DesignFine

CONSULTING ENGINEERS – FORENSIC ENGINEERS – PROJECT MANAGERS
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FUNCTIONAL SERVICING
&
STORMWATER MANAGEMENT REPORT

7211 & 7233 AIRPORT RD
PARTS 1,2, & 3
CITY OF MISSISSAUGA
REGION OF PEEL

MAY 2023

PREPARED BY:

DESIGN FINE LTD.
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File No: DFL/035/2013

TABLE OF CONTENTS

1.0 INTRODUCTION

Design Fine Ltd. Was retained by Airstar Holdings Inc. to complete a Functional Servicing and Storm Water Management Report in support of an Official Plan and Zoning By-law amendment for the property at 7211 and 7233 Airport Road. The 8656 m^2 property is legally described as Part of Lot 12, Registered Plan 43R-23708, Pin # 13272-0613 (LT) and 13272-0614 (LT), City of Mississauga, Regional Municipality of Peel. The property is bounded by Airport Road to the south, Collett Road to the west, Residential area to the west and east, and Victory Park to the north. The site location is illustrated in Figure 1.

The proponent plans to construct a multi-unit senior's residence complex with a total of 128 units, as well 4 commercial units located on the main floor. A large underground parking structure will encompass most of the site area to support the proposed building.

2.0 SITE DESCRIPTION

The site is currently vacant. Access to the site is provided from one driveway onto Airport Road at the South limits of the property and another from Collett Road at the west limits of the property (refer to attached Drawing A-100 for more detail). The site predominantly drains South-West to North-East overland towards Victory Park. The site is approximately 0.87 hectares in size.

3.0 SITE PROPOSAL

This site will be developed into a Senior's residence which will be comprised of 128 units in a total of five floors. Additionally, on the main floor 4 units will be commercial in nature. Parking will be provided underground for the residents and a separate parking area will be designated for commercial and employee. Detailed site statistics can be found in drawing A-100.

4.0 STORMWATER MANAGEMENT & SITE DRAINGE

Management of storm water and site drainage for the proposed development policies and standards of various agencies including:

- City of Mississauga
- Ministry of Environment (MOE)
- Toronto Region Conservation Authority (TRCA)
- Region of Peel

A description of the existing and proposed drainage conditions as well as proposed storm water quantity and quality controls are described in the sections to follow.

4.1 EXISTING DRAINGE CONDITIONS

The subject land is located at the North of the intersection of Airport Road and Victory Crescent. Land is presently vacant and consists of an undeveloped green field. An existing 600mm diameter storm service in the adjacent lot collects the drainage from the subject property. Subject land also drains towards Airport Road into roadside catch basin and a secondary roadside catch basin is located North on Airport Road. The slope for the subject land is about 1-2% is Existing.

4.2 PROPOSED DRAINAGE CONDITIONS

The site will be developed into a residential/commercial structure in 'L' shape which will consist of one building, with the side perpendicular to Airport Road containing two floors. Building side parallel to Airport Road will contain a total of six floors, part of the first floor will be commercial and the rest residential.

Internal drainage within the proposed development will be collected in the parking lot area with a drain and subsurface storm sewers sized to convey the 100-year event. This storm sewer will be connected to manhole and stormceptor; which will release the water to main storm sewer line with controlled flow located on Collett road.

The preliminary grading of the site has been designed to direct all storm water generated on-site to the proposed internal drainage system. Driveway and parking lot sloped range from 1-2% in accordance with City of Mississauga standards. Low points at the drains have been graded such that the maximum depth of ponding will be 0.25 meters in the event of drain blockage.

4.3 STORMWATER QUANTITY CONTROL

Due to an increase in the site imperviousness because of the proposed development, peak flows from the site will increase. As such, an analysis of the required storage volume was completed to ensure post-development peak flows rates emanating from the site pre-development levels (i.e., quantity control).

The storm water quantity storage requirements for the site were determined using the Modified Rational Method. Rainfall data was collected from the City of Mississauga IDF Standard 2111.010. Refer to Appendix B for detailed storm water management calculations.

Given that the peak flow has substantially increased due to the increase in site imperviousness and drainage area contribution, quantity control measures will be required.

The total storage volume on-site to achieve the above-noted peak flow targets is a maximum of storage of 114.65 m^3 (increased from 114.65 m^3 to 127.56 m^3 due to the reduction in flow caused by orifice tube, please refer to Table 2 in Appendix A for more detail.

Drainage from parking areas will be collected in storage, after which it will pass through Stormceptor EFO6 before being released into the main storm sewer. The specification of the most suitable quantity control method(s) is provided in the Appendix C.

4.4 STORM QUALITY & EROSION CONTROL

It will be easier to implement storm water management practices to address the water quality and erosion control requirements of the regulatory agencies. Since Lake Ontario is the ultimate receiver of drainage, the development will incorporate measure to provide “enhanced protection” per the MOE (2003) guidelines. “Enhanced” water quality protection involves the removal of at least 80% of suspend solids from 90% of the annual runoff volume.

Typical water quality and erosion controls for the treatment of runoff from area size feature a treatment oil/grit separators and infiltration galleries. Storm water quality objectives for can be achieved using a stormceptor EFO6 (or equivalent). The storm water can be collected through 3 drains located on the ground level in parking area and discharge to Collett Rd outlets through EFO6. As per TRCA requirements only credits 50% efficiency. EFO6 is designed based on the drainage area of 1.74 ha (double the size of existing property (0.87 ha)).

5.0 SANITARY SEWAGE SYSTEM

The trunk sanitary sewer is approximately 2m below road surface. We propose 254 mm (10”) dia. service connection will be made from the building to existing trunk sanitary sewer below Collett Rd. The proposed development consists of one Long-term facility with some commercial entities present on the main floor of the building. The combined floor area of 15,457 m^2 produces an estimated average day and peak sewage flow of 0.73 L/s and 3.01 L/s respectively.

6.0 WATER DISTRIBUTION SYSTEM

We propose one service connection be made of 152 mm (6”) dia. water main on Collett Rd. The building services will include flow meters and connection requirements according to Region of Peel Standards.

Fire protection will be provided by a new hydrant, which will be located on the north side of the site so that it is less than 50m away from the building and provides easy access to each side of the building.

7.0 ROAD AND DRIVEWAY ACCESS

The development plan shows one right-in, right-out access from Airport Road.

8.0 EROSION & SEDIMENTATION CONTROL DURING CONSTRUCTION

Erosion and sediment controls will be implemented on-site prior to construction. The controls will consist of dams.

- Sediment control fence

Sediment control fence will be installed were required to intercept sheet flow. It should be noted that additional silt fencing maybe added during construction based on field decisions by the Engineer and Owner prior to, during and following, the earth works.

- Topsoil Stockpiles

It will be necessary to strip topsoil prior to earth moving. Temporary topsoil stockpiles will be located such that sediment does not enter the adjacent roadside ditches.

- Dust Suppression

During earthwork activities, the Contractor will ensure that measures for dust suppression are provided as required, such as the application of lime water.

A complete sediment and erosion control plan will be developed during the detailed design / approvals process.

8.1 CONSTRUCTION SEQUENCING

The following is the scheduling of construction activities with respect to sediment controls:

- Installation of all silt fences prior to any other activities on the site.
- Construct temporary mud mat for construction access.
- Demolish existing buildings and dispose of waste material off site.
- Excavate the site for the construction of the building foundations and
- dispose of surplus material off site.
- Install the site servicing and all underground utilities.
- Construct the building, underground Parking garage and buildings.
- Restore / re-vegetate all disturbed areas with temporary measures.
- such as mulch or seeding or with final landscape and paving materials.
- Upon stabilization of all disturbed areas, remove sediment controls.

8.2 *INSPECTIONS & MAINTENANCE*

To ensure that the sediment control measures operate effectively, they are to be regular monitored during construction. Inspections of all the erosion and sediment control measures on the construction site should be undertaken with the following frequency:

- On a weekly basis
- After every rainfall
- After significant snow melt
- Prior to forecasted rainfall events.

If damaged is found, the damage should be repaired or replaced within 48 hours. Site inspection staff and construction managers should refer to the Erosion and Sediment Control Inspection Guide (2008) prepared by the Greater Golden Horseshoe Area Conservation

Authority. The guide provides information on inspection reporting, how to respond to variety of problems, and proper installation techniques.

9.0 UTILITIES

As the surrounding area contains large number of commercial and residential properties access to all the major utilities including Enbridge Gas, Hydro One, Rogers, and Bell Canada.

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10.0 CONCLUSIONS & RECOMMENDATIONS

We conclude that the proposed development of the subject lands can be readily serviced and meet the storm water management objectives of the regulatory agencies.

1. Access to the site will be provided from Northbound Airport Road adjacent to the site.
2. On-site storm water quantity control will be required. The total storage volume required while accounting orifice tube reduction is 127.56 m^3. Storage is provided via underground tank with a capacity of 45.00 m^3. Furthermore, additional 68.84 m^3 storage can be achieved utilizing, ponding around the drain in the parking area, and around the catch basin (CBMH1). First 5mm of rain (43.28 m^3) shall be managed by way of infiltration and evapotranspiration for the site via landscape areas. There total storage required on site will be 127.56 m^3 – 43.28 m^3 = 84.28 m^3 < 113.84 m^3.
3. On-site storm water quality controls are required and will be achieved using treatment train approach. MOE storm water quality objectives using a Stormceptor EFO6.
4. The expected average domestic water consumption will be approximately 3.18 L/sec.
5. The fire flow required for the site is estimated to be 140.23 L/sec.
6. Internal drainage for the development will convey storm event and emergency overland flows in accordance with City of Mississauga design standards.
7. One sanitary sewer connection will be made to the existing sewer via a proposed 254 mm (10”) Ø service lateral.
8. Domestic water for the commercial uses will be provided by a connection to the existing 152 mm (6”) Ø watermain on Collett Rd.
9. Existing utility plants are located on Airport Rd and Collett Rd can service the proposed site.

Therefore, we recommend approval of the planning applications for the subject lands from the perspective of site grading, storm water management, and engineering servicing requirements.

Regards,

Design Fine Ltd.

Aryan Sharma, P. Eng

APPENDIX A

STORMWATER MANAGEMENT CALCULATIONS

RUNOFF COEFFCIENT

Pre-Development Peak Flows – As per City of Mississauga design requirements, manual maximum runoff coefficient can be used for the predevelopment condition is 0.5, and for undeveloped land 0.25 should be used. The site is described as underdeveloped greenfield therefore 0.25 is to be used.

Post-Development Peak Flows

Land Use	Area(ha)	Runoff Coef.	A x C
Parks	0.3757	0.25	0.0939
Multiple & Institutional	0.0831= (0.2171-0.1340)	0.90	0.0748
Green Roof area	0.1340	0.45	0.0603
Roadways	0.1965	0.90	0.1768
Total:	0.8656		

Total Area (ha) = 0.8656
Average Runoff Coef. = (0.0939+0.0748+0.0603+0.1768) = 0.4058/0.8656 ha = 0.4688 ~ 0.47

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RATIONAL METHOD FLOWS

Sample Calculation (Post-Development) – 2 years

Intensity (2 years): $i = \frac{610}{(Tc+4.6)^{0.78}}$ (As per City of Mississauga IDF Standard 2111.010)

Peak Flow: Q_{post} = 0.0028 x C_{post} x $i_{(T_d)}$ x Area

Factors:

T_c = 15 minutes as per City of Mississauga Design Criteria
C_{post} = 0.41
Q_{pre} = 0.0595 m^3/s
T_d = Time in minutes

2 years								
Cpost	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Intensity	59.89	50.16	43.42	38.45	34.60	31.54	29.03	26.94
Td (sec)	900	1200	1500	1800	2100	2400	2700	3000
Mins	15	20	25	30	35	40	45	50
Peak flow (Post)	0.0682	0.0571	0.0495	0.0438	0.0394	0.0359	0.0331	0.0307
5 years								
Cpost	0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Intensity	80.51	67.43	58.37	51.68	46.52	42.40	39.02	36.21
Td (sec)	900	1200	1500	1800	2100	2400	2700	3000
Mins	15	20	25	30	35	40	45	50
Peak flow (Post)	0.0917	0.0768	0.0665	0.0589	0.0530	0.0483	0.0445	0.0412

10 years									
Cpost		0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Intensity		99.17	83.06	71.90	63.66	57.30	52.22	48.07	44.60
Td (sec)		900	1200	1500	1800	2100	2400	2700	3000
	Mins	15	20	25	30	35	40	45	50
Peak flow (Post)		0.1130	0.0946	0.0819	0.0725	0.0653	0.0595	0.0548	0.0508
25 years									
Cpost		0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Intensity		113.89	95.40	82.58	73.11	65.80	59.98	55.21	51.22
Td (sec)		900	1200	1500	1800	2100	2400	2700	3000
	Mins	15	20	25	30	35	40	45	50
Peak flow (Post)		0.1297	0.1087	0.0941	0.0833	0.0750	0.0683	0.0629	0.0583
50 years									
Cpost		0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Intensity		127.13	106.57	92.30	81.75	73.60	67.10	61.77	57.32
Td (sec)		900	1200	1500	1800	2100	2400	2700	3000
	Mins	15	20	25	30	35	40	45	50
Peak flow (Post)		0.1448	0.1214	0.1051	0.0931	0.0838	0.0764	0.0704	0.0653
100 years									
Cpost		0.47	0.47	0.47	0.47	0.47	0.47	0.47	0.47
Intensity		140.69	118.12	102.41	90.77	81.77	74.58	68.68	63.75
Td (sec)		900	1200	1500	1800	2100	2400	2700	3000
	Mins	15	20	25	30	35	40	45	50
Peak flow (Post)		0.1603	0.1352	0.1173	0.1039	0.0936	0.0854	0.0786	0.0730

Table 1: Maximum Storage required.

Time Min (t)	Intensity Mm/hr. (I)	Max. Discharge m^3/sec. Q(release)	Peak flow 100 yr. Event m^3/sec Q(peak)	Inflow Volume m^3 V(in)	Outflow Volume m^3 V(out)	Storage Required m^3
10	176.31	0.036	0.2008	120.48	30.36	90.12
15	140.69	0.036	0.1603	144.27	40.64	103.63
20	118.12	0.036	0.1352	162.24	50.97	111.27
25	**102.41**	**0.036**	**0.1173**	**175.95**	**61.30**	**114.65**
30	90.77	0.036	0.1039	171.43	71.65	99.78

The maximum storage volume required to control 100-year rainfall event for grade level area is 114.65 m^3.

Water balance (WWFMG Table 3 and 7 section 2.2.1.1 and 2.2.1.2) is estimated for erosion control, ground water recharge and downstream habitat protection though run-off control, infiltration, and evapotranspiration.

STORAGE VOLUME PROVIDED

The maximum storage volume required to control 100-year rainfall event for grade level area: 114.65 m^3.

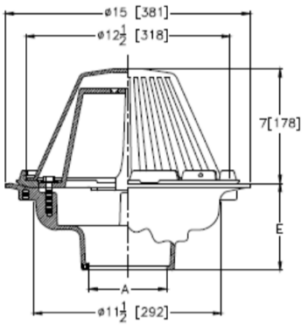
$$\text{Pipe Diameter} = \sqrt{\frac{4*Q}{\pi*V}}$$

Pipe diameter used = 50 mm

V = 9.81 m^2/s (Gravity)

Where Q = 5 L/s x 7 pipes = 35 L/s (0.035 m^3/s)

SPECIFICATION DATA



ENGINEERING SPECIFICATION: ZURN Z-105 "Control-Flo" roof drain for dead -level or sloped roof construction, Dura-Coated cast iron body. "Control-Flo" weir shall be linear functioning with integral membrane flashing clamp/ gravel guard and Poly-Dome. All data shall be verified proportional to flow rates.

Roof will control the runoff to a fixed discharge with 7 hoppers. The discharge table for the Zurn hoppers is attached in the appendix.

Proposed storm water sewer system is shown on grading plan. There is 1 drain, and 1 catch basin.

Volume of the Catch Basin:

= (L X W X D) = (0.61 X 0.61 X 1.9) = 0.71 m^3

Where:

L = Length of the catch basin
W = Width of the catch basin
D = Average depth of the catch basin

Surface Ponding storage:

There are two ponding areas provided: one in the parking lot and another in the landscape area.

Total volume provided: 58.93 m^3 + 2.55 m^3 = 61.48 m^3
Ramp ponding (5%) of the ramp surface = 7m x 19m x 5% = 6.65 m^3
Note: Ramp to drain to storage tank provide (pipe inverts show on plan SG1)

Basement storage tank:

The underground storage tank will have following dimensions 4m x 7.5m x 1.5m. Hence, the storage volume for up to 100-year storms can be collected here. A total volume of 45 m^3.

0.3757 ha (landscape area) is 0.8656 ha is 43.40% of the proposed site. Therefore, it is proposed that 5mm of rainfall shall be managed by way of infiltration and evapotranspiration for the site via landscape areas.

Total volume provided = 61.48+6.65+0.71+45= 113.84 m^3 > required 114.65 m^3 – 43.28m^3 = 70.56 m^3

Note: Storage is increased from 114.65 m^3 to 127.56 m^3 due to the reduction in flow caused by orifice tube, please refer to the part below for more detail.

Therefore, required 127.56 m^3 – 43.28m^3 = 84.28 m^3 < 113.84 m^3 (provided)

Quality control:

The discharge flow rate from the site will be controlled by installing an orifice pipe at the upstream of the control catch basin.

Following formula is used to calculate the size of orifice pipe.

$$Q = CA\,(2gH)^{1/2}$$

Where

C = coefficient of discharge (sharp orifice)
A = Orifice area (m^2)
H = Head on orifice (m)
g = 9.81 m/sec^2

Based on maximum allowable release rate from the site (0.0360 m^3/sec), the Calculations for orifice plate size are shown here:

Q = 0.0360 m^3/sec
C = 0.25
H = 168.65(Top of CBMH 1) – 166.60(Invert of stormceptor EFO6 manhole) = 2.05 m
Q = CA $(2gH)^{½}$

A = 0.0227 m^2
D = 170.00 mm

Therefore, an orifice pipe of 150 mm diameter shall be used after the catch basin to control the flow to the Storm control manhole.

Based on orifice pipe diameter following flow (Q) is calculated below:

A = 0.01767 m^2
C = 0.25
H = 168.65 (Top of CBMH 1) – 166.60(Invert of stormceptor EFO6 manhole) = 2.05 m
Q = CA $(2gH)^{½}$
Q = 0.028 m^3/sec

Table 2: Increased Maximum storage

Time Min (t)	Intensity Mm/hr. (I)	Max. Discharge m^3/sec. Q(release)	Peak flow 100 yr. Event m^3/sec Q(peak)	Inflow Volume m^3 V(in)	Outflow Volume m^3 V(out)	Storage Required m^3
25	**102.41**	**0.028**	**0.1173**	**175.95**	**48.39**	**127.56**

Total storage provided 113.84 m^3 > required 127.56 m^3 – 43.28m^3 (5mm rainfall) = 84.28 m^3.
For more detail, please refer to Drawing SG1.

FIRE FLOW:

$F = 220\ C(A)^{0.5} = 220 \times 0.8 \times (2171 + (50\% \times 2085))^{0.5} = 10{,}787.09$ L/min

Where:
F = the required fire flow in liters per minute
C = Coefficient related to the type of construction
= 1.5 for wood frame construction (structure essentially all combustible)
= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
= 0.8 for non-combustible construction (unprotect metal structural components, masonry or metals walls)
= 0.6 for fire-resistive construction (fully protected frames, floors, roof)
A = Area in Square meters

Further reduction for non-combustible building – 25%

F = 10,787.09 L/min x 0.75 = 8,090.32 L/min

Further reduction of 20% for automated sprinkler system = 8,090.32 x 80% = 6472.26 L/min

Increase in "F" value is considered for structures exposed within 45 meters as recommended by FUS (Fire Underwriters Survey)

Project Northwest exposure = 10% (20.1 m – 30 m)
Project Southeast exposure = 20% (3.1 m – 10 m)

Required fire flow = 6472.26 x 1.30 = 8413.94 L/min = 140.23 L/sec

Reference: Fire Underwriters survey-1999 Water supply for public fire protection

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WATER DEMANS CALCULATIONS

Building & site use

- Land Area = 0.8656 ha
- Building Area = 15,457.09 m^2
  - Commercial Use – 228.70 m^2
  - Long term facility Use – 15,228.39 m^2

Sewage flows

Ontario Building Code - Table 8.2.1.3.B and Table 3.1.17.1

- Commercial Use = 75 L/Day / 9.3 m^2 (OBC Table 3.1.17.1-office use (area/per person))
  = 75L/Day x (228.70 m^2/9.3 m^2)
  = 1844.35 L/Day

- Long term facility Use – 450 L/Day/per bed
  - Total Beds in Entire Facility – 138 Beds
    = 450 L/Day x 138 Beds = 61,200 L/Day

Subtotal average daily = 1844.35 L/Day + 61,200 L/Day = 63,044.35 L/Day

Reference: Region of Peel Public works Design Criteria Manual- Sanitary Sewer, Revised July 2009, Modified March 2017 Rev 0.9 (CS)

50 p.p. ha x 0.87 ha = 43.5 ~ 43 People avg. daily
302.8 L/C Day x 43 = 13,020 L/Day

Long term facility Occupancy:
(118 (1-bedroom) x1.68) + (20 (2-bedroom) x 2.54) = 224 residents
Assume office Building = 1844.35/302.8 = 6 People

Total = 224 People-peak

Therefore, Daily Sewage flow = 63,044.35 L/Day => 0.73 L/sec

Peak flow based on Harmon formula
M = 1 + (14 / (4+ $p^{0.5}$); p = the tributary equivalent population in thousands

M = 4.13; Therefore, peak flow = 4.13 x 0.73 L/sec = 3.01 L/sec

WATER DEMANDS

Reference: Region of Peel Public works watermain design criteria (Revised June 2010), Table 1, and Table 2

Peak Use = 224 People

Therefore, Total water demand = 63,044.35 L/Day

Maximum/Day = 224 x 409 x 2.0 = 183,232 L/Day => 2.12 L/sec

Peak hr. = 224 x 409 x 3.0 => 3.18 L/sec

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Connection Multi Use Demand Table

WATER CONNECTION

Connection Point[3)]		
152MM (6") DIA WTM ON COLLETT RD		
Pressure zone of connection point		
Total equivalent population to be serviced[1)]		*224*
Total lands to be serviced		*0.8656 ha*
Hydrant flow test		
Hydrant flow test location		
Test was conducted on May 19, please see attached report.		

No.	**Water demands**			
	Demand type	**Demand (l/sec)**		
		Use 1[5)]	**Use 2[5)]**	**Total**
1	Average day flow	*0.73*		*0.73*
2	Maximum day flow	*2.12*		*2.12*
3	Peak hour flow	*3.18*		*3.18*
4	Fire flow[2)]	*140.23*		*140.23*
Analysis				
5	Maximum day plus fire flow	*142.35*		*142.35*

WASTEWATER CONNECTION

				Total
Connection point [4)]		*EX. 254MM SAN ON COLLETT RD*		
Total equivalent population to be serviced [1)]				*224*
Total lands to be serviced				*0.8656 ha*
6	Wastewater sewer effluent (l/sec)			*3.01*

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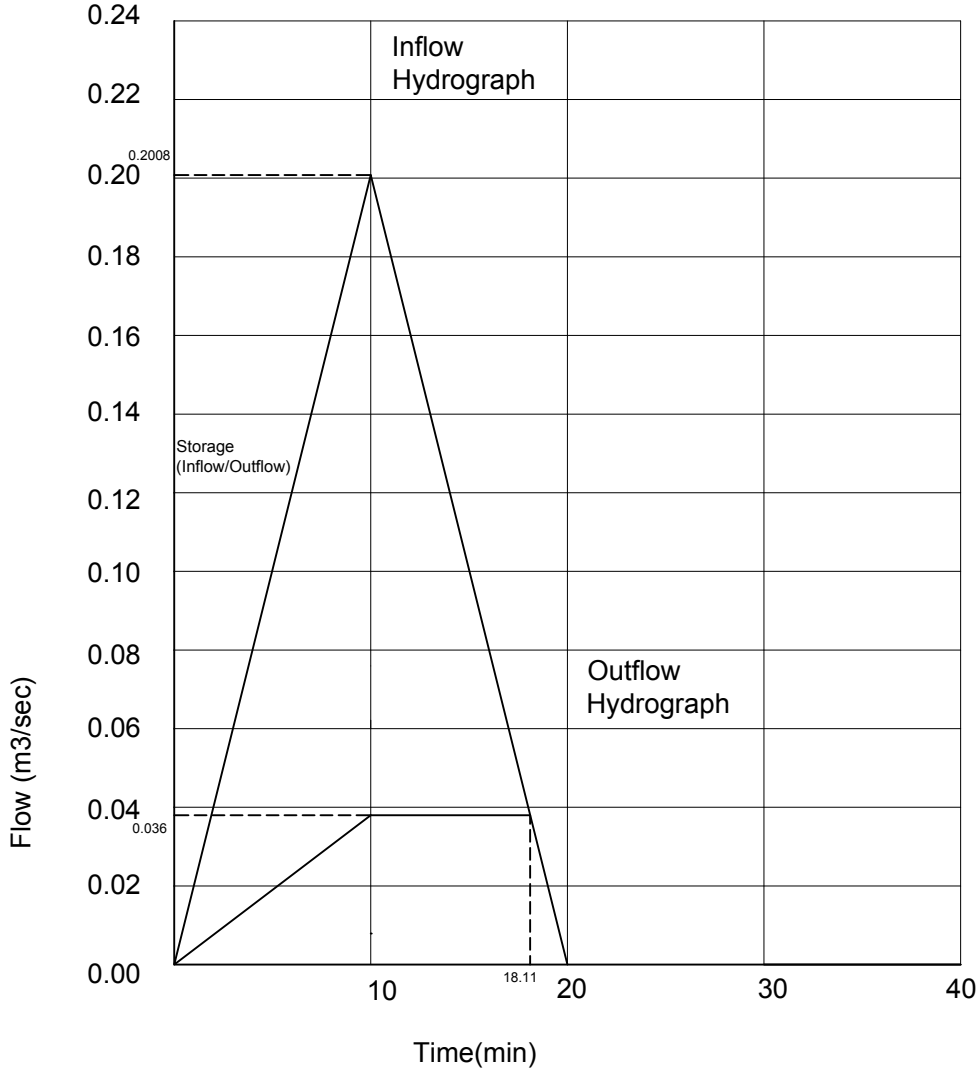
1) The calculations should be based on the development estimated population (employment and/or residential).
2) Please reference the Fire Underwriters Survey Document
3) Please specify the connection point ID
4) Please specify the connection point (wastewater line or manhole ID)
   Also, the total equivalent population to be serviced" and the "total lands to be serviced" should reference the connection point. (The FSR should contain onecopy of Site Servicing Plan)
5) Please complete as many uses are necessary for the development. (Please specify the use)

Please include the graphs associated with the hydrant flow test information table Please provide Professional Engineer's signature and stamp on the demand table. All required calculations must be submitted with the demand table submission.

Location	From M.H.	To M.H.	AREA (ha)	DENSITY (ppha)	POPULATION	CUMULATIVE AREA (ha)	CUMULATIVE POPULATION	SEWAGE FLOW 1 (m^3/sec)	INFILTRATION FLOW 2 (m^3/sec)	FOUNDATION DRAIN 3 (m^3/sec)	TOTAL FLOW (m^3/sec)	LENGTH (m)	PIPE DIAMETER (mm)	GRADIENT (%)	CAPACITY (m^3/sec)	VELOCITY (m/sec)
	BLDG	R.O.W.	0.8656	230	224	0.8656	230	0.0028	0.0002	--	0.0030	31.43	254	1.99	0.084	1.66



Storage Calculations for maximum storage at 10 minutes

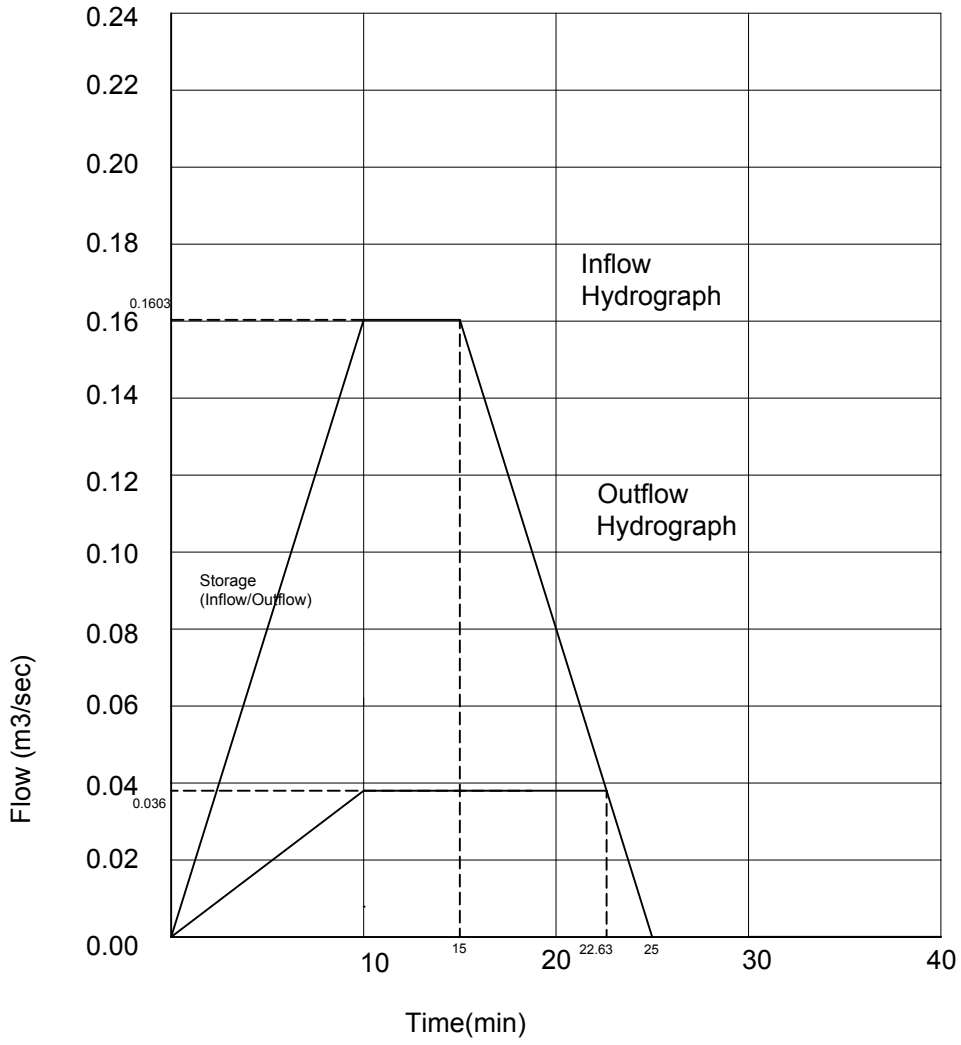
Q (peak) = 0.2008 m^3/sec.

Q (release) = 0.0360 m^3/sec

V (in) = (20/2) x 0.2008 x 60 = 120.48 m^3

V (out) = (8.11 + 20)/2 x 0.0360 x 60 = 30.36 m^3

Storage = V(in) - V(out) = 90.12 m^3



Storage Calculations for maximum storage at 15 minutes

Q (peak) = 0.1603 m^3/sec.

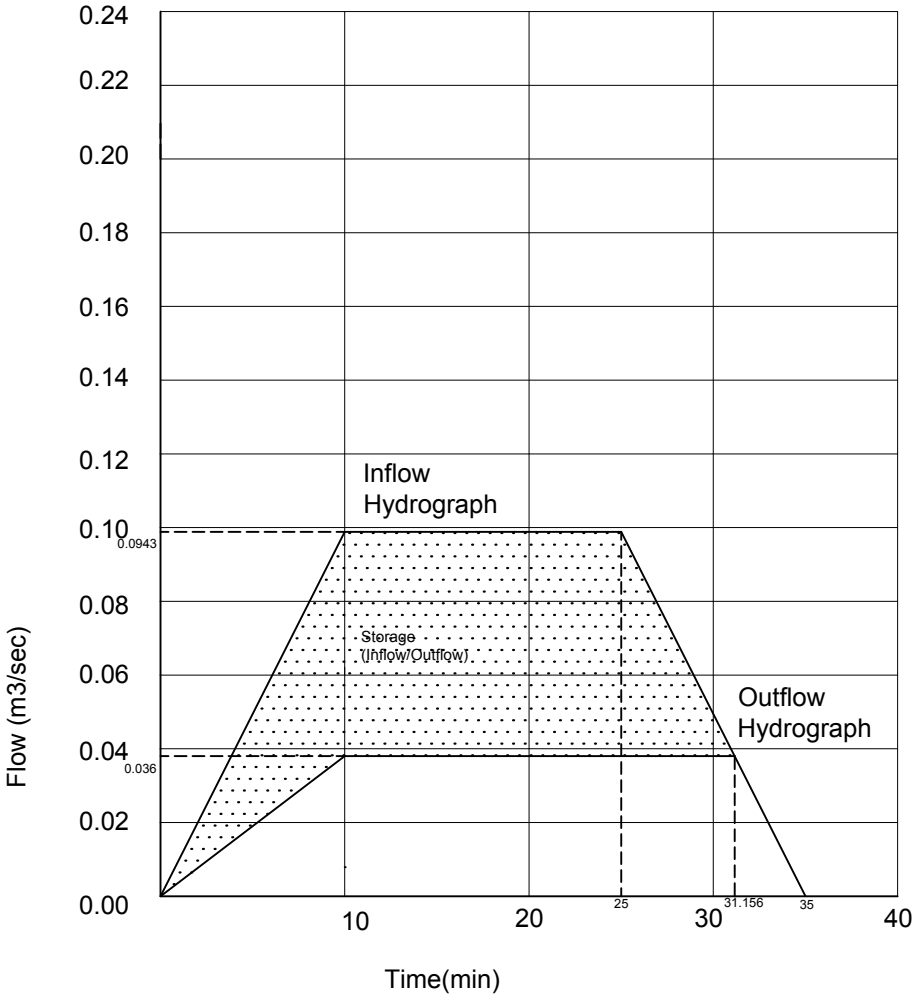
Q (release) = 0.0360 m^3/sec

V (in) = (5+25)/2 x 0.1603 x 60 = 144.27 m^3

V (out) = (12.63 + 25)/2 x 0.0360 x 60 = 40.64 m^3

Storage = V(in) - V(out) = 103.63 m^3

Maximum storage volume occurs at 25 minutes



Storage Calculations for maximum storage at 25 minutes

Q (peak) = 0.0943 m^3/sec.

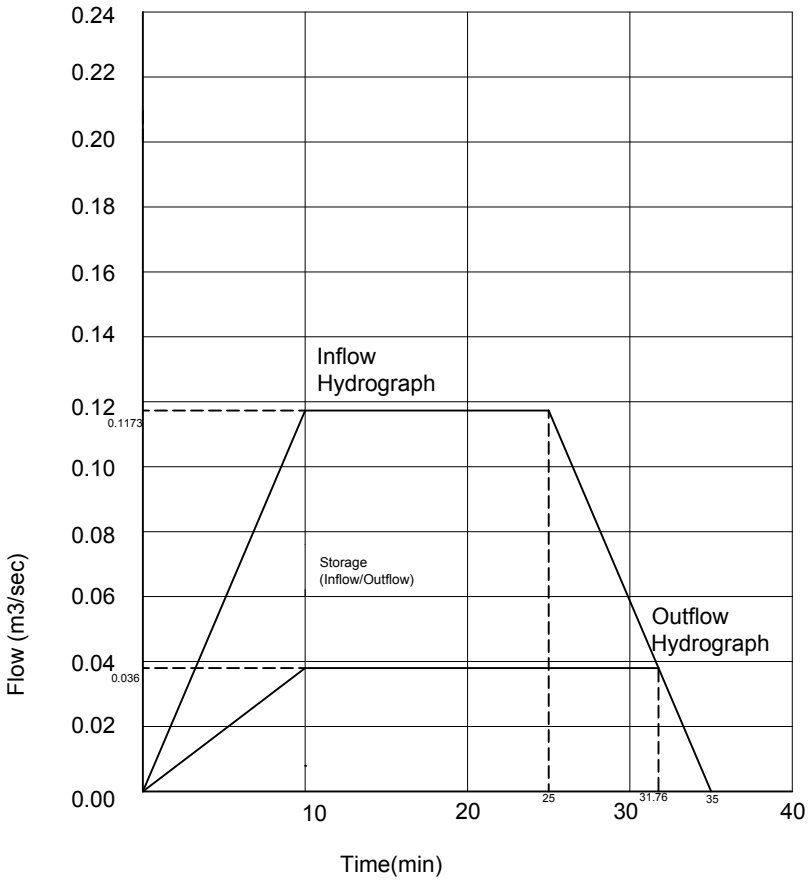
Q (release) = 0.0360 m^3/sec

V (in) = (15+35)/2 x 0.0943 x 60 = 141.45 m^3

V (out) = (21.156 + 35)/2 x 0.0360 x 60 = 60.65 m^3

Storage = V(in) - V(out) = 80.80 m^3

Maximum storage volume occurs at 25 minutes



Storage Calculations for maximum storage at 25 minutes

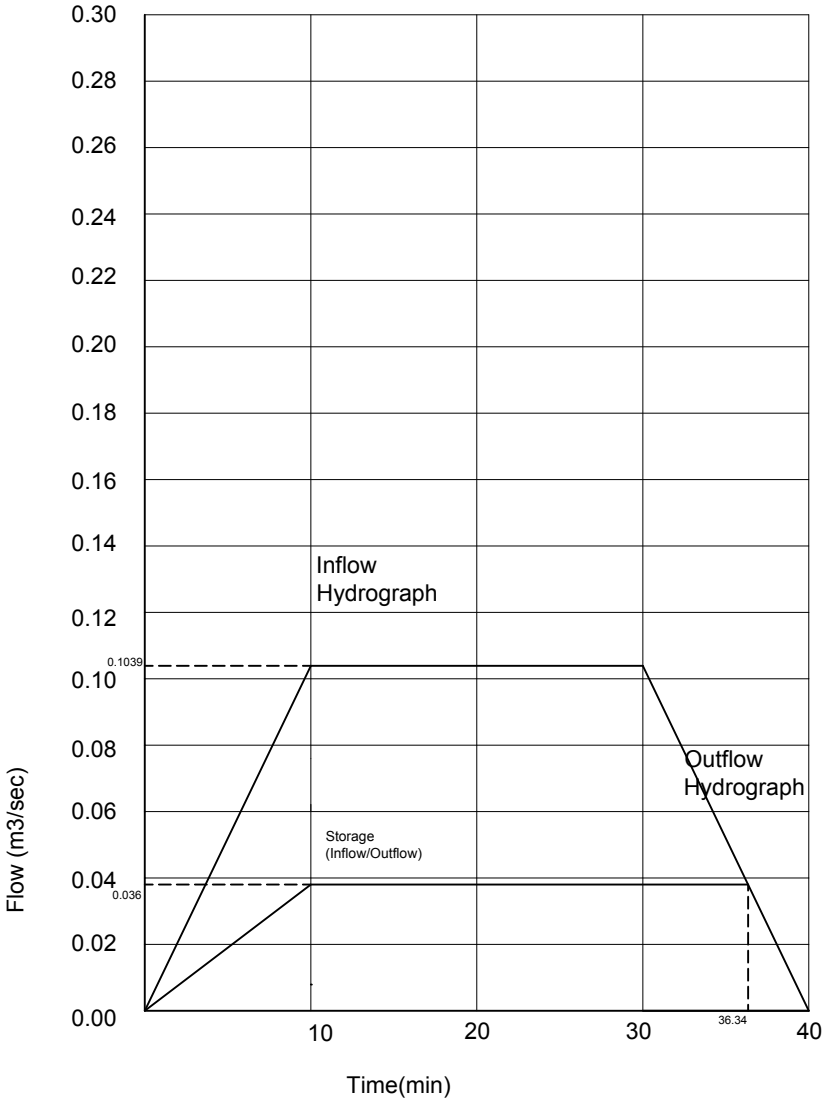
Q (peak) = 0.1173 m³/sec.

Q (release) = 0.0360 m³/sec

V (in) = (15+35)/2 x 0.1173 x 60 = 175.95 m³

V (out) = (21.76 + 35)/2 x 0.0360 x 60 = 61.30 m³

Storage = V(in) - V(out) = 114.65 m³



Storage Calculations for maximum storage at 30 minutes

Q (peak) = 0.1039 m^3/sec.

Q (release) = 0.0360 m^3/sec

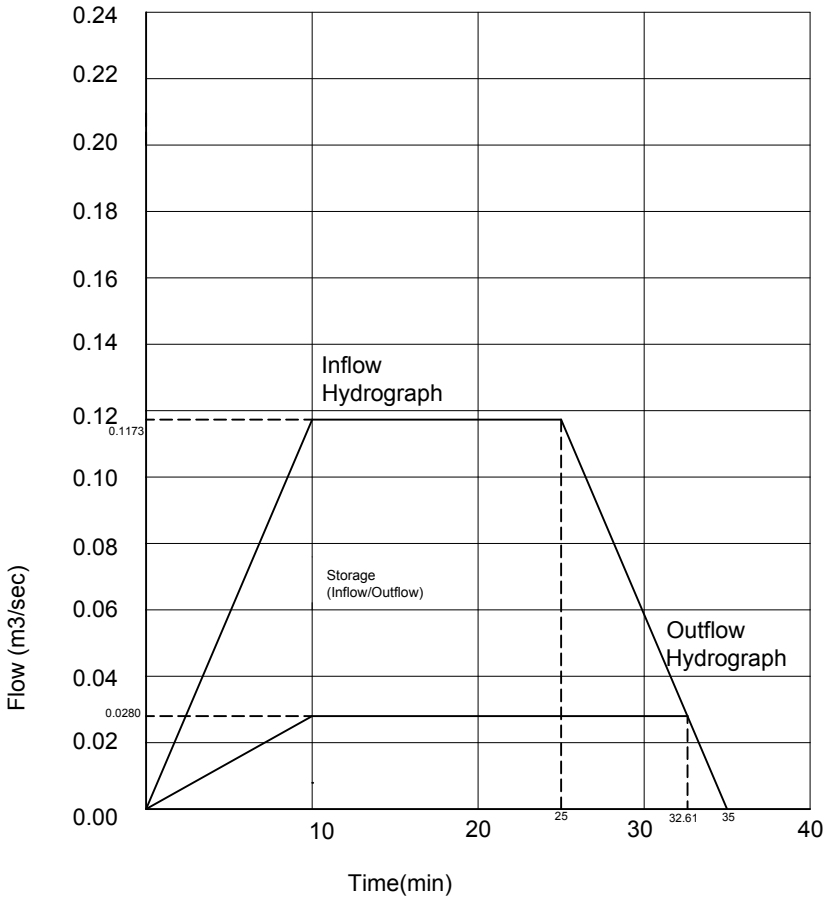
V (in) = (15+40)/2 x 0.1039 x 60 = 171.43 m^3

V (out) = (26.34 + 40)/2 x 0.0360 x 60 = 71.65 m^3

Storage = V(in) - V(out) = 99.78 m^3

ORIFICE PIPE FLOW REDUCTION

Maximum storage volume occurs at 25 minutes



Storage Calculations for maximum storage at 25 minutes

Q (peak) = 0.1173 m^3/sec.

Q (release) = 0.0280 m^3/sec

V (in) = (15+35)/2 x 0.1173 x 60 = 175.95 m^3

V (out) = (22.61 + 35)/2 x 0.0280 x 60 = 48.39 m^3

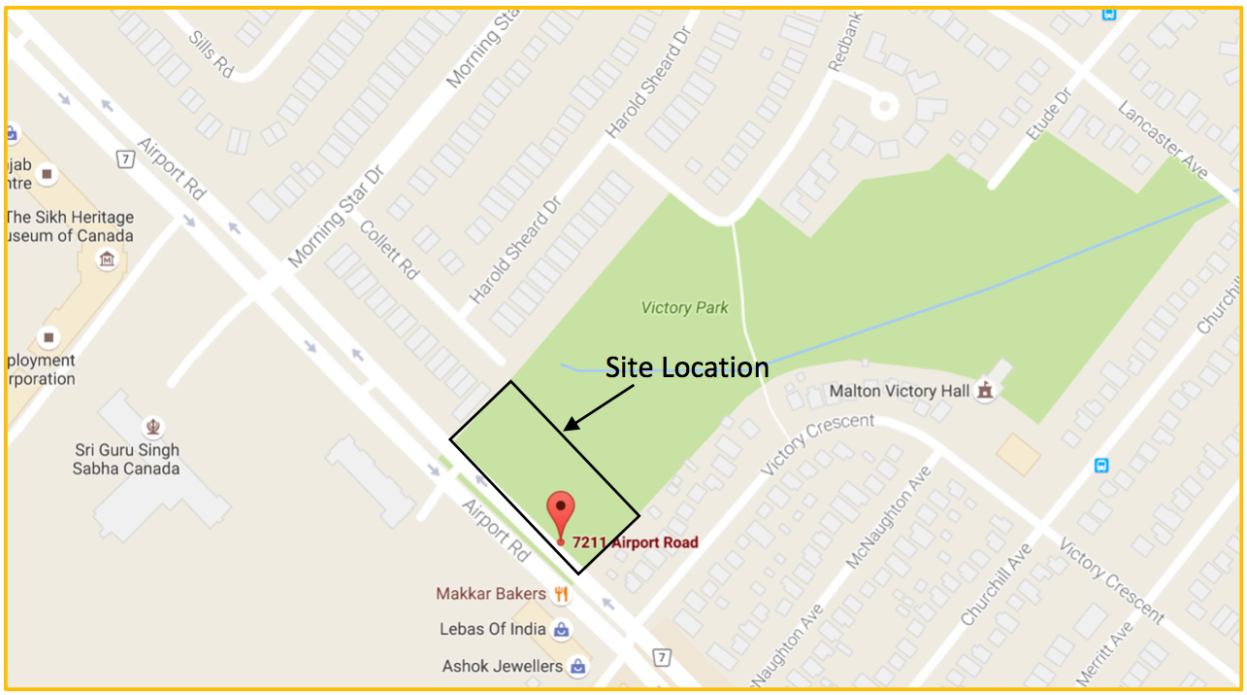
Storage = V(in) - V(out) = 127.56 m^3

APPENDIX B

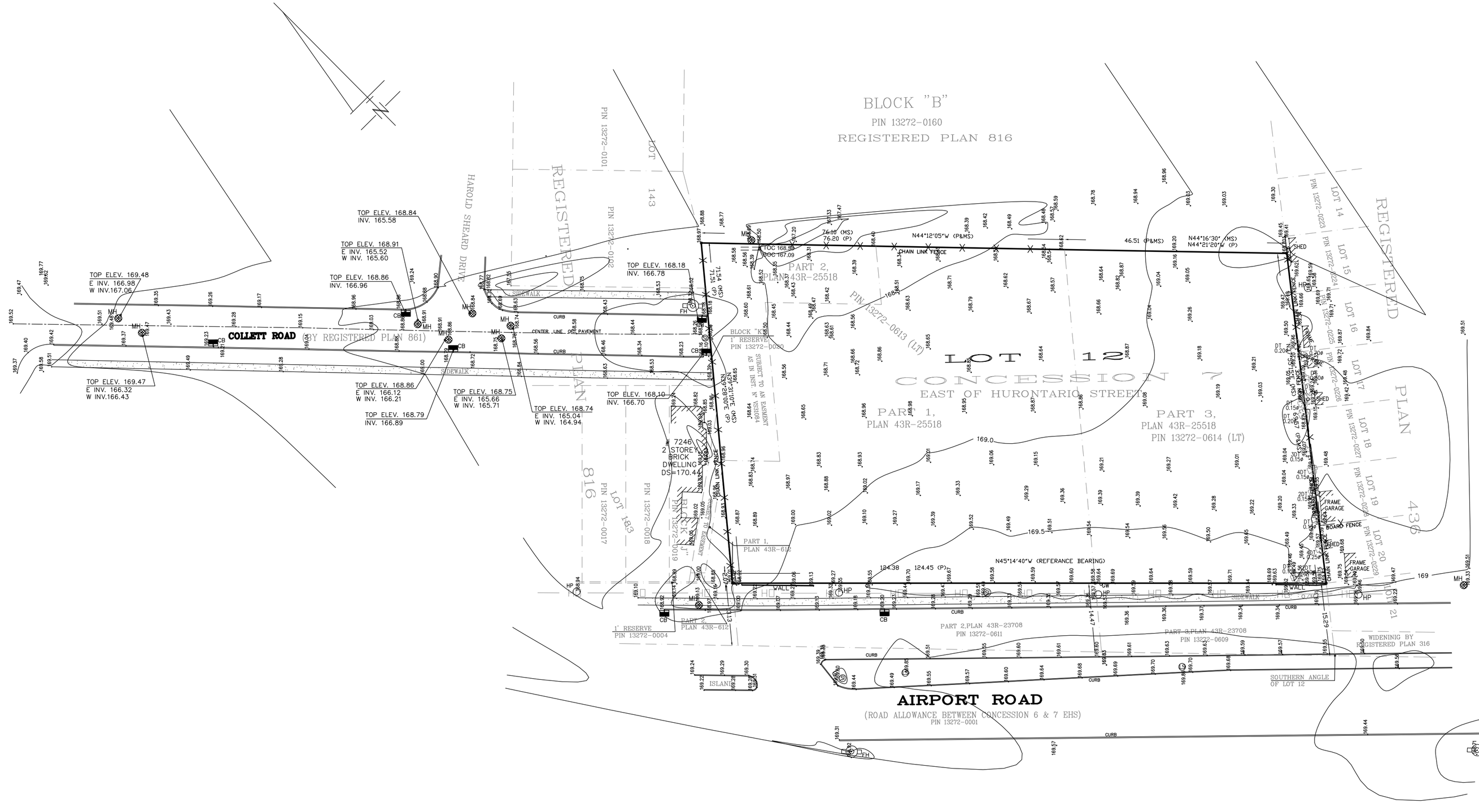
FIGURES:

1. Site Location Plan
2. Site Survey
3. Mississauga IDF chart
4. Stormceptor Sizing report
5. Proposed Grading and Servicing Plan (SG1, SG2)

Figure 1: SITE LOCATION PLAN



TOPOGRAPHIC SURVEY OF
PART OF LOT 12
CONCESSION 7,EAST OF HURONTARIO STREET
CITY OF MISSISSAUGA
(REGIONAL MUNICIPALITY OF PEEL)



20 0 10 20 metres

SCALE = 1 : 500

MITSCHE & AZIZ INC., O.L.S.

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

LEGEND:

100.00	DENOTES		EXISTING ELEVATION
DS	"	"	DOOR SILL
HP	"	"	HYDRO POLE
MH	"	"	MANHOLE
CLF	"	"	CHAIN LINK FENCE
DBF	"	"	DOUBLE BOARD FENCE
HLP	"	"	HYDRO LIGHT POST
O/H	"	"	OVERHEAD WIRE
TEL	"	"	TELEPHONE BOX
CA	"	"	CABLE BOX
DT.		"	DECIDUOUS TREE
CT.		"	CONIFEROUS TREE
DT.		"	DECIDUOUS TREE TRUNK
CT.		"	CONIFEROUS TREE TRUNK
CB		"	CATCH BASIN
SI		"	TRAFFIC SIGN
E ,W		"	EAST , WEST
INV.		"	INVERT
P		"	SURVEY BY DAVID B. SEARLES O.L.S.
TOC		"	TOP OF CULVERT
BOC		"	BOTTOM OF CULVERT

NOTE: BOUNDARY INFORMATION ARE TAKEN FROM FIELD, NOTES BY MITSCHE AND AZIZ INC., DATED SEPTEMBER 20,2013 BASED ON A SURVEY BY DAVID B. SEARLES O.L.S. DATED FEBRUARY 28, 2001

GEODETIC:
* ELEVATIONS SHOWN GEODETIC DRIVEN FROM CITY OF MISSISSAUGA BENCH MARK # 172, ELEVATION 170.722M

SURVEYOR'S CERTIFICATE
THE SURVEY WAS COMPLETED ON 15th. DAY OF SEPTEMBER,2013

SEPTYEMBER 20, 2013
DATE

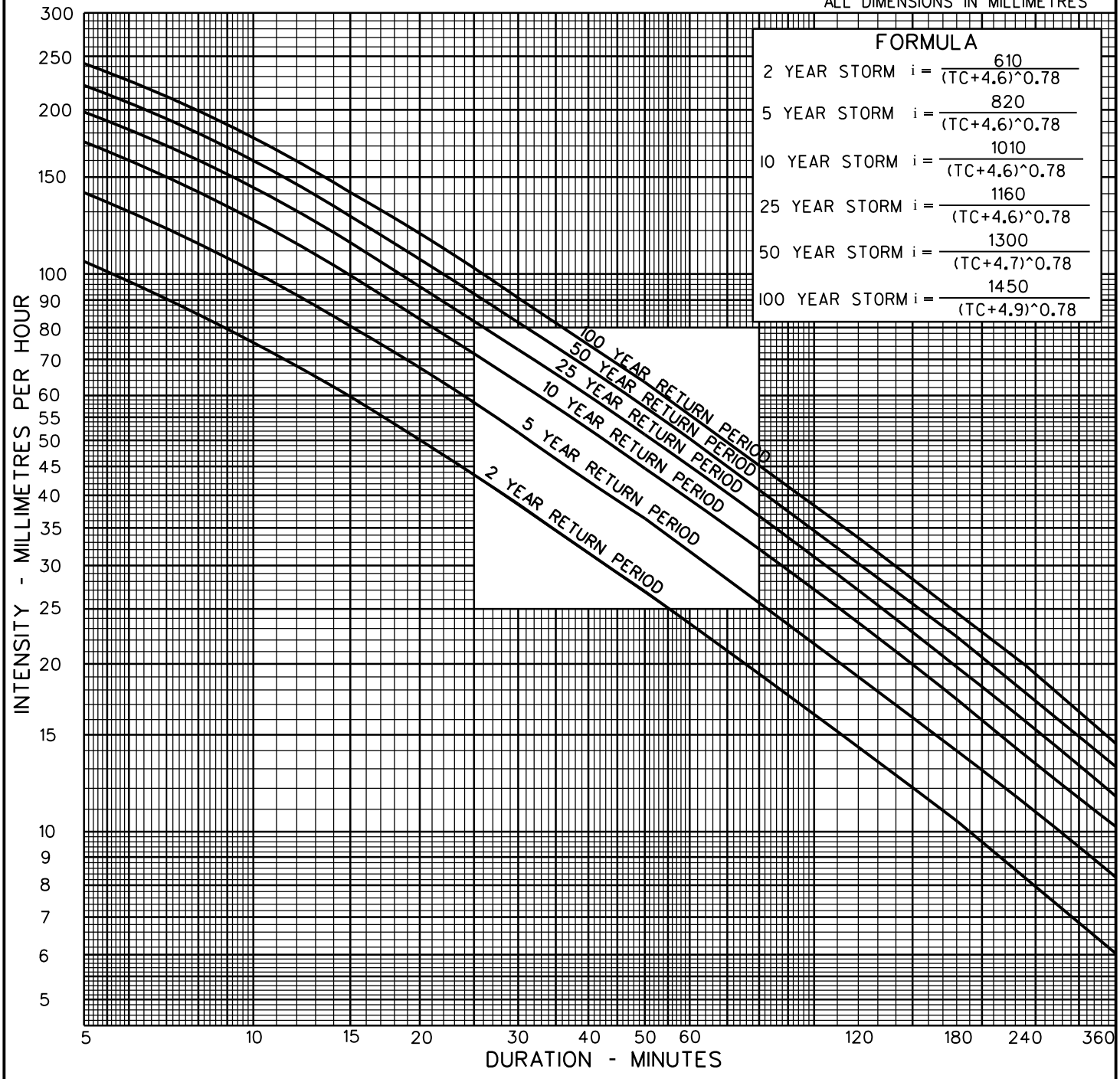
A. ABDELSHAHID
ONTARIO LAND SURVEYOR

MITSCHE & AZIZ INC.
ONTARIO LAND SURVEYORS
56 WRIGHT STREET, RICHMOND HILL, ONT. L4C-4A1
Tel. (905) 237-8224 Fax: (416) 477-5465
E-Mail : azizbdshah@rogers.com

PROJECT NUMBER		PROJECT	
13-313		7211 & 7233 AIRPORT ROAD (TP)	
DRAWN BY	E.S	CHECKED BY	A.A

METRIC

ALL DIMENSIONS IN MILLIMETRES



FORMULA

2 YEAR STORM $i = \frac{610}{(TC+4.6)^{0.78}}$

5 YEAR STORM $i = \frac{820}{(TC+4.6)^{0.78}}$

10 YEAR STORM $i = \frac{1010}{(TC+4.6)^{0.78}}$

25 YEAR STORM $i = \frac{1160}{(TC+4.6)^{0.78}}$

50 YEAR STORM $i = \frac{1300}{(TC+4.7)^{0.78}}$

100 YEAR STORM $i = \frac{1450}{(TC+4.9)^{0.78}}$

NOTES

1. ALL CALCULATIONS TO BE DONE ASSUMING FULL DEVELOPMENT AS SHOWN ON CITY OF MISSISSAUGA ZONING MAPS.
2. TO BE USED WITH RATIONAL FORMULA:
   $Q = \frac{CIA}{360}$
   Q=QUANTITY OF RUNOFF (M^3/S)
   C=RUNOFF COEFFICIENT
   A=AREA (ha)
   I=RAINFALL INTENSITY (mm/hr)

MISSISSAUGA

STANDARD INTENSITY-DURATION-FREQUENCY RAINFALL CURVES

EFF. DATE	2002-01-01	SCALE	N.T.S
REV.	2016-07-22	STANDARD No.	2111.010

Stormceptor®

FORTERRA

Stormceptor® EF Sizing Report

STORMCEPTOR®
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

05/02/2023

Province:	Ontario
City:	Mississauga
Nearest Rainfall Station:	TORONTO CITY
Climate Station Id:	6158355
Years of Rainfall Data:	20

Site Name:	

Drainage Area (ha):	1.74
% Imperviousness:	90.00

Runoff Coefficient 'c': 0.84

Particle Size Distribution:	>75 micron
Target TSS Removal (%):	85.0

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	47.22
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	No
Peak Conveyance (maximum) Flow Rate (L/s):	
Site Sediment Transport Rate (kg/ha/yr):	

Project Name:	7211, 7233 Airport Rd, Mississauga
Project Number:	61463
Designer Name:	Aryan S
Designer Company:	DesignFine
Designer Email:	aryan.s.eng@gmail.com
Designer Phone:	905-452-8200
EOR Name:	
EOR Company:	
EOR Email:	
EOR Phone:	

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	81
EFO6	92
EFO8	97
EFO10	99
EFO12	99

Recommended Stormceptor EFO Model: EFO6

Estimated Net Annual Sediment (TSS) Load Reduction (%): 92

Water Quality Runoff Volume Capture (%): > 90

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THIRD-PARTY TESTING AND VERIFICATION

►**Stormceptor® EF and Stormceptor® EFO** are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** and performance has been third-party verified in accordance with the **ISO 14034 Environmental Technology Verification (ETV)** protocol.

PERFORMANCE

►**Stormceptor® EF and EFO** remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterwavs.

PARTICLE SIZE DISTRIBUTION (PSD)

►The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV ***Procedure for Laboratory Testing of Oil-Grit Separators*** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

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Stormceptor® EF Sizing Report

Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.5	8.7	8.7	2.03	122.0	46.0	100	8.7	8.7
1	20.2	28.9	4.06	244.0	93.0	100	20.2	28.9
2	16.4	45.3	8.13	488.0	185.0	100	16.4	45.3
3	11.8	57.1	12.19	731.0	278.0	99	11.7	57.0
4	8.1	65.2	16.25	975.0	371.0	97	7.9	64.9
5	6.6	71.9	20.32	1219.0	463.0	94	6.3	71.2
6	5.2	77.1	24.38	1463.0	556.0	90	4.7	75.9
7	2.7	79.8	28.44	1707.0	649.0	88	2.3	78.2
8	3.6	83.4	32.51	1950.0	742.0	87	3.1	81.4
9	2.0	85.4	36.57	2194.0	834.0	86	1.7	83.1
10	1.9	87.3	40.63	2438.0	927.0	86	1.6	84.7
11	1.6	88.9	44.70	2682.0	1020.0	84	1.4	86.1
12	1.8	90.7	48.76	2926.0	1112.0	80	1.4	87.5
13	1.0	91.6	52.82	3169.0	1205.0	75	0.7	88.2
14	1.0	92.7	56.89	3413.0	1298.0	71	0.7	88.9
15	1.3	93.9	60.95	3657.0	1390.0	66	0.8	89.8
16	1.0	95.0	65.01	3901.0	1483.0	61	0.6	90.4
17	0.4	95.3	69.08	4145.0	1576.0	58	0.2	90.6
18	0.4	95.7	73.14	4388.0	1669.0	55	0.2	90.8
19	0.2	95.9	77.20	4632.0	1761.0	52	0.1	90.9
20	0.6	96.5	81.26	4876.0	1854.0	49	0.3	91.2
21	0.0	96.5	85.33	5120.0	1947.0	47	0.0	91.2
22	0.5	97.0	89.39	5363.0	2039.0	45	0.2	91.4
23	0.7	97.7	93.45	5607.0	2132.0	43	0.3	91.7
24	0.0	97.7	97.52	5851.0	2225.0	41	0.0	91.7
25	0.3	98.0	101.58	6095.0	2317.0	39	0.1	91.9
30	0.3	98.3	121.90	7314.0	2781.0	34	0.1	92.0
35	0.8	99.1	142.21	8533.0	3244.0	28	0.2	92.2
40	0.4	99.5	162.53	9752.0	3708.0	25	0.1	92.3
45	0.5	100.0	182.85	10971.0	4171.0	22	0.1	92.4
Estimated Net Annual Sediment (TSS) Load Reduction =								**92 %**

Climate Station ID: 6158355 *Years of Rainfall Data*: 20

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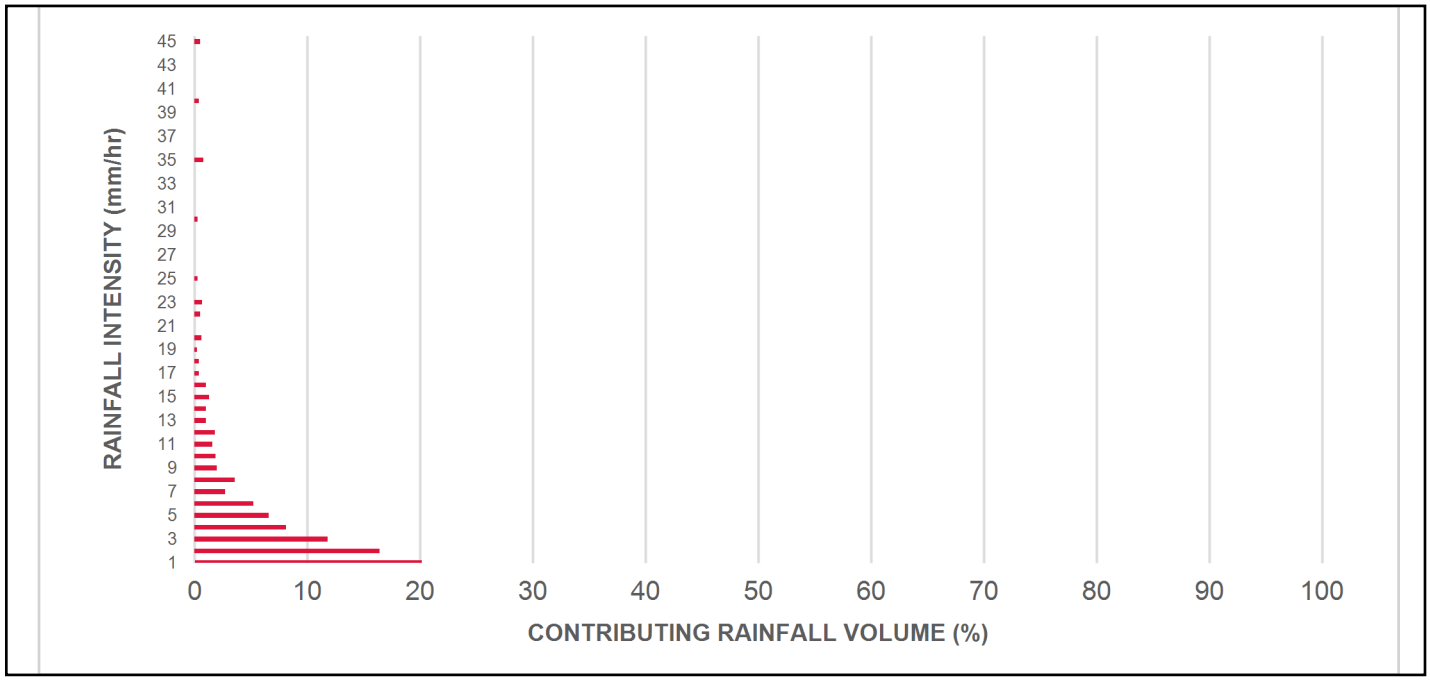
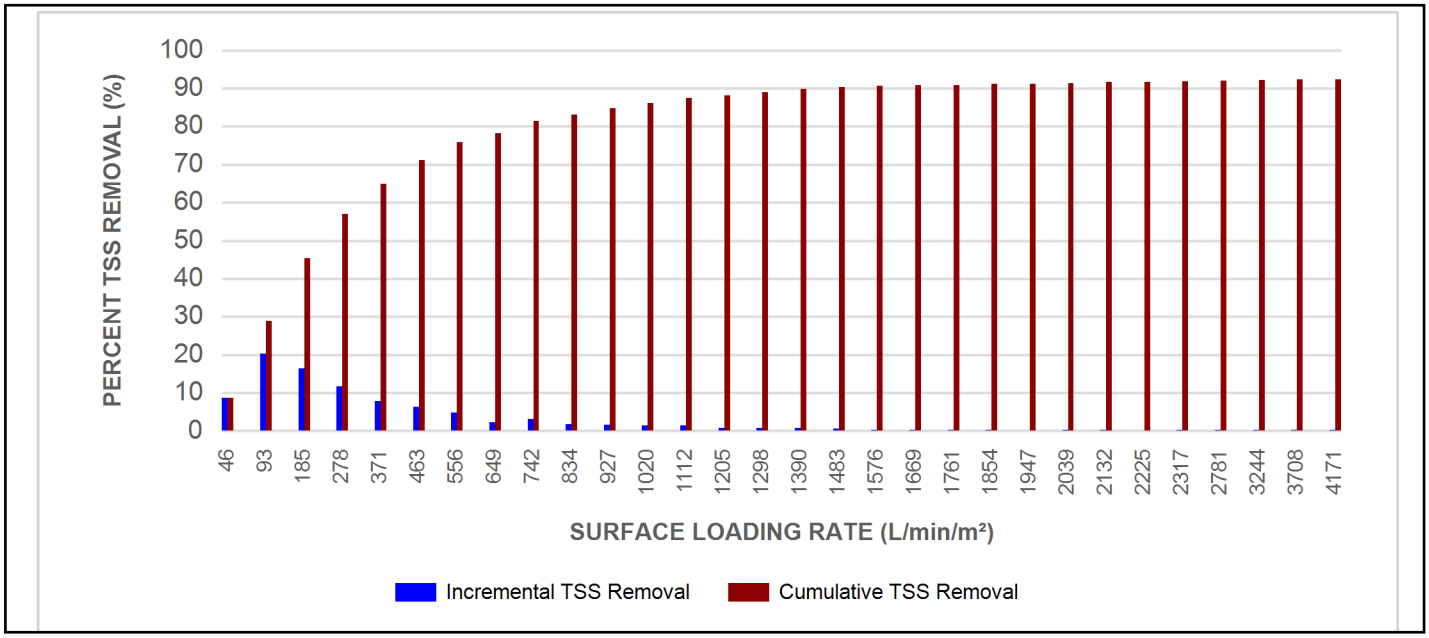
RAINFALL DATA FROM TORONTO CITY RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL



Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

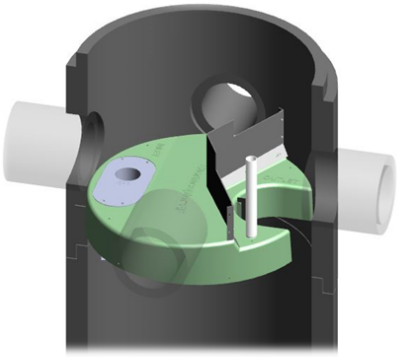
►**Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

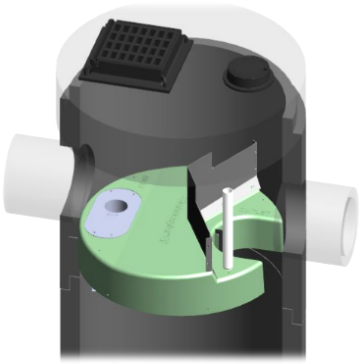
DESIGN FLEXIBILITY

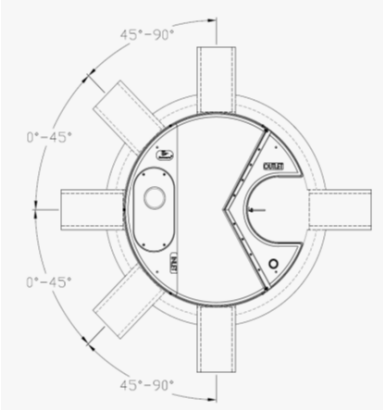
►**Stormceptor® EF** and **EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

►While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.







INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.

0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.

45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft^3)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity

** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft^3)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit Separators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m^3 sediment / 265 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m^3 sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m^3 sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m^3 sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m^3 sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall

remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m^2 to 1400 L/min/m^2, and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m^2 and 1400 L/min/m^2 shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m^2 shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m^2. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m^2.

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m^2 shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m^2, and shall be calculated using a simple proportioning formula, with 1400 L/min/m^2 in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m^2.

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators,** with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to

assess whether light liquids captured after a spill are effectively retained at high flow rates.

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m^2 to 2600 L/min/m^2) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.** However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

Selecta-Drain Chart

LOCATION	SQUARE METRE (SQUARE FOOT) NOTCH AREA RATING	ROOF LOAD FACTOR KGS. (LBS.)	TOTAL ROOF SLOPE											
			DEAD LEVEL			51mm (2") RISE			102mm (4") RISE			152mm (6") RISE		
			L.P.M. (G.P.M.) Discharge	Draindown Time Hrs.	mm (in.) Water Depth	L.P.M. (G.P.M.) Discharge	Draindown Time Hrs.	mm (in.) Water Depth	L.P.M. (G.P.M.) Discharge	Draindown Time Hrs.	mm (in.) Water Depth	L.P.M. (G.P.M.) Discharge	Draindown Time Hrs.	mm (in.) Water Depth
Ottawa, Ontario	232 (2,500)	4.7 (10.4)	45.5 (10)	7	51 (2)	59 (13)	6.5	66 (2.6)	77.5 (17)	4.5	86.5 (3.4)	86.5 (19)	3.2	96.5 (3.8)
	465 (5,000)	5.9 (13)	57 (12.5)	17	63.5 (2.5)	68 (15)	14	76 (3)	86.5 (19)	10	96.5 (3.8)	100 (22)	7.5	112 (4.4)
	697 (7,500)	6.4 (14)	61.5 (13.5)	27	68.5 (2.7)	75 (16.5)	23	84 (3.3)	93 (20.5)	16	104 (4.1)	107 (23.5)	12	119.5 (4.7)
	929 (10,000)	6.6 (14.6)	63.5 (14)	36	71 (2.8)	79.5 (17.5)	32	89 (3.5)	97.5 (21.5)	22	109 (4.3)	113.5 (25)	18	127 (5)
St. Thomas, Ontario	232 (2,500)	5.7 (12.5)	54.5 (12)	8	61 (2.4)	68 (15)	7	76 (3.0)	86.5 (19)	5	96.5 (3.8)	104.5 (23)	4	117 (4.6)
	465 (5,000)	6.6 (14.6)	63.5 (14)	19	71 (2.8)	77.5 (17)	16	86.5 (3.4)	97.5 (21.5)	11	109 (4.3)	118 (26)	9	132 (5.2)
	697 (7,500)	7.1 (16.6)	68 (15)	29	76 (3.0)	82 (18)	26	91.5 (3.6)	102.5 (22.5)	18	114.5 (4.5)	125 (27.5)	15	139.5 (5.5)
	929 (10,000)	7.5 (16.6)	72.5 (16)	40	81.5 (3.2)	86.5 (19)	34	96.5 (3.8)	107 (23.5)	24	119.5 (4.7)	132 (29)	20	147.5 (5.8)
Timmins, Ontario	232 (2,500)	4.3 (9.4)	41 (9)	7	45.5 (1.8)	57 (12.5)	6	63.5 (2.5)	72.5 (16)	4	81.5 (3.2)	86.5 (19)	3.3	96.5 (3.8)
	465 (5,000)	5.7 (12.5)	54.5 (12)	16	61 (2.4)	63.5 (14)	14	71 (2.8)	82 (18)	9	91.5 (3.6)	97.5 (21.5)	7.5	109 (4.3)
	697 (7,500)	6.4 (14)	61.5 (13.5)	27	68.5 (2.7)	70.5 (15.5)	22	78.5 (3.1)	86.5 (19)	15	96.5 (3.8)	104.5 (23)	12	117 (4.6)
	929 (10,000)	6.6 (14.6)	63.5 (14)	36	71 (2.8)	72.5 (16)	30	81.5 (3.2)	91 (20)	21	101.5 (4.0)	109 (24)	17	122 (4.8)
Toronto, Ontario	232 (2,500)	5.7 (12.5)	54.5 (12)	8	61 (2.4)	66 (14.5)	7	73.5 (2.9)	82 (18)	4.5	91.5 (3.6)	97.5 (21.5)	3.5	109 (4.3)
	465 (5,000)	6.8 (15.1)	66 (14.5)	19	73.5 (2.9)	77.5 (17)	16	86.5 (3.4)	93 (20.5)	11	104 (4.1)	111.5 (24.5)	9	124.5 (4.9)
	697 (7,500)	8.0 (17.7)	77.5 (17)	30	86.5 (3.4)	84 (18.5)	26	94 (3.7)	100 (22)	18	112 (4.4)	120.5 (26.5)	14	134.5 (5.3)
	929 (10,000)	8.7 (19.2)	82 (18)	42	91.5 (3.6)	86.5 (19)	34	96.5 (3.8)	104.5 (23)	24	117 (4.6)	127.5 (28)	20	142 (5.6)
Windsor, Ontario	232 (2,500)	6.1 (13.5)	59 (13)	8.5	66 (2.6)	70.5 (15.5)	7.5	78.5 (3.1)	84 (18.5)	4.5	94 (3.7)	107 (23.5)	4	119.5 (4.7)
	465 (5,000)	7.1 (15.6)	68 (15)	20	76 (3.0)	79.5 (17.5)	16	89 (3.5)	97.5 (21.5)	11	109 (4.3)	118 (26)	9	132 (5.2)
	697 (7,500)	8.0 (17.7)	77.5 (17)	30	86.5 (3.4)	86.5 (19)	26	96.5 (3.8)	107 (23.5)	18	119.5 (4.7)	125 (27.5)	15	139.5 (5.5)
	929 (10,000)	8.7 (19.2)	82 (18)	42	91.5 (3.6)	91 (20)	36	101.5 (4.0)	113.5 (25)	26	127 (5.0)	129.5 (28.5)	20	145 (5.7)
Charlottetown, Prince Edward Island	232 (2,500)	4.9 (10.9)	47.5 (10.5)	7.5	53.5 (2.1)	57 (12.5)	6	63.5 (2.5)	68 (15)	3.8	76 (3.0)	79.5 (17.5)	3	89 (3.5)
	465 (5,000)	6.6 (14.6)	63.5 (14)	19	71 (2.8)	75 (16.5)	15.5	84 (3.3)	88.5 (19.5)	10	99 (3.9)	100 (22)	7.5	112 (4.4)
	697 (7,500)	7.8 (17.2)	75 (16.5)	31	84 (3.3)	86.5 (19)	26	96.5 (3.8)	102.5 (22.5)	18	114.5 (4.5)	113.5 (25)	13	127 (5.0)
	929 (10,000)	8.7 (19.2)	84 (18.5)	42	94 (3.7)	97.5 (21.5)	37	106.5 (4.2)	111.5 (24.5)	26	124.5 (4.9)	125 (27.5)	20	139.5 (5.5)
Montreal, Quebec	232 (2,500)	5.2 (11.4)	50 (11)	7.5	56 (2.2)	61.5 (13.5)	7	68.5 (2.7)	79.5 (17.5)	4.5	89 (3.5)	97.5 (21.5)	3.5	109 (4.36)
	465 (5,000)	5.9 (13)	57 (12.5)	17	63.5 (2.5)	70.5 (15.5)	15	78.5 (3.1)	88.5 (19.5)	10	99 (3.9)	109 (24)	8	122 (4.8)
	697 (7,500)	6.1 (13.5)	59 (13)	27	66 (2.6)	72.5 (16)	23	81.5 (3.2)	93 (20.5)	16	104 (4.1)	113.5 (25)	13	127 (5.0)
	929 (10,000)	6.4 (14)	61.5 (13.5)	36	68.5 (2.7)	77.5 (17)	31	86.5 (3.4)	95.5 (21)	22	106.5 (4.2)	120.5 (26.5)	19	134.5 (5.3)
Quebec City, Quebec	232 (2,500)	5.4 (12)	52.5 (11.5)	8	58.5 (2.3)	63.5 (14)	7	71 (2.8)	79.5 (17.5)	4.5	89 (3.5)	97.5 (21.5)	3.5	109 (4.3)
	465 (5,000)	6.4 (14)	61.5 (13.5)	18	68.5 (2.7)	70.5 (15.5)	15	78.5 (3.1)	84 (18.5)	10	94 (3.7)	104.5 (23)	8	117 (4.6)
	697 (7,500)	6.6 (14.6)	63.5 (14)	28	71 (2.8)	72.5 (16)	23	81.5 (3.2)	86.5 (19)	15	96.5 (3.8)	107 (23.5)	12	119.5 (4.7)
	929 (10,000)	7.1 (15.6)	68 (15)	37	76 (3.0)	77.5 (17)	31	86.5 (3.4)	88.5 (19.5)	20	99 (3.9)	109 (24)	17	122 (4.8)

REGION OF PEEL NOTES:

1. ALL MATERIALS AND CONSTRUCTION METHODS MUST CORRESPOND TO THE CURRENT PEEL PUBLIC WORKS STANDARDS AND SPECIFICATIONS.
2. WATERMAIN AND / OR WATER SERVICE MATERIALS 100 mm (4") AND LARGER MUST BE DR 18 P.V.C. PIPE MANUFACTURED TO A.W.W.A. SPEC. C900–16 SPEC COMPLETE WITH TRACER WIRE. SIZE 50 mm (2") AND SMALLER MUST BE TYPE "K" SOFT COPPER PIPER PER A.S.T.M. B88–49 SPECIFICATIONS.
3. WATERMAINS AND / OR SERVICES ARE TO HAVE A MINIMUM COVER OF 1.7 m (5'6") WITH A MINIMUM HORIZONTAL SPACING OF 1.2 m (4") FROM THEMSELVES AND ALL OTHER UTILITIES.
4. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED WITH AT LEAST A 50 mm (2") OUTLET ON 100 mm (4") AND LARGER LINES. COPPER LINES ARE TO HAVE FLUSHING POINTS AT THE END, THE SAME SIZE AS THE LINE. THEY MUST ALSO BE HOSED OR PIPED TO ALLOW THE WATER TO DRAIN ONTO A PARKING LOT OR DOWN A DRAIN. ON FIRE LINES, FLUSHING OUTLET TO BE 100 mm (4") DIAMETER MINIMUM ON A HYDRANT.
5. ALL CURB STOPS TO BE 3.0 m (10') OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED.
6. HYDRANT AND VALVE SET REGION STANDARD 1–6–1 DIMENSION A AND B, 0.7 m (2') AND 0.9 m (3') AND TO HAVE PUMPER NOZZLE.
7. WATERMAINS TO BE INSTALLED TO GRADES AS SHOWN ON APPROVED SITE PLAN, COPY OF GRADE SHEET MUST BE SUPPLIED TO INSPECTOR PRIOR TO COMMENCEMENT OF WORK, WHERE REQUESTED BY INSPECTOR.
8. WATERMAINS MUST HAVE A MINIMUM VERTICAL CLEARANCE OF 0.3 m (12") OVER / 0.5 m (20") UNDER SEWERS AND ALL OTHER UTILITIES WHEN CROSSING.
9. ALL PROPOSED WATER PIPING MUST BE ISOLATED FROM EXISTING LINES IN ORDER TO ALLOW INDEPENDENT PRESSURE TESTING AND CHLORINATING FROM EXISTING SYSTEMS.
10. ALL LIVE TAPPING AND OPERATION OF REGION WATER VALVES SHALL BE ARRANGED THROUGH THE REGIONAL INSPECTOR ASSIGNED OR BY CONTACTING THE OPERATIONS AND MAINTENANCE DIVISION.
11. LOCATION OF ALL EXISTING UTILITIES IN THE FIELD TO BE ESTABLISHED BY THE CONTRACTOR.
12. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE FOR LOCATES, EXPOSING, SUPPORTING AND PROTECTING OF ALL UNDERGROUND AND OVERHEAD UTILITIES AND STRUCTURES EXISTING AT THE TIME OF CONSTRUCTION IN THE AREA OF THEIR WORK WHETHER SHOWN ON THE PLANS OR NOT AND FOR ALL REPAIRS AND CONSEQUENCES RESULTING FROM DAMAGE TO SAME.
13. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE TO GIVE 72 HOURS WRITTEN NOTICE TO THE UTILITIES PRIOR TO CROSSING SUCH UTILITIES, FOR THE PURPOSE OF INSPECTION BY THE CONCERNED UTILITY. THIS INSPECTION WILL BE FOR THE DURATION OF THE CONSTRUCTION, WITH THE CONTRACTOR RESPONSIBLE FOR ALL COSTS ARISING FROM SUCH INSPECTION.
14. ALL PROPOSED WATER PIPING MUST BE ISOLATED THROUGH A TEMPORARY CONNECTION THAT SHALL INCLUDE AN APPROPRIATE CROSS–CONNECTION CONTROL DEVICE, CONSISTENT WITH THE DEGREE OF HAZARD, FOR BACKFLOW PREVENTION OF THE ACTIVE DISTRIBUTION SYSTEM, CONFORMING TO REGION OF PEEL STANDARDS 1–7–7 OR 1–7–8.

ENGINEERING GENERAL NOTES

C.15 Notes to Appear on Drawings
C.15.1 Must Appear on Grading and Servicing Plans

- All the construction work for this project shall comply with the Standard Drawings and Specifications of the COB and the Ontario Provincial Standards and Specifications and Drawings (OPSS/D)
- All surface drainage shall be collected and discharged at a location to be approved prior to the issuance of a building permit. Drainage of abutting properties shall not be adversely affected.
- Proposed elevations along site property lines must match existing elevations.
- A Silt fence as per COB Standard #406 must be placed around the perimeter of the site.
- At all entrances to the site, the road curb and sidewalk will be continuous through the driveway. The driveway grade will be compatible with the existing sidewalk and a curb depression will be provided for at each entrance. Access construction as per COB Standard #237.
- Sidewalk to be removed and replaced as per O.P.S.D. 310.010.
- The portion of the driveway within the municipal boulevard must be paved with 40mm HL3 and 50mm HL8. Sub Base to be 150mm Granular "A"(or 130mm of 20mm crusher run limestone) and 300mm Granular "B"(or 225mm of 50mm crusher run limestone) compacted to 100% standard Proctor density.
- A utility clearance radius of 1.2 metres between the proposed driveway entrance curb return and all above ground utilities must be maintained.
- Road occupancy / access permit must be obtained 48 hours prior to commencing any works within the municipal road allowance.
- The service connection trench within the traveled portion of the road allowance shall be backfilled in accordance with the requirements of the road occupancy / access permit application.
- Within the COB's right–of–way, storm sewers and storm sewer connections must be concrete, or approved equal, with type "B"bedding throughout. The strength of the concrete pipe must be as per COB Standard #341 and as follows; minimum 65–D for reinforced pipe and minimum ES for non–reinforced pipe.
- The minimum catch basin lead diameter allowed is 200mm
- Storm sewer pipes connecting to the COB's storm sewer shall not be smaller than 200mm.
- All catch basin maintenance holes and maintenance holes with inlet control devices must have a minimum 0.3 metre sump and top as per municipal standards.
- Foundation drains shall not be connected to the storm sewer on sites with stormwater management control.
- It is the responsibility of the design engineering consulting firm to ensure that an elevation detail of existing aerial plant is submitted when overhead cabling is present. Cables shall not be less than 4.7 metres from the highest point of the finished pavement to the lowest point of the aerial cable directly above the pavement area to ensure clearances are met.
- Provide these notes if applicable:
  - o "The building sited on this plan has been designed utilizing controlled flow roof drains in accordance with local municipal standards."
  - o "The owner's attention is drawn to the fact that the storm sewer being proposed underneath the building is not a recommended practice of the COB. It is the sole responsibility of the Owner to bear any costs to repair any damages to the storm sewer or settlement of the building foundation."

C.15.2 Must Appear on Retaining Wall Drawings

- The subject walls have been designed in accordance with accepted engineering principles.
- The wall is suitable for the geotechnical condition of the site and for the type of loading.

Vertical Benchmark

MISSISSAUGA Leading today for tomorrow

VERTICAL DATUM: CANADIAN GEODETIC DATUM, 1928 (NOT 1978 SOUTHERN ONTARIO READJUSTMENT)

BENCHMARK No : 172	STATUS : Existing	CLOSEST MONUMENTS: (Ascending Proximity)
ELEVATION : 170.722	LAST INSPECTED : 24/09/2006	481
ORDER : 3rd		480
		482
		483

DESCRIPTION
On the East face, 5m South of the main entrance of a Khalsa community centre building on the West side of Airport Road, 126m +/- across the centrline of Morning star Drive.

To Serve You Better, Please Provide Comments Regarding The Status And Date of Use of the Monument By Clicking The Following Link:

TWCounter@Mississauga.ca

DATE PRINTED: 13/11/2012

SITE NOTES (LIGHTING):

1a. LIGHTING FIXTURES SHALL BE INSTALLED IN SUCH A MANNER THAT ALL LIGHT EMITTED FROM THE FIXTURE, EITHER DIRECTLY FROM THE LAMP OR A DIFFUSING ELEMENT, OR INDIRECTLY BY REFLECTION OR REFRACTION FROM ANY PART OF THE FIXTURE IS PROJECTED BELOW THE LAMP AND ONTO THE LOT THE LIGHTING IS INDENTED TO SERVE.

1b. THE MAXIMUM HEIGHT OF ALL LIGHTING FIXTURES IS 9.0 M.

1c. MINIMUM DISTANCE OF LIGHTING FROM ANY LOT LINE IS 4.5 M.

2. WASTE STORAGE IS INSIDE THE BUILDING.

3. GRADING PLAN & LANDSCAPE PLAN FOR ADDITIONAL DETAILS & GRADING, LANDSCAPE DWG. TAKES PRECEDENCE FOR LANDSCAPE DETAILS. GRADING DWG. TAKES PRECEDENCE FOR GRADING DETAILS.

NOTE: Elevations are referred to the City of Mississauga Benchmark No. 172, Located (insert desstion on benchmark sheet), having a published elevation of 170.722 metres.

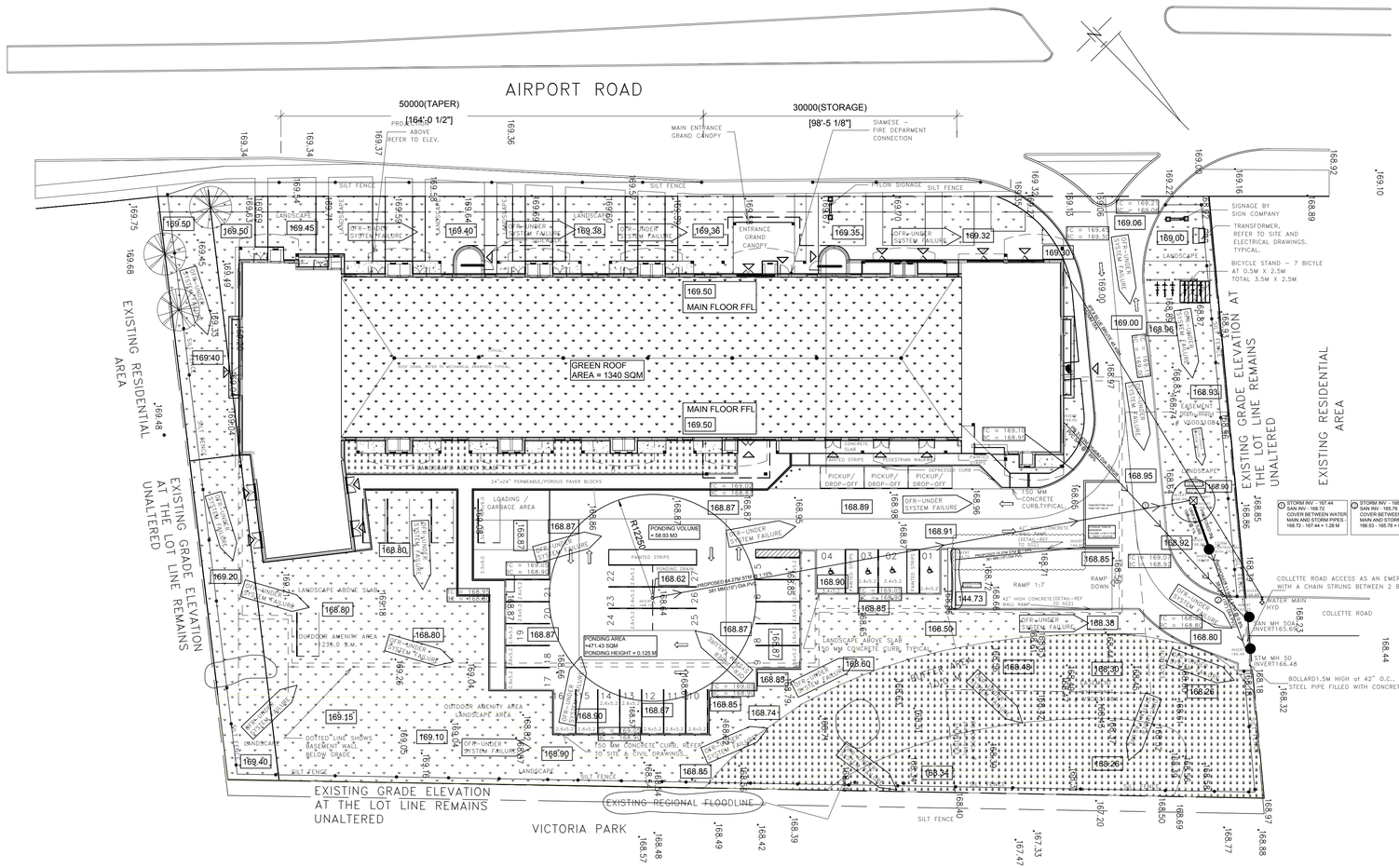
LOT COVERAGE:

LANDSCAPE AREA = 3757 SQM
BUILDING AREA = 2171 SQM
GREEN ROOF AREA = 1340 SQM
ASPHALT AREA = 1965 SQM

LEGEND

CENTRELINE OF THE ROAD	EXISTING ELEVATION
SANITARY SEWER AND MANHOLE	PROPOSED ELEVATION
STORM SEWER AND MANHOLE	DRAINAGE DIRECTION AND SLOPE
WATERMAIN	HYDRO POLE // BELL POLE
LIGHT STANDARD	PROPOSED CONCRETE CURB
HYDRANT	SEDIMENT CONTROL FENCE WITH 10M CHAINS ALT SIDE
VALVE AND BOX 25 mm Ø	BARRIER–FREE PARKING SIGN
PROPOSED CATCH BASIN	

KEY PLAN:



ALL DIMS ARE IN M UNLESS NOTED OTHERWISE

GENERAL NOTE:

The contractor shall check and verify all dimensions and report all errors and ommissions to the consultant. All drawings, specifications and related documents are the copyright property of DESIGN FINE LTD. and may not be reproduced without their permission. Do not scale drawings. This drawing shall not be used for construction purposes unless issued for construction and signed by DESIGN FINE LTD..

LICENSED PROFESSIONAL ENGINEER
May 2, 2023
B.B. SHARMA
100057946
PROVINCE OF ONTARIO

DATE:	NO.	DESCRIPTION	BY
02/05/2023	2	OVERALL REVISED	AS
04/04/2021	1	OVERALL REVISED	AB

REVISIONS:

PROJECT:

7211-7311 AIRPORT ROAD
MISSISSAUGA

CLIENT:

AIRSTAR HOLDING INC.

deSign Fine Ltd.

CONSULTING ENGINEERS

96 KENNEDY ROAD SOUTH
BRAMPTON, ON L6W 3E7
Ph: 905-452-8200 Fax: 905-452-8285
www.thedesignfine.com

DRAWING TITLE:

SITE PLAN AND SITE GRADING PLAN

DESIGN: BBS	SCALE: 1:300	DRAWING NO: SG1
DRAWN: BBS	DATE: APRIL,2021	
CHECKED: BBS	PROJECT NO DFL-2013-035	

NOTES

1. WATERMAIN

A. BLOW-OFFS FOR TESTING
THE CONTRACTOR SHALL PROVIDE TEMPORARY BLOW-OFFS AT SUITABLE LOCATIONS FOR PRESSURE TESTING AND CHLORINATION

B. CONFORMANCE
ALL MATERIALS AND CONSTRUCTION METHODS SHALL CORRESPOND TO THE CURRENT PEEL PUBLIC WORKS STANDARDS AND SPECIFICATIONS. WATER MAINS TO BE INSTALLED TO GRATES AS SHOWN ON APPROVED PLAN, COPY OF GRADE SHEET MUST BE SUPPLIED TO INSPECTOR PRIOR TO COMMENCEMENT OF WORK, WHERE REQUESTED BY INSPECTOR.

2. MATERIALS SPECIFICATIONS & CONSTRUCTION

SHALL BE (WHEREVER NOT SPECIFIED) IN ACCORDANCE WITH THE APPLICABLE ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPPS), LATEST AMENDMENTS.

3. OCCUPATIONAL HEALTH AND SAFETY

A. SAFETY ACT
THE CONTRACTOR AND ITS SUBCONTRACTORS SHALL BE RESPONSIBLE FOR CONSTRUCTION SAFETY AND FOR COMPLIANCE WITH THE RULES, REGULATIONS AND PRACTICES REQUIRED BY THE FEDERAL AND PROVINCIAL CONSTRUCTION SAFETY LEGISLATION.

B. LOCAL REQUIREMENTS
ALL SERVICES AND UTILITIES TO BE SUPPORTED AS PER THE REQUIREMENTS OF THE REGION OF PEEL, TOWN OF CALEDON AND THE CORRESPONDING UTILITY COMPANIES.

4. ROADWORKS

A. EXISTING PAVEMENT
ANY SECTION OF PAVEMENT DISTURBED WITHIN THE EXISTING RIGHT-OF-WAY (R.O.W) SHALL BE RESTORED AS PER THE ORIGINAL PAVEMENT DESIGN AND AS PER THE REQUIREMENTS OF THE TOWN AND REGION.

	HEAVY DUTY 40mm HL3 65mm HL8	MEDIUM DUTY 40mm HL3 50mm HL8
ASPHALTIC CONCRETE		
GRANULAR 'A' OR 19mm CRUSHED LIMESTONE	150mm	150mm
GRANULAR 'B' SUB-BASE OR 50mm CRUSHED LIMESTONE	300mm	200mm

B. PARKING AREA RESTORATION
SHALL BE RESTORED TO ORIGINAL CONDITION (HL3-40mm(min.), HL8-60mm(min.)

C. CONCRETE SIDEWALK
SHALL BE AS PER STD. DWGS. OPSD 310.010 AND 310.030.

D. CONCRETE CURB AND GUTTER
SHALL BE AS PER OPSD 600.040, 600.060 & 600.070.

E. CONFORMANCE
ALL WORKS SHALL CONFORM TO THE REQUIREMENTS OF THE TOWN AND THE REGION OF PEEL.

5. DIMENSIONS
ALL DIMENSIONS AND ELEVATIONS ARE IN METERS UNLESS NOTED OTHERWISE.
ALL PIPE SIZES ARE IN MILIMETERS.

6. BENCH MARK

A. ELEVATION NOTES
ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE MINISTRY OF TRANSPORTATION BENCHMARK No. 00819758057 HAVING A PUBLISHED ELEVATION OF 251.929 METERS.

LOCAL BENCHMARK No. 1
CONCRETE NAIL ON THE NORTH SIDE OF THE STORM MAN HOLE ON THE SOUTH EASTERN SIDE OF SIMONA DRIVE
ELEVATION=236.31

LOCAL BENCHMARK No. 2
CUT CROSS ON THE CURB THE SOUTHEASTERN SIDE OF SIMONA DRIVE, ON THE SOUTHWESTERN SIDE OF THE ENTRANCE TO #101 SIMONA DRIVE
ELEVATION=236.56

7. GENERAL NOTES

A. ALL FILL WITHIN ROAD ALLOWANCE AND EASEMENTS TO BE COMPACTED TO MINIMUM 98% STANDARD PROCTOR DENSITY AND THE SUITABILITY AND COMPACTION OF ALL FILL MATERIALS TO BE CONFIRMED BY A QUALIFIED SOIL CONSULTANT TO THE TOWN ENGINEER PRIOR TO INSTALLATION OF ROAD BASE MATERIALS

B. TEMPORARY SNOW FENCING/SILT FENCING IS TO BE PLACED AROUND THE WORK SITE, PRIOR TO CONSTRUCTION, WHERE SPECIFIED ON PLANS. THE SILTATION CONTROL WILL REMAIN IN PLACE AND BE MAINTAINED TO THE SATISFACTION OF THE TOWN ENGINEER UNTIL VEGETATION IS ESTABLISHED.

C. THE LOCATION AND EXTENT OF EXISTING UTILITIES SHOWN ON THIS PLAN ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL SATISFY HIMSELF AS TO THE LOCATION OF ALL EXISTING SERVICES PRIOR TO CONSTRUCTION AND SHALL ASSUME ALL LIABILITY FOR DAMAGE OR DELAY RESULTING FROM LOCATIONS SHOWN ON PLANS.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING PRIVATE, PUBLIC ROADS AND PEDESTRIAN ACCESSES AT ALL TIMES.

E. ALL STORM SEWER AND ROAD WORKS SHALL CONFORM TO O.P.S. SPECIFICATIONS. ALL STM. SEWERS SHALL BE INSTALLED ON CLASS 'B' BEDDING. CATCHBASIN LEADS TO BE 250mm FOR SINGLE CATCHBASINS AND 300mm FOR DOUBLE CATCHBASINS UNLESS NOTED OTHERWISE.

F. ALL BOULEVARDS SHALL BE TOPSOILED SODDED @ 300mm DEPTH UPON COMPLETION OF CONSTRUCTION UNLESS OTHERWISE NOTED.

G. WATERMAIN TO BE RESTRAINED IN AREAS OF FILL.

NOTICE TO CONTRACTORS

48 HRS PRIOR TO COMMENCING WORK NOTIFY THE FOLLOWING

- THE REGIONAL MUNICIPALITY OF PEEL PUBLIC WORKS DEPT.
- HYDRO
- UNION GAS COMPANY
- THE TOWN OF CALEDON ENGINEERING DEPT.
- CABLE SYSTEMS
- BELL TELEPHONE COMPANY

8. EROSION AND SEDIMENT CONTROL

A. PROTECT ALL EXPOSED SURFACE AND CONTROL ALL RUNOFF DURING CONSTRUCTION.

B. ALL EROSION CONTROL MEASURES TO BE IN PLACE BEFORE STARTING CONSTRUCTION AND REMAIN IN PLACES UNTIL RESTORATION/CONSTRUCTION IS COMPLETE.

C. MAINTAIN EROSION CONTROL MEASURES DURING CONSTRUCTION IN GOOD ORDER.

D. MINIMIZE AREA DISTURBED DURING CONSTRUCTION.

E. PROTECT ALL CATCH CATCHBASINS, MANHOLES AND PIPE ENDS FROM SEDIMENT INTRUSION.

F. KEEP ALL SUMPS CLEAN DURING CONSTRUCTION.

G. PREVENT WIND BLOWN DUST BY WATERING, SEEDING DISTURBED AREAS AS REQUIRED.

H. SILT CONTROL AS PER STD. DWGS. STANDARD No. 304 OF THE TOWN SHALL BE USED IN LOCALISED AREAS IF REQUIRED AND AS DIRECTED BY THE ENGINEER DURING CONSTRUCTION.

9. CAUTION AGAINST EXISTING UNDERGROUND SERVICES

A. THE CONTRACTOR SHALL RECOGNIZE THAT OUR DRAWING HAS BEEN PREPARED BASED ON INFORMATION FROM RECORDS AND THE ACTUAL INSTALLATION OF THESE SERVICES MAY HAVE DEVIATED SUBSTANTIALLY FROM THESE RECORDS.

B. THE CONTRACTOR SHALL THEREFOR, TAKE ALL REASONABLE PRECAUTIONS TO PROTECT THESE UNIDENTIFIABLE EXISTING SERVICES.

C. THE COST FOR REPAIRING DAMAGED UN-IDENTIFIED UNDERGROUND SERVICES, SHALL BE ESTABLISHED BETWEEN THE CONTRACTOR AND THE OWNER AS ADDITIONAL SERVICES.

10. STORM SEWERS

ALL MATERIAL SPECIFICATION AND CONSTRUCTION DETAIL SHALL BE AS PER THE MOST RECENT TOWN OF CALEDON STANDARD SPECIFICATIONS AND STANDARD DRAWINGS.

A. PIPES
SHALL BE POLYVINYL CHLORIDE (PVC) UP TO AND INCLUDING 375mm DIAMETER CONFORMING TO CASA SPECIFICATION B182.4 LATEST AMENDMENTS(S) INCLUDING ASTM D-3034-80, AS NOTED WITHN OPSS, CLASS AS SHOWN ON DRAWING (MIN. STIFFNESS 320kPa).

B. MANHOLES
SHALL BE AS PER TOWN STANDARD DRAWINGS. THE WORD "STM" TO BE CAST INTO LID.

C. CATCHBASINS
SHALL BE AS PER TOWN STD. WITH GOSS TRAP.

D. BENCHING
SHALL BE AS PER TOWN STD. THE BENCHING SHALL BE TO THE CROWN OF THE PIPE.

E. BEDDING
SHALL BE AS PER OPSD 802.010 AND OPSD 802.030 UNLESS THE FIELD CONDITIONS REQUIRE OTHERWISE.

F. SERVICE CONNECTIONS
SHALL BE AS PER THE PRINCIPLES OF TOWN STANDARD DRAWING, AND/OR AS SHOWN ON THE DRAWING

G. CONFORMANCE
ALL WORKS SHALL CONFORM TO THE REQUIREMENTS OF THE COUNTY. THE REVISIONS AND/OR ADDITIONS TO THE OPSS AND OPSD BY THE MUNICIPALITIES SHALL BE RESPECTED.

11. SANITARY

A. PIPES (MAIN LINE)
SHALL BE POLYVINYL CHLORIDE (PVC) AS PER SDR-35, CSA B182.2-11 CERTIFIED ASTM D3034-04a, F679-03.

B. MANHOLES
SHALL BE AS PER TOWN STANDARD. FRAME AND COVER AS PER OPSD 401.010 TYPE A CLOSED.

C. BENCHING
SHALL BE AS PER TOWN STD. THE BENCHING SHALL BE TO THE SPRING-LINE OF TH PIPE.

D. BEDDING
SHALL BE AS PER OPSD. NO. 802.010, 802.010, OR 802.014.

E. SERVICE CONNECTIONS
SHALL BE PVC AS PER SDR-28 CSA B182.2-11 CERTIFIED ASTM D3034-04a.

F. CONFORMANCE
ALL WORKS SHALL CONFORM TO THE REQUIREMENTS OF THE TOWN OF CALEDON. THE REVISIONS AND/OR ADDITIONS TO THE OPSS AND OPSD BY THE MUNICIPALITIES SHALL BE RESPECTED.

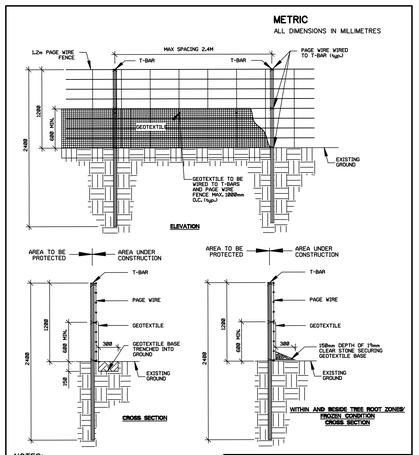
NOTES
1. THE CONTRACTOR SHALL CONFIRM LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF ANY SITE WORK.

CONTROL PANEL
INSTALL AND MAKE OPERATIONAL HIGH LEVEL ALARM BUZZER AND LIGHT WITH TEST SWITCH.

HOLDING TANKS
(A) ANCHOR THE TANK AS REQUIRED AGAINST UPLIFT DUE TO WATE PRESSURE WHEN THE TANK IS BEING EMPTIED
(B) THE GOOSENECK VENTS MUST BE PROTECTED WITH NET AT THEIP OPENINGS.

DESIGN CALCULATIONS

HOLDING TANK
-SPECIFICATION : CAN-B66
WILKINSON OR EQUIVALENT
-SIZE (PRE-FAB) : 4500 L±



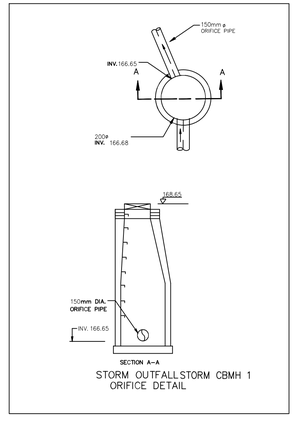
NOTES:
1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN LOCATES OF ALL EXISTING UTILITIES AND SERVICING PRIOR TO INSTALLING HOARDING.
3. DO NOT DAMAGE VISIBLE TREE ROOTS WHEN INSTALLING T-BARS.
4. GEOTEXTILE TO WOVEN OR NON WOVEN. MINIMUM STRENGTH OF 0.55kN/m. MAXIMUM AND MAXIMUM EQUIVALENT OPENING SIZE IS 0.25mm.
5. GEOTEXTILE TO HAVE HORIZONTAL OVERLAP OF 1000mm MINIMUM AT JOINTS.
6. HOARDING MUST BE MAINTAINED IN SOUND CONDITION THROUGH ALL PHASES OF CONSTRUCTION UNTIL APPROVAL TO REMOVE HOARDING IS OBTAINED FROM THE COMMUNITY SERVICES DEPARTMENT.

MISSISSAUGA *Transportation and Works*

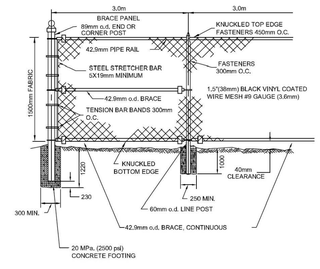
STANDARD

SEDIMENT CONTROL FENCE

EFF. DATE	2002-01-01	SCALE	N.T.S.
REV.		STANDARD No.	2940.010

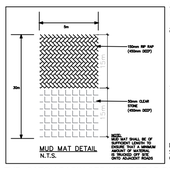


STORM OUTFALLSTORM CBMH 1 ORIFICE DETAIL

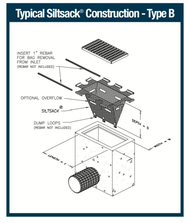


CHAIN LINK FENCE DETAIL

NOTES:
1. ALL POST AND RAILS SHALL BE GALVANIZED STEEL PIPE SCHEDULE 40 WEIGHT, WITH A BLACK POLYETHYLENE COATING.
2. ALL REQUIRED FITTINGS AND HARDWARE SHALL BE OF ALLUMINUM ALLOY WITH ELECTROSTATIC POWDER-COATED POLYESTER AND A BLACK BAKED-ON FINISH.
3. LENGTH OF CORNER AND STRAINING POSTS 2.6m, LENGTH OF LINE POSTS 2.5m.
4. RUNS MORE THAN 150m ARE TO HAVE AN 89mm O.D. INTERMEDIATE STRAINING POST WITH A 42.9mm O.D. BRACES IN BOTH DIRECTIONS.
5. THE BARBED TOPS AND BOTTOM OF ALL FENCING TO BE KNUCKLED OVER SUCH THAT NO SHARP PROJECTIONS ARE VISIBLE OVER THE TOP AND BOTTOM PIPE RAIL.
6. FOR GATE DETAIL SEE OPSD 900.03 WITH FOOTING, HEIGHT AND MATERIAL DETAIL AS SHOWN ABOVE.
7. ALL POST AND MESH TO LIE ON PRIVATE PROPERTY; NO ABOVE GROUND FENCE ELEMENTS SHALL INTRUDEONTO PUBLIC PROPERTY, INCLUDING THE ROAD RESERVE.



TYP. CATCH BASIN SEDIMENT TRAP DETAIL

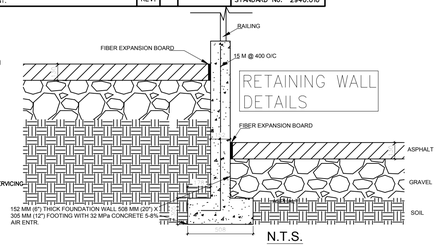


SERVICING NOTES:
1. CONTRACTOR TO CONFIRM ALL EXISTING INVERTS PRIOR TO INTERNAL SERVICING.
2. ALL SEWERS AND DRAINAGE APPURTENANCES, MATERIALS AND INSTALLATIION TO BE IN ACCORDANCE W ITH ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS
3. ALL CATCHBASINS ARE TO HAVE GOSS TRAPS

STORM STRUCTURE INFORMATION

STRUCTURE	OPSD STANDARDS DWG STANDARD	FRAME/GRATE
CBMH 1	701.010	400.010
STORM MH 1	701.010	400.010

NOTES:
STORM AND SANITARY SEWERS MATERIALS ARE TO BE PV C SDR35
CONTRACTOR TO CONFIRM ALL EXISTING INVERTS PRIOR TO INTERNAL SERVICING



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ALL DIMS ARE IN M UNLESS NOTED OTHERWISE

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LICENSED PROFESSIONAL ENGINEER
May 2, 2023
B.B. SHARMA
100057946
PROVINCE OF ONTARIO

02/05/2023	2	OVERALL REVISED	AS
04/04/2021	1	OVERALL REVISED	AB
DATE:	NO.	DESCRIPTION	BY

REVISIONS:

PROJECT:

7211-7311 AIRPORT ROAD
MISSISSAUGA

CLIENT:

AIRSTAR HOLDING INC.

deSign Fine Ltd.

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DRAWING TITLE:

NOTES AND DETAILS

DESIGN:	SCALE:	DRAWING NO:
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DRAWN: BBS	DATE: APRIL,2021	
CHECKED: BBS	PROJECT NO DFL-2013-035	