – Storm Drainage & Stormwater Management (SWM)

Criteria	Sub-Criteria	Alternative 1: Do Nothing	Alternative 2: Expand/Upgrade Ex. Infrastructure	Alternative 3: Implement On-Site Best Practices	Alternative 4: Limit Growth
Technical Merit	Functionality	This alternative is not in compliance with the City's existing policies and guidelines. This alternative does not consider extension of services into new roads.	New storm sewers constructed in new roads have minimal impacts. Impacts would include marginally increased maintenance obligations and life-cycle costs for the City, offset by increased tax and user base offered by development. Also, construction activities may impact the local environment (e.g., noise, vibration), although these are not expected to be significant in relation to the overall construction activity. Mitigation measures to be implemented.	No negative environmental impacts. Reduction in runoff and quality controls will improve environmental health of watershed and reduce hydraulic loading to receiving drainage system.	Not applicable. This option does not decrease runoff. Existing hydrology of study are is predominantly impervious and any new development will be subject to application of the City's Wet Weather Flow Management Guidelines.
	Constructability				
	Maintenance Requirements				
	Life-Cycle Costs				
Natural Environment	Impact on the Natural Environment				
Socio-Economic Environment	Cultural Heritage Impact				
	Construction Impact				
	Residential and Business Impact				
Preferred Solution		Expand existing system into any new roads. Guided application of wet weather flow management guidelines for all new (re-)developments. Encourage the "greening" of all public and private spaces.			

PREFERRED SOLUTION

The preferred solution consists of the following elements:

- **Expand Existing System into New Roads**

  Where new public roads are to be developed, the expansion of the existing storm sewer system into these roads for purposes of collecting and conveying drainage from new development sites as well as runoff originating on the roads themselves is a sensible standard practice. Runoff from new sewer systems will need to be limited in accordance with the City's Wet Weather Flow Management Guidelines discharge criteria (e.g., the lesser of: flow rate calculated with a runoff coefficient of 0.5; existing discharge rate; or the *pro rata* share of receiving sewer system capacity.

- **Guided Application of the City's Wet Weather Flow Management Guidelines (WWFMG)**

  In general, the City's WWFMG are to be applied for any developments in the study area with one modification relating to the discharge criteria to the local municipal infrastructure where release rates from each site are to be controlled to 75 L/s/ha. It is important to note that this applies only to areas which currently drain to the storm drainage system within the study area, and not to areas that drain to systems outside thereof[27].

[27] As a specific example, the storm drainage from Yorkdale Shopping Centre is currently directed easterly, away from the study area and, accordingly, any development activity or similar situations which cause changes in the way drainage is handled on this site must consider the context of the system currently accepting such drainage. Of course, this does not preclude the opportunity for specific

It is noted that this release rate (i.e., 75 L/s/ha) is lower than what would be calculated through strict application of the WWFMG in consideration of the known flooding concerns in the area and their direct relationship to stormwater runoff. Additional discussion on the formulation of this criterion is provided in Appendix C.

For greater clarity, the runoff resulting from the 100-year return period design storm is to be contained on site and released at or below the control rate established using the above criteria. This is expected to greatly reduce the amount of water entering the municipal sewers and road surfaces for most rainfalls.

- **"Greening"**

  The application of the WWFMG implies the implementation of green measures to control runoff from sites. Nevertheless, additional "greening" of private sites as well as on public roadways wherever practical is generally expected to lead to additional environmental benefits and represents good practice.

Project Schedules

The extension of the storm drainage system into new roadways is a **Schedule A** activity. That is, these projects are approved and may proceed. The other elements of the preferred solution are either private-side controls or general "greening" measures, neither of which require fulfilment of the Class EA process in this context.

Mitigation Measures

Of the few impacts associated with the extension of the storm drainage system into new roadways, they are all relatively minor and straightforward to deal with using standard, customary mitigation practices.

Environmental Impacts

- **Sedimentation and Dust Control** is required for all construction activities in the City of Toronto. The implementation of standard mitigation practices (e.g., silt fences, mud mats, etc.) are expected to provide adequate controls in this regard, and it is expected that this construction will occur concurrently with other construction activities in the roadway, thereby minimizing the duration during which these impacts may be felt.

Social Impacts

- **Traffic, Noise and Vibration** result from almost all construction activities of this nature. Similar to the above, standard mitigation practices are expected to provide adequate controls in this regard, and construction is expected to occur concurrently with other construction activities in the roadway, thereby minimizing the duration during which these impacts may be felt.
- **Safety During Construction** for both workers and the general public is of obvious importance. All construction practices will be required to conform to both the City's requirements as well as the Province's legislation in this regard.

studies to be conducted in support of directing storm drainage to other available systems, subject to satisfying the City with respect to the appropriateness thereof.

IMPLEMENTATION CONSIDERATIONS

As with current development planning application processes, the proponent will be responsible for the preparation of Functional Servicing and Stormwater Management Reports in support of any applications. These reports should clearly document how the proposed servicing strategy for the development in question satisfies the WWFMG, as modified by the Preferred Solution noted above.

For larger sites, it may become necessary to test the impact of the development on the receiving downstream sewer network to determine whether there might be adverse impacts on the performance of the sewer system, depending on the extent of implementation of measures identified in the relevant Basement Flooding Study Area Class EAs. The need for this work should be established in consultation with Toronto Water and can be undertaken with the use of the InfoWorks CS dynamic hydraulic models developed as part of the Basement Flooding Study Area Class EAs.

Very small sites may be challenged to meet the guideline relating to water balance or water quality control. In such instances, it should be demonstrated by the development proponent that meeting these guidelines would be either overly burdensome or impossible. As an alternative in these cases, the City may consider accepting cash-in-lieu financial contributions which may be applied toward other improvements in the same watershed. Similarly, smaller sites may be challenged to meet the 75 L/s/ha controlled release rate criterion and, in such instances, the City may consider accepting vortex-flow control devices that offer lower release rates with protection against clogging.

PLAN OF SURVEY
SHOWING TOPOGRAPHICAL INFORMATION OF
PART OF LOTS 13 AND 14 REGISTERED PLAN 867
AND
LOT 12 AND PART OF LOTS 1 AND 2 REGISTERED PLAN 3336
CITY OF TORONTO
(FORMERLY CITY OF NORTH YORK)

SCALE 1:250
0 5 10 15 30 45m

KRCMAR SURVEYORS LTD. 2022

METRIC: DISTANCES AND COORDINATES SHOWN HEREON ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

BEARING

BEARINGS SHOWN HEREON ARE GRID BEARINGS DERIVED FROM HORIZONTAL CONTROL MONUMENTS No. 020018240A4 AND No. 020197401J , AND ARE REFERRED TO THE 3° MTM COORDINATE SYSTEM, ZONE 10, CENTRAL MERIDIAN 79°30' WEST LONGITUDE, (3° MODIFIED TRANSVERSE MERCATOR PROJECTION, NAD 83 (CSRS)(1997)).

DISTANCES SHOWN HEREON ARE GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY A COMBINED SCALE FACTOR OF 0.99990.

INTEGRATION DATA

SPECIFIED CONTROL POINTS

MONUMENT ID.	PUBLISHED VALUES (NAD 27 1974 ADJUSTMENT, MTM ZONE 10)	CALCULATED VALUES (NAD 83 CORRECTIONS, MTM ZONE 10)
HCM #20018240A4	N: 4 842 684.391 E: 307 909.122	N: 4 842 906.400 E: 307 924.836
HCM #20197401J	N: 4 842 418.578 E: 308 269.397	N: 4 842 640.600 E: 308 285.116

3° MTM ZONE 10 COORDINATES, NAD 83 (CSRS)(2010.0)(CENTRAL MERIDIAN 79°30' WEST LONGITUDE)
THE MTM COORDINATES LISTED BELOW ARE TO URBAN ACCURACY AND COMPLY WITH SUBSECTION 14(2) OF ONTARIO REGULATION 216/10 FILED UNDER THE SURVEYORS ACT.

OBSERVED REFERENCE POINTS

POINT	NORTHING	EASTING
1	4 842 753.01	308 240.16
2	4 842 695.91	308 056.31
3	4 842 805.89	308 038.89
4	4 842 861.00	308 215.83
5	4 842 826.56	308 227.36

CORDINATE VALUES SHOWN ARE FOR GEOGRAPHIC INFORMATION SYSTEM INTEGRATION ONLY. COORDINATES CANNOT, IN THEMSELVES BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

ELEVATION

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE RELATED TO CITY OF TORONTO BENCH MARK No. 1231965816 HAVING AN ELEVATION OF 190.109 METRES. (COQG-11626-99678)

LEGEND

- SIB DENOTES SURVEY MONUMENT FOUND
- □ DENOTES SURVEY MONUMENT PLANTED
- ●HCM DENOTES HORIZONTAL CONTROL MONUMENT
- SIB DENOTES STANDARD IRON BAR
- SSIB DENOTES SHORT STANDARD IRON BAR
- IB DENOTES IRON BAR
- RIB DENOTES ROUND IRON BAR
- IB DENOTES IRON BAR
- IP DENOTES IRON PIPE
- CC DENOTES CUT CROSS
- (M) DENOTES MEASURED
- (S) DENOTES SET
- (OU) DENOTES ORIGIN UNKNOWN
- (WIT) DENOTES WITNESS
- (RP) DENOTES REGISTERED PLAN 3336
- (P1) DENOTES PLAN 66R-15356
- (P2) DENOTES PLAN 66R-16192
- (P3) DENOTES PLAN 66R-30644
- (P4) DENOTES PLAN 66R-30272
- (P4) DENOTES PLAN BY SPEIGHT, VAN NOSTRAND, WARD AND ANDERSON, O.L.S. DATED SEPTEMBER 22, 1956.
- (P5) DENOTES BOUNDARY AND TOPOGRAPHICAL SURVEY BY D.R. BLACK SURVEYING LTD., O.L.S. DATED NOVEMBER 14, 1985.
- (P6) DENOTES PLAN OF SURVEY BY SPEIGHT, VAN NOSTRAND, ANDERSON AND CURRIE, O.L.S. DATED JANUARY 31, 1966.
- (R1) DENOTES PLAN 64R-1620
- (R2) DENOTES PLAN 64R-16192
- (1370) DENOTES KRCMAR SURVEYORS LTD. O.L.S.
- (JCB) DENOTES J.C. BEATON, O.L.S.
- (DFP) DENOTES DONEVAN FLEISCHMANN PETRICH LTD., O.L.S.
- (HW) DENOTES HAROLD WHEELER & ASSOCIATES, O.L.S.
- (Tc) DENOTES TOP OF CURB
- (Bc) DENOTES BOTTOM OF CURB
- (Tw) DENOTES TOP OF WALL
- (Bw) DENOTES BOTTOM OF WALL
- DENOTES EXISTING GRADE ELEVATION
- A/C DENOTES AIR CONDITIONER
- BPED DENOTES BELL PEDESTAL
- BMH DENOTES BELL MANHOLE
- BP DENOTES BELL POLE
- BOL DENOTES BOLLARD
- DENOTES CATCH BASIN
- DENOTES CONIFEROUS TREE WITH TRUNK DIAMETER
- DENOTES DECIDUOUS TREE WITH TRUNK DIAMETER
- DENOTES DOWN GUY ANCHOR
- FH DENOTES FIRE HYDRANT
- DENOTES GAS METER
- GV DENOTES GAS VALVE
- HHW DENOTES HYDRO HAND WELL
- HMH DENOTES HYDRO MANHOLE
- HP DENOTES HYDRO POLE
- HPLS DENOTES HYDRO POLE WITH LAMP STANDAR
- LP DENOTES LAMP POST (PRIVATE)
- LS DENOTES LAMP STANDARD
- DENOTES MANHOLE
- SGN DENOTES SIGN
- TL DENOTES TRAFFIC LIGHT
- TPED DENOTES CABLE TV PEDESTAL
- WV DENOTES WATER VALVE
- BF DENOTES BOARD FENCE
- BFP DENOTES BRICK PILLAR
- CBL DENOTES CONCRETE BLOCK
- CLF DENOTES CHAIN LINK FENCE
- CONC DENOTES CONCRETE
- CPAD DENOTES CONCRETE PAD
- CPL DENOTES CONCRETE PLANTER(RAISED)
- CRW DENOTES CONCRETE RETAINING WALL
- CSW DENOTES CONCRETE SIDEWALK
- EOA DENOTES EDGE OF ASPHALT
- ILB DENOTES INTERLOCKING BRICK
- MF DENOTES METAL FENCE
- SPW DENOTES SPLIT RAIL
- SRW DENOTES STONE RETAINING WALL
- SILL DENOTES DOOR SILL
- WF DENOTES WROUGHT IRON FENCE
- DENOTES FENCE
- DENOTES GUARD RAIL
- DENOTES BELL SERVICE (OVERHEAD)
- DENOTES HYDRO SERVICE (OVERHEAD)

ALL BUILDING TIES TAKEN TO BRICK UNLESS NOTED OTHERWISE.

ALL FOUND BARS ARE BY KRCMAR SURVEYORS LTD., O.L.S. (1370) UNLESS NOTED OTHERWISE

TOTAL SITE AREA= 1.6680 ha

SURVEY REPORT

1. THE RE-ESTABLISHMENT OF THE SUBJECT PROPERTY BOUNDARIES IS BASED ON INFORMATION CONTAINED IN THE RELEVANT TITLE DOCUMENTS, REGISTERED PLANS AND ON THE EVIDENCE OF PRIOR SURVEYS FOUND DURING THE COURSE OF PREPARING THE SUBJECT SURVEY.
2. THE TYPE AND LOCATION OF THE EXISTING BUILDINGS AND OTHER IMPROVEMENTS, FENCES ETC., ON OR NEAR THE SUBJECT PROPERTY ARE AS SHOWN ON THE SURVEY PLAN.
3. COMPLIANCE WITH MUNICIPAL ZONING REQUIREMENTS IS NOT CERTIFIED BY THIS REPORT.
4. SUBJECT TO EASEMENT AS IN INST. NY629544.
5. SUBJECT TO EASEMENT AS IN INST. NY476059.
6. SUBJECT TO EASEMENT AS IN INST. AT5114265 OVER, PARTS 7, 8, 9, 10, 11 AND 12, PLAN 66R-30644.
7. TOGETHER WITH A RIGHT-OF-WAY AS IN INST. NY546335 OVER PART 2, PLAN 65R-30644.
8. TOGETHER WITH EASEMENT AS IN INST. AT5114260 OVER PART 6, PLAN 65R-30644.
9. LAND COMPRISES ALL OF PIN 10236-0025(LT).

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 21st DAY OF JUNE, 2022

DATE June 22, 2022

E.N. RAMSAROOP
ONTARIO LAND SURVEYOR

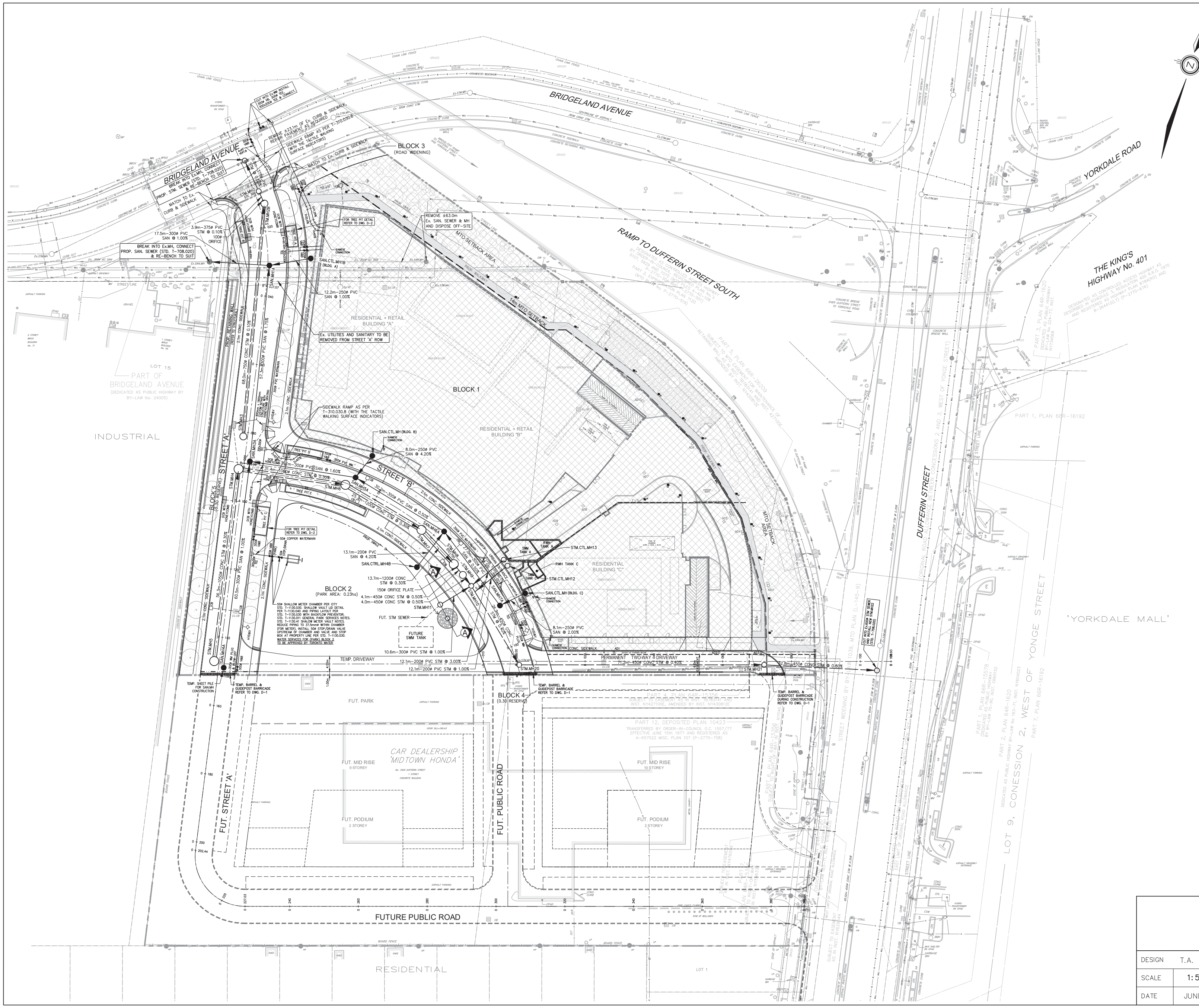
THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER V-26206

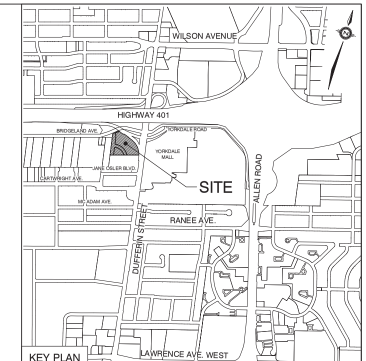
MUNICIPAL ADDRESS: No.3400 DUFFERIN STREET, TORONTO					
FIELD: G.L.	DRAWN: S.D.	CHECKED: S.R.R.	JOB NO: 20-133		
DWG NAME: 21-133STD	PLOT INFO: 00:49 22-Jun-2022	WORK ORDER NO: 36581			

1137 Centre Street Thornhill ON L4J 3M6 905.738.8053 F 905.738.8211 www.krcmar.ca

PLAN AVAILABLE AT www.ProtectYourBoundaries.ca

KRCMAR





KEY PLAN
N.T.S.

LEGEND

- DENOTES SANITARY MANHOLE
- DENOTES STORM MANHOLE
- DENOTES CATCHBASIN/DOUBLE CATCHBASIN WITH GOSS TRAPS
- AD DENOTES AREA DRAIN
- DENOTES BACK FLOW PREVENTOR
- DENOTES DETECTOR ASSEMBLY
- DENOTES WATER METER
- DENOTES HYDRANT
- DENOTES VALVE AND BOX
- DENOTES DEVELOPMENT LIMIT
- DENOTES UNDERGROUND PARKING BELOW
- DENOTES EXISTING WATER MAIN
- H DENOTES EXISTING HYDRO
- GAS DENOTES EXISTING GAS MAIN
- BELL DENOTES EXISTING BELL CABLE
- DENOTES SITE PLAN APPLICATION No. 21 106823 NNY 08 SA (REFER TO SCHAEFFERS PROJECT No. 4966 SITE PLAN)

NOTE:

1. FOR SECTION A REFER TO DWG. D-2

CONTRACTOR TO BE ADVISED THAT THE CONDITION OF THE EXISTING SITE MAY BE ALTERED FROM ORIGINAL CONDITION SHOWN ON THIS PLAN AS A RESULT OF DEMOLITION AND REMOVAL OF EXISTING STRUCTURES.

PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL RIGHT OF WAY THE CONTRACTOR OR DEVELOPER OR CONSULTANT WILL OBTAIN ALL NECESSARY ROAD OCCUPANCY PERMITS FROM THE CITY'S RIGHTOF-WAY MANAGEMENT SECTION. CONTACT 416-394-8422.

TORONTO BENCH MARK No. NY18017

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO THE CITY OF TORONTO BENCHMARK NY18017 HAVING A PUBLISHED ELEVATION OF 190.086 METRES.

DIGITAL INFORMATION

No.	DATE	REVISIONS	INITIAL	SIGNED
1.	JUL.30.2021	FIRST ENGINEERING SUBMISSION TO CITY	T.A.	

SCHAEFFERS
CONSULTING ENGINEERS
SCHAEFFER & ASSOCIATES LTD.

6 Ronrose Drive, Concord,
Ontario L4K 4R3
Tel: (905) 738-6100
Fax: (905) 738-6875
design@schaeffers.com

REGISTERED PROFESSIONAL ENGINEER
H.SARKISSIAN
May 03/2022
PROVINCE OF ONTARIO

TORONTO ENGINEERING & CONSTRUCTION SERVICES DIVISION

ACCEPTED TO BE IN ACCORDANCE WITH THE CITY OF TORONTO STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.

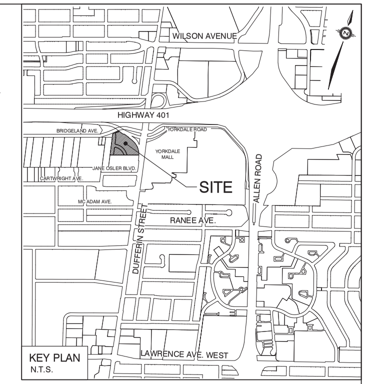
MANAGER - DEVELOPMENT ENGINEERING DATE: ________

3450 DUFFERIN STREET
CITY OF TORONTO

GENERAL PLAN

DESIGN	T.A.	DRAWN	M.P.	CHECKED	H.S.	PROJECT No.	2020-4966
SCALE	1:500			DRAWING NUMBER		GP-1	
DATE	JUNE 2016						

F:\4966\4966-GENERAL\4966-GP-1.DWG | 2022-06-23 9:59:15 AM | vbelov



KEY PLAN
N.T.S.

LEGEND

●	DENOTES SANITARY MANHOLE
○	DENOTES STORM MANHOLE
☐ ☐☐	DENOTES CATCHBASIN/DOUBLE CATCHBASIN WITH GOSS TRAPS
☐ AD	DENOTES AREA DRAIN
	DENOTES HYDRANT
	DENOTES VALVE AND BOX
	DENOTES WATER METER AND BACKFLOW PREVENTER
	DENOTES PROPERTY LINE
	DENOTES OVERLAND FLOW ARROW
131.48	DENOTES PROPOSED ELEVATION
131.48 TC	DENOTES PROPOSED TOP OF CURB
131.48 BC	DENOTES PROPOSED BOTTOM OF CURB
131.48 G	DENOTES PROPOSED GUTTER
131.48 TW	DENOTES PROPOSED TOP OF RETAINING WALL
131.48 BW	DENOTES PROPOSED BOTTOM OF RETAINING WALL
130.29	DENOTES EXISTING ELEVATION
	DENOTES SURFACE PONDING
	DENOTES SITE PLAN APPLICATION No. 21 106823 NNY 08 SA (REFER TO SCHAEFFERS PROJECT No. 4966 SITE PLAN)

NOTE:

1. FOR SECTIONS 1 TO 3 REFER TO DWG. SEC-1

PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL RIGHT OF WAY THE CONTRACTOR OR DEVELOPER OR CONSULTANT WILL OBTAIN ALL NECESSARY ROAD OCCUPANCY PERMITS FROM THE CITY'S RIGHTOF-WAY MANAGEMENT SECTION. CONTACT 416-394-8422.

TORONTO BENCH MARK No. NY18017

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO THE CITY OF TORONTO BENCHMARK NY18017 HAVING A PUBLISHED ELEVATION OF 190.086 METRES.

DIGITAL INFORMATION

No.	DATE	REVISIONS	INITIAL	SIGNED
1.	JUL.30.2021	FIRST ENGINEERING SUBMISSION TO CITY	T.A.	

SCHAEFFERS
CONSULTING ENGINEERS
SCHAEFFER & ASSOCIATES LTD.

6 Ronrose Drive, Concord, Ontario L4K 4R3
Tel: (905) 738-6100
Fax: (905) 738-6875
design@schaeffers.com

REGISTERED PROFESSIONAL ENGINEER
H.SARKISSIAN
May 03/2022
PROVINCE OF ONTARIO

TORONTO ENGINEERING & CONSTRUCTION SERVICES DIVISION

ACCEPTED TO BE IN ACCORDANCE WITH THE CITY OF TORONTO STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.

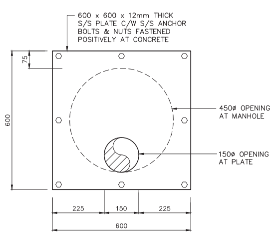
MANAGER - DEVELOPMENT ENGINEERING DATE: ________

3450 DUFFERIN STREET
CITY OF TORONTO

GRADING PLAN

DESIGN	T.A.	DRAWN	M.P.	CHECKED	H.S.	PROJECT No.	2020-4966
SCALE	1:400			DRAWING NUMBER		GR-1	
DATE	JUNE 2016						

F:\4966\4966-GRADING\4966-GR-1.DWG | 2022-06-23 9:08:14 AM | vbelov



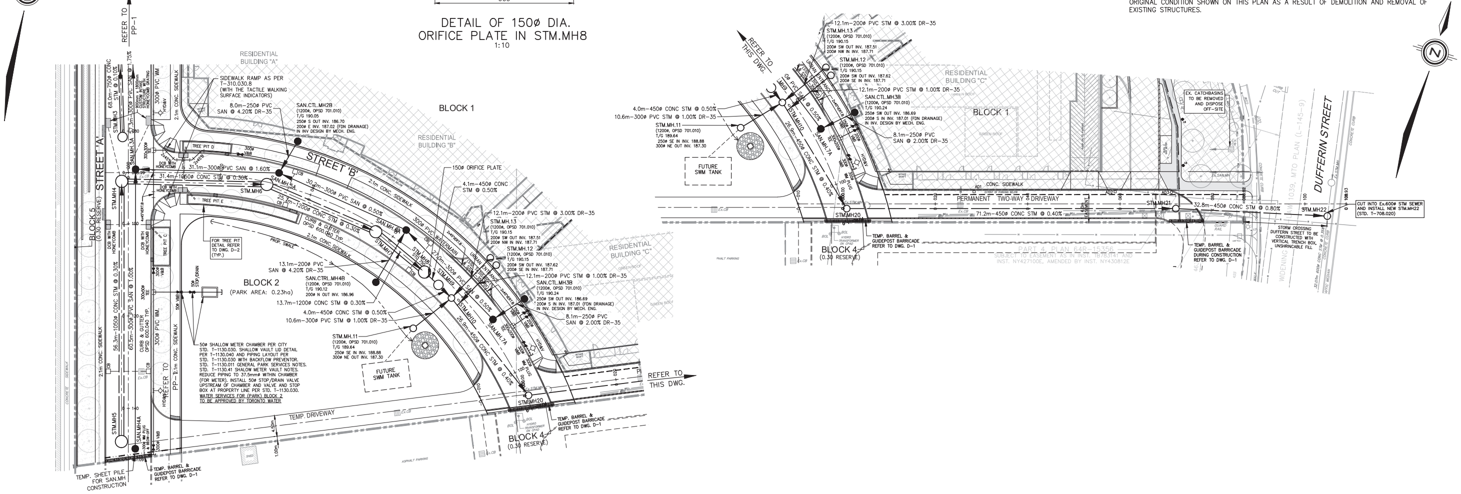
DETAIL OF 150Ø DIA.
ORIFICE PLATE IN STM.MH8
1:10

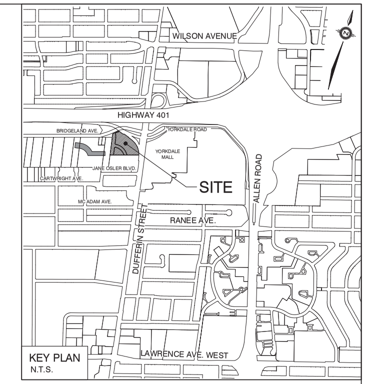
NOTES:

1. FOR GENERAL NOTES REFER TO DWG. No. GN–1.
2. THE LOCATION OF ALL UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON CONTRACT DRAWINGS, AND WHERE SHOWN THE ACCURACY OF THE LOCATION AND ELEVATION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. PRIOR TO COMMENCING THE CONSTRUCTION, THE CONTRACTOR SHALL VERIFY EXACT LOCATION AND ELEVATION OF SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITIES OF DAMAGE.
3. ANY CONFLICTS WITH EXISTING SERVICES AND/OR UTILITIES SHALL BE REPORTED TO THE ENGINEER FOR REVIEW AND ADVICE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
4. INFORMATION REGARDING ANY EXISTING SERVICES AND/OR UTILITIES SHOWN ON THIS DRAWING ARE FURNISHED AS THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL INTERPRET THIS INFORMATION AS HE SEES FIT WITH THE UNDERSTANDING THAT THE OWNER, ENGINEER AND CITY DISCLAIM ALL RESPONSIBILITY FOR ITS ACCURACY AND/OR SUFFICIENCY.
5. THE CONTRACTOR SHALL PROVIDE DETAILS TO SUPPORT THE EX. SERVICES AND/OR UTILITIES FOR ENGINEER'S APPROVAL PRIOR TO THE START OF CONSTRUCTION.

SPECIAL NOTES:

1. ALL PROPOSED PIPES IN THE EXISTING R.O.W. TO BE CONSTRUCTED IN VERTICAL TRENCH BOX. THE TRENCH SHALL BE BACKFILLED WITH UNSHRINKABLE MATERIAL.
2. ANY REQUIRED DEWATERING OF SEWER TRENCHES SHALL BE AS PER SOILS REPORT.
3. WHERE THE WATERMAIN WILL BE INSTALLED IN FILL AREAS FOR ANY REASON SUCH AS EXCAVATION OF TRENCHES, SITE DEMOLITION BACKFILL, ETC. THE WATERMAIN SHALL BE CONSTRUCTED WITH RESTRAINED JOINTS.
4. CONTRACTOR TO BE ADVISED THAT THE CONDITION OF THE EXISTING SITE MAY BE ALTERED FROM ORIGINAL CONDITION SHOWN ON THIS PLAN AS A RESULT OF DEMOLITION AND REMOVAL OF EXISTING STRUCTURES.





KEY PLAN
N.T.S.

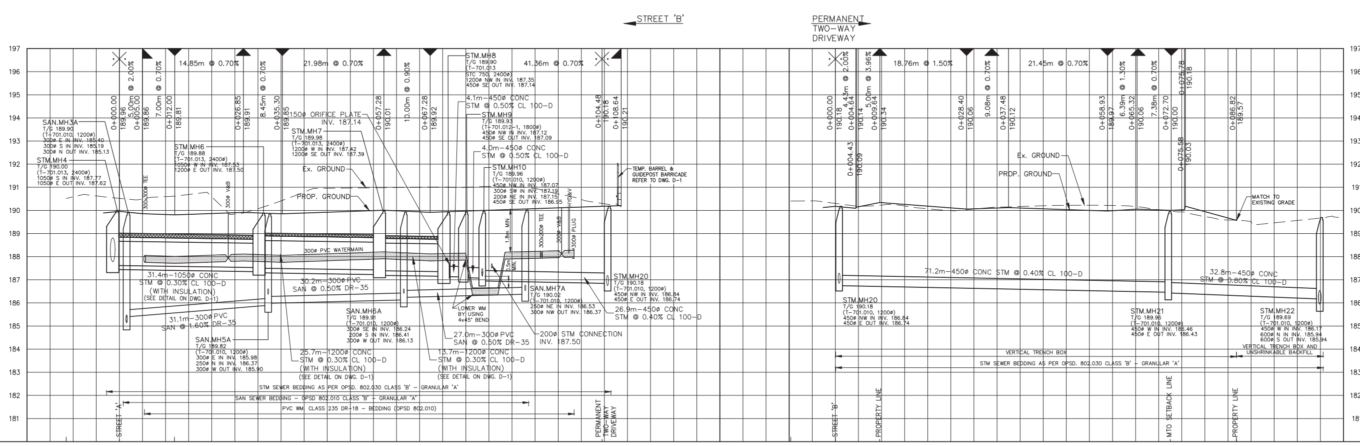
LEGEND

- DENOTES SANITARY MANHOLE
- DENOTES STORM MANHOLE
- DENOTES CATCHBASIN/DOUBLE CATCHBASIN WITH GOSS TRAPS
- DENOTES HYDRANT
- DENOTES VALVE AND BOX
- DENOTES DEVELOPMENT LIMIT
- DENOTES UNDERGROUND PARKING BELOW
- DENOTES EXISTING WATER MAIN
- DENOTES EXISTING HYDRO
- DENOTES EXISTING GAS MAIN
- DENOTES EXISTING BELL CABLE
- DENOTES SITE PLAN APPLICATION No. 21 106823 NNY 08 SA (REFER TO SCHAEFFERS PROJECT No. 4966 SITE PLAN)

PAVEMENT MAKE–UP FOR STREET 'B' (LOCAL)
AND PERMANENT TWO–WAY DRIVEWAY & TEMP. DRIVEWAY

40mm HMA SURFACE COURSE, TS 1151 SP 12.5
60mm HMA BINDER COURSE, TS 1151 SP 19.0
150mm GRANULAR BASE COURSE, TS 1010 GRANULAR 'A'
150mm GRANULAR SUBBASE COURSE, TS 1010 GRANULAR 'B' – TYPE II

PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL RIGHT OF WAY THE CONTRACTOR OR DEVELOPER OR CONSULTANT WILL OBTAIN ALL NECESSARY ROAD OCCUPANCY PERMITS FROM THE CITY'S RIGHTOF–WAY MANAGEMENT SECTION. CONTACT 416–394–8422.



GEODETIC DATUM															
PROPOSED/EXISITING ELEVATION	189.96	189.87	189.89	189.98	190.01	190.15		190.18	190.18	190.10	189.99			PROPOSED/EXISITING ELEVATION
CHAINAGE	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+120.00	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	CHAINAGE

TORONTO BENCH MARK No. NY18017

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO THE CITY OF TORONTO BENCHMARK NY18017 HAVING A PUBLISHED ELEVATION OF 190.086 METRES.

DIGITAL INFORMATION

No.	DATE	REVISIONS	INITIAL	SIGNED
1.	JUL.30.2021	FIRST ENGINEERING SUBMISSION TO CITY	T.A.	

SCHAEFFERS CONSULTING ENGINEERS
SCHAEFFER & ASSOCIATES LTD.
6 Ronrose Drive, Concord, Ontario L4K 4R3
Tel: (905) 738-6100
Fax: (905) 738-6875
design@schaeffers.com

REGISTERED PROFESSIONAL ENGINEER H.SARKISSIAN PROVINCE OF ONTARIO

TORONTO ENGINEERING & CONSTRUCTION SERVICES DIVISION

ACCEPTED TO BE IN ACCORDANCE WITH THE CITY OF TORONTO STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.

MANAGER - DEVELOPMENT ENGINEERING DATE: ________

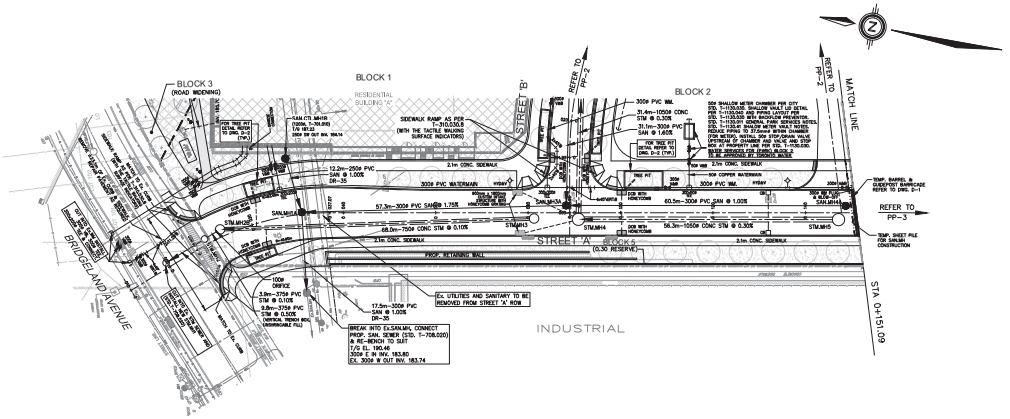
3450 DUFFERIN STREET
CITY OF TORONTO

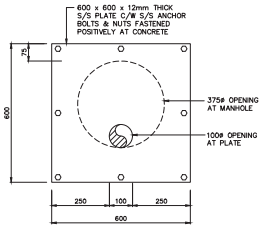
STREET B
STA. 0+000.000 TO STA. 0+108.640

PERMANENT DRIVEWAY
STA. 0+000.000 TO STA. 0+086.530

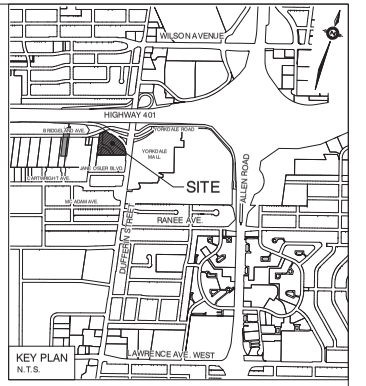
DESIGN	T.A.	DRAWN	M.P.	CHECKED	H.S.	PROJECT No.	2020-4966
SCALE	H 1:500 V 1:100			DRAWING NUMBER		PP-2	
DATE	JUNE 2016						

F:\4966\4966–PLAN–PROFILES\4966–PP–2.DWG | 2022–06–23 9:50:39 AM | vbelov





DETAIL OF 100ø DIA.
ORIFICE PLATE IN STM.MH2B
1:10



LEGEND

- DENOTES SANITARY MANHOLE
- DENOTES STORM MANHOLE
- DENOTES CATCHBASIN/DOUBLE CATCHBASIN WITH GOSS TRAPS
- DENOTES HYDRANT
- DENOTES VALVE AND BOX
- DENOTES DEVELOPMENT LIMIT
- DENOTES UNDERGROUND PARKING BELOW
- DENOTES EXISTING WATER MAIN
- DENOTES EXISTING HYDRO
- DENOTES EXISTING GAS MAIN
- DENOTES EXISTING BELL CABLE
- DENOTES SITE PLAN APPLICATION No. 21 106823 NNY 08 SA (REFER TO SCHAEFFERS PROJECT No. 4966 SITE PLAN)

NOTES:

1. FOR GENERAL NOTES REFER TO DWG. No. GN–1.
2. THE LOCATION OF ALL UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON CONTRACT DRAWINGS, AND WHERE SHOWN THE ACCURACY OF THE LOCATION AND ELEVATION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. PRIOR TO COMMENCING THE CONSTRUCTION, THE CONTRACTOR SHALL VERIFY EXACT LOCATION AND ELEVATION OF SUCH UTILITIES AND STRUCTURES AND SHALL ASSUME ALL LIABILITIES OF DAMAGE.
3. ANY CONFLICTS WITH EXISTING SERVICES AND/OR UTILITIES SHALL BE REPORTED TO THE ENGINEER FOR REVIEW AND ADVICE PRIOR TO COMMENCEMENT OF CONSTRUCTION.
4. INFORMATION REGARDING ANY EXISTING SERVICES AND/OR UTILITIES SHOWN ON THIS DRAWING ARE FURNISHED AS THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL INTERPRET THIS INFORMATION AS HE SEES FIT WITH THE UNDERSTANDING THAT THE OWNER, ENGINEER AND CITY DISCLAIM ALL RESPONSIBILITY FOR ITS ACCURACY AND/OR SUFFICIENCY.
5. THE CONTRACTOR SHALL PROVIDE DETAILS TO SUPPORT THE EX. SERVICES AND/OR UTILITIES FOR ENGINEER'S APPROVAL PRIOR TO THE START OF CONSTRUCTION.

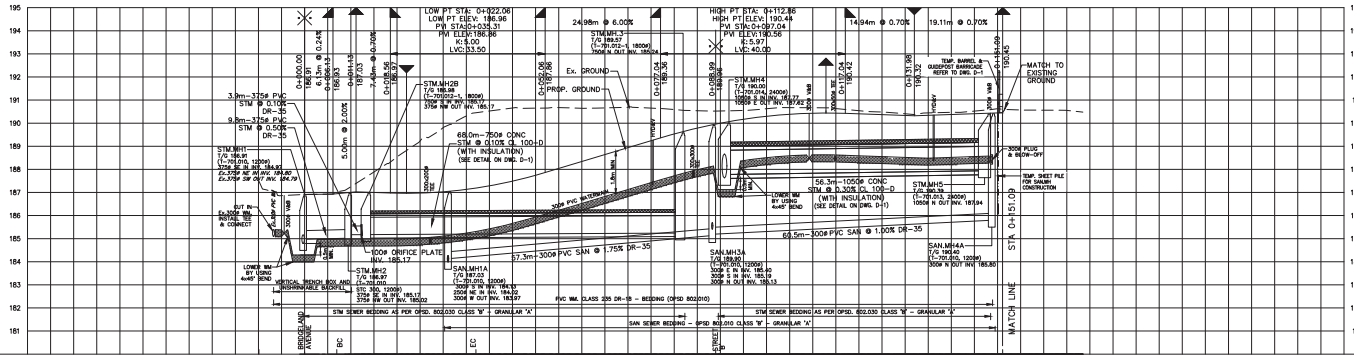
SPECIAL NOTES:

1. ALL PROPOSED PIPES IN THE EXISTING R.O.W. TO BE CONSTRUCTED IN VERTICAL TRENCH BOX. THE TRENCH SHALL BE BACKFILLED WITH UNSHRINKABLE MATERIAL.
2. ANY REQUIRED DEWATERING OF SEWER TRENCHES SHALL BE AS PER SOILS REPORT.
3. WHERE THE WATERMAIN WILL BE INSTALLED IN FILL AREAS FOR ANY REASON SUCH AS EXCAVATION OF TRENCHES, SITE DEMOLITION BACKFILL, ETC. THE WATERMAIN SHALL BE CONSTRUCTED WITH RESTRAINED JOINTS.
4. CONTRACTOR TO BE ADVISED THAT THE CONDITION OF THE EXISTING SITE MAY BE ALTERED FROM ORIGINAL CONDITION SHOWN ON THIS PLAN AS A RESULT OF DEMOLITION AND REMOVAL OF EXISTING STRUCTURES.

PAVEMENT MAKE–UP FOR STREET 'A' (COLLECTOR)

40mm HMA SURFACE COURSE, TS 1151 SP 12.5
70mm HMA BINDER COURSE, TS 1151 SP 19.0
150mm GRANULAR BASE COURSE, TS 1010 GRANULAR 'A'
150mm GRANULAR SUBBASE COURSE, TS 1010 GRANULAR 'B' – TYPE II

PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL RIGHT OF WAY THE CONTRACTOR OR DEVELOPER OR CONSULTANT WILL OBTAIN ALL NECESSARY ROAD OCCUPANCY PERMITS FROM THE CITY'S RIGHTOF–WAY MANAGEMENT SECTION. CONTACT 416–394–8422.



GEODETIC DATUM									GEODETIC DATUM
PROPOSED/EXISITING ELEVATION	186.91 / 186.91	186.97 / 186.84	187.28 / 186.52	188.34 / 186.64	189.53 / 186.58	190.30 / 186.62	190.40 / 186.64	190.37 / 186.47	190.39 / 186.36	PROPOSED/EXISITING ELEVATION
CHAINAGE	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00	CHAINAGE

TORONTO BENCH MARK No. NY18017

ELEVATIONS SHOWN HEREON ARE GEODETIC AND ARE REFERRED TO THE CITY OF TORONTO BENCHMARK NY18017 HAVING A PUBLISHED ELEVATION OF 190.086 METRES.

DIGITAL INFORMATION

No.	DATE	REVISIONS	INITIAL	SIGNED
1.	JUL.30.2021	FIRST ENGINEERING SUBMISSION TO CITY	T.A.	

SCHAEFFERS CONSULTING ENGINEERS
SCHAEFFER & ASSOCIATES LTD.
6 Ronrose Drive, Concord, Ontario L4K 4R3
Tel: (905) 738-6100
Fax: (905) 738-6875
design@schaeffers.com

H. SARKISSIAN — 100143757 — PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO

ENGINEERING & CONSTRUCTION SERVICES DIVISION

ACCEPTED TO BE IN ACCORDANCE WITH THE CITY OF TORONTO STANDARDS. THIS ACCEPTANCE IS NOT TO BE CONSTRUED AS VERIFICATION OF ENGINEERING CONTENT.

MANAGER - DEVELOPMENT ENGINEERING — DATE: _____

3450 DUFFERIN STREET
CITY OF TORONTO
STREET A
STA. 0+000.000 TO STA. 0+151.090

DESIGN	T.A.	DRAWN	M.P.	CHECKED	H.S.	PROJECT No.	2020-4966
SCALE	H 1:500 V 1:100					DRAWING NUMBER	PP-1
DATE	JUNE 2016						

F:\4966\4966-PLAN-PROFILES\4966-PP-1.DWG | 2022-06-23 9:51:38 AM | shelov

3400 DUFFERIN STREET

APPLICATION FOR ZONING BY-LAW AMENDMENT

PROJECT TEAM

DEVELOPER
Collecdev
20 Eglinton Ave W. Suite 1700
Toronto ON, M4R 1K8
T: 416-640-4000
collecdev.com

ARCHITECTURAL & LANDSCAPE ARCHITECTURE
gh3*
T: 416.915.1791
gh3.ca

PLANNING & URBAN DESIGN
Bousfields
T: 416.947.9744
bousfields.ca

CIVIL ENGINEERING
IBI GROUP
T: 905.763.2322
ibigroup.com

WIND & ARBORIST
SLR Consulting
T: 226.706.8080
slrconsulting.com

TRANSPORTATION
BA GROUP
T: 416.961.7110
bagroup.com

STRUCTURAL
TBD

MECHANICAL & ELECTRICAL
TBD

ARCHITECTURAL SHEET LIST

Sheet	Drawing Name	Current Revision
A000 PROJECT INFORMATION		
A000	COVER SHEET	
A001	STATISTICS	
A100 SITE		
A100	CONTEXT PLAN	
A101	SURVEY	
A102	ROOF PLAN	
A103	GROUND FLOOR SITE PLAN	
A105	LEVEL P1 FLOOR PLAN	
A200 PLANS		
A200	LEVEL 1 FLOOR PLAN	
A201	LEVEL 2 FLOOR PLAN	
A202	LEVEL 3 FLOOR PLAN	
A203	LEVEL 4 FLOOR PLAN	
A204	LEVEL 5 FLOOR PLAN	
A205	LEVEL 6 FLOOR PLAN	
A206	LEVEL 7 FLOOR PLAN	
A208	LEVEL 9 FLOOR PLAN	
A209	LEVEL 10 FLOOR PLAN	
A210	LEVEL 11-29 FLOOR PLAN	
A300 ELEVATIONS		
A300	SITE ELEVATIONS	
A301	SITE ELEVATIONS	
A302	BUILDING A ELEVATIONS	
A303	BUILDING B ELEVATIONS	
A304	BUILDING C ELEVATIONS	
A400 SECTIONS		
A400	SITE SECTIONS	
A401	SITE SECTIONS	
A402	SITE SECTIONS	
A500 MASSING VIEW		
A500	MASSING VIEW	
L100 PLANS		
L101	LANDSCAPE PLAN	1
L102	LANDSCAPE ROOF PLANS	
L103	PLANTING & SOIL VOLUME PLAN	1
L400 DETAILS		
L401	LANDSCAPE DETAILS	
L402	LANDSCAPE DETAILS	
L403	COT TYP DETAILS	

Rev. Date Issued

COLLECDEV

gh3
gh3*
55 OSSINGTON AVE, SUITE 100
Toronto, ON, Canada M6J 2Y9
416 915 1791

COLLECDEV
3400 DUFFERIN STREET

TORONTO

Project North True North

SCALE
PROJECT NO. 202211
ISSUE DATE -

COVER SHEET

A000

1.0 SUMMARY

GROSS SITE AREA: 16,680m²
TOTAL GFA: 60,811 m²
FSI: 3.65
NEW RESIDENTIAL UNITS: 834

PART B - BUILDING A
SITE AREA: 4,046 m²
GFA: 27,947 m²
FSI: 6.9
NEW RESIDENTIAL UNITS: 388

PART D - BUILDING B
SITE AREA: 4,079 m²
GFA: 26,971 m²
FSI: 6.6
NEW RESIDENTIAL UNITS: 371

PART C - BUILDING C
SITE AREA: 1,811 m²
GFA: 5,805 m²
FSI: 3.1
NEW RESIDENTIAL UNITS: 75

2.0 BUILDING HEIGHTS

3.0 FLOOR AREA

*GFA calculated per Area Plans, A1001 - A1003

2.2 FLOOR AREA

Level	# of Levels	CSA			GFA								Amenity	
		GCA/Level (m²)	Total CSA (m²)	CSA (sf)	Residential GCA (m2)	Residential GCA (sf)	Loading GCA (m2)	Parking GCA (m2)	GFA Deductions (m2)	GFA (SF)	GFA (m2)	Residential GFA (m2)	Non-Resi / Retail GFA (m2)	Leasable (m2)	Indoor Amenity (m2)	Outdoor Amenity (m2)
BELOW GRADE																
P2	1	8659 m²	8659 m²	93201 SF	8659 m²	93201 SF	0 m²	8659 m²	8536 m²	1320 SF	123 m²	123 m²	0 m²	0 m²	0 m²	0 m²
P1	1	8518 m²	8518 m²	91683 SF	8518 m²	91683 SF	0 m²	8518 m²	8352 m²	1786 SF	166 m²	166 m²	0 m²	0 m²	0 m²	0 m²
BELOW GRADE TOTAL		[1]	**17176 m²**	**184884 SF**	**17176 m²**	**184884 SF**	**0 m²**	**17176 m²**	**16888 m²**	**3106 SF**	**289 m²**	**289 m²**	**0 m²**	**0 m²**	**0 m²**	**0 m²**
BUILDING A																
Level 1	1	2530 m²	2440 m²	26260 SF	2440 m²	26260 SF	345 m²	0 m²	717 m²	18537 SF	1722 m²	1722 m²	0 m²	1084 m²	89 m²	0 m²
Level 2	1	2478 m²	2170 m²	23355 SF	2170 m²	23355 SF	0 m²	0 m²	95 m²	22331 SF	2075 m²	2075 m²	0 m²	1878 m²	0 m²	0 m²
Level 3	1	2478 m²	2170 m²	23355 SF	2170 m²	23355 SF	0 m²	0 m²	261 m²	20551 SF	1909 m²	1909 m²	0 m²	1878 m²	0 m²	0 m²
Level 4	1	2478 m²	2170 m²	23355 SF	2170 m²	23355 SF	0 m²	0 m²	95 m²	22331 SF	2075 m²	2075 m²	0 m²	1878 m²	0 m²	0 m²
Level 5	1	2274 m²	2057 m²	22144 SF	2057 m²	22144 SF	0 m²	0 m²	80 m²	21287 SF	1978 m²	1978 m²	0 m²	1782 m²	0 m²	0 m²
Level 6	1	2289 m²	2073 m²	22313 SF	2073 m²	22313 SF	0 m²	0 m²	95 m²	21287 SF	1978 m²	1978 m²	0 m²	1782 m²	0 m²	0 m²
Level 7	1	1312 m²	1254 m²	13499 SF	1254 m²	13499 SF	0 m²	0 m²	312 m²	10136 SF	942 m²	942 m²	0 m²	857 m²	277 m²	0 m²
Level 8	1	1034 m²	986 m²	10611 SF	986 m²	10611 SF	0 m²	0 m²	296 m²	7421 SF	689 m²	689 m²	0 m²	601 m²	227 m²	224 m²
Level 9	1	794 m²	746 m²	8035 SF	746 m²	8035 SF	0 m²	0 m²	50 m²	7495 SF	696 m²	696 m²	0 m²	701 m²	0 m²	0 m²
Level 10	1	794 m²	746 m²	8035 SF	746 m²	8035 SF	0 m²	0 m²	93 m²	7035 SF	654 m²	654 m²	0 m²	701 m²	0 m²	0 m²
Level 11-29	19	794 m²	14183 m²	152664 SF	14183 m²	152664 SF	0 m²	0 m²	953 m²	142408 SF	13230 m²	13230 m²	0 m²	13327 m²	0 m²	0 m²
BUILDING A TOTAL		[2]	**30995 m²**	**333627 SF**	**30995 m²**	**333627 SF**	**345 m²**	**0 m²**	**3048 m²**	**300821 SF**	**27947 m²**	**27947 m²**	**0 m²**	**26469 m²**	**593 m²**	**224 m²**
BUILDING B																
Level 1	1	2342 m²	2342 m²	25208 SF	1131 m²	12179 SF	359 m²	0 m²	672 m²	17978 SF	1670 m²	593 m²	1077 m²	1286 m²	134 m²	0 m²
Level 2	1	1693 m²	1558 m²	16772 SF	1558 m²	16772 SF	0 m²	0 m²	99 m²	15705 SF	1459 m²	1459 m²	0 m²	1427 m²	0 m²	0 m²
Level 3	1	2218 m²	1970 m²	21205 SF	1970 m²	21205 SF	0 m²	0 m²	94 m²	20191 SF	1876 m²	1876 m²	0 m²	2093 m²	0 m²	0 m²
Level 4	1	2374 m²	2126 m²	22882 SF	2126 m²	22882 SF	0 m²	0 m²	94 m²	21688 SF	2032 m²	2032 m²	0 m²	2093 m²	0 m²	0 m²
Level 5	1	2155 m²	1977 m²	21281 SF	1977 m²	21281 SF	0 m²	0 m²	94 m²	20268 SF	1883 m²	1883 m²	0 m²	1873 m²	0 m²	0 m²
Level 6	1	2155 m²	1977 m²	21281 SF	1977 m²	21281 SF	0 m²	0 m²	94 m²	20268 SF	1883 m²	1883 m²	0 m²	1873 m²	0 m²	0 m²
Level 7	1	1322 m²	1265 m²	13612 SF	977 m²	10519 SF	0 m²	0 m²	367 m²	9665 SF	898 m²	898 m²	0 m²	857 m²	287 m²	540 m²
Level 8	1	1034 m²	986 m²	10611 SF	759 m²	8173 SF	0 m²	0 m²	355 m²	6793 SF	631 m²	631 m²	0 m²	648 m²	227 m²	231 m²
Level 9	1	794 m²	747 m²	8036 SF	747 m²	8036 SF	0 m²	0 m²	49 m²	7504 SF	697 m²	697 m²	0 m²	702 m²	0 m²	0 m²
Level 10	1	794 m²	747 m²	8036 SF	747 m²	8036 SF	0 m²	0 m²	49 m²	7504 SF	697 m²	697 m²	0 m²	702 m²	0 m²	0 m²
Level 11-29	19	794 m²	14184 m²	152677 SF	14184 m²	152677 SF	0 m²	0 m²	939 m²	142567 SF	13245 m²	13245 m²	0 m²	13331 m²	0 m²	0 m²
BUILDING B TOTAL		[1]	**29878 m²**	**321609 SF**	**28153 m²**	**303039 SF**	**359 m²**	**0 m²**	**2907 m²**	**290311 SF**	**26971 m²**	**25894 m²**	**1077 m²**	**26886 m²**	**647 m²**	**770 m²**
BUILDING C																
Level 1	1	1035 m²	1035 m²	11145 SF	244 m²	2624 SF	446 m²	0 m²	610 m²	4578 SF	425 m²	137 m²	288 m²	288 m²	0 m²	504 m²
Level 2	1	973 m²	973 m²	10477 SF	973 m²	10477 SF	0 m²	0 m²	42 m²	10023 SF	931 m²	931 m²	0 m²	786 m²	59 m²	0 m²
Level 3	1	973 m²	973 m²	10477 SF	973 m²	10477 SF	0 m²	0 m²	42 m²	10023 SF	931 m²	931 m²	0 m²	786 m²	59 m²	0 m²
Level 4	1	826 m²	826 m²	8894 SF	759 m²	8168 SF	0 m²	0 m²	110 m²	7714 SF	717 m²	717 m²	0 m²	668 m²	67 m²	0 m²
Level 5	1	826 m²	826 m²	8894 SF	759 m²	8168 SF	0 m²	0 m²	110 m²	7714 SF	717 m²	717 m²	0 m²	668 m²	67 m²	0 m²
Level 6	1	826 m²	826 m²	8894 SF	759 m²	8168 SF	0 m²	0 m²	110 m²	7714 SF	717 m²	717 m²	0 m²	668 m²	67 m²	0 m²
Level 7	1	618 m²	473 m²	5088 SF	348 m²	3742 SF	0 m²	0 m²	167 m²	3291 SF	306 m²	306 m²	0 m²	419 m²	125 m²	0 m²
Level 8	1	473 m²	473 m²	5088 SF	473 m²	5088 SF	0 m²	0 m²	42 m²	4637 SF	431 m²	431 m²	0 m²	398 m²	0 m²	0 m²
Level 9	1	473 m²	473 m²	5088 SF	473 m²	5088 SF	0 m²	0 m²	42 m²	4637 SF	431 m²	431 m²	0 m²	398 m²	0 m²	0 m²
Level 10	1	170 m²	170 m²	1826 SF	0 m²	0 SF	0 m²	0 m²	170 m²	0 SF	0 m²	0 m²	0 m²	0 m²	0 m²	0 m²
BUILDING C TOTAL			**7049 m²**	**75871 SF**	**5760 m²**	**61998 SF**	**446 m²**	**0 m²**	**1444 m²**	**60332 SF**	**5605 m²**	**5317 m²**	**288 m²**	**5081 m²**	**446 m²**	**504 m²**
GRAND TOTAL		**61301 m²**	**85097 m²**	**915962 SF**	**82864 m²**	**883548 SF**	**1149 m²**	**17176 m²**	**24286 m²**	**654569 SF**	**60811 m²**	**59447 m²**	**1365 m²**	**59436 m²**	**1686 m²**	**1498 m²**

2.3 RESIDENTIAL UNITS

Level	UNIT COUNT					Total Units/Floor	Total Units
	1B	1B + D	2B	2B + D	3B		
BELOW GRADE							
P2	0	0	0	0	0	0	0
P1	0	0	0	0	0	0	0
BELOW GRADE TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**
BUILDING A							
Level 1	5	4	7	0	2	18	18
Level 2	7	7	11	0	3	28	28
Level 3	7	7	11	0	3	28	28
Level 4	8	6	11	0	3	28	28
Level 5	8	6	10	0	3	27	27
Level 6	6	6	12	0	3	27	27
Level 7	0	8	2	0	2	12	12
Level 8	0	8	2	0	0	10	10
Level 9	0	6	2	1	1	10	10
Level 10	0	6	2	1	1	10	10
Level 11-29	0	114	38	19	19	10	190
BUILDING A TOTAL	**41**	**178**	**108**	**21**	**40**	**208**	**388**
BUILDING B							
Level 1	3	1	0	0	0	4	4
Level 2	9	5	4	0	3	21	21
Level 3	10	6	9	0	4	29	29
Level 4	11	5	9	0	4	29	29
Level 5	12	4	10	0	2	28	28
Level 6	12	4	10	0	2	28	28
Level 7	0	8	2	0	2	12	12
Level 8	0	8	2	0	0	10	10
Level 9	0	6	2	1	1	10	10
Level 10	0	6	2	1	1	10	10
Level 11-29	0	114	38	19	19	10	190
BUILDING B TOTAL	**57**	**167**	**88**	**21**	**38**	**191**	**371**
BUILDING C							
Level 1	0	0	0	0	0	0	0
Level 2	0	9	3	0	1	13	13
Level 3	0	9	3	0	1	13	13
Level 4	0	7	3	0	1	11	11
Level 5	0	7	3	0	1	11	11
Level 6	0	7	3	0	1	11	11
Level 7	0	2	1	0	1	4	4
Level 8	0	3	2	0	1	6	6
Level 9	0	3	2	0	1	6	6
Level 10	0	0	0	0	0	0	0
BUILDING C TOTAL	**0**	**47**	**20**	**0**	**8**	**75**	**75**
GRAND TOTAL	**98**	**392**	**216**	**42**	**86**	**474**	**834**

4.0 AMENITY

4.1 AMENITY

Total Units	Amenity			
	Outdoor	Outdoor / Unit	Indoor	Indoor / Unit
BUILDING A				
388	224 m²		593 m²	
BUILDING B				
373	770 m²		647 m²	
BUILDING C				
75	504 m²		446 m²	

5.0 PARKING

5.1 CAR PARKING

Level	Residential Car Parking			Visitor Car Parking			Total Car Parking
	Regular	BF	Total	Regular	BF	Total	
BUILDING A							
P1	74	0	74	0	0	0	74
P2	95	0	95	0	0	0	95
	169	**0**	**169**	**0**	**0**	**0**	**169**
BUILDING B							
P1	69	0	69	0	0	0	69
P2	91	0	91	0	0	0	91
	160	**0**	**160**	**0**	**0**	**0**	**160**
BUILDING C							
P1	20	0	20	0	0	0	20
P2	26	0	26	0	0	0	26
	46	**0**	**46**	**0**	**0**	**0**	**46**
TOTAL	**375**	**0**	**375**	**0**	**0**	**0**	**375**

5.2 BICYCLE PARKING

Level	Bicycle Parking		Total Bicycle Parking
	Long-Term	Short-Term	
BUILDING A			
P1	162	0	162
Level 1	122	28	150
	284	**28**	**312**
BUILDING B			
P1	136	0	136
Level 1	104	28	132
	240	**28**	**268**
BUILDING C			
Level 1	52	0	52
	52	**0**	**52**
GRAND TOTAL	**576**	**56**	**632**

Bicycle Parking Rates

- 0.9 Long-Term Parking Spaces per Unit
- 0.1 Short-term Parking spaces per Unit

6.0 STORAGE

7.0 LOADING

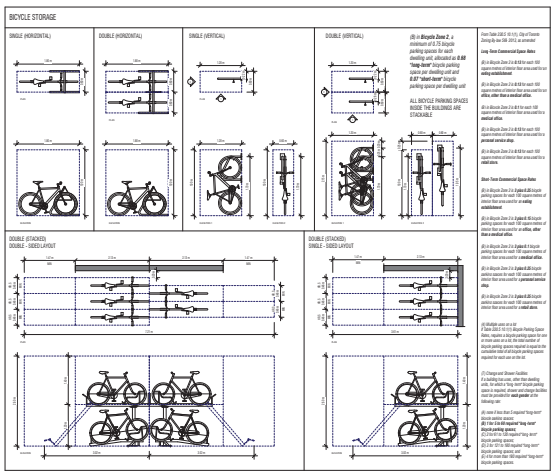
7.1 LOADING

Count	Type
BUILDING C	
1	TYPE B LOADING
BUILDING B	
1	TYPE B LOADING
1	TYPE B LOADING
BUILDING A	
1	TYPE B LOADING
1	TYPE B LOADING

8.0 WASTE

8.1 WASTE STORAGE AREA

Level	Area	Custom Area Type
BUILDING C		
Level 1	58 m²	**BUILDING C**
BELOW GRADE		
P1	240 m²	**BELOW GRADE**
	298 m²	



Toronto Green Standard Version 4.0 Tier 1

General Project Description	
SITE AREA	
TOTAL GROSS FLOOR AREA	
RESIDENTIAL	
RETAIL	
COMMERCIAL	
TOTAL NUMBER OF RESIDENTIAL UNITS	

Section 1: For Stand Alone Zoning Bylaw Amendment Applications and Site Plan Control Applications

Automobile Infrastructure	Required	Proposed	Percentage
NUMBER OF PARKING SPACES			
NUMBER OF EV PARKING SPACES (RESIDENTIAL)			
NUMBER OF EV PARKING SPACES (NON-RESIDENTIAL)			
Cycle Infrastructure	**Required**	**Proposed**	**Percentage**
NUMBER OF LONG-TERM BICYCLE PARKING SPACES (ALL-USES)			
NUMBER OF LONG-TERM BICYCLE PARKING LOCATED ON:			
A) FIRST STORY OF BUILDING			
B) SECOND STOREY OF BUILDING			
C) FIRST LEVEL BELOW-GROUND			
D) SECOND LEVEL BELOW-GROUND (ALSO INDICATE % OF NET AREA OF LEVEL OCCUPIED BY BICYCLE PARKING)			
E) OTHER LEVELS BELOW-GROUND (ALSO INDICATE % OF NET AREA OF LEVEL OCCUPIED BY BICYCLE PARKING)			
NUMBER OF SHORT-TERM BICYCLE PARKING SPACES			
NUMBER OF SHORT-TERM BICYCLE PARKING SPACES (NON-RESIDENTIAL)			
Tree Canopy	**Required**	**Proposed**	**Percentage**
TOTAL SOIL VOLUME (40% OF THE SITE AREA / 66m2 X 30m3)			
SOIL VOLUME PROVIDED WITHIN THE SITE AREA (m3)			
SOIL VOLUME PROVIDED WITHIN THE PUBLIC BOULEVARD (m3)			

Section 2: For Site Plan Control Applications

Cycle Infrastructure	Required	Proposed	Percentage
NUMBER OF SHORT-TERM BICYCLE PARKING SPACES (ALL USES) AT GRADE OR ON FIRST LEVEL BELOW GRADE			
NUMBER OF PUBLICLY ACCESSIBLE BICYCLE PARKING SPACE			
NUMBER OF ENERGIZED OUTLETS FOR ELECTRIC BICYCLES			
Tree Canopy	**Required**	**Proposed**	**Percentage**
TOTAL SITE AREA (m2)			
TOTAL SOIL VOLUME (40% OF THE SITE AREA / 66m2 X 30m3)			
TOTAL NUMBER OF TREES PLANTED			
NUMBER OF SURFACE PARKING SPACES (IF APPLICABLE)			
NUMBER OF SHADE TREES LOCATED IN SURFACE PARKING AREA			
Landscaping & Biodiversity	**Required**	**Proposed**	**Percentage**
TOTAL NON-ROOF HARDSCAPE AREA (m2)			
TOTAL NON-ROOF HARDSCAPE AREA TREATED FOR URBAN HEAT ISLAND (MINIMUM RESIDENTIAL 75% OR NON-RESIDENTIAL 50%) (m2)			
AREA OF NON-ROOF HARDSCAPE TREATED WITH: (INDICATE m2))			
A) HIGH-ALBEDO USRFACE MATERIAL			
B) OPEN-GRID PAVEMENT			
C) SHADE FROM TREE CANOPY			
D) SHADE FROM HIGH-ALBEDO STRUCTURES			
E) SHADE FROM ENERGY GENERATION STRUCTURES			
TOTAL NUMBER OF PLANTS			
TOTAL NUMBER OF NATIVE PLATNS AND % OF TOTAL PLANTS			
AVAILABLE ROOF SPACE (m2)			
AVAILABLE ROOF SPACE PROVIDED AS GREEN ROOF (m2)			
AVAILABLE ROOF SPACE PROVIDED AS COOL ROOF (m2)			
AVAILABLE ROOF SPACE PROVIDED AS SOLAR PANELS (m2)			
BIRD COLLISION DETERRENCE	**Required**	**Proposed**	**Percentage**
TOTAL AREA OF GLAZING OF ALL ELEVATIONS WITHIN 16m ABOVE GRADE			
TOTAL AREA OF TREATED GLAZING (MINIMUM 85% OF TOTAL AREA OF GLAZING WITHIN 16m ABOVE GRADE) (m2)			
PERCENTAGE OF GLAZING WITHIN 16M ABOVE GRADE TREATED WITH:			
A) VISUAL MARKERS			
B) NON-REFLECTIVE GLASS			
C) BUILDING INTEGRATED STRUCTURES			

gh3
gh3®
55 OSSINGTON AVE, SUITE 100
Toronto, ON, Canada M6J 2Y9
416 915 1791

COLLECDEV
3400 DUFFERIN STREET

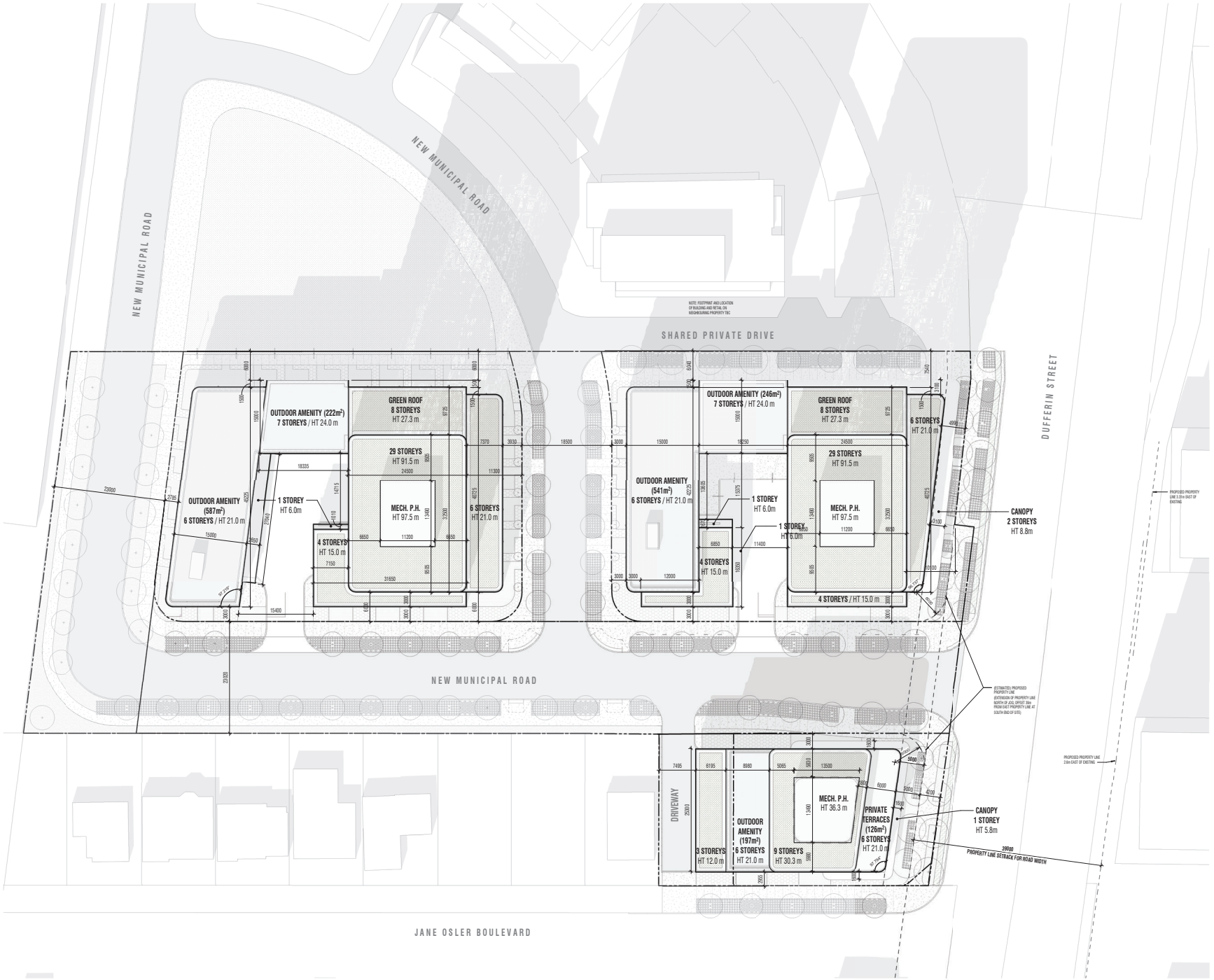
TORONTO

Project North | True North

SCALE As indicated
PROJECT NO. 202211
ISSUE DATE -

STATISTICS

A001



GREEN ROOF STATISTICS - BUILDING A

Available Roof Space Calculation	Required	Provided
Gross Floor Area, as defined in Green Roof Bylaw(m2)		*
Total Roof Area		2470
Area of Residential Private Terraces (m2)		-
Rooftop Outdoor Amenity Space, if in a Residential Building (m2)		587 + 222 = 809
Area of Renewable Energy Devices (m2)		-
Tower (uRoof Area with floor plate less than 750 (m2)		1661
Total Available Roof Space (m2)		
Green Roof Coverage		
Coverage of Available Roof Space (m2)	868	1068
Coverage of Available Roof Space (%)	63%	67%

GREEN ROOF STATISTICS - BUILDING B

Available Roof Space Calculation	Required	Provided
Gross Floor Area, as defined in Green Roof Bylaw(m2)		*
Total Roof Area		2425
Area of Residential Private Terraces (m2)		-
Rooftop Outdoor Amenity Space, if in a Residential Building (m2)		541 + 246 = 787
Area of Renewable Energy Devices (m2)		-
Tower (uRoof Area with floor plate less than 750 (m2)		-
Total Available Roof Space (m2)		1638
Green Roof Coverage		
Coverage of Available Roof Space (m2)	985	1026
Coverage of Available Roof Space (%)	60%	63%

GREEN ROOF STATISTICS - BUILDING C

Available Roof Space Calculation	Required	Provided
Gross Floor Area, as defined in Green Roof Bylaw(m2)		*
Total Roof Area		1334
Area of Residential Private Terraces (m2)		126
Rooftop Outdoor Amenity Space, if in a Residential Building (m2)		197
Area of Renewable Energy Devices (m2)		-
Tower (uRoof Area with floor plate less than 750 (m2)		-
Total Available Roof Space (m2)		711
Green Roof Coverage		
Coverage of Available Roof Space (m2)	213	360
Coverage of Available Roof Space (%)	30%	51%

Rev. Date Issued

COLLECDEV

gh3
gh3*
55 OSSINGTON AVE, SUITE 100
Toronto, ON, Canada M6J 2Y9
416 915 1791

COLLECDEV
3400 DUFFERIN STREET

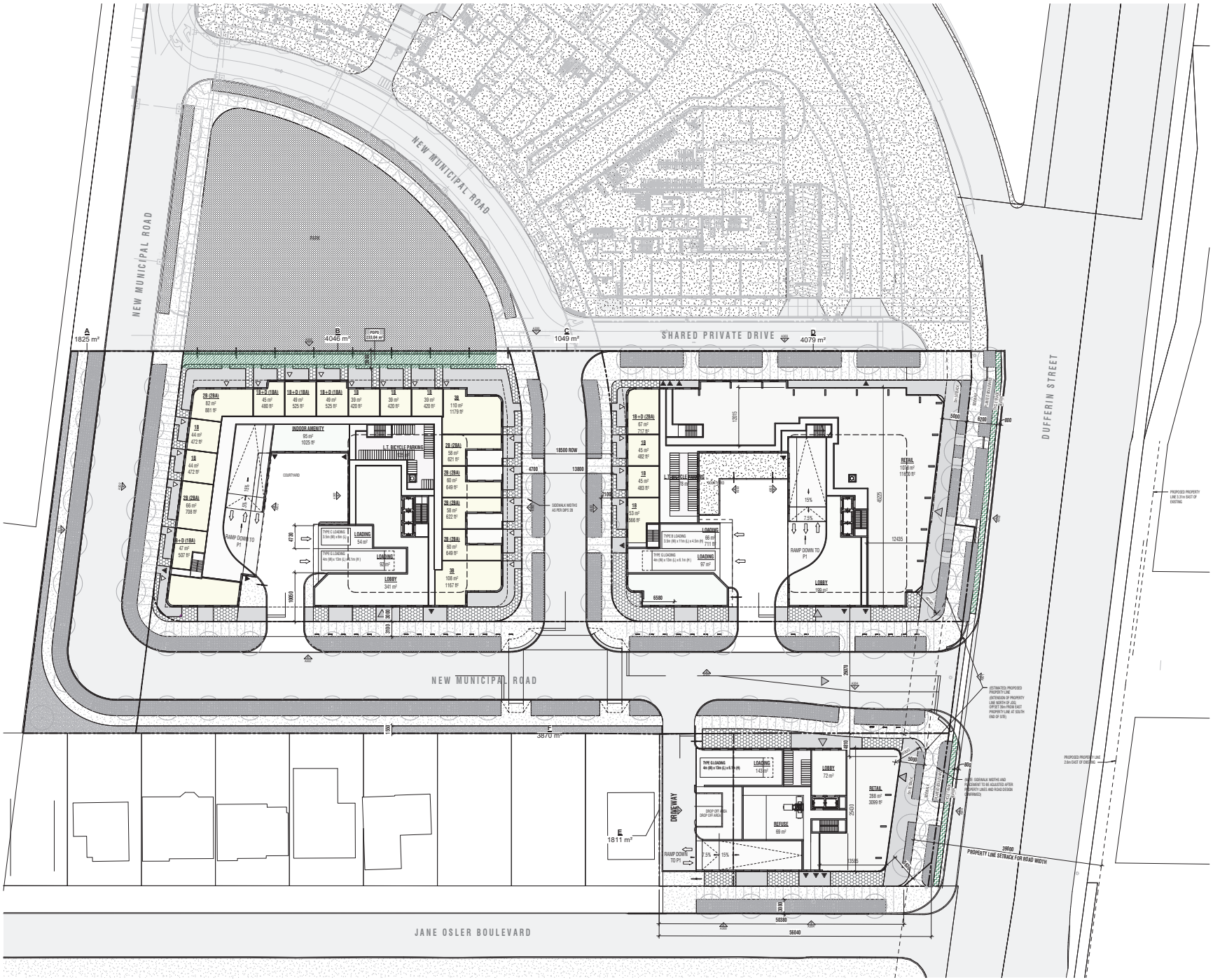
TORONTO

Project North True North

SCALE As indicated
PROJECT NO. 202211
ISSUE DATE -

ROOF PLAN

A102



SITE PLAN LEGEND

- PROPOSED ELEVATION
- EXISTING ELEVATION
- AREA DRAINAGE
- STORM WATER
- CATCH BASIN
- PROPERTY LINE
- SETBACK
- FIRE TRUCK ROUTE
- PARKING STRUCTURE BELOW
- DESIGNATED P.O.P.S. AREA
- RESIDENTIAL
- RESIDENTIAL LOBBY
- RESIDENTIAL INDOOR AMENITY
- COMMERCIAL
- BICYCLE STORAGE
- MAIN RES ENTRANCE
- RES ENTRANCE
- NON-RES ENTRANCE
- EXIT
- VEHICULAR ENTRANCE/EXIT
- FIRE HYDRANT
- SIAMESE CONNECTION
- STREET LIGHT
- PEDESTRIAN LIGHT
- BOLLARD LIGHT
- BOLLARDS
- BICYCLE SHARING STATION
- BIKE RING
- PROPOSED CANOPY TREE
- EXISTING TREE
- EXISTING TREE TO BE PROTECTED
- PROPOSED UNDERSTOREY TREE
- GRASSES AND SHRUBS
- HIGH-ALBEDO PAVERS SRI VALUE : 29 OR BETTER
- CONCRETE PAVING SRI VALUE : 29 OR BETTER
- CONCRETE PAVING SRI VALUE : 29 OR BETTER
- BICYCLE LANE
- SOD
- BLACK MULCH
- RUBBERIZED PAVING
- WOOD DECKING SRI VALUE : 29 OR BETTER
- ARTIFICIAL TURF GRASS / DOG RELIEF AREA

REFER TO LANDSCAPE PLAN FOR HARDSCAPE AND PLANTING DETAILS

NOTES

- A TRAINED ON-SITE STAFF MEMBER MUST BE AVAILABLE TO MANOEUVRE BINS FOR THE COLLECTION DRIVER AND ALSO ACT AS A FLAGMAN WHEN THE TRUCK IS REVERSING. IN THE EVENT THE ON-SITE STAFF MEMBER IS UNAVAILABLE AT THE TIME THE CITY COLLECTION VEHICLES ARRIVAL AT THE SITE, THE COLLECTION VEHICLE WILL LEAVE THE SITE AND NOT RETURN UNTIL THE NEXT SCHEDULED COLLECTION DAY.
- TYPE G LOADING 6.1m MINIMUM VERTICAL CLEARANCE, MINIMUM 200mm THICK REINFORCED CONCRETE SLAB IN LOADING SPACE AND STAGING AREA. FLOOR GRADE NOT TO EXCEED +-2%
- THE OVERHEAD DOOR ADJACENT TO THE TYPE G LOADING AREA WILL BE OPEN UPON THE ARRIVAL OF THE TRUCK TO ALLOW IT TO REVERSE FORM THE TYPE G LOADING AREA ENABLING IT TO EXIT THE SITE IN A FORWARD MOTION.
- A WARNING SYSTEM IS TO BE PROVIDED TO CAUTION MOTORISTS LEAVING THE PARKING GARAGE OF HEAVY VEHICLES WHEN LOADING SYSTEM TO INCLUDE LIGHTS AND SIGNS.
- ALL ACCESS DRIVEWAYS TO BE USED BY THE COLLECTION VEHICLE TO HAVE A MAXIMUM GRADIENT OF 8%, HAVE A MINIMUM VERTICAL CLEARANCE OF 4.4 METERS THROUGHOUT, A MINIMUM WIDTH OF 4.5 METERS THROUGHOUT AND BE 6 METERS WIDE AT POINT OF INGRESS AND EGRESS.
- PROPOSED ACCESS ROUTE FOR WASTE COLLECTION VEHICLE TO HAVE MINIMUM 4.4M VERTICAL CLEARANCE THROUGHOUT AND DESIGNED TO SAFELY SUPPORT 35,000 KG.
- STRUCTURAL ENGINEER TO DESIGN AREA TO CONFORM AS FOLLOWS: (A) DESIGN CODE - ONTARIO BUILDING CODE (B) DESIGN LOAD - CITY BULK LIFT VEHICLE IN ADDITION TO BUILDING CODE REQUIREMENTS (C) IMPACT FACTOR -0% FOR MAX. VEHICULAR SPEEDS TO 15KM/H AND 30% FOR HIGHER SPEEDS
- NON-RESIDENTIAL COMPONENT WILL ONLY SCHEDULE USE OF THE TYPE G LOADING SPACE ON DIFFERENT DAYS FROM THE COLLECTION DAYS OF THE RESIDENTIAL COMPONENT TO ENSURE THAT THE TYPE G LOADING SPACE WILL BE VACANT FOR CITY WASTE COLLECTION.
- 4.4M ACCESS ROUTE MIN. 6m WIDE WITH 5m HEIGHT CLEARANCE, CHANGE IN GRADIENT NOT MORE THAN 8% IN 15m, LOAD SUPPORT SUFFICIENT FOR EQUIPMENT. SURFACE TO BE ACCESSIBLE IN ALL CLIMATIC CONDITION FOR ALL TRUCK DIAGRAM MOVEMENT REFER TO TRAFFIC CONSULTANT REPORT - PATH SHOWN FOR CONTEXT
- FIRE ACCESS ROUTE MIN. 6m WIDE WITH 5m HEIGHT CLEARANCE, CHANGE IN GRADIENT NOT MORE THAN 8% IN 15m, LOAD SUPPORT SUFFICIENT FOR EQUIPMENT. SURFACE TO BE ACCESSIBLE IN ALL CLIMATIC CONDITION FOR ALL TRUCK DIAGRAM MOVEMENT REFER TO TRAFFIC CONSULTANT REPORT - PATH SHOWN FOR CONTEXT
- BE ADVISED THAT SHOULD ANY PARTY INCLUDING THE OWNER OR ANY SUBSEQUENT OWNER , APPLY FOR MORE THAN ONE CONDOMINIUM CORPORATION ENCOMPASSING ANY OR ALL OF THIS DEVELOPMENT OR MAKE AN APPLICATION THAT RESULTS IN A LAND DIVISION, STAFF MAY REQUIRE LEGAL ASSURANCES, INCLUDING BUT NOT LIMITED TO EASEMENTS, WITH RESPECT TO THE APPROVED SERVICES. SUCH ASSURANCES WILL BE DETERMINED AT THE TIME OF APPLICATION FOR CONDOMINIUM APPROVAL
- VENTILATION GRATING TO HAVE A POROSITY OF LESS THAN 20mm X 20mm OR 40mm X 10mm

Rev. Date Issued

COLLECDEV

gh3
gh3®
55 OSSINGTON AVE, SUITE 100
Toronto, ON, Canada M6J 2Y9
416 915 1791

COLLECDEV
3400 DUFFERIN STREET

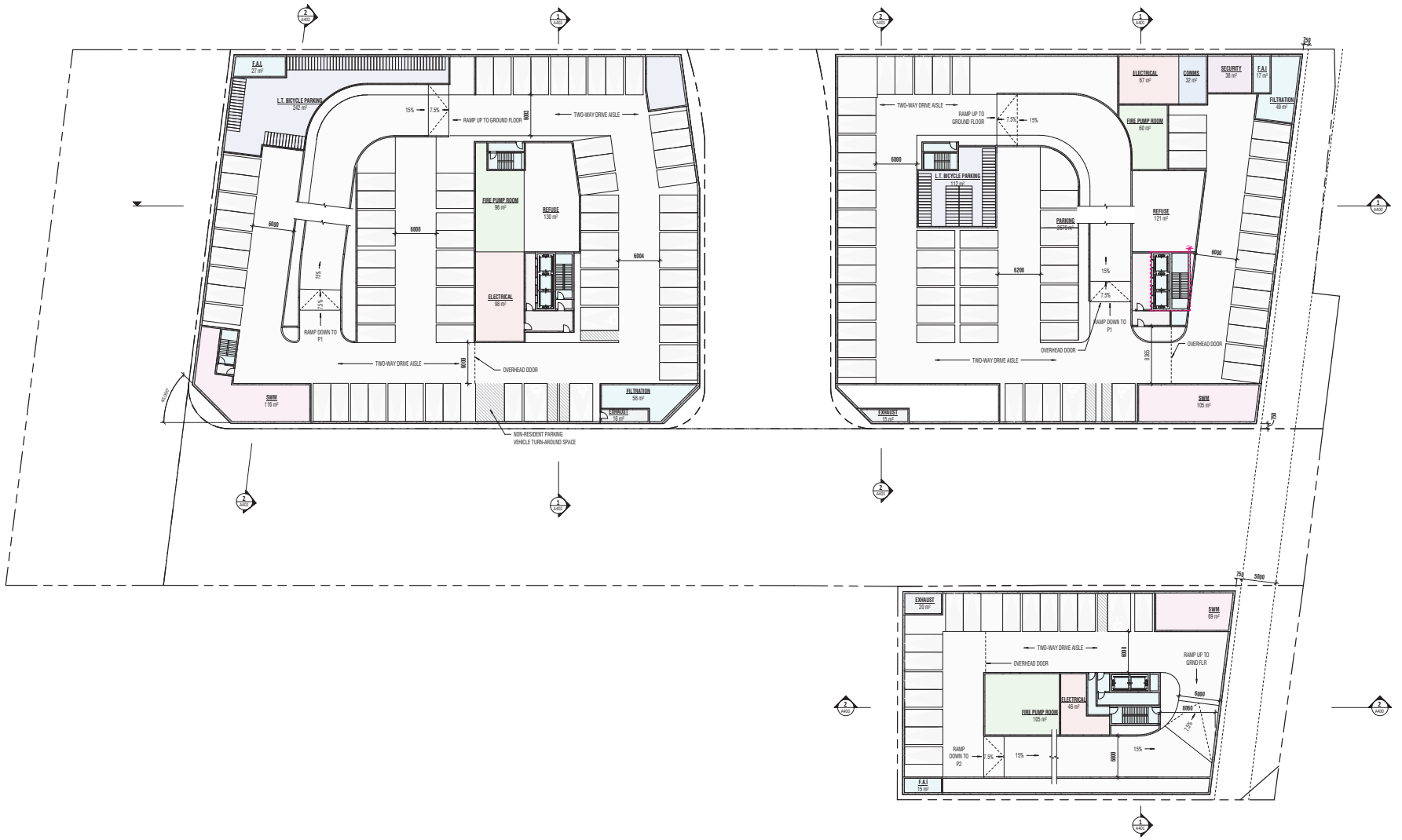
TORONTO

Project North True North

SCALE As indicated
PROJECT NO. 202211
ISSUE DATE -

GROUND FLOOR SITE PLAN

A103



5.1 CAR PARKING

Level	Residential Car Parking			Visitor Car Parking			Total Car Parking
	Regular	BF	Total	Regular	BF	Total	
P1	0	0	0	0	2	2	2
	0	**0**	**0**	**0**	**2**	**2**	**2**
BUILDING A							
P1	36	3	39	32	1	33	72
P2	89	13	102	0	0	0	102
	125	**16**	**141**	**32**	**1**	**33**	**174**
BUILDING B							
P1	60	0	60	0	0	0	60
P2	85	0	85	0	0	0	85
	145	**0**	**145**	**0**	**0**	**0**	**145**
BUILDING C							
P1	15	0	15	0	0	0	15
P2	24	0	24	0	0	0	24
	39	**0**	**39**	**0**	**0**	**0**	**39**
TOTAL	**309**	**16**	**325**	**32**	**3**	**35**	**360**

Rev. Date Issued

COLLECDEV

gh3
gh3*
55 OSSINGTON AVE, SUITE 100
Toronto, ON, Canada M6J 2Y9
416 915 1791

COLLECDEV
3400 DUFFERIN STREET

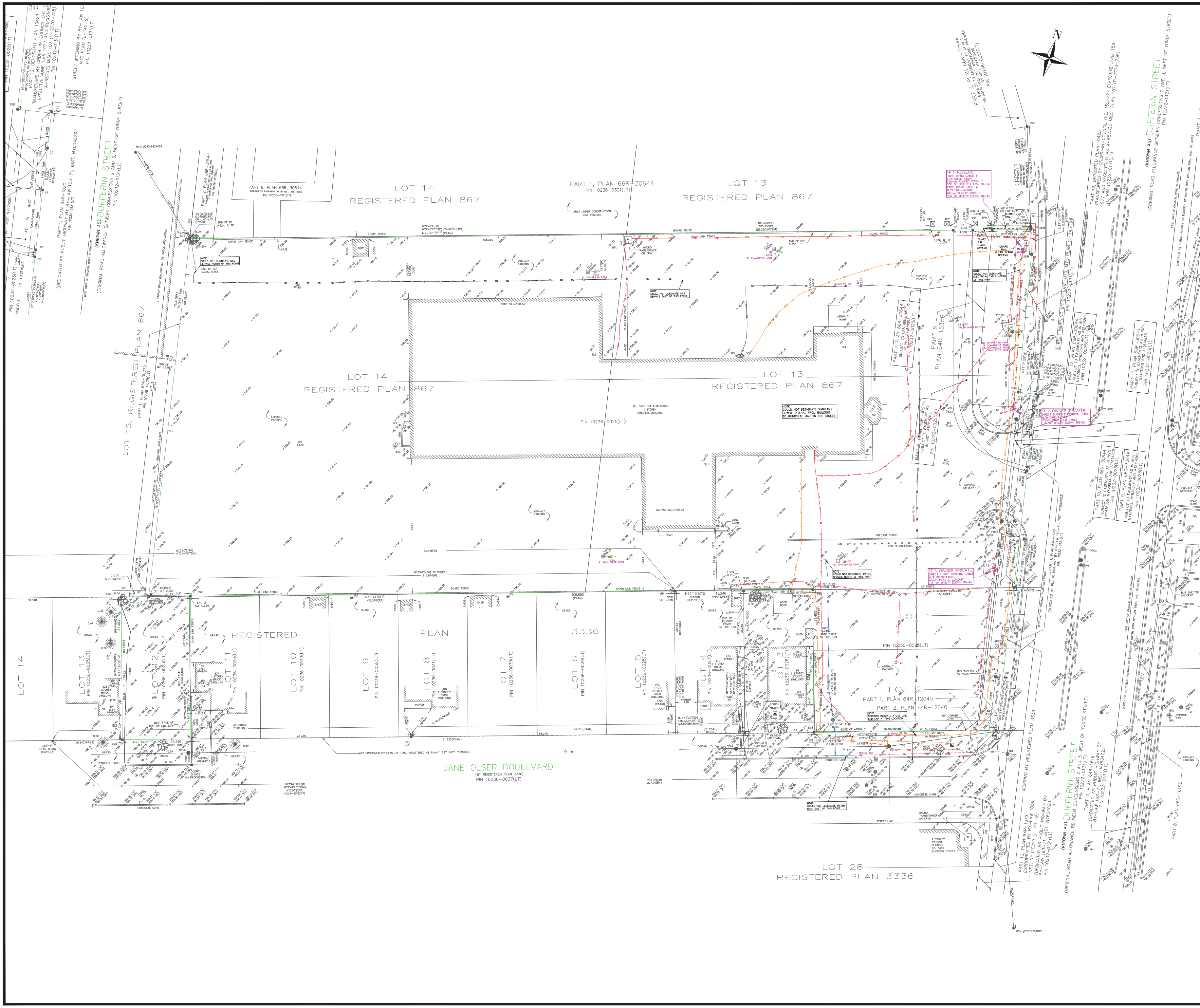
TORONTO

Project North True North

SCALE 1 : 200
PROJECT NO. 202211
ISSUE DATE -

LEVEL P1 FLOOR PLAN

A105



URBAN X - SUBSURFACE UTILITY ENGINEERING

GENERAL NOTES:

1. URBAN X SUE QL-B & A FIELD INVESTIGATION WAS PERFORMED IN JULY 2022. UTILITIES THAT WERE INSTALLED FOLLOWING OUR INVESTIGATION WILL NOT BE SHOWN. CONSIDERATION SHOULD BE GIVEN TO UPDATING THIS PLAN PRIOR TO FINAL DESIGN AND CONSTRUCTION.
2. THE LIMITS OF THE SUE INVESTIGATION ARE DEFINED ON THE DRAWING BY THE LIMITS OF THE SUE DATA.
3. FIELD VERIFICATION OF UTILITIES WAS COMPLETED USING CONVENTIONAL ELECTROMAGNETIC UTILITY LOCATING EQUIPMENT.
4. EMPTY CONDUITS, LATERALS TO DWELLINGS/BUILDINGS, ABANDONED UTILITIES AND OTHER UNLOCATABLE UTILITIES MAY NOT BE SHOWN ON THE DRAWING.
5. URBAN X EXERCISED INDUSTRY-STANDARD BEST PRACTICES TO DEFINE POSSIBLE UNDOCUMENTED UTILITIES BUT IS NOT RESPONSIBLE FOR FINDING ALL UNDOCUMENTED UTILITIES.
6. THE BASE PLAN WAS PROVIDED BY THE CLIENT; URBAN X IS NOT RESPONSIBLE FOR THE ACCURACY OF SURFACE FEATURES DEPICTED ON THE BASE PLAN.
7. ALL INFERENCES OF SUE QL-D DATA AS SHOWN WERE RENDERED ON A BEST-EFFORT BASIS FROM SECURED UTILITY RECORDS. WE CANNOT WARRANT THE PRECISE POSITION OR EXTENT OF ANY SUCH DATA NOR THE INCLUSIVENESS AND/OR CURRENCY OF ANY SUCH INFORMATION.
8. DEPICTED UTILITY DIMENSION AND/OR UTILITY COMPOSITION INFORMATION WAS SOURCED FROM UTILITY RECORDS INFORMATION SUPPLIED BY OTHERS.
9. THIS INFORMATION IS INTENDED FOR DESIGN PURPOSES ONLY, NOT EXCAVATION.
10. IF ANY INFERRED UTILITY AS DEPICTED ON THIS DRAWING APPEARS TO BE IN CONFLICT WITH THE USER'S PROPOSED DESIGN, IT IS RECOMMENDED THAT SUE QL 'A' TEST PITS ARE ADVANCED TARGETING ANY AND ALL SUCH UTILITIES TO CONFIRM THE NATURE AND PRECISE SPATIAL LOCATION OF ANY INFERRED UTILITY CONFLICT.

SUE QUALITY LEVEL DESCRIPTION AND LINETYPE DEPICTION

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

QUALITY LEVEL "D" - INFORMATION DERIVED FROM OBTAINED UTILITY RECORDS. ALL SEWERS ARE QL-D UNLESS OTHERWISE NOTED.

LINETYPE:

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

LINETYPE:

QUALITY LEVEL "B" - INFORMATION OBTAINED VIA THE APPLICATION OF APPROPRIATE GEOPHYSICAL TECHNIQUES TO INFER THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF DESIGNATED UTILITIES. ALL NON SEWER UTILITIES ARE QL-B UNLESS OTHERWISE NOTED.

LINETYPE:

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

TP 1

UNDERGROUND UTILITY CODES AND COLOUR

Code	Description
GAS	GAS MAIN
GS	GAS SERVICE
WM	WATER MAIN
WS	WATER SERVICE
HYD	HYDRO (Public)
E	ELECTRICAL (Private)
SL	STREET LIGHT
TV	CABLE TV
BT	BELL
RFO	ROGERS FIBRE OPTIC
STM	STORM
SAN	SANITARY
	UTILITY CONTINUATION
	DIRECTION OF FLOW

SUBSURFACE UTILITY ENGINEERING STUDY

at

3400 DUFFERIN STREET
TORONTO, ONTARIO

FOR: IBI PROFESSIONAL SERVICES

DATE: JULY 28, 2022 | **CHECKED BY: RB/ET**

PROJECT #: 139570 | **SCALE: 1 : 250**

URBAN X

2620 Bristol Circle, Suite 300, Oakville, ON L6H 6Z7
T: 1-844-7URBANX (1-844-787-2269)

UTILITY LOCATES ARE REQUIRED PRIOR TO ANY EXCAVATION ACTIVITY

REVISIONS

DATE	REVISION	INITIALS
22/07/19	FOR CLIENT REVIEW	JS
22/07/28	TEST PITS 1 - 3 ADDED	JS

Form Information

Form Name:	**06. V2 Urban-X QL-A Form**
Submitter Name:	Mike (4167952891)
Submission Date:	Jul 28, 2022 11:04:52 AM EDT

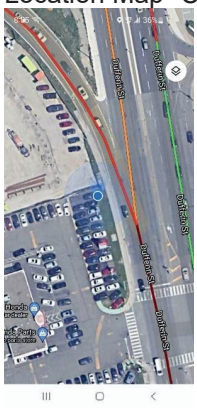
Project Information

Project Name:	3400 Dufferin
Project Number:	139570
Project Team:	Mike Heifetz

Test Pit Information

Test Pit No.:	1
Excavation Date:	Jul 28, 2022
Excavation Location:	3400 Dufferin St.

Location Map -Choose Satellite Image



Exposed Utility Information

Target Utility:	FOC
Assumed Owner:	Rogers
Target SUE Quality Level:	QL-B
Measured Depth to Utility Top (m)	0.78
Estimated Pipe Diameter (mm)	100
Inferred Material from Surface Observation	Plastic
Exposed Utility Count	1
Additional Utilities Found ?	Yes
Exposed Utility:	FOC
Assumed Owner:	Rogers
Target SUE Quality Level:	QL-B
Measured Depth to Utility Top (m)	0.88
Estimated Pipe Diameter (mm)	60
Inferred Material from Surface Observation	Plastic
Exposed Utility Count	1

Excavation Information

Surface Type:	Natural Ground
Final Hole Depth (m):	1.15
Final Hole Width (m):	0.4
Final Hole Length (m):	0.8
Notes:	Bigger hole due to locate being slightly off.

Test Pit Photos:

Overview of TP Location

Detail of TP Location

Downhole Looking North

Downhole Looking East

Team Members:

Measured By:	Mike Heifetz
GPS By:	Mike Heifetz

Form Information

Form Name:	**06. V2 Urban-X QL-A Form**
Submitter Name:	Mike (4167952891)
Submission Date:	Jul 28, 2022 11:05:10 AM EDT

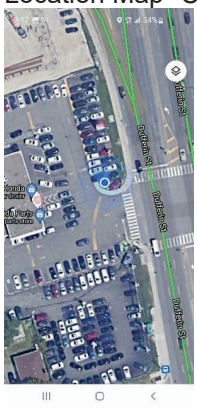
Project Information

Project Name:	3400 Dufferin
Project Number:	139570
Project Team:	Mike Heifetz

Test Pit Information

Test Pit No.:	2
Excavation Date:	Jul 28, 2022
Excavation Location:	3400 Dufferin St.

Location Map -Choose Satellite Image



Exposed Utility Information

Target Utility:	EL
Assumed Owner:	Private
Target SUE Quality Level:	QL-B
Measured Depth to Utility Top (m)	0.40
Estimated Pipe Diameter (mm)	20
Inferred Material from Surface Observation	Direct Buried Insulated Cable
Square	No
Exposed Utility Count	1
Additional Utilities Found ?	No

Excavation Information

Surface Type:	Natural Ground
Final Hole Depth (m):	0.5
Final Hole Width (m):	0.3
Final Hole Length (m):	0.3

Test Pit Photos:

Overview of TP Location

Detail of TP Location

Downhole Looking North

Downhole Looking East

Team Members:

Measured By:	Mike Heifetz
GPS By:	Mike Heifetz

Form Information

Form Name:	**06. V2 Urban-X QL-A Form**
Submitter Name:	Mike (4167952891)
Submission Date:	Jul 28, 2022 11:05:41 AM EDT

Project Information

Project Name:	3400 Dufferin
Project Number:	139570
Project Team:	Mike Heifetz

Test Pit Information

Test Pit No.:	3
Excavation Date:	Jul 28, 2022
Excavation Location:	3400 Dufferin St.

Location Map -Choose Satellite Image

Exposed Utility Information

Target Utility:	SL
Assumed Owner:	Private
Target SUE Quality Level:	QL-B
Measured Depth to Utility Top (m)	0.66
Estimated Pipe Diameter (mm)	40
Inferred Material from Surface Observation	Plastic
Square	No
Exposed Utility Count	1
Additional Utilities Found ?	No

Excavation Information

Surface Type:	Asphalt
Pavement Thickness (mm):	80
Final Hole Depth (m):	0.8
Final Hole Width (m):	0.35
Final Hole Length (m):	0.35

Test Pit Photos:

Overview of TP Location

Detail of TP Location

Downhole Looking North

Downhole Looking East

Team Members:

Measured By:	Mike Heifetz
GPS By:	Mike Heifetz

Appendix B
Stormwater Analysis

Stormwater Design Calculations

Stormfilter Sizing (Contech)

3400 Dufferin Street
Mixed-Use Development

IBI

Overall Development Runoff Coefficients

Project Name: 3400 Dufferin Street
Project Number: 139570
Date: 28 July 2022
Designed By: Jason Jenkins, P.Eng.

Block B (Building A)				
Conventional Roof	1,387	34.3%	0.90	0.31
Intensive Green Roof	1,088	26.9%	0.50	0.13
Landscape	0	0.0%	0.25	0.00
Landscape over P1	225	5.6%	0.45	0.03
Permeable Pavers	0	0.0%	0.55	0.00
Impervious	1,346	33.3%	0.90	0.30
Total Area	**4,046**	100%		**0.77**

Block D (Building B)				
Conventional Roof	1,399	35.0%	0.90	0.31
Intensive Green Roof	1,026	25.6%	0.50	0.13
Landscape	0	0.0%	0.25	0.00
Landscape over P1	571	14.3%	0.45	0.06
Permeable Pavers	0	0.0%	0.55	0.00
Impervious	1,006	25.1%	0.90	0.23
Total Area	**4,002**	100%		**0.73**

Block E (Building C)				
Conventional Roof	672	40.7%	0.90	0.37
Intensive Green Roof	362	21.9%	0.50	0.11
Landscape		0.0%	0.25	0.00
Landscape over P1	183	11.1%	0.45	0.05
Permeable Pavers		0.0%	0.55	0.00
Impervious	435	26.3%	0.90	0.24
Total Area	**1,652**	100.0%		**0.76**

External Area				
Conventional Roof		0.0%	0.90	0.00
Green Roof		0.0%	0.50	0.00
Landscape	1,471	100.0%	0.25	0.25
Landscape over P1		0.0%	0.45	0.00
Permeable Pavers		0.0%	0.55	0.00
Impervious		0.0%	0.90	0.00
Total Area	**1,471**	100%		**0.25**

Municipal ROW				
Conventional Roof	0	0.0%	0.90	0.00
Green Roof	0	0.0%	0.50	0.00
Landscape	1,771	26.7%	0.25	0.07
Landscape over P1	0	0.0%	0.45	0.00
Permeable Pavers	0	0.0%	0.55	0.00
Impervious	4,870	73.3%	0.90	0.66
Total Area	**6,641**	100%		**0.73**

Municipal ROW + External Area				
Conventional Roof	0	0.0%	0.90	0.00
Green Roof	0	0.0%	0.50	0.00
Landscape	3,242	40.0%	0.25	0.10
Landscape over P1	0	0.0%	0.45	0.00
Permeable Pavers	0	0.0%	0.55	0.00
Impervious	4,870	60.0%	0.90	0.54
Total Area	**8,112**	100%		**0.64**

Overall Subdivision (Not Including External Area)				
Conventional Roof	3,458	21.2%	0.90	0.19
Intensive Green Roof	2,476	15.2%	0.50	0.08
Landscape	1,771	10.8%	0.25	0.03
Landscape over P1	979	6.0%	0.45	0.03
Permeable Pavers	0	0.0%	0.55	0.00
Impervious	7,657	46.9%	0.90	0.42
Total Area:	**16,341**	100%		**0.74**

3400 Dufferin Street
Mixed-Use Development

ALLOWABLE RELEASE RATE AND STORM SERVICE DESIGN

Plan of Subdivision

$$I_{2\text{-year}} = \frac{21.8}{(T)^{0.78}} = 88.19 \text{ mm/hr}$$

$$I_{100\text{-year}} = \frac{59.7}{(T)^{0.80}} = 250.32 \text{ mm/hr}$$

Project Name: 3400 Dufferin Street
Project Number: 139570
Date: 28 July 2022
Designed By: Jason Jenkins, P.Eng.

Street	From MH	To MH	A (ha)	R	A x R	Accum. A x R	T_c (min)	I (mm/hr)	Q_{act} (l/s)	Size of Pipe (mm)	Slope (%)	Nominal Capacity Q_{cap} (L/s)	Full Flow Velocity (m/s)	Actual Flow Velocity (m/s)	Length (m)	Time in Sect. (min)	Total Time (min)	Q_{act}/Q_{cap}	Remarks
PRE-DEVELOPMENT RELEASE RATES																			
A1 Pre - To Dufferin			1.4290	0.89	1.272	1.272	10.0	88.2	**311.6**										
A2 Pre - To Jane Osler			0.2100	0.90	0.189	0.189	10.0	88.2	**46.3**										
A3 Pre - To Jane Osler			0.0290	0.54	0.016	0.016	10.0	88.2	**3.8**										
Total Subdivision			**1.6680**						**357.9**										
EXT-01 - To Jane Osler			0.0645	0.25	0.016	0.016	10.0	88.2	**4.0**										
EXT-02 - To Dufferin			0.0826	0.25	0.021	0.021	10.0	88.2	**5.1**										
ALLOWABLE RELEASE RATES (WWFMG)																			
Municipal ROW			0.6641	0.50	0.332	0.332	10.0	88.2	**81.3**										
Block B (Building A)			0.4046	0.50	0.202	0.202	10.0	88.2	**49.6**										
Block D (Building B)			0.4002	0.50	0.200	0.200	10.0	88.2	**49.0**										
Block E (Building C)			0.1652	0.50	0.083	0.083	10.0	88.2	**20.2**										
Total Subdivision (Less Dufferin Widening)			**1.6341**						**200.2**										
ALLOWABLE RELEASE RATES (LIMITED TO 75 L/s/ha PER AVENUE STUDY)																			
Municipal ROW			0.6641						**49.8**										
Block B (Building A)			0.4046						**30.3**										
Block D (Building B)			0.4002						**30.0**										
Block E (Building C)			0.1652						**12.4**										
Total Subdivision (Less Dufferin Widening)			**1.6341**						**122.6**										
STORM SERVICE CONNECTIONS					Orif.(mm)	Area (m2)	depth (m)	head (m)	Q (L/s)										
Block B (Building A)	Ctrl MH1	Street C		k=0.6	95	0.00709	1.80	1.75	**26.2**	200	2.00%	46.38	1.48	1.51	10.0	0.1	10.1	56%	
Block D (Building B)	Ctrl MH2	MH6		k=0.6	95	0.00709	1.44	1.39	**23.3**	200	2.00%	46.38	1.48	1.48	10.0	0.1	10.1	50%	
Block E (Building C)	Ctrl MH3	Street C		k=0.6	75	0.00442	0.88	0.84	**11.3**	200	2.00%	46.38	1.48	1.21	10.0	0.1	10.1	24%	
STORM SEWER DESIGN					Orif.(mm)	Area (m2)	depth (m)	head (m)											
Total Controlled Flow from Road	OGS	MH8		k=0.8	200	0.03142	1.21	1.11	**120.1**	450	0.50%	201.60	1.27	1.32	4.4	0.1	10.1	60%	
SIZING WATER QUALITY UNITS																			
Block B (only areas requiring treatment)			0.0569	0.90	0.051	0.051	10.0	88.2	**12.5**										
Block B (only areas requiring treatment)			0.0569	0.90	0.051	0.051	10.0	131.8	**18.7**										
Block B (only areas requiring treatment)			0.0569	0.90	0.051	0.051	10.0	250.3	**35.6**										
Block D (only areas requiring treatment)			0.0463	0.90	0.042	0.042	10.0	88.2	**10.2**										
Block D (only areas requiring treatment)			0.0463	0.90	0.042	0.042	10.0	131.8	**15.3**										
Block D (only areas requiring treatment)			0.0463	0.90	0.042	0.042	10.0	250.3	**29.0**										
Block E (only areas requiring treatment)			0.0234	0.90	0.021	0.021	10.0	88.2	**5.2**										
Block E (only areas requiring treatment)			0.0234	0.90	0.021	0.021	10.0	131.8	**7.7**										
Block E (only areas requiring treatment)			0.0234	0.90	0.021	0.021	10.0	250.3	**14.6**										

3400 Dufferin Street

Mixed-Use Development

Rational Method - 100 Year Storm

Plan of Subdivision

IBI

$$I_{100\text{-}year} = \frac{59.7}{(10)^{0.80}} = 250.32 \text{ mm/hr}$$

Project Name:	3400 Dufferin Street	Area of Municipal ROW + External Drainage Area =	0.8112
Project Number:	139570	Weighed Runoff Coefficient =	0.64
Date:	28 July 2022	Orifice Discharge (L/s) =	120.1

Time (min)	Intensity (mm/hr)	Q-100 (L/s)	Q-Blocks (L/s)	Q-stored (L/s)	Storage Vol. (m^3)
0	0.0	0.000		0.000	0.000
10	250.3	361.121	72.750	313.773	188.264
20	143.8	207.410		160.062	192.074
30	103.9	149.953		102.606	184.690
40	82.6	119.126		71.778	172.267
50	69.1	99.650		52.302	156.907
60	59.7	86.126		38.778	139.600
70	52.8	76.133		28.786	120.899
80	47.4	68.420	Allowable Peak	21.072	101.145
90	43.2	62.267	Discharge from Blocks	14.919	80.565
100	39.7	57.234	B, D, and E	9.886	59.317
110	36.8	53.032	(Development Blocks)	5.684	37.517
120	34.3	49.466		2.118	15.253
130	32.2	46.398		0.000	0.000
140	30.3	43.727		0.000	0.000
150	28.7	41.379		0.000	0.000
160	27.2	39.297		0.000	0.000
170	25.9	37.436		0.000	0.000
180	24.8	35.763		0.000	0.000
190	23.7	34.249		0.000	0.000
200	22.8	32.872		0.000	0.000
210	21.9	31.614		0.000	0.000
220	21.1	30.459		0.000	0.000
230	20.4	29.395		0.000	0.000
240	19.7	28.411		0.000	0.000
250	19.1	27.498		0.000	0.000
260	18.5	26.649		0.000	0.000
270	17.9	25.856		0.000	0.000
280	17.4	25.115		0.000	0.000
290	16.9	24.419		0.000	0.000
300	16.5	23.766		0.000	0.000
310	16.0	23.151		0.000	0.000
320	15.6	22.570		0.000	0.000
330	15.3	22.021		0.000	0.000
340	14.9	21.502		0.000	0.000
350	14.6	21.009		0.000	0.000
360	14.2	20.540		0.000	0.000

Storage Volume Required (cu.m) =	**192.1**
Storage Volume Provided (cu.m) =	**197.9**
HGL Depth (m) =	1.2
Orifice Diameter (mm) =	200

3400 Dufferin Street
Mixed-Use Development

IBI

Water Quality Calculations
Plan of Subdivision

Project Name: 3400 Dufferin Street
Project Number: 139570
Date: 28 July 2022
Designed By: Jason Jenkins, P.Eng.

TSS Removal (Un-Treated)

Surface	Area (m^2)		Effective TSS Removal	Overall TSS Removal
Conventional Roof	0	0.0%	80	0.0
Green Roof	0	0.0%	80	0.0
Landscape	1,771	26.7%	80	21.3
Landscape over P1	0	0.0%	80	0.0
Permeable Pavers	0	0.0%	80	0.0
Impervious	4,870	73.3%	0	0.0
Total Area:	**6,641**	100%		**21.3**

Treatment Required

TSS Removal (With Treatment)

Surface	Area (m^2)		Effective TSS Removal	Overall TSS Removal
Conventional Roof	0	0.0%	80	0.0
Green Roof	0	0.0%	80	0.0
Landscape	1,771	26.7%	80	21.3
Landscape over P1	0	0.0%	80	0.0
Permeable Pavers	0	0.0%	80	0.0
Impervious	4,870	73.3%	80	58.7
Total Area:	**6,641**	100%		**80.0**

Site Meets 80% TSS Removal

3400 Dufferin Street
Mixed-Use Development

IBI

Water Balance Calculations
Plan of Subdivision

Project Name: 3400 Dufferin Street
Project Number: 139570
Date: 28 July 2022
Designed By: Jason Jenkins, P.Eng.

Total Volume to be Retained	
Required Water Balance (mm):	5.0
Recall ROW Area (m^2):	6,641
Total Water Balance to be Retained (m^3):	**33.2**

Volume Achieved Through Initial Abstraction				
Surface	**Area (m^2)**		**I.A.**	**Vol. (m^3)**
Conventional Roof	0		1	0.0
Green Roof	0		7	0.0
Landscape	1,771		5	8.9
Landscape over P1	0		5	0.0
Permeable Pavers	0		5	0.0
Impervious	4,870		1	4.9
Total Area:	**6,641**			**13.7**

Note: New Municipal Roadway does not meet Water Balance Target

Water Balance Summary for Municipal Roadway	**Vol. (m^3)**
Total Water Balance to be Retained:	33.2
Total Water Balance Achieved through Initial Abstraction:	13.7
Shortfall to be made up by Development Blocks:	**19.5**

Water Balance Targets for Development Blocks				**Vol. (m^3)**
Block B (Building A)	4,046	41.7%	5	20.2
Block D (Building B)	4,002	41.3%	5	20.0
Block E (Building C)	1,652	17.0%	5	8.3
Total Area:	**9,700**	100%		**48.5**

Volumetric Adjustments for Development Blocks				**Vol. (m^3)**
Block B (Building A)	4,046	41.7%		8.1
Block D (Building B)	4,002	41.3%		8.0
Block E (Building C)	1,652	17.0%		3.3
Total Area:	**9,700**	100%		**19.48**

Adjusted Water Balance Targets for Development Blocks			**Vol. (m^3)**
Block B (Building A)	4,046	7.0	28.4
Block D (Building B)	4,002	7.0	28.0
Block E (Building C)	1,652	7.0	11.6
Total Area:	**8,048**		**68.0**

Note: As shown above, each development block will need to achieve a higher water balance target to offset that of the new municipal right-of-way.

3400 Dufferin Street — **Rational Method - 100 Year Storm**

Mixed-Use Development — Block B (Building A)

IBI

$$I_{100\text{-}year} = \frac{59.7}{(10)^{0.80}} = 250.32 \text{ mm/hr}$$

Project Name:	3400 Dufferin Street	Controlled Area =	0.4046
Project Number:	139570	Weighed Runoff Coefficient =	0.77
Date:	28 July 2022	Orifice Discharge (L/s) =	26.2

Time (min)	Intensity (mm/hr)	Q-100 (L/s)	Q-stored (L/s)	Storage Volume (m^3)
0	0.0	0.000	0.000	0.000
10	250.3	215.897	189.712	113.827
20	143.8	124.001	97.815	117.378
30	103.9	89.650	63.465	114.237
40	82.6	71.220	45.034	108.082
50	69.1	59.576	33.391	100.172
60	59.7	51.490	25.305	91.099
70	52.8	45.517	19.331	81.191
80	47.4	40.905	14.720	70.655
90	43.2	37.227	11.041	59.624
100	39.7	34.217	8.032	48.193
110	36.8	31.705	5.520	36.433
120	34.3	29.573	3.388	24.396
130	32.2	27.739	1.554	12.120
140	30.3	26.142	0.000	0.000
150	28.7	24.739	0.000	0.000
160	27.2	23.494	0.000	0.000
170	25.9	22.381	0.000	0.000
180	24.8	21.381	0.000	0.000
190	23.7	20.476	0.000	0.000
200	22.8	19.653	0.000	0.000
210	21.9	18.900	0.000	0.000
220	21.1	18.210	0.000	0.000
230	20.4	17.574	0.000	0.000
240	19.7	16.986	0.000	0.000
250	19.1	16.440	0.000	0.000
260	18.5	15.932	0.000	0.000
270	17.9	15.458	0.000	0.000
280	17.4	15.015	0.000	0.000
290	16.9	14.599	0.000	0.000
300	16.5	14.209	0.000	0.000
310	16.0	13.841	0.000	0.000
320	15.6	13.494	0.000	0.000
330	15.3	13.165	0.000	0.000
340	14.9	12.855	0.000	0.000
350	14.6	12.560	0.000	0.000
360	14.2	12.280	0.000	0.000

Storage Volume Required (cu.m) =	**117.4**
Storage Volume Provided (cu.m) =	**134.9**
HGL Depth (m) =	1.8
Orifice Diameter (mm) =	95

3400 Dufferin Street
Mixed-Use Development

Water Quality Calculations
Block B (Building A)

Project Name: 3400 Dufferin Street
Project Number: 139570
Date: 28 July 2022
Designed By: Jason Jenkins, P.Eng.

TSS Removal (Un-Treated)

Surface	Area (m^2)		Effective TSS Removal	Overall TSS Removal
Conventional Roof	1,387	34.3%	80	27.4
Green Roof	1,088	26.9%	80	21.5
Landscape	0	0.0%	80	0.0
Landscape over P1	225	5.6%	80	4.4
Permeable Pavers	0	0.0%	80	0.0
Impervious	1,346	33.3%	0	0.0
Total Area:	**4,046**	100%		**53.4**

Treatment Required

TSS Removal (Treated)

Surface	Area (m^2)		Effective TSS Removal	Overall TSS Removal
0	1,387	34.3%	80	27.4
0	1,088	26.9%	80	21.5
0	0	0.0%	80	0.0
0	225	5.6%	80	4.4
0	0	0.0%	80	0.0
0	1,346	33.3%	80	26.6
Total Area:	**4,046**	100%		**80.0**

Site Meets 80% TSS Removal

3400 Dufferin Street
Mixed-Use Development

IBI

Water Balance Calculations
Block B (Building A)

Project Name: 3400 Dufferin Street
Project Number: 139570
Date: 28 July 2022
Designed By: Jason Jenkins, P.Eng.

Total Volume to be Retained	
Required Water Balance (mm):	7.0
Recall Site Area (m^2):	4,046
Total Water Balance to be Retained (m^3):	**28.4**

(Adjusted to offset road)

Volume Achieved Through Initial Abstraction				
Surface	**Area (m^2)**		**I.A.**	**Vol. (m^3)**
Conventional Roof	1,387		1	1.4
Green Roof	1,088		7	7.6
Landscape	0		5	0.0
Landscape over P1	225		5	1.1
Permeable Pavers	0		5	0.0
Impervious	1,346		1	1.3
Total Area:	**4,046**			**11.5**

Water Balance Summary	**Vol. (m^3)**
Recall Initial Abstraction (see above):	11.5
Water Re-Use (Irrigation):	16.9
Water Re-Use (Toilet Flushing):	
Total Water Balance Achieved:	**28.4**

Site Meets City's Water Balance Criteria

Check Tank Capacity to Capture Re-Use Volume	
Area of SWM Tank (m^2):	95.0
Float Switch Operating Range (m):	0.20
Total Water Balance Achieved:	**19.0**

SWM Tank has sufficient capacity for Re-Use Volumes

3400 Dufferin Street — **Rational Method - 100 Year Storm**

Mixed-Use Development — Block D (Building B)

IBI

$$I_{100\text{-}year} = \frac{59.7}{(10)^{0.80}} = 250.32 \text{ mm/hr}$$

Project Name:	3400 Dufferin Street	Controlled Area =	0.4002
Project Number:	139570	Weighed Runoff Coefficient =	0.73
Date:	28 July 2022	Orifice Discharge (L/s) =	23.3

Time (min)	Intensity (mm/hr)	Q-100 (L/s)	Q-stored (L/s)	Storage Volume (m³)
0	0.0	0.000	0.000	0.000
10	250.3	204.042	180.701	108.421
20	143.8	117.191	93.851	112.621
30	103.9	84.727	61.387	110.496
40	82.6	67.309	43.968	105.524
50	69.1	56.305	32.964	98.892
60	59.7	48.663	25.322	91.161
70	52.8	43.017	19.677	82.642
80	47.4	38.659	15.318	73.527
90	43.2	35.182	11.842	63.946
100	39.7	32.338	8.998	53.988
110	36.8	29.964	6.624	43.717
120	34.3	27.950	4.609	33.185
130	32.2	26.216	2.875	22.428
140	30.3	24.707	1.366	11.477
150	28.7	23.380	0.040	0.356
160	27.2	22.204	0.000	0.000
170	25.9	21.152	0.000	0.000
180	24.8	20.207	0.000	0.000
190	23.7	19.352	0.000	0.000
200	22.8	18.574	0.000	0.000
210	21.9	17.863	0.000	0.000
220	21.1	17.210	0.000	0.000
230	20.4	16.609	0.000	0.000
240	19.7	16.053	0.000	0.000
250	19.1	15.537	0.000	0.000
260	18.5	15.057	0.000	0.000
270	17.9	14.609	0.000	0.000
280	17.4	14.190	0.000	0.000
290	16.9	13.798	0.000	0.000
300	16.5	13.428	0.000	0.000
310	16.0	13.081	0.000	0.000
320	15.6	12.753	0.000	0.000
330	15.3	12.443	0.000	0.000
340	14.9	12.149	0.000	0.000
350	14.6	11.870	0.000	0.000
360	14.2	11.606	0.000	0.000

Storage Volume Required (cu.m) =	**112.6**
Storage Volume Provided (cu.m) =	**168.4**
HGL Depth (m) =	1.4
Orifice Diameter (mm) =	95

3400 Dufferin Street
Mixed-Use Development

IBI

Water Quality Calculations
Block D (Building B)

Project Name: 3400 Dufferin Street
Project Number: 139570
Date: 28 July 2022
Designed By: Jason Jenkins, P.Eng.

TSS Removal (Un-Treated)

Surface	Area (m^2)		Effective TSS Removal	Overall TSS Removal
Conventional Roof	1,399	35.0%	80	28.0
Intensive Green Roof	1,026	25.6%	80	20.5
Landscape	0	0.0%	80	0.0
Landscape over P1	571	14.3%	80	11.4
Permeable Pavers	0	0.0%	80	0.0
Impervious	1,006	25.1%	0	0.0
Total Area:	**4,002**	100%		**59.9**

Treatment Required

TSS Removal (Treated)

Surface	Area (m^2)		Effective TSS Removal	Overall TSS Removal
Permeable Pavers	1,399	35.0%	80	28.0
Impervious	1,026	25.6%	80	20.5
Total Area	0	0.0%	80	0.0
0	571	14.3%	80	11.4
Block D (Towers X an	0	0.0%	80	0.0
Conventional Roof	1,006	25.1%	80	20.1
Total Area:	**4,002**	100%		**80.0**

Site Meets 80% TSS Removal

3400 Dufferin Street
Mixed-Use Development

IBI

Water Balance Calculations
Block D (Building B)

Project Name: 3400 Dufferin Street
Project Number: 139570
Date: 28 July 2022
Designed By: Jason Jenkins, P.Eng.

Total Volume to be Retained	
Required Water Balance (mm):	7.0
Recall Site Area (m^2):	4,002
Total Water Balance to be Retained (m^3):	**28.0**

(Adjusted to offset road)

Volume Achieved Through Initial Abstraction				
Surface	**Area (m^2)**		**I.A.**	**Vol. (m^3)**
Conventional Roof	1,399		1	1.4
Green Roof	1,026		7	7.2
Landscape	0		5	0.0
Landscape over P1	571		5	2.9
Permeable Pavers	0		5	0.0
Impervious	1,006		1	1.0
Total Area:	**4,002**			**12.4**

Water Balance Summary	**Vol. (m^3)**
Recall Initial Abstraction (see above):	12.4
Water Re-Use (Irrigation):	15.6
Water Re-Use (Toilet Flushing):	
Total Water Balance Achieved:	**28.0**

DOES NOT WORK

Check Tank Capacity to Capture Re-Use Volume	
Area of SWM Tank (m^2):	87.0
Float Switch Operating Range (m):	0.20
Total Water Balance Achieved:	**17.4**

SWM Tank has sufficient capacity for Re-Use Volumes

3400 Dufferin Street — **Rational Method - 100 Year Storm**

Mixed-Use Development — Block E (Building C)

IBI

$$I_{100\text{-}year} = \frac{59.7}{(10)^{0.80}} = 250.32 \text{ mm/hr}$$

Project Name:	3400 Dufferin Street	Controlled Area =	0.1652
Project Number:	139570	Weighed Runoff Coefficient =	0.76
Date:	28 July 2022	Orifice Discharge (L/s) =	11.3

Time (min)	Intensity (mm/hr)	Q-100 (L/s)	Q-stored (L/s)	Storage Volume (m³)
0	0.0	0.000	0.000	0.000
10	250.3	87.588	76.255	45.753
20	143.8	50.306	38.974	46.768
30	103.9	36.370	25.038	45.069
40	82.6	28.893	17.561	42.146
50	69.1	24.169	12.837	38.512
60	59.7	20.889	9.557	34.405
70	52.8	18.466	7.134	29.961
80	47.4	16.595	5.263	25.261
90	43.2	15.102	3.770	20.360
100	39.7	13.882	2.550	15.297
110	36.8	12.863	1.530	10.101
120	34.3	11.998	0.666	4.792
130	32.2	11.254	0.000	0.000
140	30.3	10.606	0.000	0.000
150	28.7	10.036	0.000	0.000
160	27.2	9.531	0.000	0.000
170	25.9	9.080	0.000	0.000
180	24.8	8.674	0.000	0.000
190	23.7	8.307	0.000	0.000
200	22.8	7.973	0.000	0.000
210	21.9	7.668	0.000	0.000
220	21.1	7.388	0.000	0.000
230	20.4	7.130	0.000	0.000
240	19.7	6.891	0.000	0.000
250	19.1	6.669	0.000	0.000
260	18.5	6.463	0.000	0.000
270	17.9	6.271	0.000	0.000
280	17.4	6.091	0.000	0.000
290	16.9	5.923	0.000	0.000
300	16.5	5.764	0.000	0.000
310	16.0	5.615	0.000	0.000
320	15.6	5.474	0.000	0.000
330	15.3	5.341	0.000	0.000
340	14.9	5.215	0.000	0.000
350	14.6	5.096	0.000	0.000
360	14.2	4.982	0.000	0.000

Storage Volume Required (cu.m) =	**46.8**
Storage Volume Provided (cu.m) =	**105.4**
HGL Depth (m) =	0.9
Orifice Diameter (mm) =	75

3400 Dufferin Street
Mixed-Use Development

IBI

Water Quality Calculations
Block E (Building C)

Project Name: 3400 Dufferin Street
Project Number: 139570
Date: 28 July 2022
Designed By: Jason Jenkins, P.Eng.

TSS Removal (Un-Treated)

Surface	Area (m^2)		Effective TSS Removal	Overall TSS Removal
Conventional Roof	672	40.7%	80	32.5
Intensive Green Roof	362	21.9%	80	17.5
Landscape	0	0.0%	80	0.0
Landscape over P1	183	11.1%	80	8.9
Permeable Pavers	0	0.0%	80	0.0
Impervious	435	26.3%	0	0.0
Total Area:	**1,652**	100%		**58.9**

Treatment Required

TSS Removal (Treated)

Surface	Area (m^2)		Effective TSS Removal	Overall TSS Removal
Permeable Pavers	672	40.7%	80	32.5
Impervious	362	21.9%	80	17.5
Total Area	0	0.0%	80	0.0
0	183	11.1%	80	8.9
Block D (Towers X an	0	0.0%	80	0.0
Conventional Roof	435	26.3%	80	21.1
Total Area:	**1,652**	100%		**80.0**

Site Meets 80% TSS Removal

3400 Dufferin Street
Mixed-Use Development

IBI

Water Balance Calculations
Block E (Building C)

Project Name: 3400 Dufferin Street
Project Number: 139570
Date: 28 July 2022
Designed By: Jason Jenkins, P.Eng.

Total Volume to be Retained	
Required Water Balance (mm):	7.0
Recall Site Area (m^2):	1,652
Total Water Balance to be Retained (m^3):	**11.6**

(Adjusted to offset road)

Volume Achieved Through Initial Abstraction				
Surface	**Area (m^2)**		**I.A.**	**Vol. (m^3)**
Conventional Roof	672		1	0.7
Green Roof	362		7	2.5
Landscape	0		5	0.0
Landscape over P1	183		5	0.9
Permeable Pavers	0		5	0.0
Impervious	435		1	0.4
Total Area:	**1,652**			**4.6**

Water Balance Summary	**Vol. (m^3)**
Recall Initial Abstraction (see above):	4.6
Water Re-Use (Irrigation):	7.0
Water Re-Use (Toilet Flushing):	
Total Water Balance Achieved:	**11.6**

DOES NOT WORK

Check Tank Capacity to Capture Re-Use Volume	
Area of SWM Tank (m^2):	53.0
Float Switch Operating Range (m):	0.20
Total Water Balance Achieved:	**10.6**

SWM Tank has sufficient capacity for Re-Use Volumes

Municipal Right-of-Way

ECHELON ENVIRONMENTAL

CDS AVERAGE ANNUAL EFFICIENCY FOR TSS REMOVAL & TOTAL ANNUAL VOLUME TREATED

Project: 3400 Dufferin St
Location: Toronto
OGS ID: OGS4 (Municipal Rd)

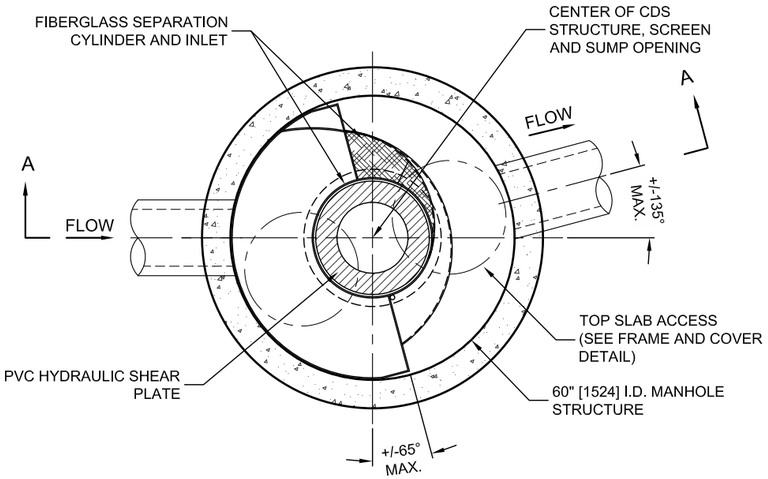
Engineer: IBI Group
Contact: Shirley Beaudoin
Date: 7/Jul/22

Area: 0.82 ha
Rc: 0.64
Upstream Storage: 195.6 m3
CDS Model: CDS-5

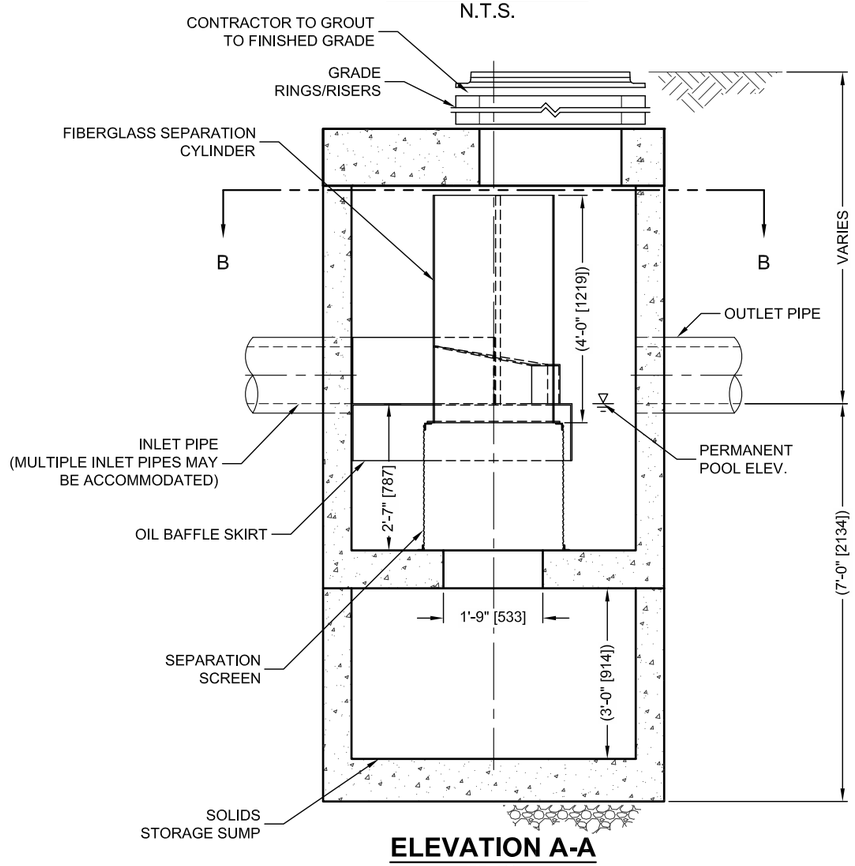
Treatment Capacity: 42 l/s
Particle Size Distribution: City of Toronto
IDF Rainfall Data: City of Toronto

Return	Period	Peak Flow	TSS Percentage Captured	Treated Flow Volume	Total Flow Volume	Annual Exceedance Probability	System Flow	CDS Flow	By-Pass Flow	Volume Percentage Treated
month / yr	Yr	l/s	%	litres	litres	%	l/s	l/s	l/s	%
1-M	0.083	2.54	93.20	2116	2116	**100.00**	2.54	2.54	0.00	100.00
2-M	0.1667	9.46	90.69	7990	7990	**99.75**	9.46	9.46	0.00	100.00
3-M	0.25	14.99	88.74	12744	12744	**98.17**	14.99	14.99	0.00	100.00
4-M	0.333	20.00	86.97	17086	17086	**95.04**	20.00	20.00	0.00	100.00
5-M	0.417	28.14	84.02	24534	24534	**90.91**	28.14	28.14	0.00	100.00
6-M	0.5	36.28	81.07	31982	31982	**86.47**	36.28	36.28	0.00	100.00
7-M	0.583	38.42	80.28	33998	34004	**82.01**	38.42	38.42	0.00	99.98
8-M	0.667	40.57	79.49	36015	36027	**77.67**	40.57	40.57	0.00	99.97
9-M	0.75	42.71	78.71	38032	38049	**73.64**	42.71	42.48	0.23	99.95
10-M	0.833	46.71	76.35	40818	41873	**69.90**	46.71	42.48	4.24	97.86
11-M	0.917	50.71	73.99	43605	45697	**66.40**	50.71	42.48	8.24	95.77
1-Yr	1	54.72	71.63	46392	49521	**63.21**	54.72	42.48	12.24	93.68
2-Yr	2	60.90	67.70	49599	55533	**39.35**	60.90	42.48	18.42	89.32
5-Yr	5	74.27	60.06	55274	68875	**18.13**	74.27	42.48	31.79	80.25
10-Yr	10	84.46	55.00	58567	79148	**9.52**	84.46	42.48	41.98	74.00
25-Yr	25	96.50	49.84	61709	91445	**3.92**	96.50	42.48	54.03	67.48
50-Yr	50	108.88	45.32	64423	104522	**1.98**	108.88	42.48	66.40	61.64
100-Yr	100	121.90	41.30	66990	118869	**1.00**	121.90	42.48	79.42	56.36
Average Annual TSS Removal Efficiency [%]:					**80.3**	Ave. Ann. T. Volume [%]:				**97.9**

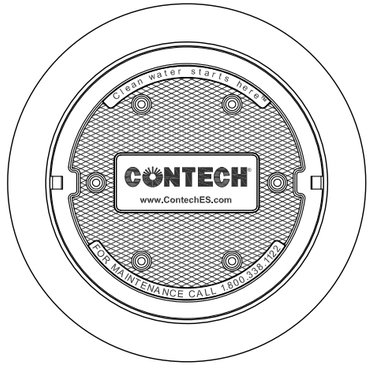
Notes:
1) CDS Efficiency based on testing conducted at the University of Central Florida
2) CDS design flowrate and scaling based on standard manufacturer model & product specificiations



PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

CDS-5-C DESIGN NOTES

THE STANDARD CDS-5-C CONFIGURATION IS SHOWN.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET HS20 (AASHTO M 306) AND BE CAST WITH THE CONTECH LOGO.
6. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS-5-C ONLINE CDS STANDARD DETAIL

Block B (Building A)

Determining Number of Cartridges for Flow Based Systems

Date	**7/7/2022**	**Black Cells =**	**Calculation**

Site Information

Project Name	**3400 Dufferin St**		
Project Location	**Toronto, ON**		
OGS ID	**OGS1 (Block B)**		
Drainage Area, Ad	**0.14**	ac	(0.0569 ha)
Impervious Area, Ai	**0.14**	ac	
Pervious Area, Ap	**0.00**		
% Impervious	**100%**		
Runoff Coefficient, Rc	**0.90**		
Treatment storm flow rate, Q_{treat}	**0.10**	cfs	(2.8 L/s)
Peak storm flow rate, Q_{peak}	**1.26**	cfs	(35.6 L/s)

Filter System

Filtration brand	**StormFilter**	
Cartridge height	**12**	in
Specific Flow Rate	**2.00**	gpm/ft^2
Flow rate per cartridge	**10.00**	gpm

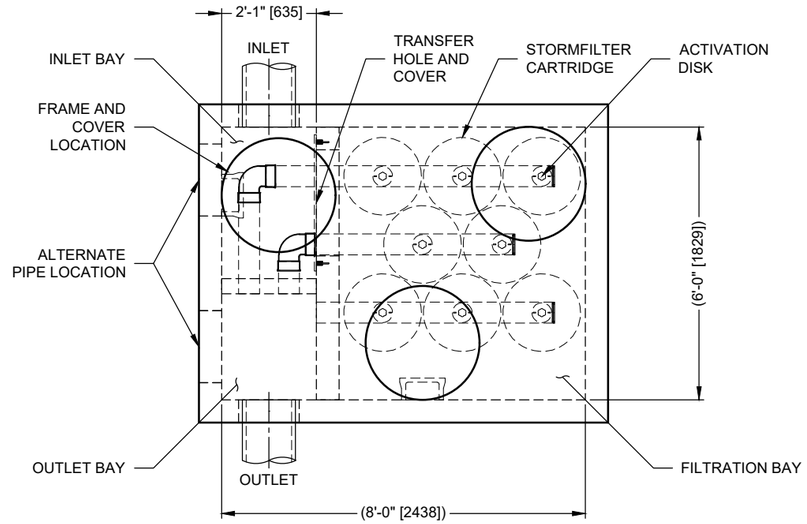
SUMMARY

Number of Cartridges	5
Media Type	Perlite

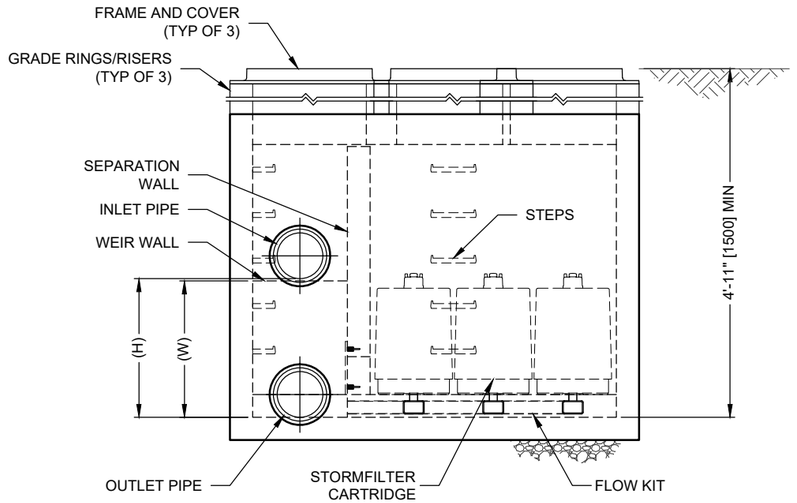
Event Mean Concentration (EMC)	**150**	mg/L
Annual TSS Removal	**80%**	
Percent Runoff Capture	**90%**	

Recommend SFPD0608 vault or CIP

200 Enterprise Drive
Scarborough, ME 04074
Phone 877-907-8676
Fax 207-885-9825



PLAN



ELEVATION

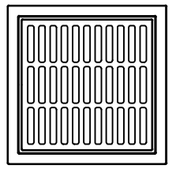
The Stormwater Management StormFilter®

STORMFILTER DESIGN NOTES

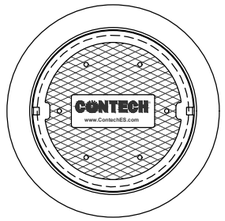
- STORMFILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCALLY APPROVED SURFACE AREA SPECIFIC FLOW RATE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD
- A 6' x 8' [1829 x 2438] PEAK DIVERSION STYLE STORMFILTER IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (8) AND IS AVAILABLE IN A LEFT INLET (AS SHOWN) OR A RIGHT INLET CONFIGURATION
- ALL PARTS AND INTERNAL ASSEMBLY PROVIDED BY CONTECH UNLESS NOTED OTHERWISE

CARTRIDGE SIZE (in. [mm])	27 [686]			18 [457]			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H) (ft. [mm])	3.05 [930]			2.3 [701]			1.8 [549]		
HEIGHT OF WEIR (W) (ft. [mm])	3.00 [914]			2.25 [686]			1.75 [533]		
SPECIFIC FLOW RATE (gpm/sf [L/s/m^2])	2 [1.36]	1.67* [1.13]*	1 [0.68]	2 [1.36]	1.67* [1.13]*	1 [0.68]	2 [1.36]	1.67* [1.13]*	1 [0.68]
CARTRIDGE FLOW RATE (gpm [L/s])	22.5 [1.42]	18.79 [1.19]	11.25 [0.71]	15 [0.95]	12.53 [0.79]	7.5 [0.47]	10 [0.63]	8.35 [0.53]	5 [0.32]

* 1.67 gpm/sf [1.13 L/s/m^2] SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND GRATE
(24" SQUARE)
(NOT TO SCALE)



FRAME AND COVER
(30" ROUND)
(NOT TO SCALE)

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	
WATER QUALITY FLOW RATE (cfs [L/s])	
PEAK FLOW RATE (cfs [L/s])	
RETURN PERIOD OF PEAK FLOW (yrs)	
CARTRIDGE FLOW RATE	
CARTRIDGE SIZE (27, 18, LOW DROP (LD))	
MEDIA TYPE (PERLITE, ZPG, PSORB)	
NUMBER OF CARTRIDGES REQUIRED	
INLET BAY RIM ELEVATION	
FILTER BAY RIM ELEVATION	

PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			

NOTES/SPECIAL REQUIREMENTS:

PERFORMANCE SPECIFICATION

FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. **RADIAL MEDIA DEPTH SHALL BE 7" [178].** FILTER MEDIA CONTACT TIME SHALL BE AT LEAST **37 SECONDS**. SPECIFIC FLOW RATE SHALL BE **2 GPM/SF [1.36 L/s/m^2] (MAXIMUM)**. SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF). MEDIA VOLUMETRIC FLOW RATE SHALL BE **6 GPM/CF [13.39 L/s/m^3] OF MEDIA (MAXIMUM).**

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. ALTERNATE DIMENSIONS ARE IN MILLIMETERS [mm] UNLESS NOTED OTHERWISE.
4. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
5. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
6. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 10' [3048] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
F. CONTRACTOR TO REMOVE THE TRANSFER OPENING COVER WHEN THE SYSTEM IS BROUGHT ONLINE.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

SFPD0608 (6' x 8')
PEAK DIVERSION STORMFILTER
STANDARD DETAIL

Block D (Building B)

Determining Number of Cartridges for Flow Based Systems

Date	**7/7/2022**	**Black Cells =**	**Calculation**

Site Information

Project Name	**3400 Dufferin St**		
Project Location	**Toronto, ON**		
OGS ID	**OGS2 (Block D)**		
Drainage Area, Ad	**0.11**	ac	(0.0463 ha)
Impervious Area, Ai	**0.11**	ac	
Pervious Area, Ap	**0.00**		
% Impervious	**100%**		
Runoff Coefficient, Rc	**0.90**		
Treatment storm flow rate, Q_{treat}	**0.08**	cfs	(2.3 L/s)
Peak storm flow rate, Q_{peak}	**1.02**	cfs	(29 L/s)

Filter System

Filtration brand	**StormFilter**	
Cartridge height	**12**	in
Specific Flow Rate	**2.00**	gpm/ft^2
Flow rate per cartridge	**10.00**	gpm

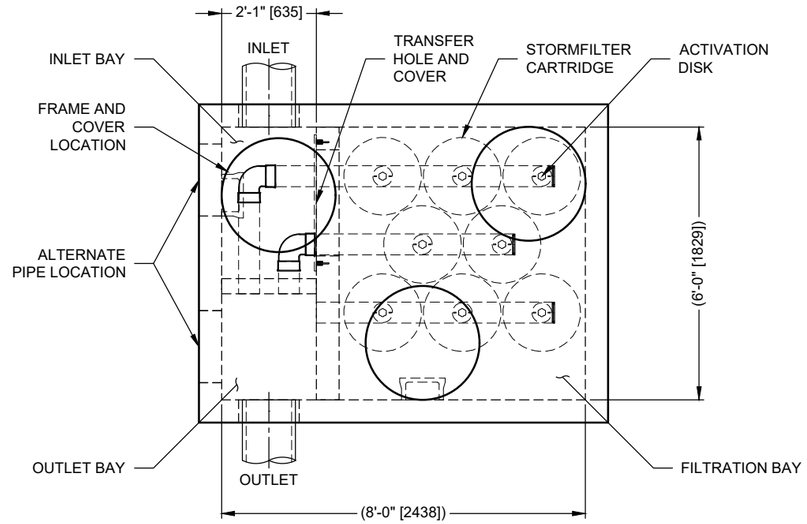
SUMMARY

Number of Cartridges	4
Media Type	Perlite

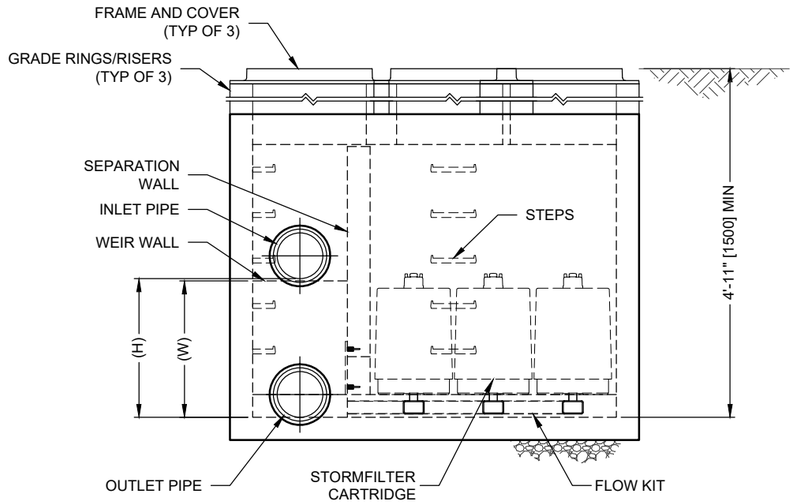
Event Mean Concentration (EMC)	**150**	mg/L
Annual TSS Removal	**80%**	
Percent Runoff Capture	**90%**	

Recommend SFPD0608 vault or CIP

200 Enterprise Drive
Scarborough, ME 04074
Phone 877-907-8676
Fax 207-885-9825



PLAN



ELEVATION

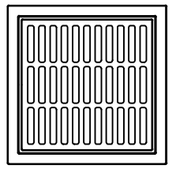
The Stormwater Management StormFilter®

STORMFILTER DESIGN NOTES

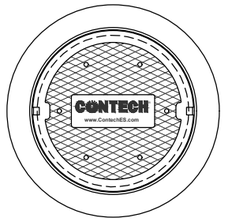
- STORMFILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCALLY APPROVED SURFACE AREA SPECIFIC FLOW RATE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD
- A 6' x 8' [1829 x 2438] PEAK DIVERSION STYLE STORMFILTER IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (8) AND IS AVAILABLE IN A LEFT INLET (AS SHOWN) OR A RIGHT INLET CONFIGURATION
- ALL PARTS AND INTERNAL ASSEMBLY PROVIDED BY CONTECH UNLESS NOTED OTHERWISE

CARTRIDGE SIZE (in. [mm])	27 [686]			18 [457]			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H) (ft. [mm])	3.05 [930]			2.3 [701]			1.8 [549]		
HEIGHT OF WEIR (W) (ft. [mm])	3.00 [914]			2.25 [686]			1.75 [533]		
SPECIFIC FLOW RATE (gpm/sf [L/s/m^2])	2 [1.36]	1.67* [1.13]*	1 [0.68]	2 [1.36]	1.67* [1.13]*	1 [0.68]	2 [1.36]	1.67* [1.13]*	1 [0.68]
CARTRIDGE FLOW RATE (gpm [L/s])	22.5 [1.42]	18.79 [1.19]	11.25 [0.71]	15 [0.95]	12.53 [0.79]	7.5 [0.47]	10 [0.63]	8.35 [0.53]	5 [0.32]

* 1.67 gpm/sf [1.13 L/s/m^2] SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND GRATE
(24" SQUARE)
(NOT TO SCALE)



FRAME AND COVER
(30" ROUND)
(NOT TO SCALE)

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	
WATER QUALITY FLOW RATE (cfs [L/s])	
PEAK FLOW RATE (cfs [L/s])	
RETURN PERIOD OF PEAK FLOW (yrs)	
CARTRIDGE FLOW RATE	
CARTRIDGE SIZE (27, 18, LOW DROP (LD))	
MEDIA TYPE (PERLITE, ZPG, PSORB)	
NUMBER OF CARTRIDGES REQUIRED	
INLET BAY RIM ELEVATION	
FILTER BAY RIM ELEVATION	

PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			

NOTES/SPECIAL REQUIREMENTS:

PERFORMANCE SPECIFICATION

FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. **RADIAL MEDIA DEPTH SHALL BE 7" [178].** FILTER MEDIA CONTACT TIME SHALL BE AT LEAST **37 SECONDS**. SPECIFIC FLOW RATE SHALL BE **2 GPM/SF [1.36 L/s/m^2] (MAXIMUM)**. SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF). MEDIA VOLUMETRIC FLOW RATE SHALL BE **6 GPM/CF [13.39 L/s/m^3] OF MEDIA (MAXIMUM).**

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. ALTERNATE DIMENSIONS ARE IN MILLIMETERS [mm] UNLESS NOTED OTHERWISE.
4. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
5. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
6. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 10' [3048] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
F. CONTRACTOR TO REMOVE THE TRANSFER OPENING COVER WHEN THE SYSTEM IS BROUGHT ONLINE.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

SFPD0608 (6' x 8')
PEAK DIVERSION STORMFILTER
STANDARD DETAIL

Block E (Building C)

Determining Number of Cartridges for Flow Based Systems

Date	**7/7/2022**	**Black Cells =**	**Calculation**

Site Information

Project Name	**3400 Dufferin St**		
Project Location	**Toronto, ON**		
OGS ID	**OGS3 (Block E)**		
Drainage Area, Ad	**0.06**	ac	(0.0234 ha)
Impervious Area, Ai	**0.06**	ac	
Pervious Area, Ap	**0.00**		
% Impervious	**100%**		
Runoff Coefficient, Rc	**0.90**		
Treatment storm flow rate, Q_{treat}	**0.04**	cfs	(1.2 L/s)
Peak storm flow rate, Q_{peak}	**0.52**	cfs	(14.6 L/s)

Filter System

Filtration brand	**StormFilter**	
Cartridge height	**12**	in
Specific Flow Rate	**2.00**	gpm/ft^2
Flow rate per cartridge	**10.00**	gpm

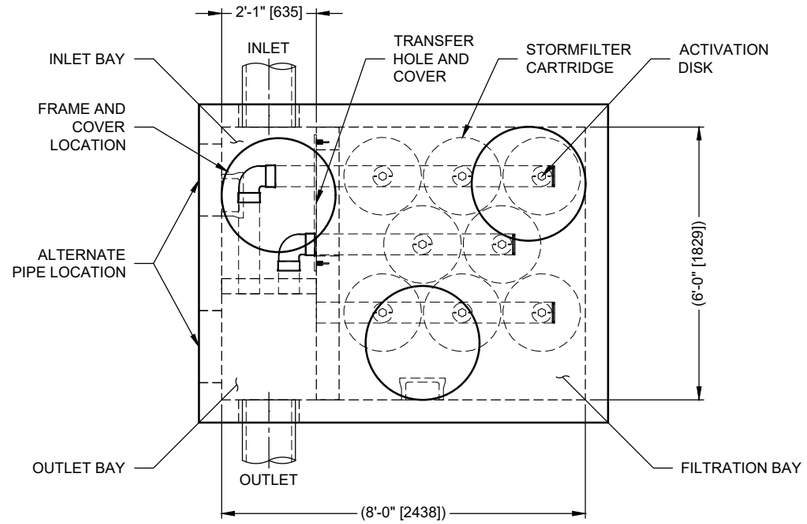
SUMMARY

Number of Cartridges	2
Media Type	Perlite

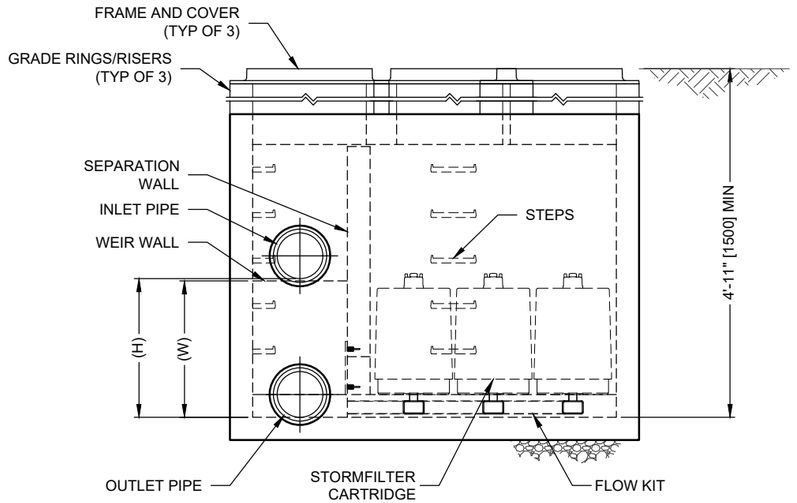
Event Mean Concentration (EMC)	**150**	mg/L
Annual TSS Removal	**80%**	
Percent Runoff Capture	**90%**	

Recommend SFPD0608 vault or CIP

200 Enterprise Drive
Scarborough, ME 04074
Phone 877-907-8676
Fax 207-885-9825



PLAN



ELEVATION

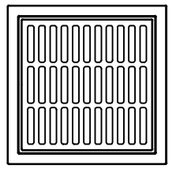
The Stormwater Management StormFilter®

STORMFILTER DESIGN NOTES

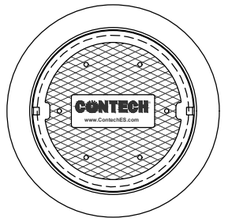
- STORMFILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCALLY APPROVED SURFACE AREA SPECIFIC FLOW RATE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD
- A 6' x 8' [1829 x 2438] PEAK DIVERSION STYLE STORMFILTER IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (8) AND IS AVAILABLE IN A LEFT INLET (AS SHOWN) OR A RIGHT INLET CONFIGURATION
- ALL PARTS AND INTERNAL ASSEMBLY PROVIDED BY CONTECH UNLESS NOTED OTHERWISE

CARTRIDGE SIZE (in. [mm])	27 [686]			18 [457]			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H) (ft. [mm])	3.05 [930]			2.3 [701]			1.8 [549]		
HEIGHT OF WEIR (W) (ft. [mm])	3.00 [914]			2.25 [686]			1.75 [533]		
SPECIFIC FLOW RATE (gpm/sf [L/s/m^2])	2 [1.36]	1.67* [1.13]*	1 [0.68]	2 [1.36]	1.67* [1.13]*	1 [0.68]	2 [1.36]	1.67* [1.13]*	1 [0.68]
CARTRIDGE FLOW RATE (gpm [L/s])	22.5 [1.42]	18.79 [1.19]	11.25 [0.71]	15 [0.95]	12.53 [0.79]	7.5 [0.47]	10 [0.63]	8.35 [0.53]	5 [0.32]

* 1.67 gpm/sf [1.13 L/s/m^2] SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND GRATE
(24" SQUARE)
(NOT TO SCALE)



FRAME AND COVER
(30" ROUND)
(NOT TO SCALE)

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	
WATER QUALITY FLOW RATE (cfs [L/s])	
PEAK FLOW RATE (cfs [L/s])	
RETURN PERIOD OF PEAK FLOW (yrs)	
CARTRIDGE FLOW RATE	
CARTRIDGE SIZE (27, 18, LOW DROP (LD))	
MEDIA TYPE (PERLITE, ZPG, PSORB)	
NUMBER OF CARTRIDGES REQUIRED	
INLET BAY RIM ELEVATION	
FILTER BAY RIM ELEVATION	

PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			

NOTES/SPECIAL REQUIREMENTS:

PERFORMANCE SPECIFICATION

FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. **RADIAL MEDIA DEPTH SHALL BE 7" [178].** FILTER MEDIA CONTACT TIME SHALL BE AT LEAST **37 SECONDS**. SPECIFIC FLOW RATE SHALL BE **2 GPM/SF [1.36 L/s/m^2] (MAXIMUM)**. SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF). MEDIA VOLUMETRIC FLOW RATE SHALL BE **6 GPM/CF [13.39 L/s/m^3] OF MEDIA (MAXIMUM).**

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. ALTERNATE DIMENSIONS ARE IN MILLIMETERS [mm] UNLESS NOTED OTHERWISE.
4. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
5. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
6. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 10' [3048] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
F. CONTRACTOR TO REMOVE THE TRANSFER OPENING COVER WHEN THE SYSTEM IS BROUGHT ONLINE.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

SFPD0608 (6' x 8')
PEAK DIVERSION STORMFILTER
STANDARD DETAIL

Appendix C
Engineering Drawings

Site Plan Application Set

Draft Plan of Subdivision Set