1672735 Ontario Inc.

Functional Servicing and Stormwater Management Report (FSR/SWM)

Residential Development
2620 Chalkwell Close, Mississauga

December 2023

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Residential Development at 2620 Chalkwell Close, Mississauga

December 22, 2023

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Version Control

Revision No.	Date Issued	Description	Prepared/Reviewed By
1	**December 2023**	**Issued for OPA/ZBA Submission**	Shazia Nishat Anisa Bhatti Nav Grewal

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1 Introduction

1.1 Background

Arcadis Professional Services (Canada) Inc. (Arcadis) was retained by 1672735 Ontario Inc (the "Owner") to prepare a Functional Servicing and Stormwater Management Report for the proposed residential development located at 2620 Chalkwell Close, in the City of Mississauga (the "City").

The purpose of this report is to provide detailed design information for the City's review with respect to the infrastructure required to support the proposed development regarding storm drainage, sanitary sewers and water supply.

A request to the City's engineering records department was carried out to obtain existing information in preparation of this report.

The following documents were available for our review for the preparation of this report:

- Plan and Profile of Chalkwell Close, Drawing No. D-6446 from the Region of Peel, dated September 1958
- Plan and Profile of Chalkwell Close, Drawing No. 41354-D from the Region of Peel, dated August 2010

In addition, Arcadis IBI was also provided with the following information from the applicant:

- Topographic Survey prepared by R. Avis Surveying Inc. dated August 25, 2023
- 2620 Chalkwell Close Site Plan prepared by 1672735 Ontario Inc., dated December 13, 2023

1.2 Existing Site Description

The existing 19,862 m^2 (1.99 ha) Site is located in the City of Mississauga at the west end of Chalkwell Close, west of Karenza Road and borders the east side of Sandgate Park. The Site currently consists of landscaped area but was previously the Site of an elementary school. The legal description is as follows: All of Block B, registered plan 619, City of Mississauga. The Site's municipal address is 2620 Chalkwell Close in Mississauga, Ontario, L5J 2B9. Please refer to **Figure FIG-1** and **Figure FIG-2** (**Appendix A**) for the Site Location Plan and Aerial Plan.

The existing Site was previously occupied by a single storey elementary school, but is currently abandoned and partially demolished. The Site generally slopes from the west to the east towards Chalkwell Close. The flow is primarily collected by two catchbasins on the northeast end and southeast ends of the Site.

The Site is located in an area of the City that is serviced by a network of municipal infrastructure including roads, sewers, watermains, and other services and utilities. Locations and conditions of all utilities should be verified at the time of construction.

2 Site Proposal

The proposed Site will contain 12 3-storey townhouse blocks with internal parking within each block, as well as guest vehicle parking along private roads fronting all townhouse blocks, and 2 amenity areas. Site access will be in the east corner of the Site via Chalkwell Close. Primary pedestrian access to the proposed development will also be via Chalkwell Close. The proposed private road and vehicle access is to match existing conditions at Chalkwell Close and within the Site itself. Due to grading constraints, there will be a proposed retaining wall along the north corner of the Site. The total gross floor area (GFA) for the Site is 26,252 m^2. Please refer to **Appendix A** for the proposed Site plan along with development statistics as prepared by 1672735 Ontario Inc.

3 Terms of Reference and Methodology

3.1 Terms of Reference

The Terms of Reference used for the scope of this report was based on current Region of Peel Transportation and Works Department Water and Wastewater Branch Standards and the City of Mississauga's Transportation and Works Development Requirements Manual and Standard Drawings.

3.2 Methodology: Sanitary Discharge

The sanitary sewage discharge from the Site will be determined using sanitary sewer design sheets that consider the land use and building statistics as supplied by the design team. The calculated values provide peak sanitary flow discharge with infiltration considerations. The estimated sanitary discharge flows from the proposed Site will be calculated based on the Region of Peel criteria shown in **Table 3-1** below.

Table 3-1 Sanitary Flows

USAGE	DESIGN FLOW	UNITS	PERSONS
Residential Flow Generation	290	Litres/Person/Day	Townhouses = 3.4 ppu
Extraneous Flow (Infiltration)	0.2	Litres/Second/Hectare	N/A
Peaking Factor	$M=1+14/[4+(P/1000)^{0.5}]$	Where P is Population in Thousands	N/A

Based on the calculated peak flows, the adequacy of the existing infrastructure to support the proposed development will be discussed.

3.3 Methodology: Water Usage

The domestic water usage will be calculated based on the Region's design criteria as outlined in **Table 3-2** below.

Table 3-2 Water Usage

USAGE	WATER DEMAND	UNITS
Residential	280	Litres/Capita/Day

Pressure and flow testing to determine the adequacy of the existing watermain to support the development with fire suppression in accordance with the FUS Guidelines will be discussed in the subsequent **Section 6**.

3.4 Methodology: Stormwater Drainage and Management

The following report provides a review of the pre- and post-development Site conditions and comments on opportunities to reduce post-development peak flows. Requirements set by the City of Mississauga, Ministry of the Environment Conservation and Parks (MECP) were reviewed. The following SWM criteria are to be applied:

Water Quantity
Post-development peak flows for all storms up to and including the 100-year event should be controlled to unit release rates.

Water Quality
Enhanced Level 1 Protection, with a long-term average removal of 80% of the Total Suspended Solids (TSS) must be achieved on an annual loading basis.

Water Balance
Runoff resulting from a 5 mm rainfall event or best efforts shall be retained on-site using Low Impact Development (LID) practices including infiltration, evapotranspiration and/or water reuse measures.

4 Stormwater Management and Drainage

4.1 Existing Conditions

According to available records, there is an existing 375 mm diameter storm sewer within Chalkwell Close that terminates at an existing maintenance hole, just east of the proposed Site entrance. There is a 525 mm storm sewer within Karenza Road that connects into a maintenance hole downstream of the 375 mm sewer within Chalkwell Close. Downstream on Chalkwell Close, the sewer becomes a 600 mm pipe leading to Sandgate Crescent.

The following drainage conditions to Chalkwell Close and Karenza Road, which is part of the Sheridan Creek watershed, currently exist for the subject lands:

- A1Pre drains northeast to a catchbasin (EX. CB1) that connects to Karenza Road.
- A2Pre drains southeast to a catchbasin (EX. CB2) that connects to Chalkwell Close.

Table 4-1 summarizes the pre-development drainage areas and their corresponding parameters. The existing drainage areas are also illustrated on **Figure DAP-1** in **Appendix B**.

Table 4-1 Existing Conditions Input Parameters

CATCHMENT	DRAINAGE AREA(HA)	RUNOFF COEFFICIENT(C)
AREA DRAINING TO KARENZA ROAD		
A1Pre	0.17	0.25
AREA DRAINING TO CHALKWELL CLOSE		
A2Pre	1.81	0.62

The Site is split into two drainage areas, 0.17 ha draining to the Karenza Road storm sewer and 1.81 ha draining to the Chalkwell Close storm sewer. Area A1Pre drains to EX. CB1 / 450 mm lead connecting to the 525 mm storm sewer in Karenza Road. Area A2Pre drains to EX. CB2, leading to the 375 mm storm sewer within Chalkwell Close.

4.2 Design Criteria

Based on a review of the City of Mississauga Guidelines, the Stormwater Management Criteria applicable to the Site are as outlined in **Table 4-2** below.

Table 4-2 Stormwater Management Criteria

CRITERIA	REQUIREMENT
Water Balance	Retain 5mm for the Sites total impervious area (excluding initial abstraction)
Quantity Control	100-Year Post to 2-Year Pre-development Control
Quality Control	80% TSS Removal

4.2.1 Stormwater Quantity

For the City of Mississauga, the allowable release rate to the municipal storm sewer system from the development Site up to and including 100-year storm event must not exceed the 2-year runoff rate from the Site under pre-development conditions.

4.2.2 Stormwater Balance

The criteria provided in the City of Mississauga's Storm Drainage criteria states that controls should be in place, such that the runoff resulting from a 5 mm rainfall event for the Sites impervious area can be retained on-site via infiltration, evapotranspiration and/or water reuse measures.

4.2.3 Stormwater Quality

For the City of Mississauga, a minimum treatment of 80% of the Total Suspended Solids (TSS) removal 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.

4.3 Stormwater Management

4.3.1 General

Table 4-3 below summarizes the proposed conditions drainage parameters. Please refer to **Appendix B** for calculations and **Figure DAP-2** for proposed drainage areas.

Table 4-3 Proposed Condition Drainage Parameters

CATCHMENT	DRAINAGE AREA (HA)	C	TC (MIN)
A1Post	1.91	0.76	15
A2Post	0.07	0.25	15

4.3.2 Stormwater Quantity Control

Catchment A1Post a 200mm orifice pipe will be utilized to control 100-year post-development flows to such that the total flow from the Site meets the allowable flow. Catchment A2Post will flow to the EX. CB1 and flow uncontrolled to Karenza Road. Please refer to **Appendix B** for detailed calculations. A summary of the 100-year post development flows is shown below in **Table 4-4.**

Table 4-4 Post Development Flows Discharging to the Bathurst Street Right-of-Way

STORM EVENT	CATCHMENT	TARGET FLOW (L/S)	POST DEVELOPMENT FLOW (L/S)	FLOW LEAVING SITE (L/S)
100-Year	A1Post	188.0	485.2	125.7
100-Year	A2Post	7.1	6.8	6.8

The maximum storage required is 435.4 m^3 and will be provided through a combination of storage pipe, storage within maintenance structures, storage chambers and rooftop storage. Please also refer to **DWG SS-01** in **Appendix E** for the location and details of storm system. Detailed storage and orifice sizing calculations are shown **Appendix B**.

4.3.3 Stormwater Quality

For the A2Post catchment, there will be no impact to the TSS loading rate, as the runoff is generated from the landscaped areas. Therefore, 80% TSS removal has been achieved for catchment areas A2Post.

For area A1Post, quality control will be provided by a combination of an OGS and inherent treatment from rooftop/patios and landscaping. For MECP Enhanced Level protection, the proposed OGS system will be installed to treat the drainage collected from paved areas via catchbasins. The OGS unit will be installed at the downstream end of the storm sewer, prior to outletting to the municipal control maintenance hole. Please refer to **Drawing SS-01** in **Appendix E** for the location of the OGS unit and proposed storm network.

Based on water quality calculations, the TSS removal rate under post-development conditions is 81%. Therefore, the minimum TSS removal of 80% will be achieved. Detailed quality control calculations are provided in **Appendix B**.

Water quality calculations are shown below in **Table 4-5.**

Table 4-5 Water Quality Calculations

SURFACE	METHOD	EFFECTIVE TSS REMOVAL	AREA	% AREA OF SITE	OVERALL TSS REMOVAL
Roof/Patio	Inherent	80%	0.86	31%	25%
Landscape	Inherent	80%	0.40	14%	12%
Paved Controlled	OGS	80%	1.51	54%	44%
TOTAL			2.77	100%	81%

4.3.4 Stormwater Balance

As required by the City, a rainfall depth of 5mm must be retained over the total Site impervious area, excluding initial extraction. The total impervious area of the Site is 15,080 m^2 (1.51 ha), which equates to a required water re-use volume of 75.4 m^3. Therefore, 75.4 m^3 is required to be retained on Site. Measures such as infiltration systems/galleries, permeable pavers and increased topsoil depths around the property can be used to retain the required volume.

4.3.5 Proposed Storm Connection

The Site will have a gravity network within the property to collect surface runoff from the amenity spaces and private roadways, as well as connections at each block to collect roof drainage. The network will flow from north to south to a storm control maintenance hole, at the downstream end, located just east of the proposed Site entrance. The Sites municipal service connection will be made from the control maintenance hole to an existing maintenance hole at the terminating end of a 375 mm storm sewer within Chalkwell Close.

Please refer to **Drawing SS-01** in **Appendix E** for the location and cross-sections of the storm service connection.

5 Sanitary Drainage System

5.1 Existing Sanitary Drainage System

According to the reviewed information as stated in **Section 1.1**, there is an existing 250 mm diameter sanitary sewer along Chalkwell Close that terminates at a manhole at the Site access.

5.1.1 Pre-Development Sanitary Flow

The Site was previously occupied by a single storey elementary school. The calculated pre-development flow contribution is:

- Pre-Development Flow = (pop x 275 L/cap/day x peaking factor) / 86,400 s + Infiltration Allowance
- Pre-Development Flow = (200 pp x 275 L/emp/day x 4.15) / 86400 s + (1.99 ha x 0.26 L/s/ha)
- Pre-Development Flow = **3.10 L/s**

The existing sanitary discharge flow calculated above was calculated using the Region of Peel Sanitary Sewer Design Criteria of 275 litres/capita/day, and an infiltration rate of 0.26 L/s/ha. Based on the above criteria, an existing flow of 3.10 L/s was calculated for the existing Site purpose. In present day, the Site has been abandoned and partially demolished and thus currently generates no flow to the existing sanitary system. Refer to **Appendix C** for detailed calculations.

5.1.2 Post-Development Sanitary Flow

The anticipated sanitary discharge flows for the proposed Site were calculated based on the Region's design criteria outlined in **Table 3-1**, along with the proposed Site statistics found in **Appendix A**. The GFA of the townhouses along with peaking factors were considered in the analysis to evaluate the adequacy of the existing municipal infrastructure. The design inputs for the Site are shown in **Table 5-1** below.

Table 5-1 Equivalent Population Calculations

LAND USE	UNITS	POPULATION DENSITY (PP/UNIT)	TOTAL POPULATION (CAPITA)
Townhouse	180	3.4	612

The calculated post-development flow contribution is:

- Post-Development Flow = (pop x 290 L/cap/day x peaking factor) / 86,400 s + Infiltration Allowance
- Post-Development Flow = (612 pp x 290 L/cap/day x 3.93) / 86400 s + (1.99 ha x 0.20 L/s/ha)
- Post-Development Flow = **8.50 L/s**

The sanitary discharge flow calculated above was calculated using the Region of Peel Sanitary Sewer Design Criteria of 290 litres/capita/day, and an infiltration rate of 0.20 L/s/ha. Based on the above criteria, a net peak design flow of 8.50 L/s was calculated for the subject property. Refer to **Appendix C** for detailed calculations.

The post development sanitary flows calculated and identified above will be used to size and design the local sewers within the development Site.

6 Water Supply System

6.1 Existing System

According to the information reviewed as stated within **Section 1.1**, a 300 mm PVC watermain is located within the Chalkwell Close right-of-way that terminates at the developments Site access.

6.2 Proposed Water Supply

The estimated water consumption for the proposed development was calculated based on the water demand shown in **Table 3-2** in Section 3.3, based on the Region of Peel's watermain design criteria revised June 2010 and the Ontario Building Code.

The water supply for public fire protection was calculated based on the guidelines provided by the FUS, to demonstrate that the existing flows and pressure are adequate to meet the minimum requirement for fire suppression outlined in the FUS.

6.2.1 Proposed Water Demand Requirements

The estimated water consumption was calculated based on the water demand as shown in **Table 3-2** in **Section 3.3,** based on the Region of Peel Watermain Design Criteria. It is anticipated that an average daily consumption of approximately 1.98 L/s, a maximum daily demand of 3.97 L/s and a peak hourly demand of 5.95 L/s will be required to service this development with domestic water.

The Region requires that the Water Supply for Public Fire Protection calculations, as provided by the Fire Underwriters Survey (FUS), be undertaken to determine the water pressure and flow that would be required to service the new development with adequate fire suppression. Arcadis has prepared flow calculations based on the proposed building footprint for the proposed development design concept. According to our calculations, a minimum fire suppression flow of approximately 167 L/s (2650 USGPM) will be required from the nearest hydrant with at least 140 kPa (20 psi) of pressure.

Refer to the detailed demand and fire flow calculations found in **Appendix D**.

6.3 Hydrant Coverage

There is one (1) existing fire hydrant located near the Site access on the north side of Chalkwell Close. Due to the proposed development size, four additional hydrants are proposed within the Site limits to ensure there is adequate hydrant coverage. The proposed hydrants have been positioned such that the minimum coverage requirement of 70 m is satisfied. Refer to **Drawing SS-01** in **Appendix E** for the locations of the existing and proposed hydrants.

6.4 Proposed Watermain Connection

The proposed development will be serviced by a 300 mm diameter water service to service both fire and water demands. The watermain within the Site will service each block with individual connections and be metered collectively. Due to limited access from Site frontages to municipal ROW's containing watermains, the system will not be looped but will have hydrants to terminate the network within the Site. A bulk water meter, backflow preventer and detector check valve will be provided for the Site at the property line at the Site access.

Refer to **Drawings SS-01 and XS-01** for Site Servicing Plan and Cross-Sections of the watermain and service connection in **Appendix E**.

7 Site Grading

7.1 Existing Grades

The existing Site was previously occupied by an elementary school that has since been demolished. Overall, the Site grades generally fall from west to east. Elevations across the existing propoerty range from approximately 134.00 m to 129.29 m. The existing Site is split into two portions falling to two different low points. One portion directs runoff to the northeast corner, EX. CB1, which outlets to Karenza Road, while the other falls southeast directing runoff toward EX. CB2, which outlets to Chalkwell Close. The Chalkwell Close roadway ultimately slopes away from the site toward Sandgate Crescent. Refer to **Appendix A** for the topographical survey of the existing property.

7.2 Proposed Grades and Emergency Overland Flow Routes

The proposed grades will match current drainage patterns wherever feasible and grades will be maintained along the property lines to the extent practical. In the proposed conditions, majority of the Site flows northwest to southeast via private roadways, towards Chalkwell Close. A small portion of the Site will flow towards EX. CB1. The Site's proposed grades range from approximately 133.98 m to 129.29 m. Due to the proximity of the proposed buildings and the property lines, in order to maintain consistent elevations through the structures a retaining wall has been proposed along the northwest and northeast corners of the Site. Overland flow for events, up to and including the 100-yr storm design event, will be captured within the Site. Overland flow for events exceeding the 100-yr design event, will be directed to Chalkwell Close. Refer to **Drawing SG-01** for Site Grading Plan in **Appendix E**.

8 Site Access

According to the architectural plans provided, vehicular access to the Site will be provided via a series of private laneways that connect to the west end of Chalkwell Close. Pedestrian access for the residential units will be located off of Chalkwell Close as well.

9 Utilities

As this development is within an urbanized area of the City, all utilities, including telephone, cable, electricity and gas are assumed to be readily available to service the proposed development at 2620 Chalkwell Close.

10 Conclusions and Recommendations

Based on our investigations, we conclude the following:

10.1 Storm Drainage

To satisfy stormwater management requirements to the City of Mississauga Municipal system the following has been provided:

- Quantity control is to be provided using an orifice pipe to control flow from a combination of storage pipe, structures, chambers and rooftop storage.
- 5 mm retention for water balance is maintained by using on-site infiltration facilities. MECP Enhanced Level Protection (minimum 80% TSS removal) will not be achieved but we will be implementing a best-efforts approach by including inherently clean rooftops and landscaped areas, and a stormwater filtration system for the proposed development.
- The storm discharge from the Site will be directed to the existing maintenance hole and 375 mm storm sewer within Chalkwell Close. A portion of existing uncontrolled flow will continue to flow to the existing catchbasin with a 450 mm lead to Karenza Road.

A summary of the SWM for the Site is follows in **Table 11.1**.

Table 10-1 Stormwater Drainage Summary Table

ALLOWABLE RELEASE RATE:	**188.0 L/s**
ACTUAL RELEASE RATE (100-YR STORM):	**125.7 L/s**
REQUIRED STORAGE:	**435.4 m³**
ORIFICE PIPE SIZE:	**200 mm**
REQUIRED WATER BALANCE:	**75.4 m³**
REQUIRED TSS% REMOVAL:	**80%**
PROVIDED TSS% REMOVAL:	**81%**
METHODS USED FOR QUALITY CONTROL:	**Clean Water Roof and Patio Runoff & Permeable Pavers + Stormceptor OGS**

10.2 Sanitary Sewers

The expected sanitary discharge flow in the post development condition from the Site is **8.50 L/s**. The flow will be directed to an existing maintenance hole / 250 mm sanitary sewer within Chalkwell Close.

10.3 Water Supply

Water supply for the Site will be provided by a connection made to the existing 300 mm watermain on Chalkwell Close. The average domestic water consumption rates anticipated to be drawn from the existing 300 mm watermain is approximately **1.98 L/s**, a maximum daily demand of **3.97 L/s** and a peak hourly demand of **5.95 L/s** for the proposed townhouse development. The Site requires a minimum flow rate of **167 L/s** (2650 USGPM) at a pressure of 140 kPa (20 psi) to account for both fire and domestic flows. Four additional hydrants are proposed within the Site to provide additional fire coverage.

10.4 Site Grading

The proposed grading of the Site will match the existing grades where possible. To the practical extent, Site flows will be accommodated by the SWM system up to and including the 100-year design event. Emergency overland flow will be directed to the Site access at Chalkwell Close. A portion of the Site and the external drainage flowing into the Site will flow uncontrolled to the existing catchbasin (EX. CB1) in the northeast corner of the Site via grassed swales on the outer side of the proposed retaining wall.

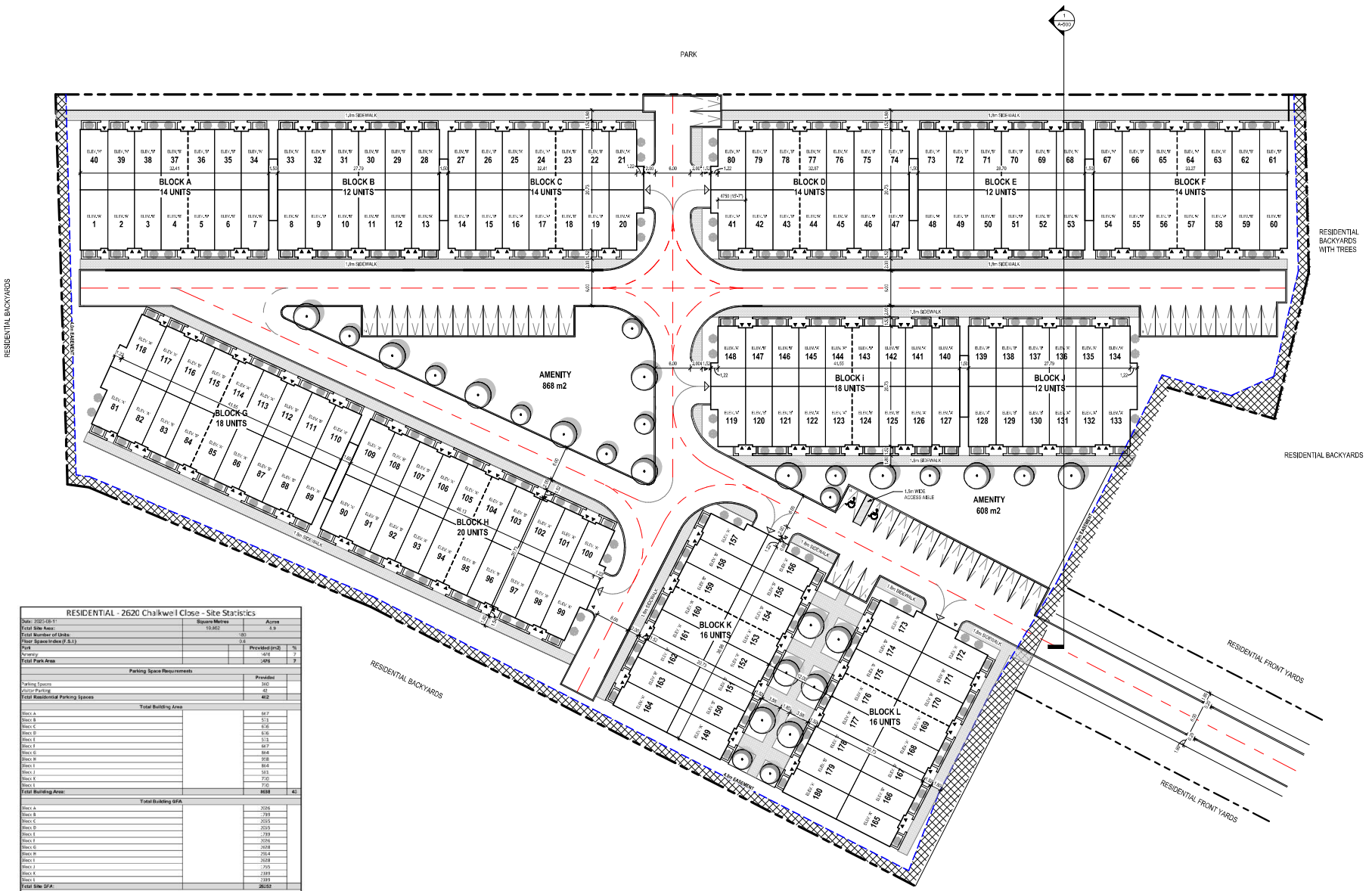
10.5 Recommendations

In summary, the Site and the proposed re-development can be adequately serviced in respect to stormwater drainage, and SWM. The stormwater quantity and quality controls can be implemented in accordance with the City, Region and MECP.

Accordingly, we hereby recommend the adoption of this report as it relates to the provision of servicing works, and for the purposes of re-zoning and Site Plan application approval.

Appendix A

Background Information



RESIDENTIAL - 2620 Chalkwell Close - Site Statistics

Date: 2023-08-11	Square Metres	Acres
Total Site Area:	19,862	4.9
Total Number of Units:	180	
Floor Space Index (F.S.I)	0.6	
Park	Provided (m2)	%
Amenity	1476	7
Total Park Area	**1476**	**7**
Parking Space Requirements		
	Provided	
Parking Spaces	360	
Visitor Parking	42	
Total Residential Parking Spaces	**402**	
Total Building Area		
Block A	667	
Block B	573	
Block C	616	
Block D	616	
Block E	573	
Block F	667	
Block G	864	
Block H	918	
Block I	864	
Block J	583	
Block K	710	
Block L	710	
Total Building Area:	**8638**	**43**
Total Building GFA		
Block A	2026	
Block B	1739	
Block C	2055	
Block D	2055	
Block E	1739	
Block F	2026	
Block G	2608	
Block H	2914	
Block I	2608	
Block J	1795	
Block K	2389	
Block L	2389	
Total Site GFA:	**26252**	
Building Private Amenity		
Block A	413	
Block B	420	
Block C	416	
Block D	416	
Block E	420	
Block F	413	
Block G	673	
Block H	705	
Block I	619	
Block J	417	
Block K	562	
Block L	562	
Total Paved Areas:	**3530**	**18**

INFINITY
ARCHITECTURE & DESIGN
4 RYDLEY ROAD, ETOBICOKE ON M9B 4J9

NO.	DESCRIPTION	DATE

REVISION RECORD

ISSUED FOR REZONING	2023-10-22
DESCRIPTION	DATE

ISSUED RECORD

DUNPAR

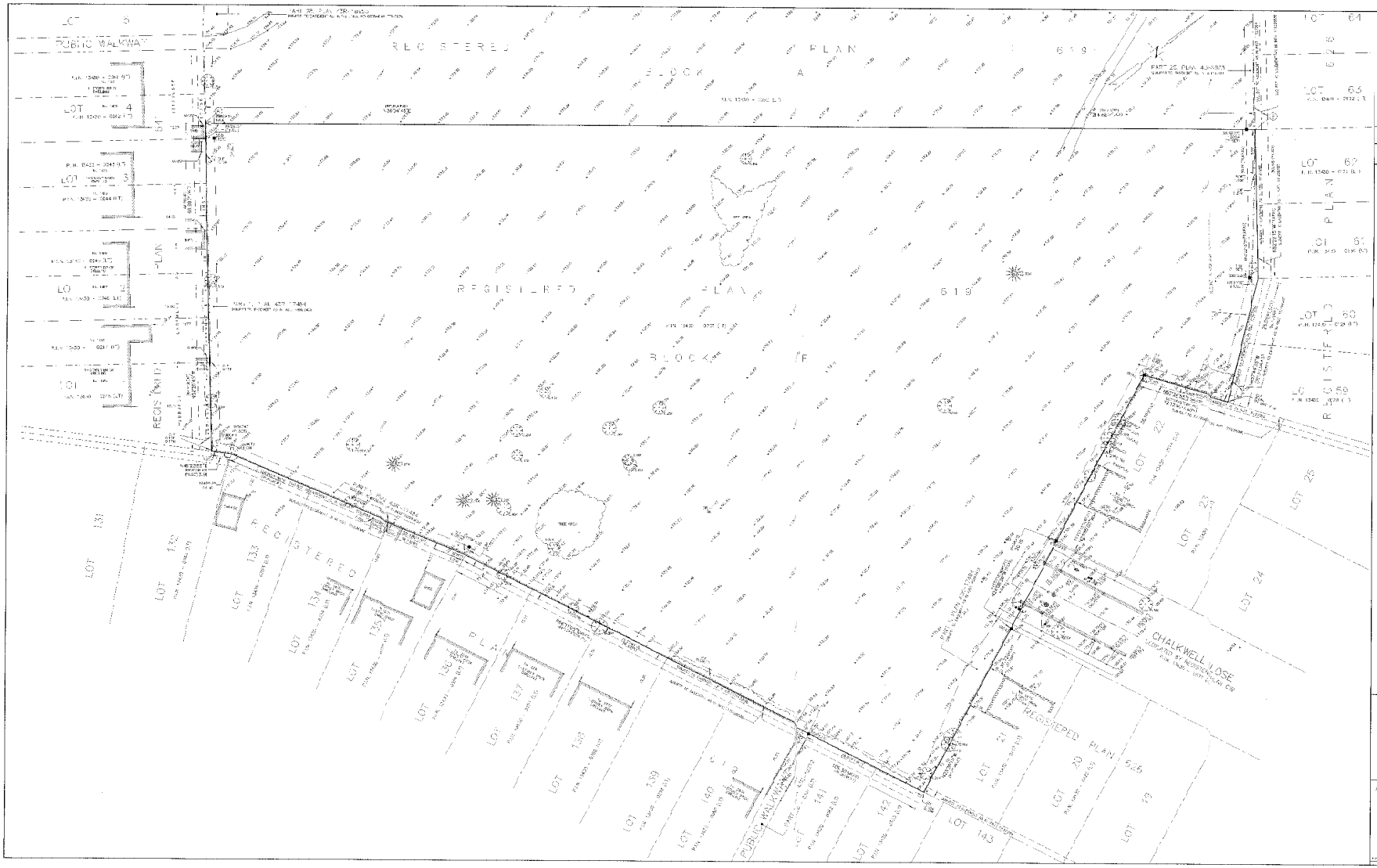
2620 CHALKWELL CLOSE
MISSISSAUGA, ON

SCALE 1 : 300
NORTH

DRAWING TITLE
SITE PLAN

CLIENT
1672735 ONTARIO INC.
100 SIX POINT ROAD, ETOBICOKE ON M9Z 2X3 TEL: 416.236.9900 | FAX: 416.236.2690

DRAWN DS/RB
CHECKED AS
DATE 2023-12-22
PAGE NO. A-100



PLAN OF SURVEY OF

ALL OF BLOCK B
REGISTERED PLAN 619

CITY OF MISSISSAUGA

(FORMERLY IN THE TOWN OF TORONTO, COUNTY OF PEEL)

REGIONAL MUNICIPALITY OF PEEL

SCALE 1 : 300

0 5 10 20 30m

R. AVIS SURVEYING INC.

METRIC : DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

NOTES AND LEGEND

BEARINGS BEING ASTRO AND ARE REFERRED AND ARE DERIVED FROM OBSERVED REFERENCE POINTS A AND B HAVING A BEARING OF N00°04'40"E AS DERIVED FROM REAL TIME NETWORK OBSERVATIONS PERFORMED ON OCTOBER 16TH, 2012 AND ADJUSTED TO UTM ZONE 17 (81° WEST LONGITUDE) COORDINATES.

UTM ZONE 17 COORDINATES (NAD83(CSRS) 2010.0 EPOCH 2010.0)		
DERIVED FROM OBSERVED REFERENCE POINTS A AND B		
	NORTHING	EASTING
A	4838742.577	608605.759
B	4838742.685	608788.303

(1) THE UTM COORDINATES SHOWN ABOVE ARE TO AN ACCURACY PER SUBSECTION 14(2) OF ONTARIO REGULATION 216/10 AND ARE DERIVED FROM A REAL TIME NETWORK OBSERVATION PERFORMED ON OCTOBER 16TH, 2012 USING A TRIMBLE R8 GNSS RECEIVER.

(2) THE UTM COORDINATES LISTED ABOVE ARE CLOSE TO TOP GEOGRAPHIC RESOLUTION 216/10 AND ARE DERIVED FROM A REAL TIME NETWORK OBSERVATION PERFORMED ON OCTOBER 16TH, 2012 USING A TRIMBLE R8 GNSS RECEIVER.

ELEVATIONS SHOWN HEREON ARE CONSISTENT WITH CITY OF MISSISSAUGA BENCH MARK No. 5474 HAVING AN ELEVATION OF 172.007 METRES.

DISTANCES SHOWN HEREON ARE GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY A COMBINATION FACTOR OF 0.999914.

THE BEARING COMBINATION FACTOR OF 0.999914 (CENTRAL—COORDINATE SCALE FACTOR) APPLIED TO MEASURED HORIZONTAL DISTANCES.

■	DENOTES	IRON BAR(S) MONUMENT FOUND
⊕	DENOTES	IRON BAR(S) MONUMENT PLANTED
STD	DENOTES	STANDARD IRON BAR
SSIB	DENOTES	SHORT STANDARD IRON BAR
○	DENOTES	INCH SIZE
(M)	DENOTES	MEASURED
(P)	DENOTES	PLAN 43R-29905
MEAS/M	DENOTES	MEASURED
RECD/M	DENOTES	RECORD AND MEASURED
W	DENOTES	WEST BEAR. POINT
RP	DENOTES	REFERENCE POINT
(P)	DENOTES	PLAN 43R-29905
(619)	DENOTES	REGISTERED PLAN 619
(W)	DENOTES	WITNESS MONUMENT
⊗	DENOTES	ANCHOR
⊙	DENOTES	BELL MH
⊙	DENOTES	CATCH BASIN
⊙	DENOTES	CLEANOUT
⊙	DENOTES	HYDRO MH
⊙	DENOTES	HYDRO PED
⊙	DENOTES	UTILITY PED
⊙	DENOTES	WATER VALVE
MH	DENOTES	MANHOLE
MH	DENOTES	MISCELLANEOUS
300	DENOTES	ESP TREE(S) WITH TRUNK DIAMETER 300 millimetres
300	DENOTES	DECIDUOUS TREE WITH TRUNK DIAMETER 300 millimetres
	DENOTES	SPOT ELEVATION

AREA OF THE SUBJECT LANDS: 1942.45 sq. m.

SURVEYOR'S CERTIFICATE

I HEREBY 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 16TH DAY OF AUGUST, 2012.

AUGUST 16, 2012
DATE

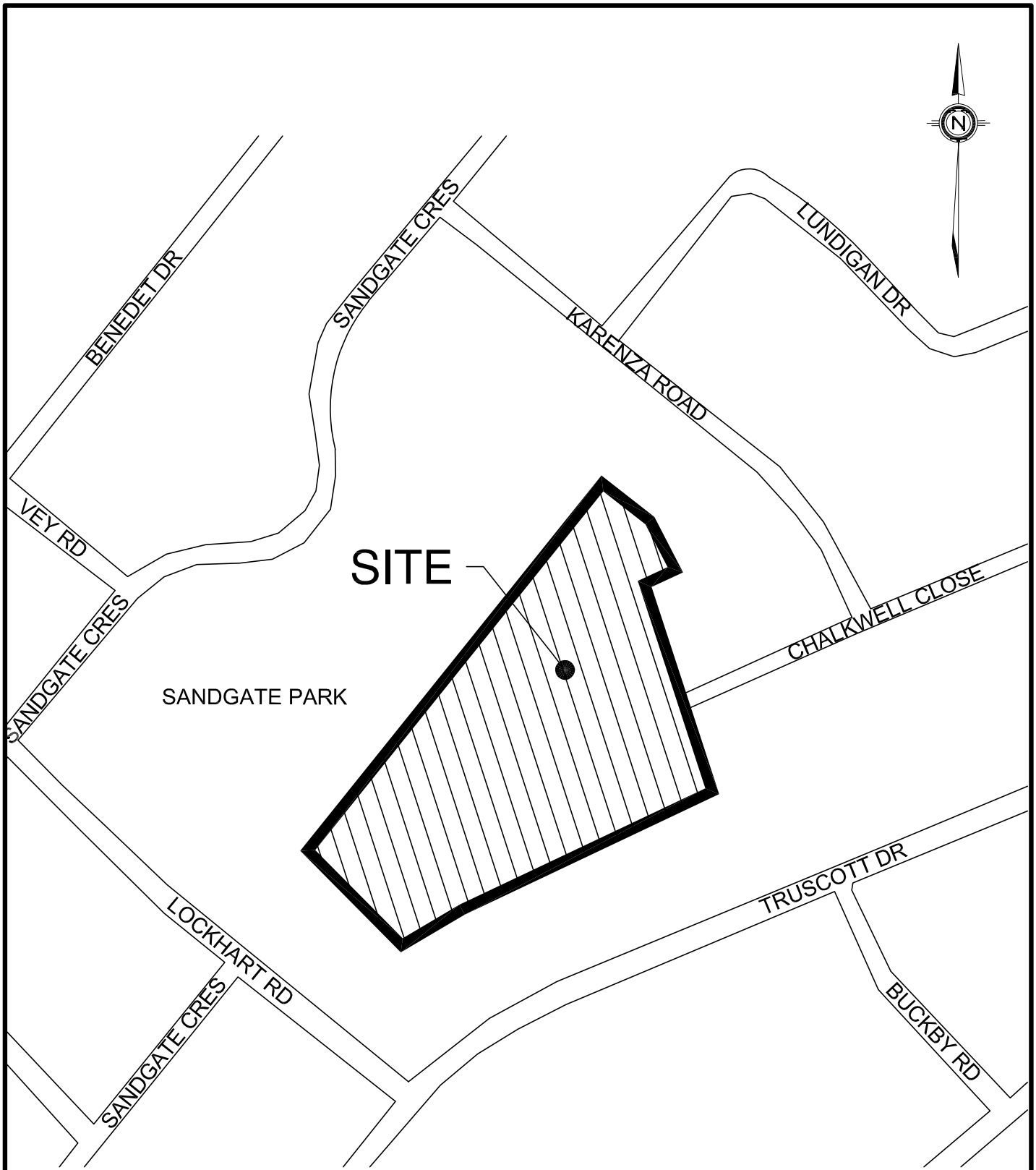
DONALD AVIS
ONTARIO LAND SURVEYOR

ASSOCIATION OF ONTARIO LAND SURVEYORS
PRE SUBMISSION FORM
V20022

THE PLAN AS IT WAS PRE-SUBMITTED TO THE REGISTRAR ORIGINAL COPY
SIGNED BY THE SURVEYOR

R. AVIS SURVEYING INC.
R.A. AVIS
2470 ROYAL WINDSOR DRIVE
MISSISSAUGA, ONTARIO
L5J 4C8
TELEPHONE (905) 822-4111 FAX (905) 822-1220
www.RAVISSURVEYING.com

CHECKED BY	R.A. AVIS
CALCULATED BY	D.S.
DRAWN BY	D.S.
PROJECT No.	12-2044
DRAWING No.	12-2044-01.dwg



ARCADIS

LOCATION PLAN

2620 CHALKWELL CLOSE
MISSISSAUGA, ONTARIO

DATE:	NOV 2023	PROJECT No.:	145258
SCALE:	N.T.S.	FIGURE No.:	FIG-1

J:\145258_2620Chalkwell\7.0_Production\7.03_Design\04_Civil\Scripts\Colas\Figures\FSR Fig 1-2.dwg (Location Plan)

ARCADIS

AERIAL PLAN

2620 CHALKWELL CLOSE
MISSISSAUGA, ONTARIO

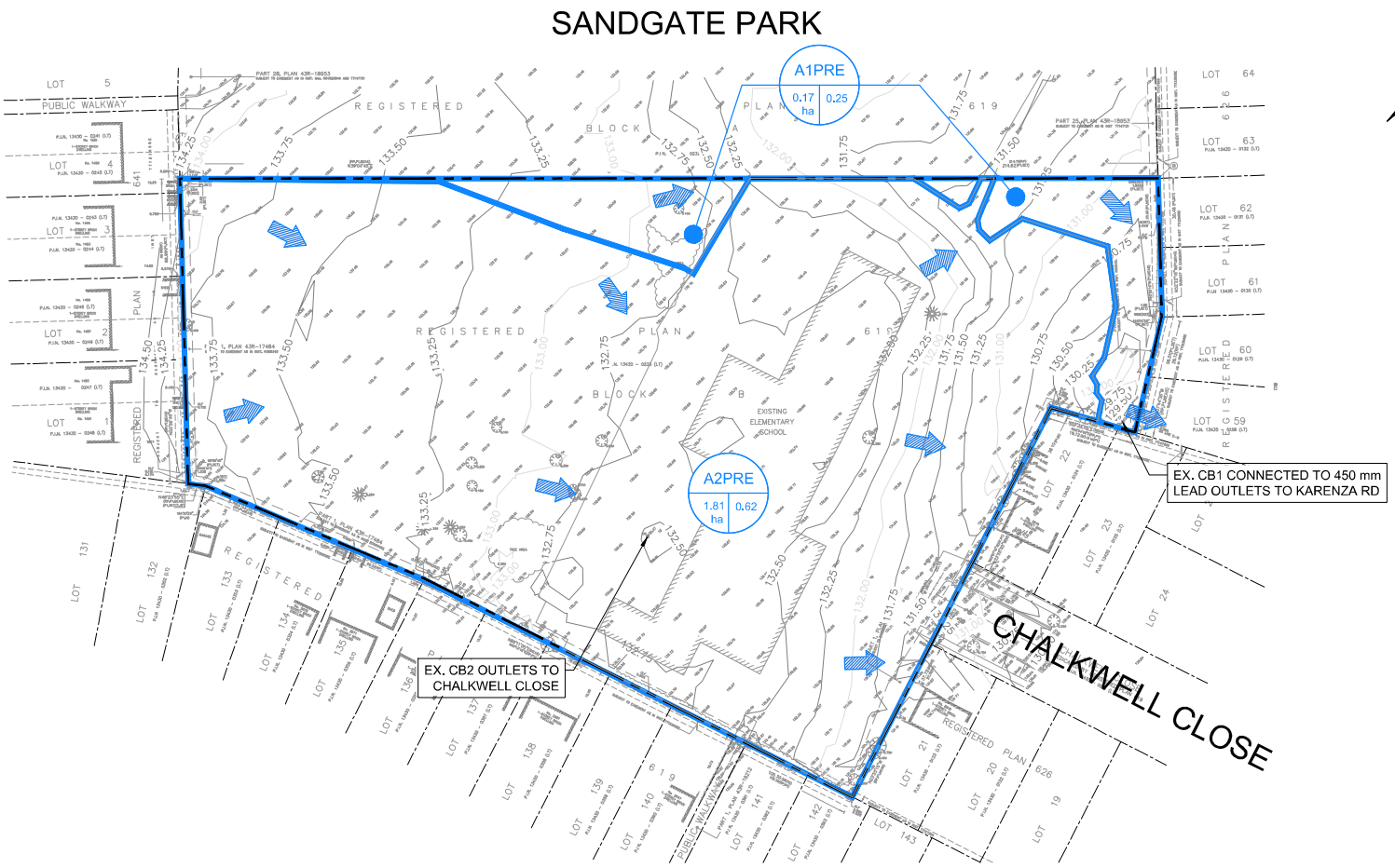
DATE:	NOV 2023	PROJECT No.:	145258
SCALE:	N.T.S.	FIGURE No.:	FIG-1

J:\145258_2620Chalkwell\7.0_Production\7.03_Design\04_Civil\Scripts\Colea\Figures\FSR Fig 1-2.dwg (Aerial Plan)

Appendix B

Stormwater Data

SANDGATE PARK



ARCADIS

LEGEND

- PROPERTY BOUNDARY
- DRAINAGE AREA BOUNDARY
- MAJOR SYSTEM DIRECTION

A1PRE
0.283 ha | 0.90

- DRAINAGE AREA IN HECTARES
- STORM DRAINAGE AREA NUMBER
- RUNOFF COEFFICIENT

PRE-DEVELOPMENT DRAINAGE AREA PLAN

2620 CHALKWELL CLOSE
MISSISSAUGA, ON.

DATE:	NOVEMBER 2023	PROJECT No.:	145258
SCALE:	1: 1000	FIGURE No.:	DAP-01

ARCADIS

Prepared By: AB

Pre-Development Composite Runoff Coefficient

2620 Chalkwell Close

145258

November 2023

Drainage Area A1 Pre

	(ha)		
Total Area:	0.17		
Impervious:	0.00	**Coefficient:**	0.90
Landscaping:	0.17	**Coefficient:**	0.25
Composite C:	**0.25**		
Percent Impervious	**0.00%**		

Drainage Area A2 Pre

	(ha)		
Total Area:	1.81		
Impervious:	1.04	**Coefficient:**	0.90
Landscaping:	0.77	**Coefficient:**	0.25
Composite C:	**0.62**		
Percent Impervious	**57.57%**		

ARCADIS

Prepared By: AB

Rational Method
Pre-Development Flow Calculation

2620 Chalkwell Close

145258

November 2023

Input Parameters

Area Number	Area	C	Tc
	(ha)		(min.)
A1 Pre	0.17	0.25	15.00
A2 Pre	1.81	0.62	15.00

Formula:	I = a/(T+b)^c
a,b,c	Constants
T	Time of concentration
I	Rainfall intensity

Rational Method Calculations

IDF Data Set: City of Mississauga
Event **2-Year**
a = 610.0
b = 0.780
c = 4.6

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A1 Pre	0.17	0.25	0.04	15	59.9	0.007	7.1
A2 Pre	1.81	0.62	1.13	15	59.9	0.188	188.0

IDF Data Set: City of Mississauga
Event **5-Year**
a = 820.0
b = 0.780
c = 4.6

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A1 Pre	0.17	0.25	0.04	15	80.5	0.010	9.6
A2 Pre	1.81	0.62	1.13	15	80.5	0.253	252.7

IDF Data Set: City of Mississauga
Event **10-Year**
a = 1010.0
b = 0.780
c = 4.60

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A1 Pre	0.17	0.25	0.04	15	99.2	0.012	11.8
A2 Pre	1.81	0.62	1.13	15	99.2	0.311	311.2

IDF Data Set: City of Mississauga
Event **25-Year**
a = 1160.0
b = 0.780
c = 4.60

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A1 Pre	0.17	0.25	0.04	15	113.9	0.014	13.5
A2 Pre	1.81	0.62	1.13	15	113.9	0.357	357.4

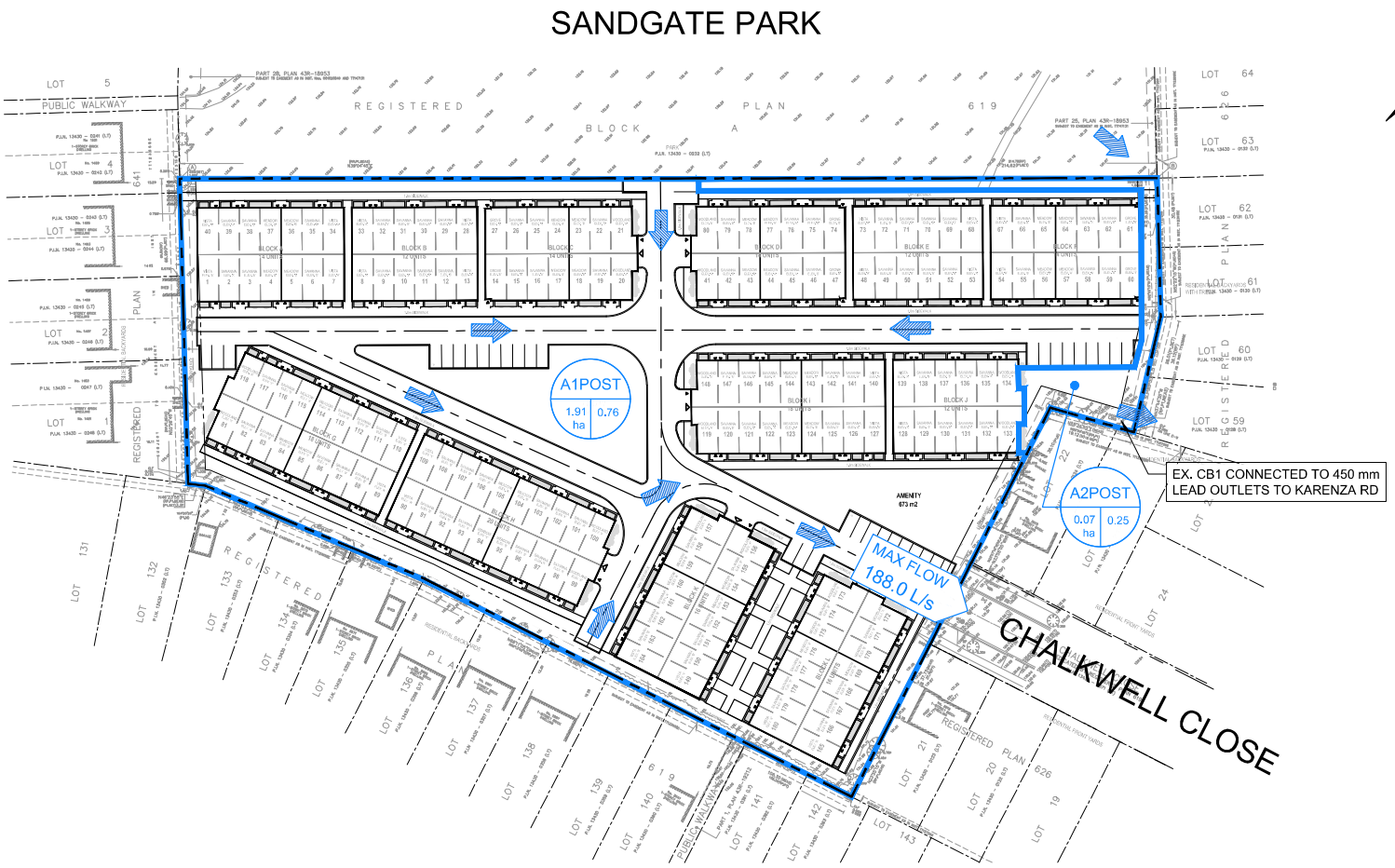
IDF Data Set: City of Mississauga
Event **50-Year**
a = 1300.0
b = 0.780
c = 4.70

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A1 Pre	0.17	0.25	0.04	15	127.1	0.015	15.1
A2 Pre	1.81	0.62	1.13	15	127.1	0.399	399.0

IDF Data Set: City of Mississauga
Event **100-Year**
a = 1450.0
b = 0.780
c = 4.90

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A1 Pre	0.17	0.25	0.04	15	140.7	0.017	16.7
A2 Pre	1.81	0.62	1.13	15	140.7	0.442	441.5

SANDGATE PARK



ARCADIS

LEGEND

- PROPERTY BOUNDARY
- DRAINAGE AREA BOUNDARY
- MAJOR SYSTEM DIRECTION

A1POST
0.283 ha | 0.90

- DRAINAGE AREA IN HECTARES
- STORM DRAINAGE AREA NUMBER
- RUNOFF COEFFICIENT

POST-DEVELOPMENT DRAINAGE AREA PLAN

2620 CHALKWELL CLOSE
MISSISSAUGA, ON.

DATE:	NOVEMBER 2023	PROJECT No.:	145258
SCALE:	1: 1000	FIGURE No.:	DAP-02

ARCADIS

Prepared By: AB

Post-Development Composite Runoff Coefficient

2620 Chalkwell Close

145258

November 2023

Drainage Area A1 Post

	(ha)		
Total Area:	1.91		
Impervious:	1.51	**Coefficient:**	0.90
Landscaping:	0.40	**Coefficient:**	0.25
Composite C:	**0.76**		
Percent Impervious	**78.95%**		

Drainage Area A2 Post

	(ha)		
Total Area:	0.07		
Impervious:	0.00	**Coefficient:**	0.90
Landscaping:	0.07	**Coefficient:**	0.25
Composite C:	**0.25**		
Percent Impervious	**0.00%**		

ARCADIS

Prepared By: AB

Rational Method
Post-Development Flow Calculation
2620 Chalkwell Close
145258
November 2023

Input Parameters

Area Number	Area (ha)	C	Tc (min.)
A1 Post	1.91	0.65	15.00
A2 Post	0.07	0.25	15.00

Formula:	I = a/(T+b)^c
a,b,c	Constants
T	Time of concentration
I	Rainfall intensity

Rational Method Calculations

IDF Data Set: City of Mississauga
Event **2-Year**
a = 610
b = 0.78
c = 4.6

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A1 Post	1.91	0.65	1.24	15	59.9	0.207	206.5
A2 Post	0.07	0.25	0.02	15	59.9	0.003	2.9

IDF Data Set: City of Mississauga
Event **5-Year**
a = 820
b = 0.78
c = 4.6

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A1 Post	1.91	0.65	1.24	15	80.5	0.278	277.7
A2 Post	0.07	0.25	0.02	15	80.5	0.004	3.9

IDF Data Set: City of Mississauga
Event **10-Year**
a = 1010.0
b = 0.780
c = 4.6

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A1 Post	1.91	0.65	1.24	15	99.2	0.342	342.0
A2 Post	0.07	0.25	0.02	15	99.2	0.005	4.8

IDF Data Set: City of Mississauga
Event **25-Year**
a = 1160.0
b = 0.780
c = 4.6

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A1 Post	1.91	0.65	1.24	15	113.9	0.393	392.8
A2 Post	0.07	0.25	0.02	15	113.9	0.006	5.5

IDF Data Set: City of Mississauga
Event **50-Year**
a = 1300.0
b = 0.780
c = 4.7

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A1 Post	1.91	0.65	1.24	15	127.1	0.438	438.4
A2 Post	0.07	0.25	0.02	15	127.1	0.006	6.2

IDF Data Set: City of Mississauga
Event **100-Year**
a = 1450.0
b = 0.780
c = 4.9

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m^3/s)	Q (L/s)
A1 Post	1.91	0.65	1.24	15	140.7	0.485	485.2
A2 Post	0.07	0.25	0.02	15	140.7	0.007	6.8

ARCADIS

Prepared By: AB

Modified Rational Method - 2 Year Storm
Site Flow and Storage Summary

2620 Chalkwell Close

145258

November-2023

2 Yr Design Storm		A1Post Controlled			A2Post Uncontrolled			Flow Summary		
a=	610.00	Area=	1.91	ha	Area=	0.07	ha			
b=	0.780	"C" =	0.76		"C" =	0.25				
c=	4.60	AC1=	1.46		AC1=	0.02				
I=	A/(T+c)^b	Tc =	15.00	min	Tc =	15.00	min			
		Time Increment =	5.00	min	Time Increment =	5.00	min	Target Flow	187.96	L/s
		Orifice Controlled Flow =	100.00	L/s	Uncontrolled Release Rate =	2.91	L/s	Total Design Flow	100.00	L/s
		Max. Required Storage =	128.27	m^3						

Time (min)	Rainfall Intensity (mm/hr)	Storm Runoff (m^3/s)	Runoff Volume (m^3)	Target Release Volume (m^3)	Total Required Storage Volume (m^3)	Storm Runoff (m^3/s)	Runoff Volume (m^3)
15.0	59.9	0.243	218.27	90.00	128.27	0.0029	2.62
20.0	50.2	0.203	243.76	120.00	123.75	0.0024	2.93
25.0	43.4	0.176	263.75	150.00	113.75	0.0021	3.17
30.0	38.4	0.156	280.22	180.00	100.22	0.0019	3.36
35.0	34.6	0.140	294.25	210.00	84.25	0.0017	3.53
40.0	31.5	0.128	306.50	240.00	66.50	0.0015	3.68
45.0	29.0	0.118	317.39	270.00	47.39	0.0014	3.81
50.0	26.9	0.109	327.20	300.00	27.20	0.0013	3.93
55.0	25.2	0.102	336.14	330.00	6.14	0.0012	4.04
60.0	23.6	0.096	344.37	360.00	0.00	0.0011	4.13
65.0	22.3	0.090	351.99	390.00	0.00	0.0011	4.23
70.0	21.1	0.085	359.10	420.00	0.00	0.0010	4.31
75.0	20.1	0.081	365.77	450.00	0.00	0.0010	4.39
80.0	19.1	0.078	372.04	480.00	0.00	0.0009	4.47
85.0	18.3	0.074	377.98	510.00	0.00	0.0009	4.54
90.0	17.5	0.071	383.62	540.00	0.00	0.0009	4.61
95.0	16.9	0.068	388.99	570.00	0.00	0.0008	4.67
100.0	16.2	0.066	394.11	600.00	0.00	0.0008	4.73
105.0	15.6	0.063	399.02	630.00	0.00	0.0008	4.79
110.0	15.1	0.061	403.72	660.00	0.00	0.0007	4.85
115.0	14.6	0.059	408.24	690.00	0.00	0.0007	4.90
120.0	14.2	0.057	412.60	720.00	0.00	0.0007	4.95
125.0	13.7	0.056	416.80	750.00	0.00	0.0007	5.00
130.0	13.3	0.054	420.86	780.00	0.00	0.0006	5.05
135.0	13.0	0.052	424.79	810.00	0.00	0.0006	5.10
140.0	12.6	0.051	428.60	840.00	0.00	0.0006	5.15
145.0	12.3	0.050	432.29	870.00	0.00	0.0006	5.19
150.0	12.0	0.048	435.87	900.00	0.00	0.0006	5.23
155.0	11.7	0.047	439.36	930.00	0.00	0.0006	5.27
160.0	11.4	0.046	442.75	960.00	0.00	0.0006	5.32
165.0	11.1	0.045	446.05	990.00	0.00	0.0005	5.35
170.0	10.9	0.044	449.27	1020.00	0.00	0.0005	5.39
175.0	10.6	0.043	452.41	1050.00	0.00	0.0005	5.43
180.0	10.4	0.042	455.48	1080.00	0.00	0.0005	5.47
185.0	10.2	0.041	458.47	1110.00	0.00	0.0005	5.50
190.0	10.0	0.040	461.40	1140.00	0.00	0.0005	5.54
195.0	9.8	0.040	464.26	1170.00	0.00	0.0005	5.57
200.0	9.6	0.039	467.06	1200.00	0.00	0.0005	5.61
205.0	9.4	0.038	469.81	1230.00	0.00	0.0005	5.64
210.0	9.3	0.037	472.50	1260.00	0.00	0.0005	5.67
215.0	9.1	0.037	475.14	1290.00	0.00	0.0004	5.70
220.0	8.9	0.036	477.72	1320.00	0.00	0.0004	5.74
225.0	8.8	0.036	480.26	1350.00	0.00	0.0004	5.77
230.0	8.6	0.035	482.75	1380.00	0.00	0.0004	5.80
235.0	8.5	0.034	485.20	1410.00	0.00	0.0004	5.82
240.0	8.4	0.034	487.61	1440.00	0.00	0.0004	5.85
245.0	8.2	0.033	489.97	1470.00	0.00	0.0004	5.88
250.0	8.1	0.033	492.29	1500.00	0.00	0.0004	5.91
255.0	8.0	0.032	494.58	1530.00	0.00	0.0004	5.94
260.0	7.9	0.032	496.83	1560.00	0.00	0.0004	5.96
265.0	7.8	0.031	499.04	1590.00	0.00	0.0004	5.99
270.0	7.6	0.031	501.22	1620.00	0.00	0.0004	6.02
275.0	7.5	0.031	503.37	1650.00	0.00	0.0004	6.04
280.0	7.4	0.030	505.48	1680.00	0.00	0.0004	6.07
285.0	7.3	0.030	507.57	1710.00	0.00	0.0004	6.09
290.0	7.2	0.029	509.62	1740.00	0.00	0.0004	6.12
295.0	7.1	0.029	511.65	1770.00	0.00	0.0003	6.14

ARCADIS

Prepared By: AB

Modified Rational Method - 100 Year Storm
Site Flow and Storage Summary

2620 Chalkwell Close

145258

November-2023

100 Yr Design Storm		A1Post Controlled			A2Post Uncontrolled			Flow Summary		
a=	1450.00	Area=	**1.91**	ha	Area=	**0.07**	ha			
b=	0.780	"C" =	**0.76**		"C" =	**0.25**				
c=	4.90	AC1=	**1.46**		AC1=	**0.02**				
I=	A/(T+c)^b	Tc =	**15.00**	min	Tc =	**15.00**	min			
		Time Increment =	**5.00**	min	Time Increment =	**5.00**	min	**Target Flow**	**187.96**	L/s
		Orifice Controlled Flow =	**125.67**	L/s	Uncontrolled Release Rate =	**6.84**	L/s	**Total Design Flow**	**125.67**	L/s
		Max. Required Storage =	**435.41**	m^3						

Time (min)	Rainfall Intensity (mm/hr)	Storm Runoff (m^3/s)	Runoff Volume (m^3)	Target Release Volume (m^3)	Total Required Storage Volume (m^3)	Storm Runoff (m^3/s)	Runoff Volume (m^3)
15.0	140.7	0.570	512.72	113.11	399.61	0.0068	6.16
20.0	118.1	0.478	573.97	150.81	423.16	0.0057	6.89
25.0	102.4	0.415	622.02	188.51	433.51	0.0050	7.47
30.0	90.8	0.368	661.62	226.21	435.41	0.0044	7.94
35.0	81.8	0.331	695.35	263.91	431.43	0.0040	8.35
40.0	74.6	0.302	724.77	301.62	423.15	0.0036	8.70
45.0	68.7	0.278	750.91	339.32	411.59	0.0033	9.01
50.0	63.8	0.258	774.45	377.02	397.43	0.0031	9.30
55.0	59.6	0.241	795.90	414.72	381.18	0.0029	9.55
60.0	56.0	0.227	815.63	452.42	363.20	0.0027	9.79
65.0	52.8	0.214	833.90	490.13	343.77	0.0026	10.01
70.0	50.0	0.203	850.93	527.83	323.10	0.0024	10.22
75.0	47.6	0.193	866.89	565.53	301.36	0.0023	10.41
80.0	45.4	0.184	881.93	603.23	278.70	0.0022	10.59
85.0	43.4	0.176	896.14	640.93	255.21	0.0021	10.76
90.0	41.6	0.168	909.63	678.64	231.00	0.0020	10.92
95.0	40.0	0.162	922.47	716.34	206.13	0.0019	11.07
100.0	38.5	0.156	934.73	754.04	180.69	0.0019	11.22
105.0	37.1	0.150	946.46	791.74	154.72	0.0018	11.36
110.0	35.8	0.145	957.71	829.44	128.27	0.0017	11.50
115.0	34.7	0.140	968.52	867.15	101.38	0.0017	11.63
120.0	33.6	0.136	978.93	904.85	74.09	0.0016	11.75
125.0	32.6	0.132	988.98	942.55	46.43	0.0016	11.87
130.0	31.6	0.128	998.68	980.25	18.42	0.0015	11.99
135.0	30.7	0.124	1008.06	1017.96	0.00	0.0015	12.10
140.0	29.9	0.121	1017.15	1055.66	0.00	0.0015	12.21
145.0	29.1	0.118	1025.97	1093.36	0.00	0.0014	12.32
150.0	28.4	0.115	1034.53	1131.06	0.00	0.0014	12.42
155.0	27.7	0.112	1042.85	1168.76	0.00	0.0013	12.52
160.0	27.0	0.109	1050.94	1206.47	0.00	0.0013	12.62
165.0	26.4	0.107	1058.83	1244.17	0.00	0.0013	12.71
170.0	25.8	0.105	1066.51	1281.87	0.00	0.0013	12.80
175.0	25.3	0.102	1074.00	1319.57	0.00	0.0012	12.89
180.0	24.7	0.100	1081.32	1357.27	0.00	0.0012	12.98
185.0	24.2	0.098	1088.46	1394.98	0.00	0.0012	13.07
190.0	23.7	0.096	1095.45	1432.68	0.00	0.0012	13.15
195.0	23.3	0.094	1102.28	1470.38	0.00	0.0011	13.23
200.0	22.8	0.092	1108.97	1508.08	0.00	0.0011	13.31
205.0	22.4	0.091	1115.52	1545.78	0.00	0.0011	13.39
210.0	22.0	0.089	1121.93	1583.49	0.00	0.0011	13.47
215.0	21.6	0.087	1128.22	1621.19	0.00	0.0010	13.54
220.0	21.2	0.086	1134.39	1658.89	0.00	0.0010	13.62
225.0	20.9	0.084	1140.44	1696.59	0.00	0.0010	13.69
230.0	20.5	0.083	1146.38	1734.29	0.00	0.0010	13.76
235.0	20.2	0.082	1152.22	1772.00	0.00	0.0010	13.83
240.0	19.9	0.080	1157.95	1809.70	0.00	0.0010	13.90
245.0	19.5	0.079	1163.59	1847.40	0.00	0.0010	13.97
250.0	19.2	0.078	1169.13	1885.10	0.00	0.0009	14.04
255.0	19.0	0.077	1174.58	1922.80	0.00	0.0009	14.10
260.0	18.7	0.076	1179.94	1960.51	0.00	0.0009	14.17
265.0	18.4	0.075	1185.22	1998.21	0.00	0.0009	14.23

ARCADIS

Prepared By: AB

Orifice Control

2620 Chalkwell Close

145258

November-2023

ORIFICE PIPE

$$Q = C \times A \times \sqrt{2 \times g \times h}$$

Storm Event	Orifice Coefficient	Diameter of Orifice	Orifice Invert	Headwater Elevation	Total Head	Area of Orifice	Release Rate
		(mm)	(m)	(m)	(m)	(m^2)	(L/s)
2-Year	0.82	200	129.59	**130.46**	0.77	0.031	**100.00**
5-Year	0.82	200	129.59	**130.53**	0.85	0.031	**105.00**
10-Year	0.82	200	129.59	**130.62**	0.93	0.031	**110.00**
25-Year	0.82	200	129.59	**130.70**	1.02	0.031	**115.00**
50-Year	0.82	200	129.59	**130.79**	1.11	0.031	**120.00**
100-Year	0.82	200	129.59	**130.90**	1.21	0.031	**125.67**

ARCADIS

Prepared By: AB

Water Quality Calculations

2620 Chalkwell Close

145258

November-2023

Surface	Method	Effective TSS Removal	Area (ha)	% Area of Site	Overall TSS Removal
Conventional Roof	Inherent	80%	0.86	31%	25%
Landscaped	Inherent	80%	0.40	14%	12%
Paved Controlled	OGS	80%	1.51	54%	44%
Total			**2.77**	**100%**	**81%**

Appendix C

Sanitary Data

2620 Chalkwell Close

Townhouse Development

Sanitary Sewer Design Sheet

NOTES: Post-development domestic sewage flow based upon a unit flow of 290 Lpcd.
Maximum flow velocity for pipe flowing full = 3.0 m/s.
Minimum flow velocity for pipe flowing partially full (actual flow) = 0.75 m/s.

Infiltration=	0.20 L/s/ha	(0.26 L/s/ha for existing land)		
Infiltration=	3.00 L/s/ha	LPCD=	290.000	(residential)
Mannings=	0.013	LPCD=	270.000	(non-residential)

Project Name: 2620 Chalkwell Close
Project Number: 145258
Date: Nov 2023
Designed By: Anisa Bhatti, EIT

	From	To	DESIGN FLOW CALCULATIONS: Area (ha)	Density	Population	Cumulative Area (ha)	Cumulative Population	Peaking Factor	Sewage Flow (L/s) (1)	Infiltration Flow (L/s) (2)	Ground Water (L/s) (3)	Total Flow, Qd (L/s) (1)+(2)+(3)	SEWER DESIGN & ANALYSIS: Nominal Diameter (mm)	Pipe Slope (%)	Pipe Length (m)	Full Flow Capacity, Qf (L/s)	Full Flow Velocity (m/s)	Actual Velocity V (m/s)	Percent of Full Flow (%)	Notes
Pre-Development																				
			1.99		200	1.99	200	4.15	2.59	0.52	0.0	**3.10**								
Post-Development	**Services**																			
			1.99		612	1.99	612	3.93	8.07	0.40	0.0	**8.50**	200	0.6%	1.0	26.5	0.82	0.73	32.1%	

Pre-Development

	Students	Density	Population
School	600 m2	1/3 x # of Students	200
		Pop. =	**200**

Post-Development

	Units	Density(ppl/unit)	Population
Townhouse	180.00	3.4	612
		Pop. =	**612**

Appendix D

Water Data

DOMESTIC WATER DEMAND

ARCADIS

Project: 2620 Chalkwell Close
Proj. # 145258
Date: Nov 2023
Calc'ed by: AB

Note:
Based on the City of St.Catherines Standards, Niagara Region 2021 Water and Wastewater Master Servicing Plan
and the Ontario Building Code, Section 3.1.17.1 "Occupant Load Determination", Table 8.1.17.1.

	Site Component	PROP		
Residential Occupancy Data	Studio / 1 / 1+d bed units	0		
	People per unit	*n/a*		
	2 bed units / 2+D	0		
	People per unit	*n/a*		
	3 bed units	0		
	People per unit	*n/a*		
	4 bed units	0		
	People per unit	*n/a*		
	Townhouse units	180		
	People per unit	*3.4*		

Unit Quantity by Site Component	Water Demand	Units	Equivalent Population (persons)		
Residential Occupancies					
Residential	280	L/person/day	612.0	-	-

Daily Flow Rate (L/d)				
Residential Occupancies				
Residential	171,360.00	171,360.00	0	0
	Total Flow			
Average day (L/d)	**171,360.00**	171,360.00	0.00	0.00
Average day (L/s)	**1.98**	1.98	0.00	0.00
Max. day (L/d)	**342,720.00**	342,720.00	0.00	0.00
Max day (L/s)	**3.97**	3.97	0.00	0.00
Min. hour (L/hr)	**2,856.00**	2,856.00	0.00	0.00
Peak hour (L/hr)	**21,420.00**	21,420.00	0.00	0.00
Peak hour (L/s)	**5.95**	5.95	0.00	0.00

Note:
Based on the Region of Peel Watermain Guidelines and MECP Design Guidelines for Drinking Water Systems Table 3-1: *Peaking Factors*

Peaking Factors			
Land Use	Minimum Hour	Peak Hour	Maximum Day
Residential	0.4	3.00	2.00

FIRE FLOW CALCULATION

ARCADIS

Project: 2620 Chalkwell Close
Date: Nov 2023
Calc'ed by: AB
Proj. # 145258

Fire Resistive Construction:	YES	Site Component:			
The following calculations are for the proposed development and are based on the largest floorplate area. The FUS requires that a minimum water supply source 'F' be provided at 150KPa. The minimum flow 'F' can be calculated as such:	**Total Floor Area**	Largest Floor Area (m2)	581		
		Area Above (m2)	0		
		Area Below (m2)	0		
		Total Floor Area (m2)	581		
$F = 220C\sqrt{A}$	**Flow (F)**	C (dimensionless)	1.5		
		A (m2)	581		
		F (L/min)	8000		
F = Required fire flow L/min	**Reduction Factor**	F (L/min)	8000		
C = Coefficient related to construction		f_1 (dimensionless)	0.85		
A = Total area in m^2		F' = F x f_f (L/min)	6800		
		f_1 = occupancy factor; ie, Residential, f_1 = 0.85; for Retail or Commercial, f_1 = 1.00			
	Sprinkler and Exposure Increase or Decrease	f_2 (sprinkler factor)	0%		
		North Side	0%		
		East Side	5%		
		South Side	15%		
		West Side	20%		
'Calculations, formulas and factors are as per Fire Underwriter's Survey (FUS) Water Supply for Public Fire Protection		f_3	40%		
		f_3 = Exposure factor not to exceed 75%, determined as per FUS Guide Item 4, page 18)			

F' (L/min)	**6800**		
S = F' * f_2 *(L/min)*	**0**		
E = F' * f_3 *(L/min)*	**2720**		

F''=F'-S+E (L/min) rounded to nearest 1,000	**10000**		
F''(L/s)	**167**		
F''(USGPM)	**2650**		

Table 1

Sprinkler Reduction Factor (f_2)		
No Sprkinkler System	Sprinklered	Sprink. + Supervised
0%	30%	50%

Table 2

Construction Type "C" Factor			
Wood Frame	Ordinary Construction	Non-Combustible	Fire Resistive
1.5	1	0.80	0.60

Table 3

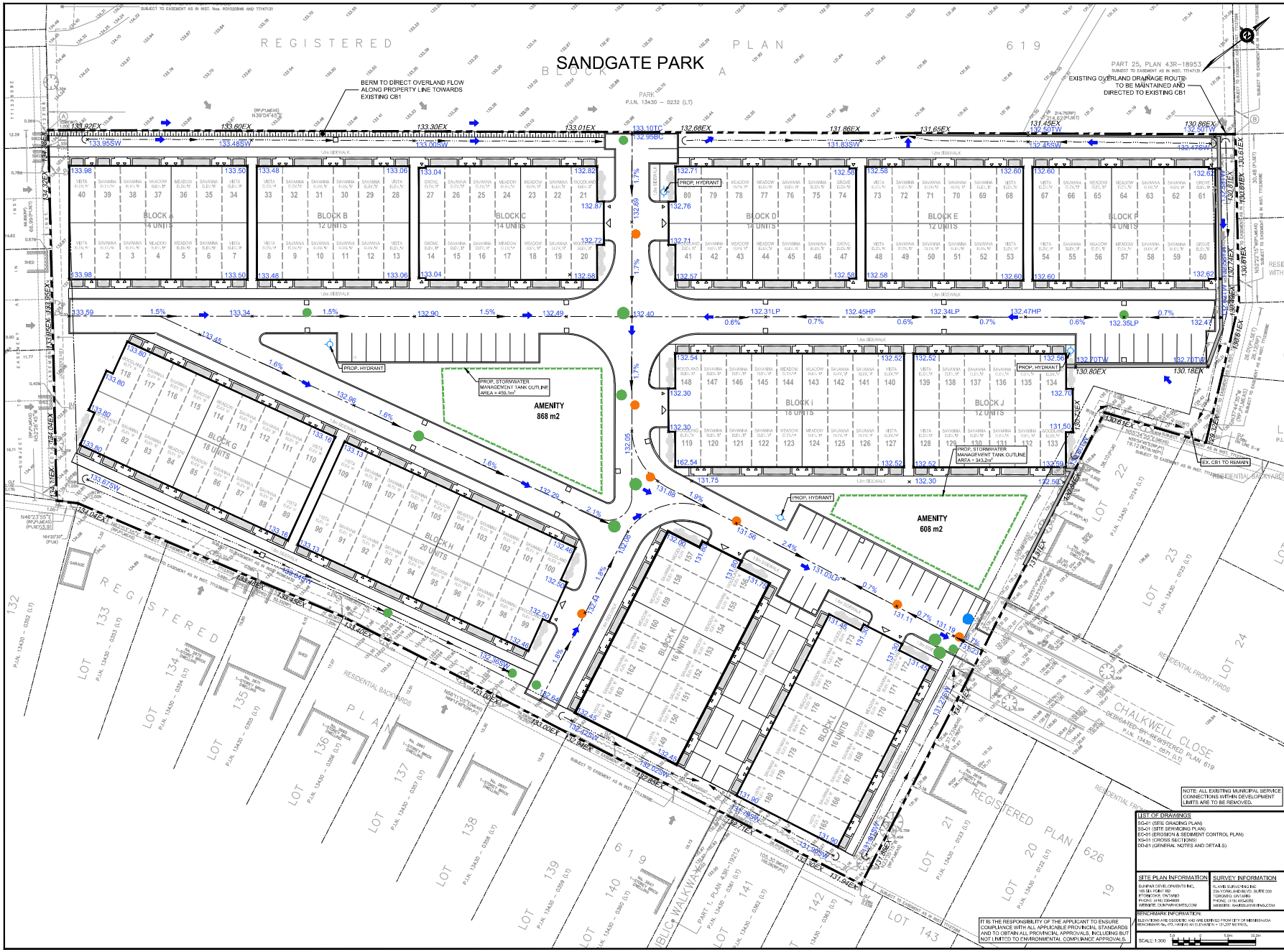
Occupancy Factor (f_1)				
Rapid Burning	Free Burning	Combustible	Limited Combustible	Non-Combust.
25%	15%	0%	-15%	-25%

Table 4

Exposure Charge		
0 to 3m	3.1 to 10m	10.1 to 20m
25%	20%	15%

Appendix E

Engineering Figures



CLIENT

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PHONE: (416) 236-9080

ISSUES

No.	DESCRIPTION	DATE
1.	ISSUE FOR OPA/ZBA SUBMISSION	DEC. 22, 2023

LEGEND

PROPERTY LINE
OUTLINE OF BUILDING AT GROUND LEVEL
PROP. MAIN ENTRANCE / DOOR / O/H DOOR
PROP. OVERLAND FLOW ROUTE
EX. OVERLAND FLOW ROUTE
PROP. SWALE
PROP. STORM MANHOLE
PROP. SANITARY MANHOLE
PROP. CATCH BASIN
EX. STORM MANHOLE
EX. SANITARY MANHOLE
PROP. WATER CHAMBER
PROP. RETAINING WALL
PROP. FIRE HYDRANT
EX. ELEVATION ×165.50EX
PROP. ELEVATION ×149.50
PROP. ELEVATION TOP OF WALL / SWALE ×149.50TW ×149.50SW

KEY PLAN

MISSISSAUGA

ARCADIS

PROJECT

2620 CHALKWELL CLOSE

CITY OF MISSISSAUGA

NOTE: ALL EXISTING MUNICIPAL SERVICE CONNECTIONS WITHIN DEVELOPMENT LIMITS ARE TO BE REMOVED.

LIST OF DRAWINGS

SGA01 (SITE GRADING PLAN)
SS-01 (SITE SERVICING PLAN)
EC-01 (EROSION & SEDIMENT CONTROL PLAN)
XS-01 (CROSS SECTIONS)
DD-01 (GENERAL NOTES AND DETAILS)

SITE PLAN INFORMATION	SURVEY INFORMATION
DUNPAR DEVELOPMENTS INC. 105 SIX POINT RD ETOBICOKE, ONTARIO PHONE: (416) 236-9080 WEBSITE: DUNPARHOMES.COM	R. AVIS SURVEYING INC. 206 YORKLAND BLVD, SUITE 205 TORONTO, ONTARIO PHONE: (416) 493-8256 WEBSITE: RAVISSURVEYING.COM

BENCHMARK INFORMATION:
ELEVATIONS ARE GEODETIC AND ARE DERIVED FROM CITY OF MISSISSAUGA BENCHMARK No. 173, HAVING AN ELEVATION = 121.237 METRES.

SCALE: 1:300

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PROJECT NO: 145258	
DRAWN BY: AB	CHECKED BY: NG
PROJECT MGR: NG	APPROVED BY: SN

SHEET TITLE

SITE GRADING PLAN

SHEET NUMBER SG-01 | ISSUE 01

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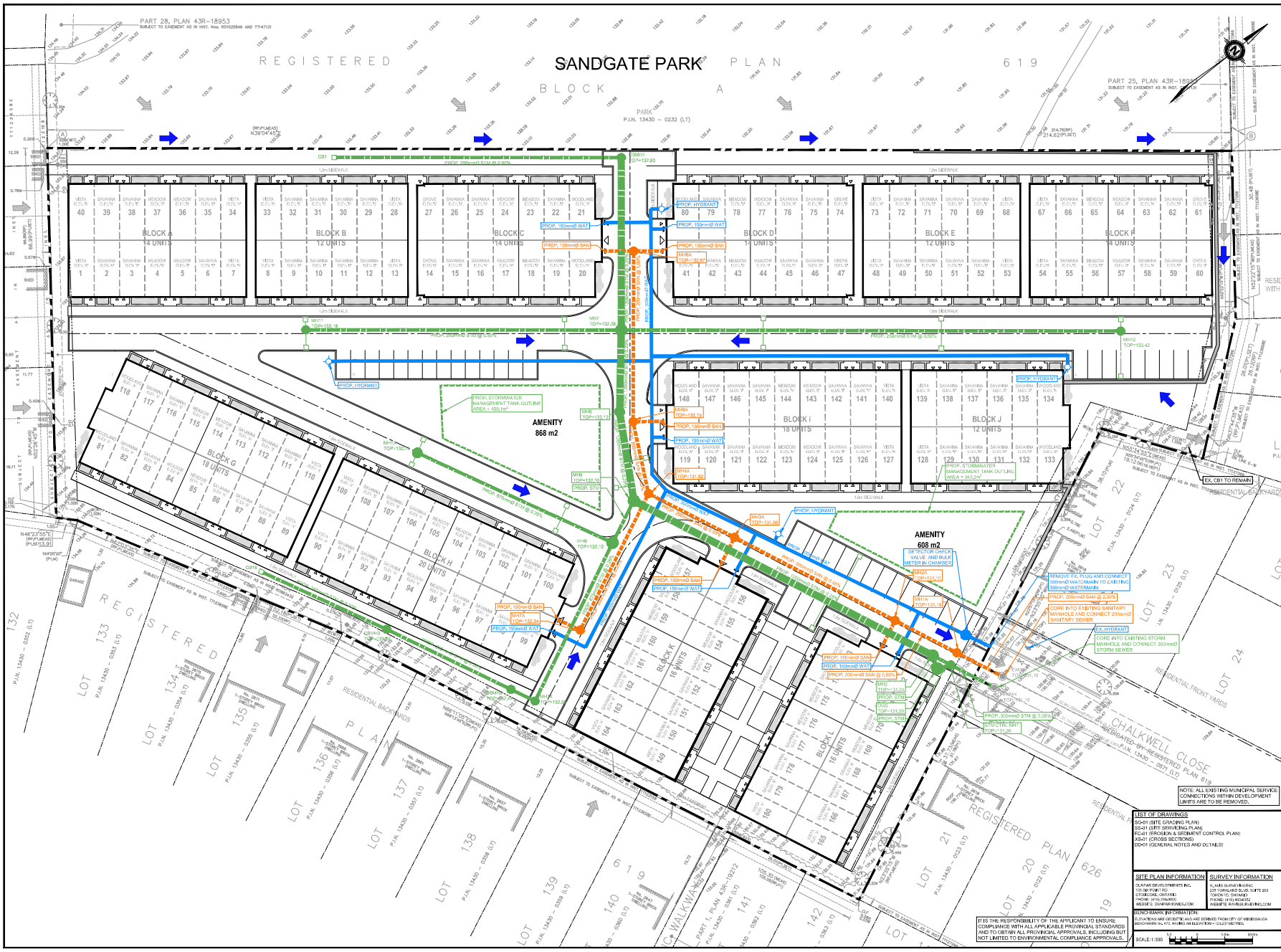

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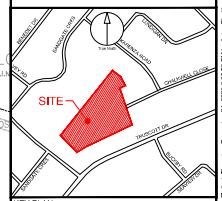
ISSUES

NO.	DESCRIPTION	DATE
1.	ISSUE FOR OPA/ZBA SUBMISSION	DEC. 22, 2023

LEGEND

PROPERTY LINE
OUTLINE OF BUILDING AT GROUND LEVEL
PROP. MAIN ENTRANCE / DOOR / DH DOOR
PROP. OVERLAND FLOW ROUTE
EX. OVERLAND FLOW ROUTE
PROP. SWALE
PROP. STORM MANHOLE
PROP. SANITARY MANHOLE
PROP. CATCH BASIN
EX. STORM MANHOLE
EX. SANITARY MANHOLE
PROP. WATER CHAMBER
PROP. RETAINING WALL
PROP. FIRE HYDRANT
PROP. STORM SEWER
PROP. SANITARY SEWER
PROP. WATERMAIN

KEY PLAN



LIST OF DRAWINGS

SG-01 (SITE GRADING PLAN)
SS-01 (SITE SERVICING PLAN)
EC-01 (EROSION & SEDIMENT CONTROL PLAN)
XS-01 (CROSS SECTIONS)
DD-01 (GENERAL NOTES AND DETAILS)

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BENCHMARK INFORMATION:

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SCALE: 1:300

MISSISSAUGA

ARCADIS

PROJECT

2620 CHALKWELL CLOSE

CITY OF MISSISSAUGA

PROJECT NO:	145258
DRAWN BY:	AB
CHECKED BY:	NG
PROJECT MGR:	NG
APPROVED BY:	SN

SHEET TITLE

SITE SERVICING PLAN

SHEET NUMBER	ISSUE
SS-01	01

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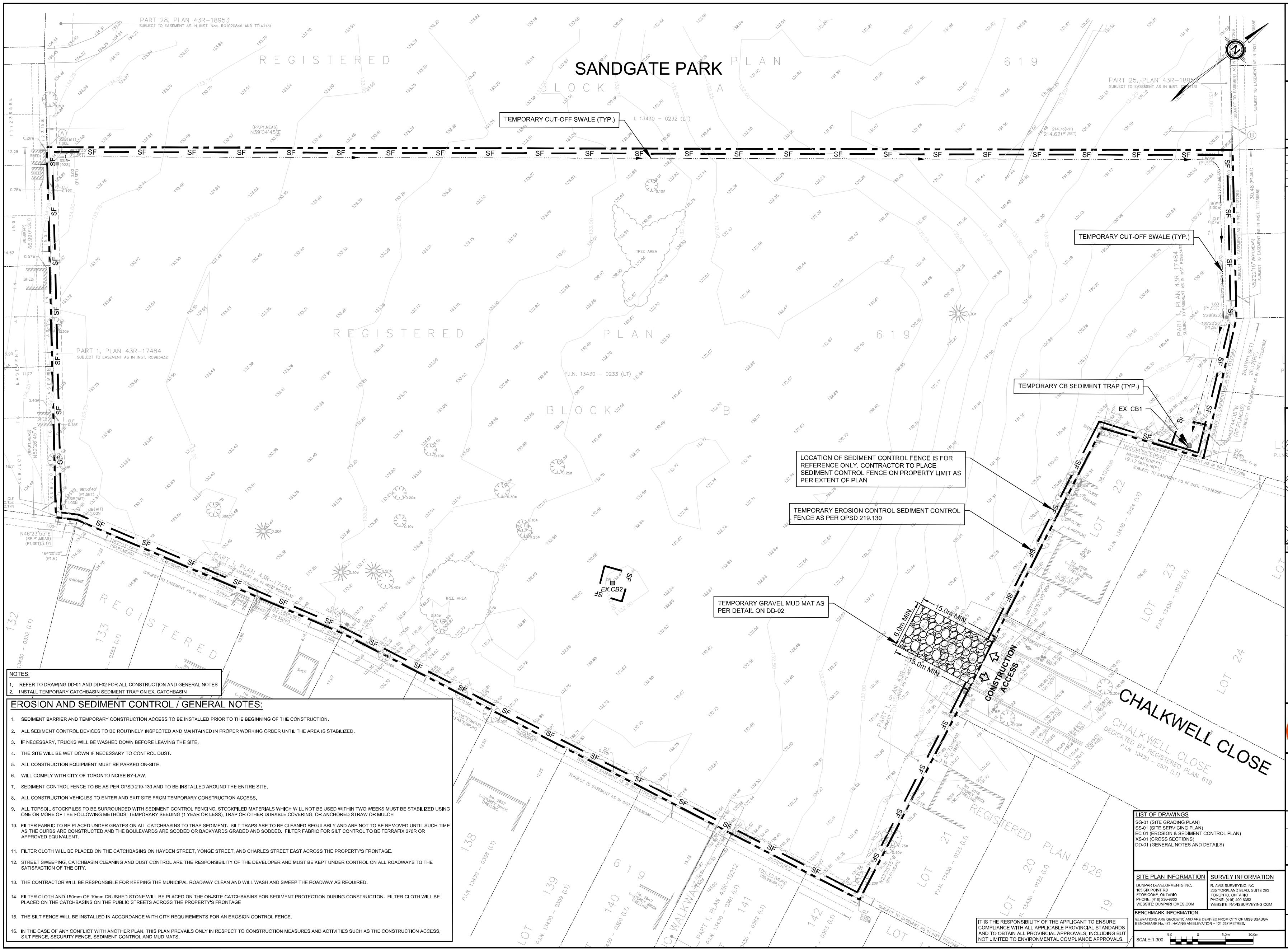

NOTES:

1. REFER TO DRAWING DD-01 AND DD-02 FOR ALL CONSTRUCTION AND GENERAL NOTES
2. INSTALL TEMPORARY CATCHBASIN SEDIMENT TRAP ON EX. CATCHBASIN

EROSION AND SEDIMENT CONTROL / GENERAL NOTES:

1. SEDIMENT BARRIER AND TEMPORARY CONSTRUCTION ACCESS TO BE INSTALLED PRIOR TO THE BEGINNING OF THE CONSTRUCTION.
2. ALL SEDIMENT CONTROL DEVICES TO BE ROUTINELY INSPECTED AND MAINTAINED IN PROPER WORKING ORDER UNTIL THE AREA IS STABILIZED.
3. IF NECESSARY, TRUCKS WILL BE WASHED DOWN BEFORE LEAVING THE SITE.
4. THE SITE WILL BE WET DOWN IF NECESSARY TO CONTROL DUST.
5. ALL CONSTRUCTION EQUIPMENT MUST BE PARKED ON-SITE.
6. WILL COMPLY WITH CITY OF TORONTO NOISE BY-LAW.
7. SEDIMENT CONTROL FENCE TO BE AS PER OPSD 219-130 AND TO BE INSTALLED AROUND THE ENTIRE SITE.
8. ALL CONSTRUCTION VEHICLES TO ENTER AND EXIT SITE FROM TEMPORARY CONSTRUCTION ACCESS.
9. ALL TOPSOIL STOCKPILES TO BE SURROUNDED WITH SEDIMENT CONTROL FENCING. STOCKPILED MATERIALS WHICH WILL NOT BE USED WITHIN TWO WEEKS MUST BE STABILIZED USING ONE OR MORE OF THE FOLLOWING METHODS: TEMPORARY SEEDING (1 YEAR OR LESS), TRAP OR OTHER DURABLE COVERING, OR ANCHORED STRAW OR MULCH
10. FILTER FABRIC TO BE PLACED UNDER GRATES ON ALL CATCHBASINS TO TRAP SEDIMENT. SILT TRAPS ARE TO BE CLEANED REGULARLY AND ARE NOT TO BE REMOVED UNTIL SUCH TIME AS THE CURBS ARE CONSTRUCTED AND THE BOULEVARDS ARE SODDED OR BACKYARDS GRADED AND SODDED. FILTER FABRIC FOR SILT CONTROL TO BE TERRAFIX 270R OR APPROVED EQUIVALENT.
11. FILTER CLOTH WILL BE PLACED ON THE CATCHBASINS ON HAYDEN STREET, YONGE STREET, AND CHARLES STREET EAST ACROSS THE PROPERTY'S FRONTAGE.
12. STREET SWEEPING, CATCHBASIN CLEANING AND DUST CONTROL ARE THE RESPONSIBILITY OF THE DEVELOPER AND MUST BE KEPT UNDER CONTROL ON ALL ROADWAYS TO THE SATISFACTION OF THE CITY.
13. THE CONTRACTOR WILL BE RESPONSIBLE FOR KEEPING THE MUNICIPAL ROADWAY CLEAN AND WILL WASH AND SWEEP THE ROADWAY AS REQUIRED.
14. FILTER CLOTH AND 150mm OF 19mm CRUSHED STONE WILL BE PLACED ON THE ON-SITE CATCHBASINS FOR SEDIMENT PROTECTION DURING CONSTRUCTION. FILTER CLOTH WILL BE PLACED ON THE CATCHBASINS ON THE PUBLIC STREETS ACROSS THE PROPERTY'S FRONTAGE
15. THE SILT FENCE WILL BE INSTALLED IN ACCORDANCE WITH CITY REQUIREMENTS FOR AN EROSION CONTROL FENCE.
16. IN THE CASE OF ANY CONFLICT WITH ANOTHER PLAN, THIS PLAN PREVAILS ONLY IN RESPECT TO CONSTRUCTION MEASURES AND ACTIVITIES SUCH AS THE CONSTRUCTION ACCESS, SILT FENCE, SECURITY FENCE, SEDIMENT CONTROL AND MUD MATS.

IT IS THE RESPONSIBILITY OF THE APPLICANT TO ENSURE COMPLIANCE WITH ALL APPLICABLE PROVINCIAL STANDARDS AND TO OBTAIN ALL PROVINCIAL APPROVALS, INCLUDING BUT NOT LIMITED TO ENVIRONMENTAL COMPLIANCE APPROVALS.

LIST OF DRAWINGS

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SITE PLAN INFORMATION

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BENCHMARK INFORMATION:

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1:300

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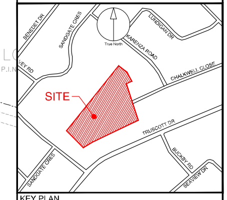
No.	DESCRIPTION	DATE
1.	ISSUE FOR OPA/ZBA SUBMISSION	DEC. 22, 2023

LEGEND

PROPERTY LINE	— - - —
TEMPORARY SEDIMENT CONTROL FENCE	— SF —
TEMPORARY CONSTRUCTION ACCESS	⇦
TEMPORARY SEDIMENT TRAP	▤
TEMPORARY GRAVEL MUD MAT	▨
TEMPORARY CUT-OFF SWALE	(— ··· — ··· →



KEY PLAN

S. NISHAT
100156223
Dec 22, 2023

PROJECT

2620 CHALKWELL CLOSE

CITY OF MISSISSAUGA

PROJECT NO:
145258

DRAWN BY:
AB

CHECKED BY:
NG

PROJECT MGR:
NG

APPROVED BY:
SN

SHEET TITLE

EROSION & SEDIMENT CONTROL PLAN

SHEET NUMBER
EC-01

ISSUE
01

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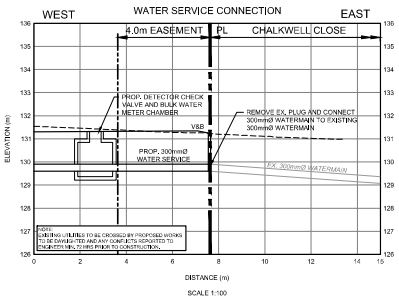

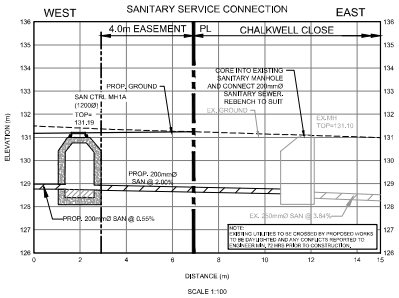

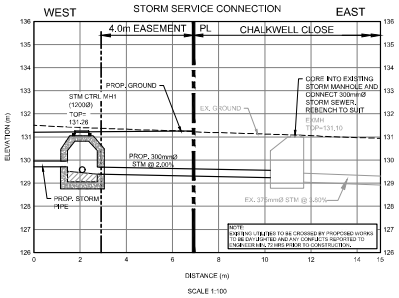

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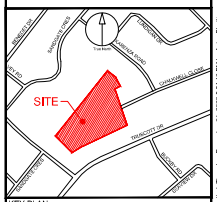
NO.	DESCRIPTION	DATE
1.	ISSUE FOR OPA/ZBA SUBMISSION	DEC. 22, 2023

LEGEND



S. MIDNET
2021/12/22
PROVINCE OF ONTARIO

MISSISSAUGA

ARCADIS

PROJECT

2620 CHALKWELL CLOSE

CITY OF MISSISSAUGA

LIST OF DRAWINGS
SS-01 (SITE GRADING PLAN)
SS-01 (SITE SERVICING PLAN)
EC-01 (EROSION & SEDIMENT CONTROL PLAN)
XS-01 (CROSS SECTIONS)
DD-01 (GENERAL NOTES AND DETAILS)

PROJECT NO: 145258	
DRAWN BY: AB	CHECKED BY: NG
PROJECT MGR: NG	APPROVED BY: SN

SITE PLAN INFORMATION
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BENCHMARK INFORMATION:
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SCALE: 1:100

SHEET TITLE

CROSS SECTIONS

SHEET NUMBER XS-01

ISSUE 01

UNLESS OTHERWISE NOTED ON THE DRAWINGS, THE FOLLOWING REQUIREMENTS SHALL APPLY TO THIS PROJECT:

A. GENERAL

1. FOR DIMENSIONS AND DETAILS NOT SHOWN, SEE STANDARD DRAWINGS REFERRED TO ON THESE DRAWINGS.
2. ALL DIMENSIONS TO BE CHECKED BY THE CONTRACTOR FOR ACCURACY PRIOR TO CONSTRUCTION AND ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.
3. ALL CONSTRUCTION INDICATED THUS — IS BY OTHERS UNLESS OTHERWISE NOTED.
4. ALL TIES ARE TO BE TAKEN TO THE CENTRE OF MANHOLES.
5. ALL TRENCHING TO BE DONE IN ACCORDANCE WITH "THE OCCUPATIONAL HEALTH & SAFETY ACT".
6. ALL RECONSTRUCTION, RESTORATION AND RELOCATION TO BE TO THE SATISFACTION OF THE COMMISSIONER OF PUBLIC WORKS, OR DIRECTOR OF INFRASTRUCTURE THROUGHOUT.
7. FOR STORM SEWERS, CLASS B SEWER TRENCH BEDDING IS TO BE USED AS PER CITY STANDARD 2112.080. SEWER BEDDING AND COVER MATERIAL SHALL CONFORM WITH CITY STANDARD 2112.080 AND 2112.100 RESPECTIVELY. IF WATER IS PRESENT IN THE TRENCH EXCAVATION, THEN 19mm CLEAR STONE OR 6mm WASHED CRUSHED GRAVEL IS TO BE USED FOR BEDDING IN ACCORDANCE WITH CITY STANDARDS 2112.110, RESPECTIVELY.
8. WHERE WET OF SOFT TRENCH SUB-GRADE CONDITIONS ARE ENCOUNTERED, FURTHER ON-SITE GEOTECHNICAL ASSESSMENT MAY BE REQUIRED TO DETERMINE OR RE-EXAMINE THE APPROPRIATE BEDDING IN ORDER TO STABILIZE THE SUB-GRADE FOR SEWER CONSTRUCTION (ie. INCREASE IN BEDDING THICKNESS, STONE IMMERSION TECHNIQUES, LEAK PROOFING OR WRAPPING OF SEWER PIPE JOINTS, CLASS A BEDDING, ETC.).
9. TRENCH BACKFILLING SHALL COMPLY WITH THE CITY'S ENGINEERING POLICY STATEMENT. WHERE THE EXCAVATED INORGANIC NATIVE SUBSOIL IS USED FOR TRENCH BACKFILLING, THE BACKFILL SHOULD BE PLACED IN MAXIMUM 200mm THICK LAYERS, AND COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY WITHIN 2% OF OPTIMUM MOISTURE CONTENT.
   THE TOP 1000mm OF THE SUB-GRADE IS TO BE COMPACTED TO A MINIMUM OF 98% OF STANDARD PROCTOR DENSITY 2 TO 3% DRIER THAN OPTIMUM MOISTURE CONTENT.
10. SAND BACKFILL IS REQUIRED ADJACENT TO MANHOLES, CATCHBASINS AND SERVICE CONNECTIONS.
11. CONTRACTOR TO REMAIN ON SPECIFIED TRUCK ROUTE DURING CONSTRUCTION, THIS ROUTE IS TO BE VERIFIED WITH THE ENGINEER BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
12. PROVIDE PROTECTION TO CONTROL MONUMENTS.
13. DESIGN AND INSPECT SHORING, BRACING, AND UNDERPINNING REQUIRED FOR WORK.
14. REMOVAL OF EXISTING PIPE, STRUCTURE AND APPURTENANCES SHALL INCLUDE OFF SITE DISPOSAL.
15. CONTRACTOR TO SUPPLY ENGINEER WITH ALL UNDERGROUND STORM, SANITARY AND WATERMAIN "AS-BUILT" INFORMATION INCLUDING TOP OF APPURTENANCES.
16. ALL MATERIALS AND CONSTRUCTION METHODS MUST CORRESPOND TO THE CURRENT PEEL PUBLIC WORKS STANDARDS AND SPECIFICATIONS.
17. ALL SURFACE DRAINAGE WILL BE SELF CONTAINED, COLLECTED AND DISCHARGED AT A LOCATION TO BE APPROVED PRIOR TO THE ISSUANCE OF A BUILDING PERMIT.
18. THE PORTIONS OF THE DRIVEWAY WITHIN THE MUNICIPAL BOULEVARD WILL BE PAVED BY THE APPLICANT.
19. AT THE ENTRANCE TO THE SITE, THE MUNICIPAL CURB AND SIDEWALK BE CONTINUOUS THROUGH THE DRIVEWAY AND A CURB DEPRESSION WILL BE PROVIDED FOR EACH ENTRANCE.
20. ALL PROPOSED CURBING WITHIN THE MUNICIPAL BOULEVARD AREA FOR THE SITE IS TO SUIT AS FOLLOWS:
    A) FOR ALL SINGLE FAMILY RESIDENTIAL PROPERTIES INCLUDING ON STREET TOWNHOUSES, ALL CURBING IS TO STOP AT THE PROPERTY LIMIT OR THE BACK OF THE MUNICIPAL SIDEWALK, WHICHEVER IS APPLICABLE, OR,
    B) FOR ALL OTHER PROPOSALS INCLUDING INDUSTRIAL, COMMERCIAL AND CONDOMINIUM DEVELOPMENTS, ALL ENTRANCE TO THE SITE ARE TO BE IN ACCORDANCE WITH O.P.S.D. 350.010.
21. ALL EXCESS EXCAVATED MATERIAL WILL BE REMOVED FROM THE SITE.
22. THE APPLICANT WILL BE RESPONSIBLE FOR THE COST OF ANY UTILITY RELOCATIONS NECESSITATED BY THE SITE PLAN.

B. STORM SEWERS (CITY)

1. ALL STORM SEWERS SHALL BE IN ACCORDANCE WITH THE CITY OF MISSISSAUGA SPECIFICATIONS AND DETAILS FOR STORM SEWERS.
2. ALL CONCRETE SEWER PIPE UP TO AND INCLUDING 375 mm DIAMETER SHALL BE EQUAL TO C.S.A. SPECIFICATION A251.1, CLASS 3, OR LATEST AMENDMENT.
3. ALL CONCRETE SEWER PIPE 450 mm TO 600 mm DIAMETER SHALL BE EQUAL TO C.S.A. SPECIFICATION A257.2, CLASS 65, OR LATEST AMENDMENT.
4. ALL CONCRETE SEWER PIPE 675 mm DIAMETER AND OVER SHALL BE EQUAL TO C.S.A. SPECIFICATION A257.2, CLASS 50, OR LATEST AMENDMENT OR AS SPECIFIED ON DRAWINGS.
5. ALL ROYAL KOR-FLO RIBBED SEWER PIPE SHALL BE EQUAL TO C.S.A. SPECIFICATION B-182.1-02 AND A.S.T.M. SPECIFICATIONS D-3034-00 AND D-3212-96A(2003) OR LATEST AMENDMENT, UNLESS OTHERWISE NOTED.
6. ALL CATCHBASIN LEADS SHALL BE FITTED WITH APPROVED RUBBER GASKET JOINTS.
7. ALL BACKFILL FOR SEWERS, WATERMAINS AND UTILITIES WITHIN THE ROAD ALLOWANCE MUST BE MECHANICALLY COMPACTED TO 95% STANDARD PROCTOR DENSITY.
8. ALL STORM SEWERS SHALL BE CONSTRUCTED WITH BEDDING IN ACCORDANCE WITH CITY STD. 2112.080 CLASS 'B' UNLESS OTHERWISE NOTED.
9. IF THE ACTUAL TRENCH WIDTH EXCEEDS THE DESIGN WIDTH, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED TO SUPPLY ADDITIONAL BEDDING AND/OR HIGHER CLASS PIPE INCLUDING ALSO THE CONSULTANT COSTS TO REDESIGN AND OBTAIN MUNICIPAL APPROVAL.
10. ALL SEWERS WITH GRADES OF 0.60% OR LESS TO BE CONSTRUCTED WITH LASER AND INSTRUMENT CHECKED PRIOR TO BACKFILLING.
11. WHERE CATCHBASINS ARE LOCATED ON BACKFILLED MATERIAL DUE TO SEWER CONSTRUCTION, SUCH MATERIAL TO BE REPLACED WITH 15 MPa CONCRETE TO SOLID GROUND.
12. SINGLE STREET CATCHBASINS TO BE OPSD 705.010 WITH OPSD. FRAME AND GRATE AS PER OPSD. 704.010, LEAD TO BE 250mm DIA. OR AS SPECIFIED.
13. DOUBLE STREET CATCHBASINS TO BE OPSD 705.020 WITH OPSD. FRAME AND GRATE AS PER OPSD. 704.010, LEAD TO BE 300mm DIA. OR AS SPECIFIED.
14. ALL STORM MANHOLES TO BE AS PER OPSD 701.010, 701.011, 701.012 AND 701.013.
15. ALL MANHOLES TO BE BENCHED THROUGHOUT TO THE OBVERT OF ALL PIPES ON A VERTICAL PROJECTION FROM SPRINGLINE, EXCEPT AS OTHERWISE NOTED.
16. ALL STORM MANHOLES TO HAVE OPSD. 401.010 COVERS.
17. HALF BULKHEADS TO BE INSTALLED IN STORM SEWER OUTLET MANHOLES PRIOR TO CONSTRUCTION AND MAINTAINED TO THE SATISFACTION OF THE CITY OF MISSISSAUGA.

GENERAL NOTES FOR GRADING

A. GENERAL

1. THE ORIGINAL TOPOGRAPHY AND GROUND ELEVATIONS, SERVICING AND SURVEY INFORMATION SHOWN ON THIS PLAN ARE SUPPLIED FOR INFORMATION ONLY. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VERIFY THE ACCURACY OF ALL INFORMATION OBTAINED FROM THIS PLAN, ENGINEERING PLANS OR ELSEWHERE.
2. FOR EXACT LOCATION OF SERVICE CONNECTIONS, STREET APPURTENANCES, DRIVEWAY LOCATIONS AND CATCHBASINS AND LEADS, CONTRACTOR TO REFER TO ENGINEERING PLANS.
3. ALL GROUND SURFACES SHALL BE EVENLY GRADED WITH OUT PONDING AREAS AND WITHOUT LOW POINTS EXCEPT WHERE APPROVED SWALE OR CATCHBASIN OUTLETS ARE PROVIDED.
4. "EX" INDICATES THE FINAL GRADE AT A LOCATION TO BE THE SAME AS THE EXISTING GRADE.
   (AT BOUNDARY POINTS THE EXISTING GRADE IS TAKEN TO BE IMMEDIATELY ADJOINING THE DEVELOPMENT LANDS)
5. FINAL PERIMETER GRADES FOR THE SITE WHERE NOT OTHERWISE SHOWN HEREON SHALL BE COINCIDENT WITH THE ADJOINING PERIMETER GRADES OF AN ADJACENT LOT OR BLOCK WHICH SHALL HAVE BEEN PREVIOUSLY ESTABLISHED BY, OR CONSTRUCTED IN ACCORDANCE WITH A MUNICIPAL SITE PLAN APPROVAL OR DEVELOPER GRADING APPROVAL.
6. EMBANKMENTS FORMED DURING THE GRADING SHALL HAVE THE FOLLOWING MAXIMUM GRADES:
   (A) ADJACENT TO DRIVEWAYS, AND SWALE SIDESLOPES - 3:1 MAXIMUM SLOPE;
   (B) BETWEEN STRUCTURES IN ANY DIRECTION - 3:1 MAXIMUM SLOPE.
7. MAXIMUM DRIVEWAY AND PARKING AREA PAVEMENT GRADES TO BE 5.0%.
8. GRADING AND SODDING OF ADJACENT ROADWAY BOULEVARDS WILL BE PERFORMED IN ACCORDANCE WITH MUNICIPAL SPECIFICATIONS. ALL WATER BOXES, MANHOLE AND CHAMBER COVERS TO BE SET FLUSH WITH FINISHED SOD SURFACE.
9. DRIVEWAY APRON CONSTRUCTION BETWEEN CURB AND STREET LINE TO BE BY CONTRACTOR IN ACCORDANCE WITH MUNICIPAL SPECIFICATIONS.
10. THE BUILDER WILL CONFORM WITH THE CURB CUT LOCATION POLICIES OF THE MUNICIPALITY AND BE RESPONSIBLE FOR ALL RECTIFICATIONS WHICH MAY BE REQUIRED DUE TO DISCREPANCY.
11. ANY TOPSOIL OR ORGANIC MATERIAL CAPABLE OF PRODUCING METHANE WILL BE REMOVED FROM THE SITE OR STOCKPILED FOR LANDSCAPING PURPOSES ONLY.

C. NOTES FOR REGION OF PEEL

GENERAL NOTES

1. LOCATION OF ALL EXISTING UTILITIES IN THE FIELD TO BE ESTABLISHED BY THE CONTRACTOR.
2. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE FOR LOCATES, EXPOSING, SUPPORTING AND PROTECTING OF ALL UNDERGROUND AND OVERHEAD UTILITIES AND STRUCTURES EXISTING AT THE TIME OF CONSTRUCTION IN THE AREA OF HIS WORK, WHETHER SHOWN ON THE PLANS OR NOT, AND FOR ALL REPAIRS AND CONSEQUENCES RESULTING FROM DAMAGE TO SAME.
3. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE TO GIVE 72 HOURS WRITTEN NOTICE TO UTILITIES PRIOR TO CROSSING SUCH UTILITIES, FOR THE PURPOSE OF INSPECTION BY THE CONCERNED UTILITY. THIS INSPECTION WILL BE FOR THE DURATION OF THE CONSTRUCTION, WITH THE CONTRACTOR RESPONSIBLE FOR ALL COSTS ARISING FROM SUCH INSPECTION.
4. ALL MATERIALS AND CONSTRUCTION METHODS MUST CORRESPOND TO THE CURRENT PEEL PUBLIC WORKS STANDARDS AND SPECIFICATIONS.
5. WATERMAIN AND / OR WATER SERVICE MATERIALS 100 mm (4") AND LARGER MUST BE PVC DR18 (AWWA C900) SIZE 50 mm (2") AND SMALLER MUST BE TYPE K SOFT COPPER (ASTM B88-49)
6. WATERMAINS AND / OR WATER 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.
7. 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.
8. ALL CURB STOPS TO BE 3.0 M (10') OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED.
9. HYDRANT AND VALVE SET TO REGION STANDARD 1 - 8 - 1 DIMENSION A AND B, 0.7 M (2') AND 0.3 M (3') AND TO HAVE PUMPER NOZZLE.
10. 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.
11. 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.
12. ALL PROPOSED WATER PIPING MUST BE ISOLATED FROM EXISTING LINES IN ORDER TO ALLOW INDEPENDENT PRESSURE TESTING AND CHLORINATING FROM EXISTING SYSTEMS.
13. 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
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.

LIST OF DRAWINGS

SG-01 (SITE GRADING PLAN)
SS-01 (SITE SERVICING PLAN)
ES-01 (EROSION & SEDIMENT CONTROL PLAN)
XS-01 (CROSS SECTIONS)
DD-01 (GENERAL NOTES AND DETAILS)

SITE PLAN INFORMATION

DUNPAR DEVELOPMENTS INC.
105 SIX POINT RD
ETOBICOKE, ONTARIO
PHONE: (416) 236-9080
WEBSITE: DUNPARHOMES.COM

SURVEY INFORMATION

PLANEX SURVEYING INC.
225 YORKLAND BLVD. SUITE 200
TORONTO, ONTARIO
PHONE: (416) 490-4552
WEBSITE: PLANEXSURVEYING.COM

BENCHMARK INFORMATION:

ELEVATIONS ARE GEODETIC AND ARE DERIVED FROM CITY OF MISSISSAUGA BENCHMARK No. 475, HAVING AN ELEVATION = 147.297 METRES.

SCALE: 1:300 (5.0 0 5.0m 10.0m)

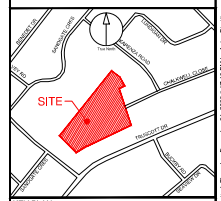
CLIENT

DUNPAR DEVELOPMENTS INC.
105 SIX POINT RD
ETOBICOKE ON. M8Z 2X3
PHONE: (416) 236-9080

ISSUES

No.	DESCRIPTION	DATE
1.	ISSUE FOR OPA/ZBA SUBMISSION	DEC. 22, 2023

LEGEND



MISSISSAUGA

ARCADIS

PROJECT

2620 CHALKWELL CLOSE

CITY OF MISSISSAUGA

PROJECT NO: 145258	
DRAWN BY: AB	CHECKED BY: NG
PROJECT MGR: NG	APPROVED BY: SN

SHEET TITLE

GENERAL NOTES AND DETAILS

SHEET NUMBER	ISSUE
DD-01	01

Plotted: Thursday, December 21, 2023 5:37:10 PM By Alissa Brown
Last Saved: December 21, 2023, by alissa.brown
File Location: J:\Active_2020\C\145258_2620Chalkwell\01_Production\03_Design\04_CAD\Sheets\145258 - SHT - DD.dwg

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