Final Report

FUNCTIONAL SERVICING and STORMWATER MANAGEMENT REPORT

1 Rosetta Street



IBI GROUP FINAL REPORT
FUNCTIONAL SERVICING and STORMWATER MANAGEMENT REPORT
1 Rosetta Street
Prepared for 1 Rosetta Street (Halton Hills) GP Limited

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May 12, 2022 ii

1 Introduction

1.1 Background

IBI Group has been retained by 1 Rosetta Street (Halton Hills) GP Limited to prepare a Functional Servicing Report (FSR) for a proposed multi-use residential building at 1 Rosetta Street in Georgetown (Town of Halton Hills).

The purpose of this report is to development a municipal site servicing strategy (stormwater, sanitary discharge, and water supply). More specifically, the report will present the following:

- Calculate allowable and proposed runoff rates for the development;
- Evaluate suitable methods for attenuation and treatment of stormwater runoff;
- Develop on-site control measures and examine theoretical performance;
- Identify sanitary servicing opportunities and constraints and evaluate the capacity of the receiving municipal sewer.
- Identify water servicing opportunities and constraints, calculate the proposed domestic water and firefighting supply needs; and evaluate the capacity of the municipal infrastructure.

The following documents have been obtained from various sources:

- Halton Region plan and profile drawings for River Drive and John Street;
- Topographic Survey prepared by J. D. Barnes Ltd., dated July 2, 2020; and,
- Architectural plans and site statistics prepared by Icon Architects.

1.2 Existing Site Description

Under the existing conditions, the 1.343-ha site consists of three parcels and is currently used as single family residential and industrial warehouse. The properties will be merged as part of this application. Please see **Figure 1** following the report for an aerial view of the site.

1.3 Site Proposal

The proposed development includes the construction of two (2) twelve-storey residential building and one (1) eight-storey residential building, including proposed underground parking structure, surface level parking, drive aisles and landscaped areas. A preliminary concept plan is provided in **Appendix A**.

2 Terms of Reference and Methodology

2.1 Terms of Reference

The terms of reference used for the scope of this report have been based on the Halton Region Water and Wastewater Linear Design manual, dated April 2019.

2.2 Methodology: Water Supply

The domestic water usage will be calculated based on the following Region of Halton and Ontario Building Code design criteria:

Table 2.1 Water Design Parameters

Domistica I	Danaite:	Peaking Factors				
Population I	Density	Land Use	Peak Hour	Max Day		
1 Bedroom Unit	1.328 people/unit	Residential	4.00	2.25		
2 Bedroom Unit	1.724 people/unit	Residential	4.00	2.25		
Average Daily Demand	275 L/person/day					

Pressure and flow testing to determine the adequacy of the existing watermain to support the development with fire suppression in accordance with the Fire Underwriters Survey (FUS) Guidelines will be discussed in the subsequent sections.

2.3 Methodology: Sanitary Discharge

Pre- and post-development peak sewer flows will be calculated based on the following Halton Region design criteria:

Table 2.2 Sanitary Design Parameters

De	esign Flows	Population	n Densities
275 L/c/day	Proposed Residential	1.328 people / unit	1 Bedroom Units
0.286 L/s/ha	Infiltration Allowance	1.724 people / unit	2 Bedroom Units
Peaking Factor	Harmon Equation		

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

2.4 Methodology: Stormwater Management

As identified in the pre-consultation for the development, stormwater management will be required to be reviewed at the Zoning Application Stage.

Quantity Control

Post-development flows for all storm events are to be attenuated to the corresponding predevelopment levels.

Quality Control

Long-term average removal of 80% of the total suspended solids (TSS) on an annual loading basis must be achieved.

3 Water Supply System

3.1 Existing Water Infrastructure

Per the Region's record information, the following water infrastructure is available in the vicinity of the site:

- 150mm dia. watermain on St. Michaels Street
- 150mm dia. watermain on Caroline Street
- 150mm dia. watermain on Rosetta Street
- 300mm dia, watermain on Rosetta Street
- 300mm dia. watermain on River Drive

Additionally, a variety of fire hydrants are located in proximity of the site:

- Fire Hydrant on River Drive at St. Michael Street
- Fire Hydrant on River Drive (south east corner of the 1 Rosetta St property)
- Fire Hydrant on River Drive (south west corner of the 2 Rosetta St property)
- Fire Hydrant on River Drive at Rosetta Street
- Fire Hydrant on Rosetta Street at Caroline Street

The existing industrial warehouse is serviced via two services extending from the 300mm dia. Watermain along River Drive. The water services are 150mm and 200mm in diameter. The existing residential lots on St Michael Street are serviced via individual service connections to the existing 150mm dia. watermain on St. Michaels Street.

3.2 Domestic Water Supply Demands

Using the criteria set in **Section 2.4** and the site statistics provided by the architect, the Average Day Demand (ADD), Peak Hour Demand (PHD), and Max Day Demand (MDD) have been calculated based on the number of units, as shown in **Table 3.1**.

Table 3.1 Domestic Water Demands

Building	Number of Units	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
Residential – 1 Bedroom	490	651	2.07	8.28	4.66
Residential – 2+ Bedrooms	150	259	0.82	3.29	1.85
Total	640	909	2.89	11.58	6.51

The domestic supply line for the building will be designed based on PHD while maintaining a minimum available pressure of 40 psi (275 kPa) at the face of the building. Please see **Appendix B** for the detailed calculations.

3.3 Fire Supply Demands

The recommended fire flow demand for the subject site has been calculated using the design criteria outlined in the Water Supply for Public Fire Protection Manual, 1999 by the Fire Underwriters Survey (FUS).

As the building will be constructed using fire resistive materials, the effective floor area is taken as the largest floor area plus 25 % of the two adjacent floors.

- Effective Floor Area = Largest Floor Area + 25% (two adjoining floors)
- Effective Floor Area = 3,148 m² + 25% (3,148 m² + 3,148 m²)
- Effective Floor Area = 4,722 m²

The corresponding floor area and FUS factors will be applied as follows:

Table 3.2 Fire Underwriters Survey Factors

Construction	Building	Sprinkler	Proximity
Coefficient	Occupancy	Adjustment	Factor
0.6 (resistive)	- 15 % (limited)	- 30 %	

Using the effective floor area for each building and the appropriate FUS factors, the required fire flow for each building is calculated as follows:

Table 3.3 Fire Demand Calculations

Fire Flow (F) Calculation	Applying FUS factors	Adjusted Fire Flow	Total Demand (TD)
F = 220 · 0.6 √Area	$F_1 = F \cdot 0.85 = 7,650 \text{ L/min}$	Fire Flow = F_1 - F_2 + F_3	TD= FF + MDD
$F = 220 \cdot 0.6 \sqrt{4,722} \text{ m}^2$	$F_2=F_1\cdot 0.30 = 2,295 \text{ L/min}$	FF= 8,000 L/min (rnd'd)	TD= 133.3 L/s + 11.6 L/s
F = 9,000 L/min (rnd'd)	$F_3 = F_1 \cdot 0.30 = 2,295 \text{ L/min}$	FF = 133.3 L/s	TD= 139.8 L/s

The fire supply line for the building will be designed based on Total Demand (Fire Flow + MDD) while maintaining a minimum available pressure of 20 psi (140 kPa) at the face of the building. Please see **Appendix E** for the detailed calculations.

3.4 System Pressure Under Normal Operation

As previously mentioned, the domestic service shall be sized to convey domestic demands under normal system operating conditions (PHD) while maintaining a minimum available pressure of 40 psi (275 kPa). The residual pressure at the building is calculated by first interpolating the PHD residual pressure within the existing watermain, and then subtracting head losses within the system using the Hazen-Williams formula. The following table summarizes the residual pressure for the proposed domestic service:

Table 3.4 Residual Pressure under PHD Conditions

Flow Conditions	PHD	Domestic Service		Pressure @ Main	Residual Pressure @ Bldg.	
Conditions	(L/s)	(mm)	(psi)	(kPa)	(psi)	(kPa)
PHD	11.58	200	64.9	447	64.2	442

As shown above, there is no appreciable head loss within the system, and the residual pressure at the building face is above the minimum acceptable pressure of 40 psi (275 kPa) under PHD conditions. Please see **Appendix B** for the detailed design calculations.

3.5 System Pressure Under Fire Flow

As previously mentioned, the fire service shall be sized to convey the total fire demand (Fire + MDD) while maintaining a minimum available pressure of 20 psi (140 kPa). The residual pressure at the building is calculated by first interpolating the residual pressure within the existing watermain, and then subtracting head losses within the system using the Hazen-Williams formula. The following table summarizes the residual pressure for the proposed fire service:

Table 3.5 Residual Pressure under Fire + MDD Conditions

Flow	Flow FF+MDD Conditions (L/s)			Pressure @ Main	Residual Pressure @ Bldg.	
Conditions	(L/S)	(mm)	(psi)	(psi)	(psi)	(kPa)
FF+MDD	139.8	200	53.2	367	38.1	263

As shown above, the residual pressure at the building face for the fire service is above the minimum acceptable pressure of 20 psi (140 kPa) under fire demand conditions (Fire + MDD). Please see **Appendix B** for the detailed design calculations.

3.6 Water Service Connection

The existing 150 mm and 200 mm water services will be removed, with a new 200 mm fire service and a 150 mm domestic service proposed to service the development.

3.7 Hydrant Coverage

The hydrants along the north side of River Drive along the 1 Rosetta Street property will be relocated and/or decommissioned. As previously mentioned, the building will be sprinklered, therefore, a private hydrant is proposed to be included south of the above ground parking in the centre of the subject site and shall be placed within 45 m of the Siamese connections to satisfy OBC requirements.

Please see drawing **SS-01** for the location of all existing and proposed water infrastructure.

4 Sanitary Drainage System

4.1 Existing Sanitary Drainage System

Per the City's record information, local sanitary infrastructure consists of:

- a 200mm dia. sanitary sewer on St. Michaels Street;
- a 200mm dia. sanitary sewer on Caroline Street; and
- a 250 mm dia. sanitary sewer on Rosetta Street.

Existing sanitary infrastructure is shown on the engineering drawing **SS-01** which can be found in **Appendix E** for reference.

4.2 Pre-Development Sanitary Design Flow

Under existing conditions, the site houses an industrial paper mill and a couple of residential dwellings. Therefore, taking into account infiltration, the pre-development peak sanitary flow are summarized in the table below:

Table 4.1 Pre-Development Sanitary Flows

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Land Use	Area (ha)	Density	Population	K _{av}	Peaking Factor	Sewage/ Industrial Flow (L/s)	Infiltration Flow (L/s)	Total Flow (L/s)	
Industrial	1.3492	125 pp/ha	162	0.81	3.39	0.067	0.386	0.45	
Residential	0.0865	55 pp/ha	5	0.81	3.61	0.015	0.025	0.04	
Total							0.49		

4.3 Post-Development Sanitary Design Flow

Based on the criteria set in **Section 2.3**, the corresponding post-development sanitary sewer flows are summarized below:

Table 4.2 Post-Development Sanitary Flows

Land Use	Area (ha) Number of Units	Density	Population	K _{av}	Peaking Factor	Sanitary Flow (L/s)
Infiltration	1.4356			1	3.83	0.411
1 Bedroom	490 Units	1.328 pp/unit	651	1	3.83	7.936
2+ Bedrooms	150 Units	1.724 pp/unit	259	1	3.83	3.157
	11.504					

As shown above, the post-development sanitary sewer flow is calculated to be 11.504 L/s. Please refer to the detailed design sheet which can be found in **Appendix C**.

4.4 Sanitary Service Connection

It is proposed that a new 250 mm sanitary service at a 1.0% slope be installed from the control manhole at the property line to a new municipal manhole within the River Drive and Rosetta Street intersection. The following table illustrates the peak flow and corresponding capacity of the proposed sanitary service and sewer:

Table 4.3 Sanitary Service Performance

From	То	Pipe Size (mm)	Pipe Slope	Peak Flow (L/s)	Capacity (L/s)	Percent of Full Flow
Cntrl.MH	Existing Manhole	250	1.0 %	11.504	62.0	18.5%

As shown above, the proposed sanitary service and sewer will easily convey the post-development peak sanitary flow while operating at 18.5% or less of full flow capacity. Please see the detailed design sheet which can be found in **Appendix C**, and Drawing **SS-01** which can be found in **Appendix E**.

4.5 Down Stream Analysis

The Sanitary Capacity Review completed by TMIG (February 2022) indicates the sanitary peak flows are 11.1 L/s based on the proposed population density and the Region's sanitary peak flow per capita. Based on the review of the existing system, the sanitary sewer on River Drive has sufficient capacity for the flows anticipated from this development. A memo detailing the Sanitary Capacity Review is included in **Appendix C.**

5 Stormwater Management

5.1 Pre-Development Conditions

Per the City's record information, local storm infrastructure consists of:

- 450mm dia. storm sewer on River Drive (east)
- 250mm dia. storm sewer at the corner of Rosetta Street and Caroline Street
- 300mm dia. storm sewer on River Drive (west)

The site is largely occupied by the existing industrial building and accompanying parking lot.

5.2 Grading

Under pre-development conditions the site topography falls from north to south (Caroline Street to River Drive). The existing loading dock houses a localized low point drained by an existing catch basin, with additional catch basins located to the northeast of the site on Rosetta Street, at the intersection of River Drive and Rosetta Street as well as River Drive and St Michael Street. Drainage in the right-of-way is directed to existing swales along the roadside where it is collected by this storm infrastructure.

The proposed grades will match current drainage patterns and grades will be maintained along property lines to the extent practical. The proposed site plan features a 'woonerf', an open style street, with no curb for ease of movement.

Emergency overland flow route in excess of a 100-year storm event will be directed along the internal roadway to the municipal right-of-way.

5.3 Quantity Control

Under existing conditions, the subject site has a runoff coefficient of 0.85. The proposed development will remove the existing structure and much of the paved area, resulting in a reduction of imperviousness and a runoff coefficient of 0.62 under proposed conditions.

This reduction in imperviousness will result in a reduction of peak, resulting in all post-development peak flows remaining less than or equal to predevelopment peak flows. Impervious areas of preand post-development conditions are summarized below.

Table 5.1 Pre-Development Site Imperviousness

	Area (m³)	Runoff Coefficient	Contributing Coefficient
Conventional Roof	8,269	0.9	0.55
Landscaped Area	1,002	0.25	0.02
Impervious Area	4,301	0.9	0.28
Total	13,572		0.85

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Table 5.2 Post-Development Site Imperviousness

	Area (m³)	Runoff Coefficient	Contributing Coefficient
Conventional Roof	6,271	0.9	0.42
Landscaped Area	4,005	0.25	0.07
Permeable Pavers	3,296	0.55	0.13
Total	13,572		0.62

As demonstrated in the tables above the proposed development will reduce the overall site imperviousness. This will in turn reduce peak flows from the site and mitigate the need for stormwater quantity controls.

5.4 Quality Control

As previously mentioned, 80% TSS removal is required to provide enhanced water cleansing to the site. Parking and drive aisle areas are proposed to be paved with permeable pavers to provide enhanced cleanings to stormwater flows.

5.5 Storm Sewer Connection

A storm sewer network is proposed to be included though the site drive aisle, catch basins will be placed at low points to collect run off and covey flows to the manhole within the River Drive boulevard. Please refer to the detailed design calculations which can be found in **Appendix D**, and the design **Drawing SS-01** which can be found in **Appendix E**.

5.6 Emergency Overflow

Overland flow from the proposed development will continue to be directed to River Drive, St. Michaels Street, Rosetta Street, and Caroline Street.

6 Conclusions and Recommendations

Storm Sewer and Stormwater Management

The proposed development will see a reduction in the imperviousness of the site, this in turn will result in a reduction of peak flows, eliminating the need for stormwater attenuation.

By incorporating inherently clean rooftop, landscape, and pavers, the site will meet the target for quality control.

Sanitary Sewers

As the site represents a manageable increase in sanitary flow, the proposed development can proceed without improvements to the municipal sewer system.

Water Supply

The existing municipal water supply has sufficient capacity to support the proposed fire and domestic water demands without improvements to the system.

Summary

In summary, it can be concluded that the Zoning By- Law Amendment can be supported for the proposed development from both municipal servicing and stormwater management perspectives.

Should you have any questions, please do not hesitate to contact the undersigned. Respectfully Submitted,

IBI Group Canada Inc.



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Figure 1

Aerial Plan

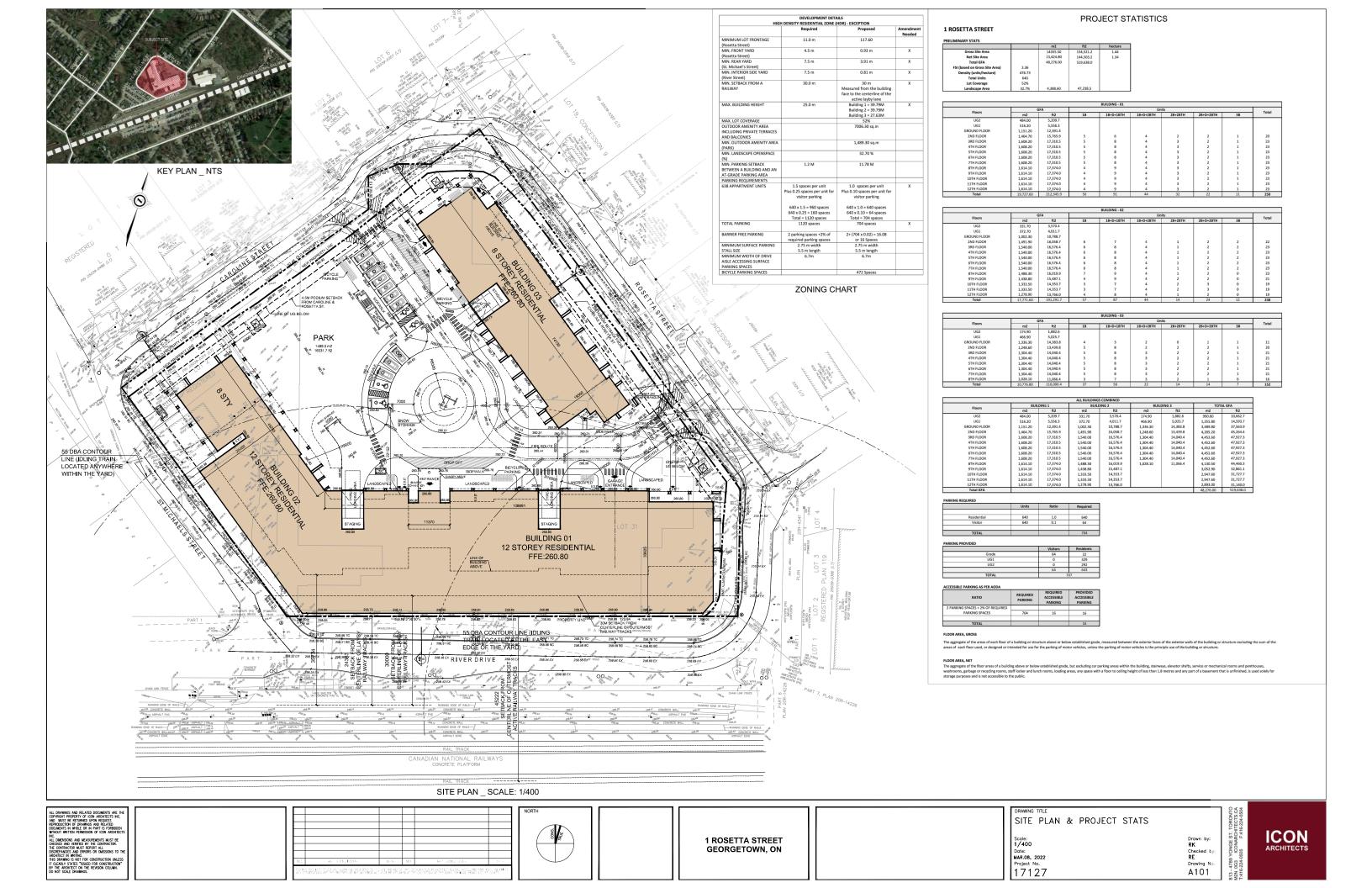
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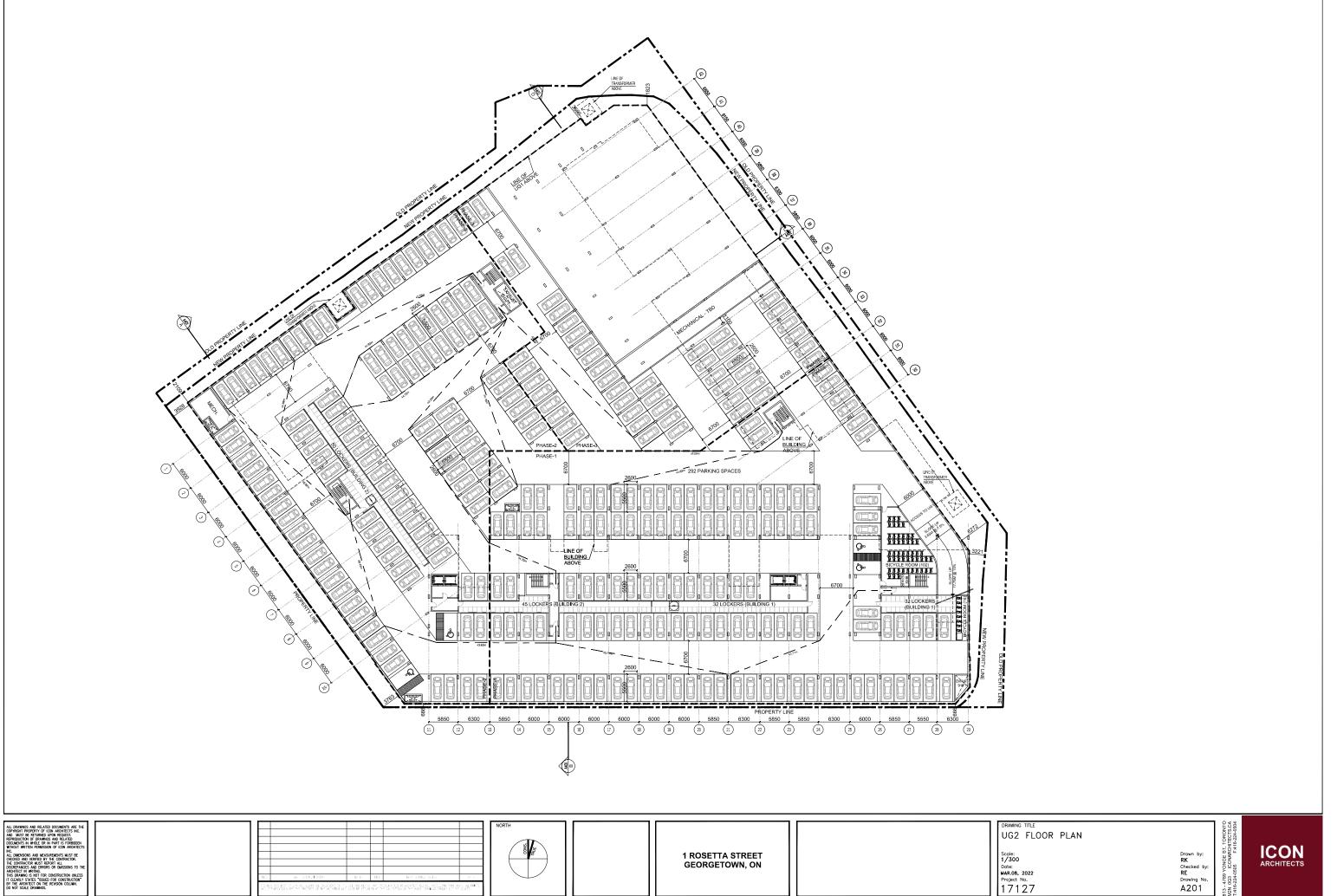
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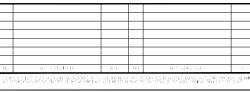
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Appendix A – Background Information

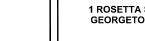
Sample Architectural Drawings (Icon Architects) Plan and Profile Drawings (Region of Halton) Topographic Survey (J.D Barnes)



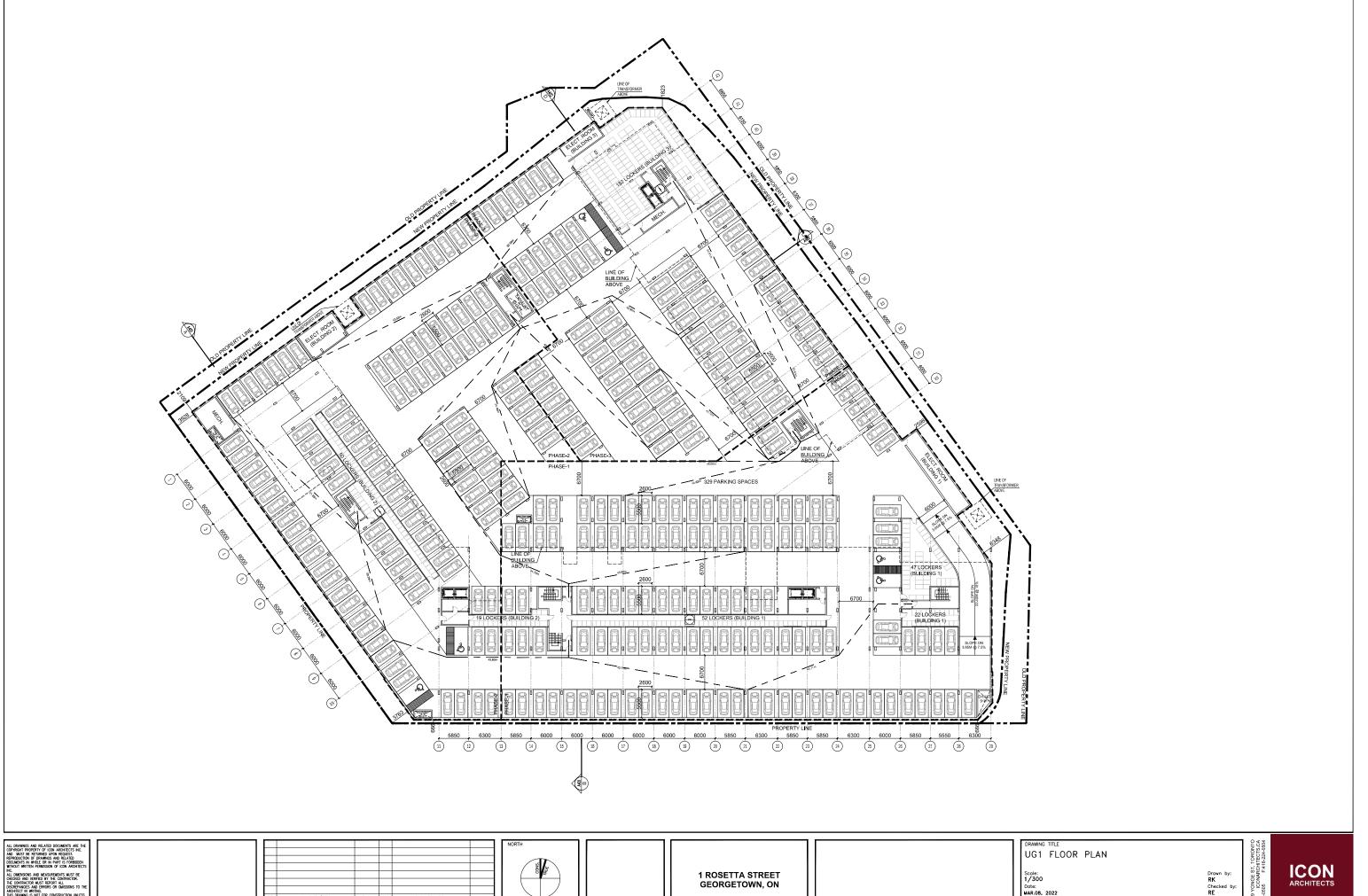


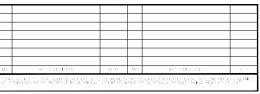






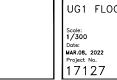


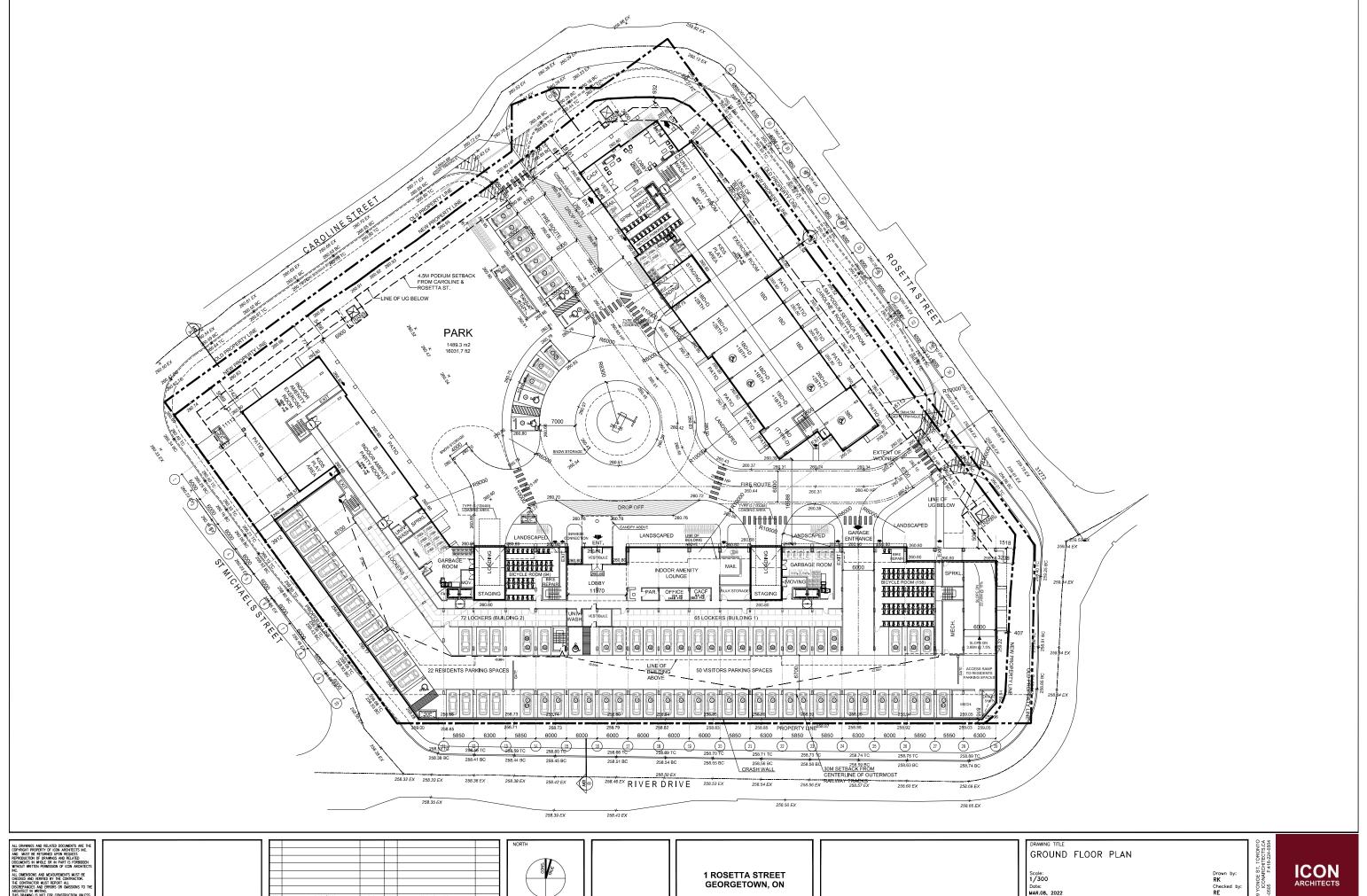


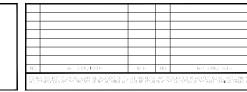










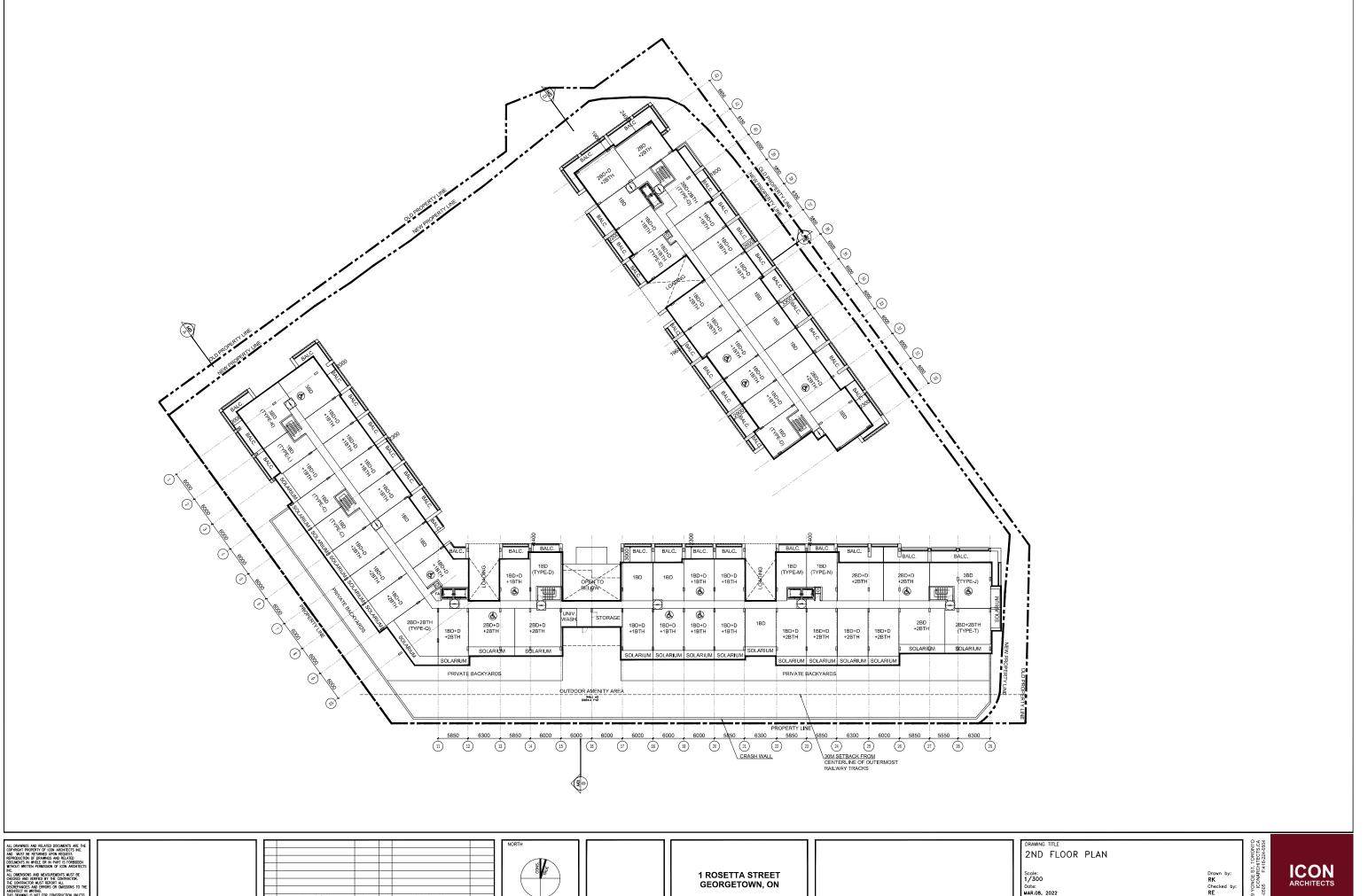


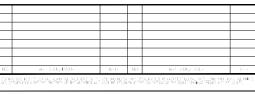




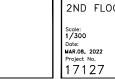


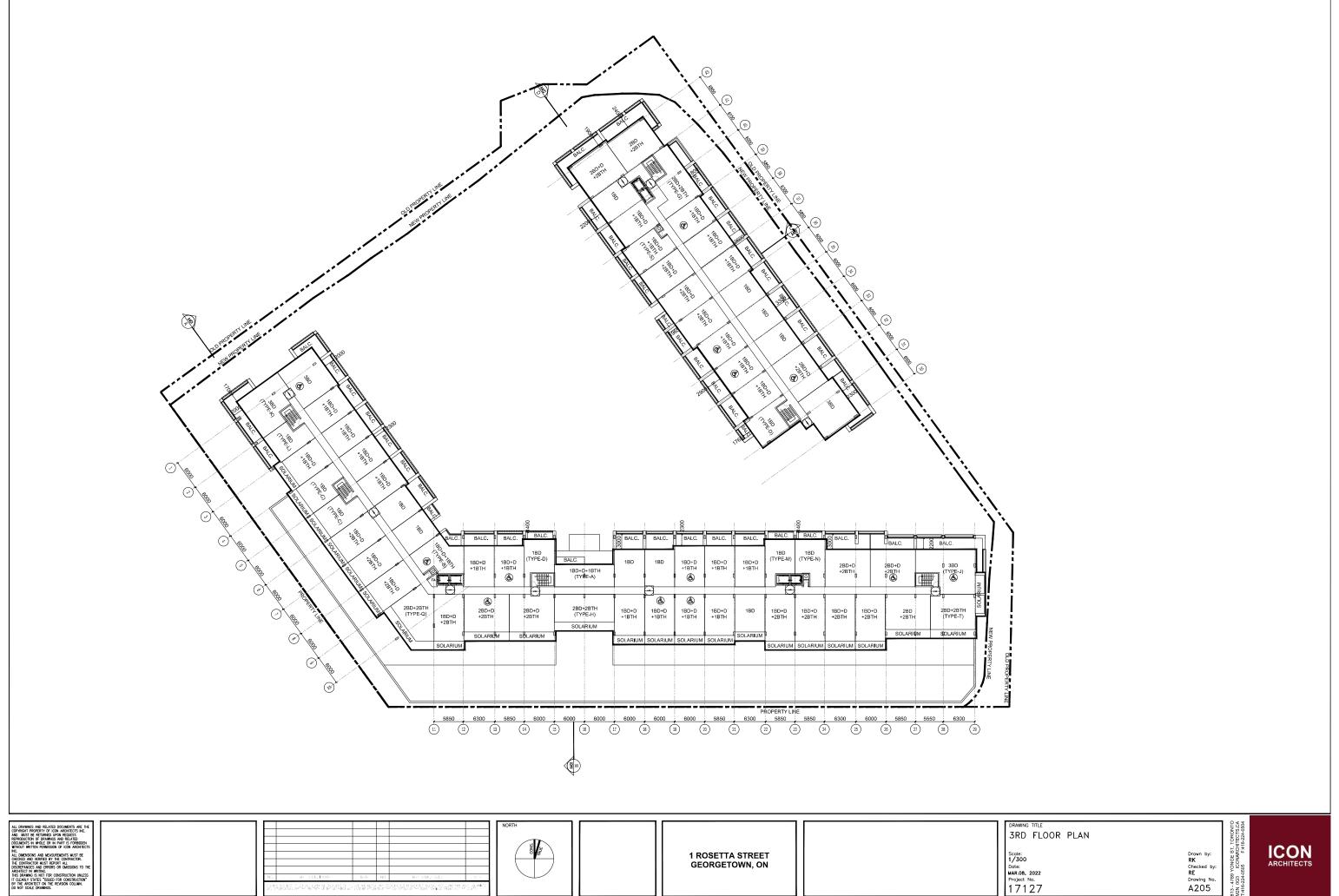
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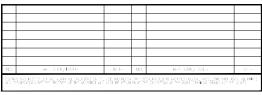










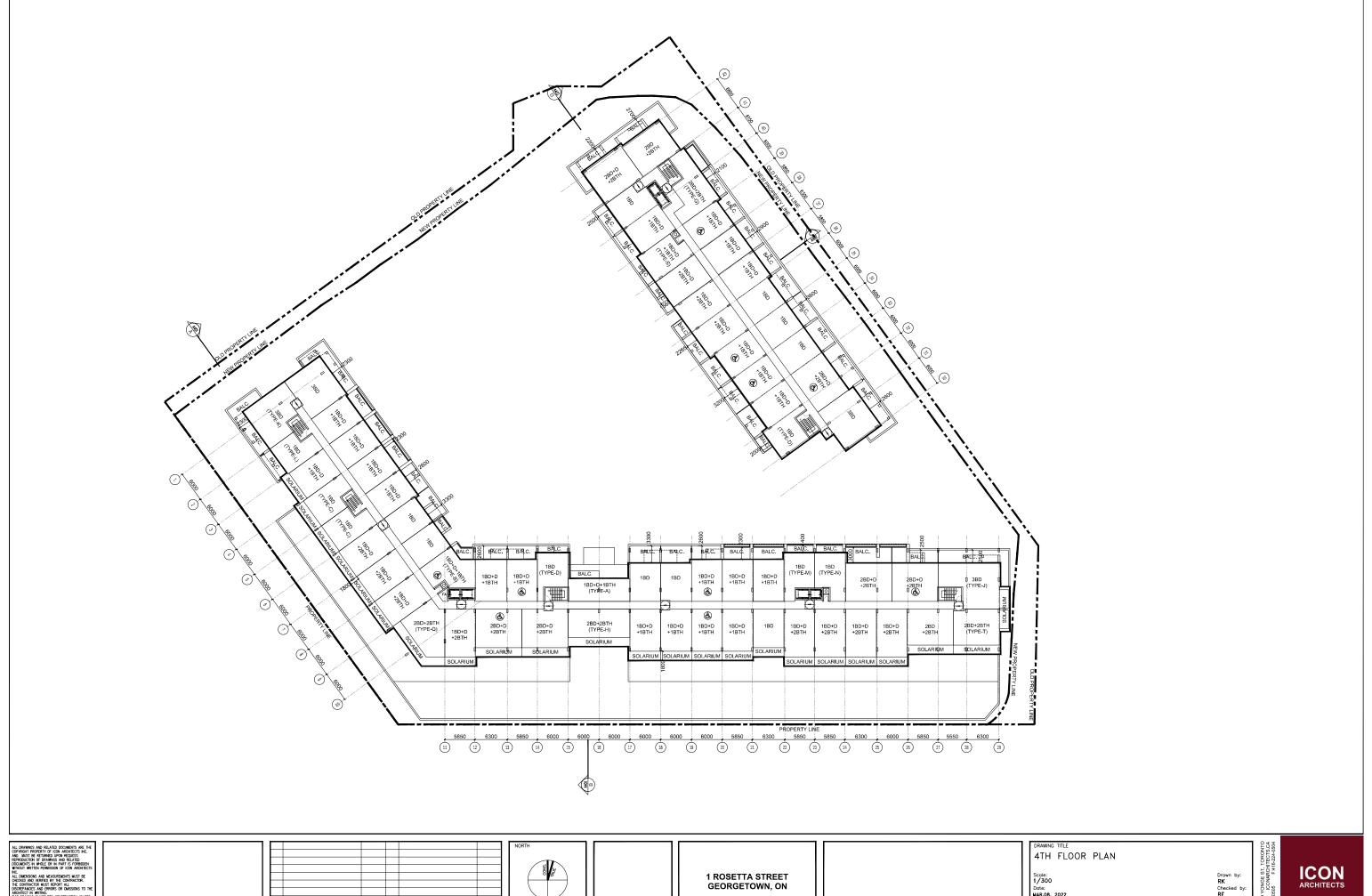


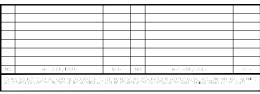








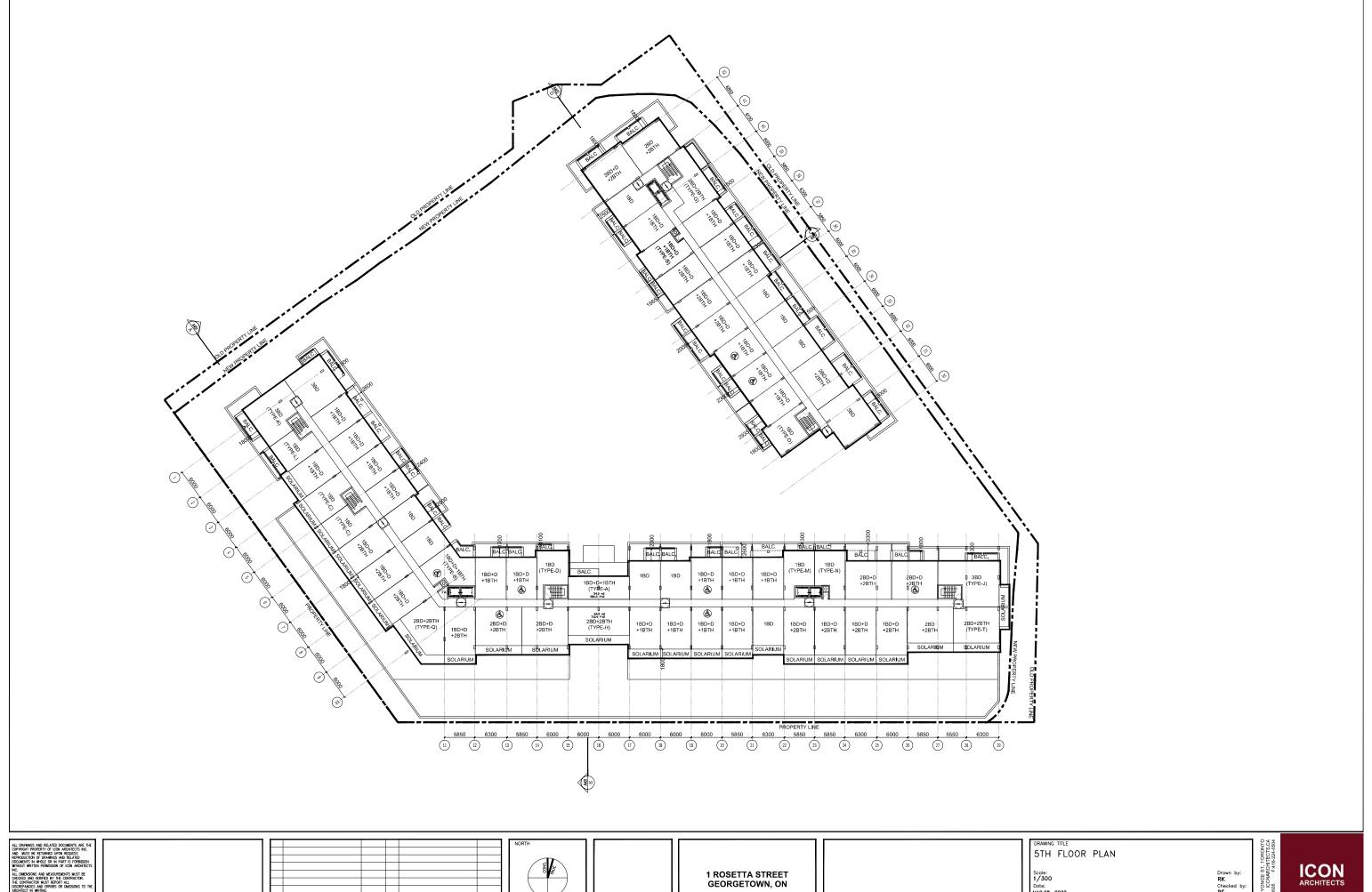


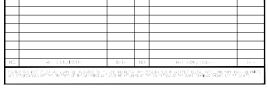






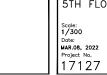


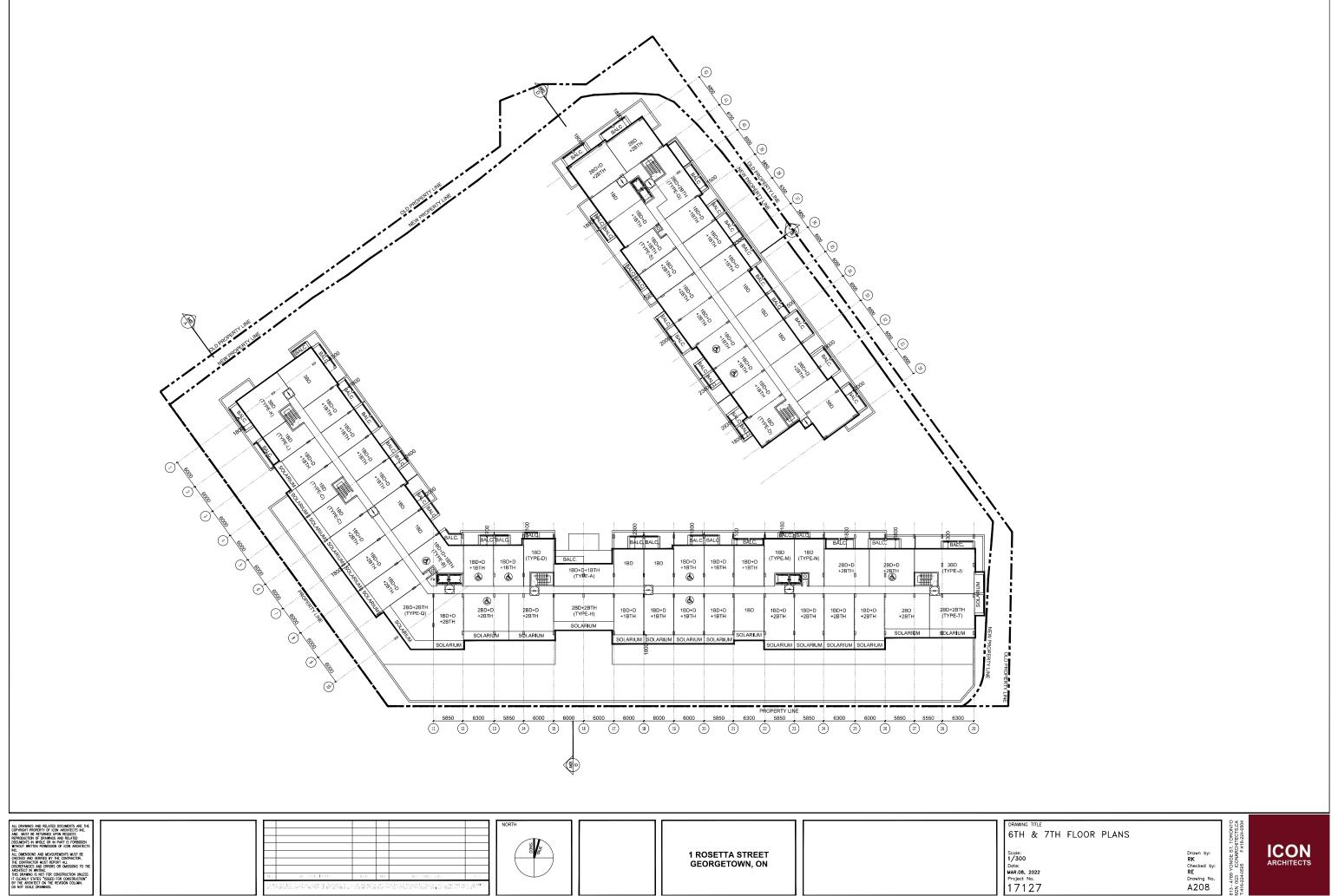


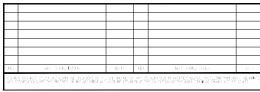








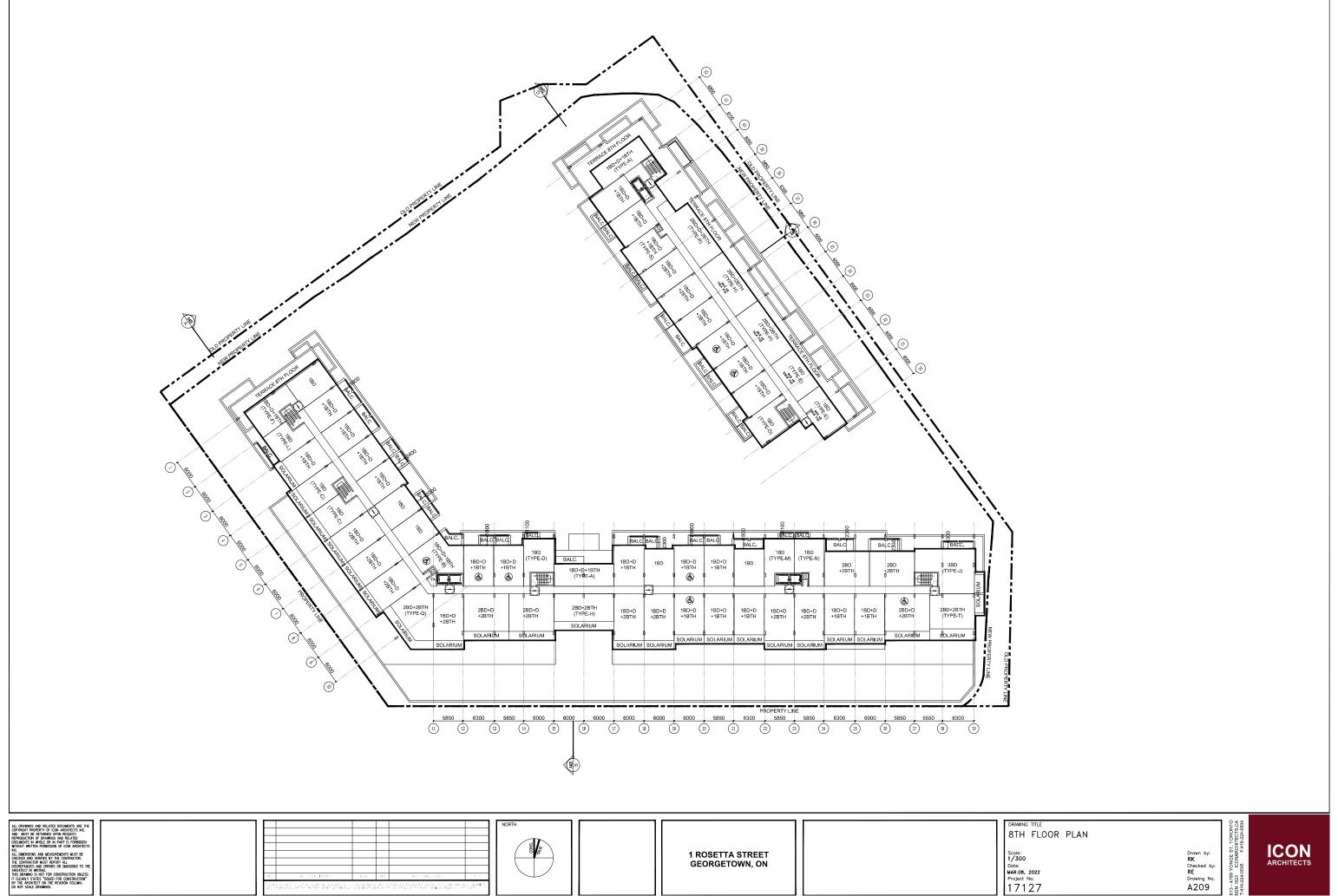


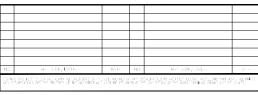








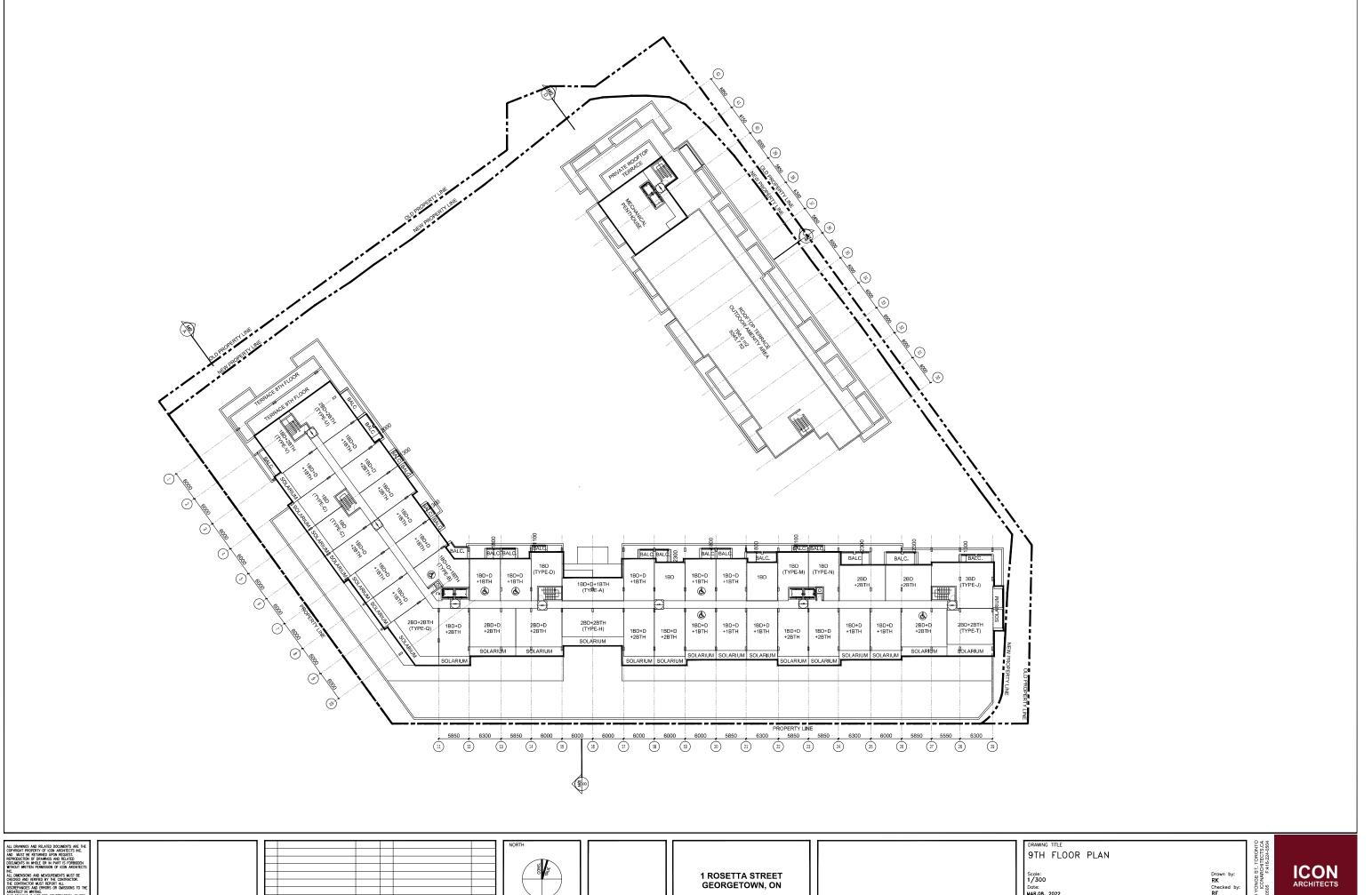


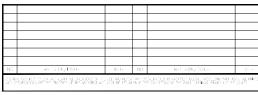






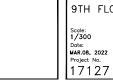


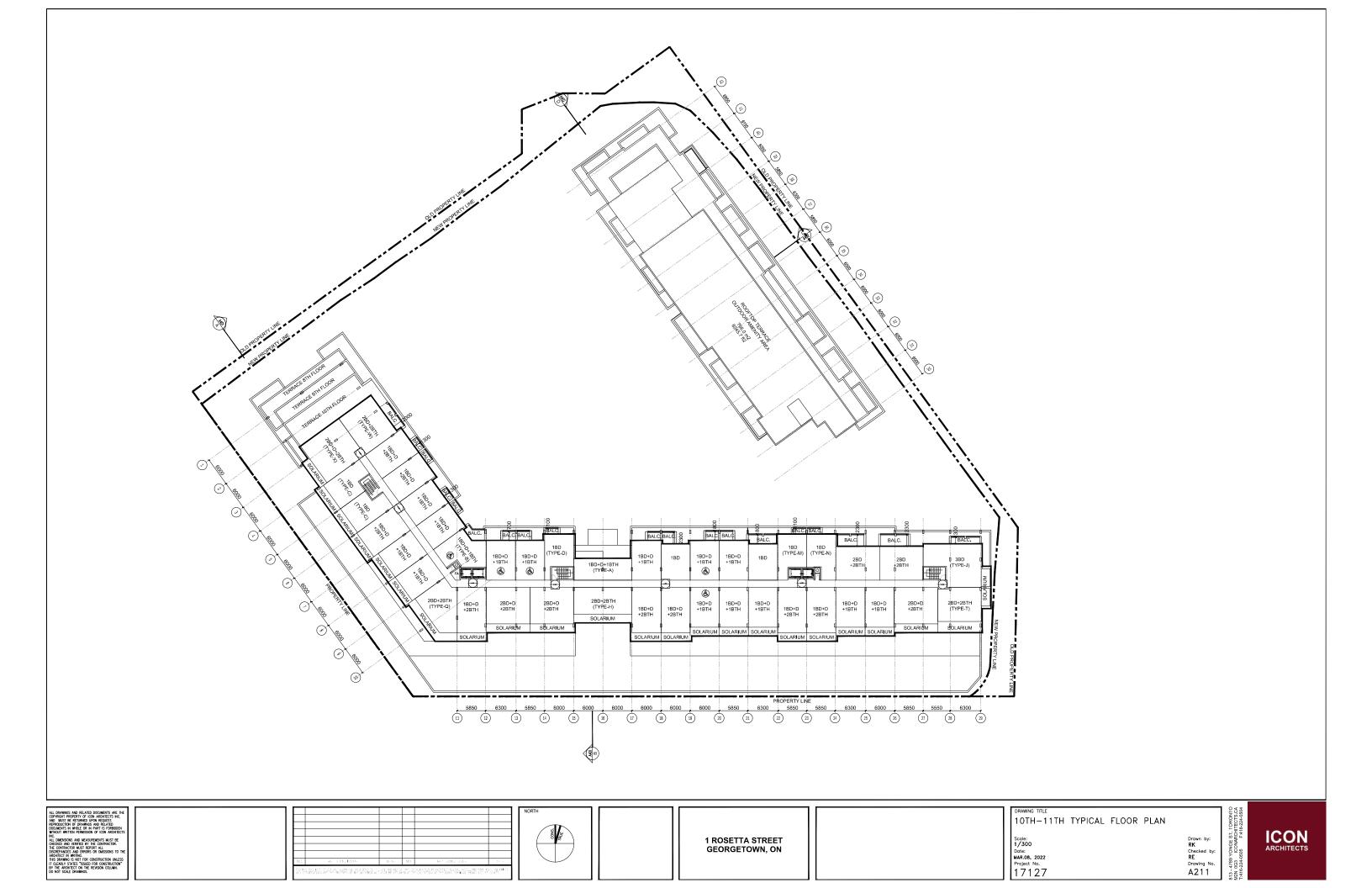


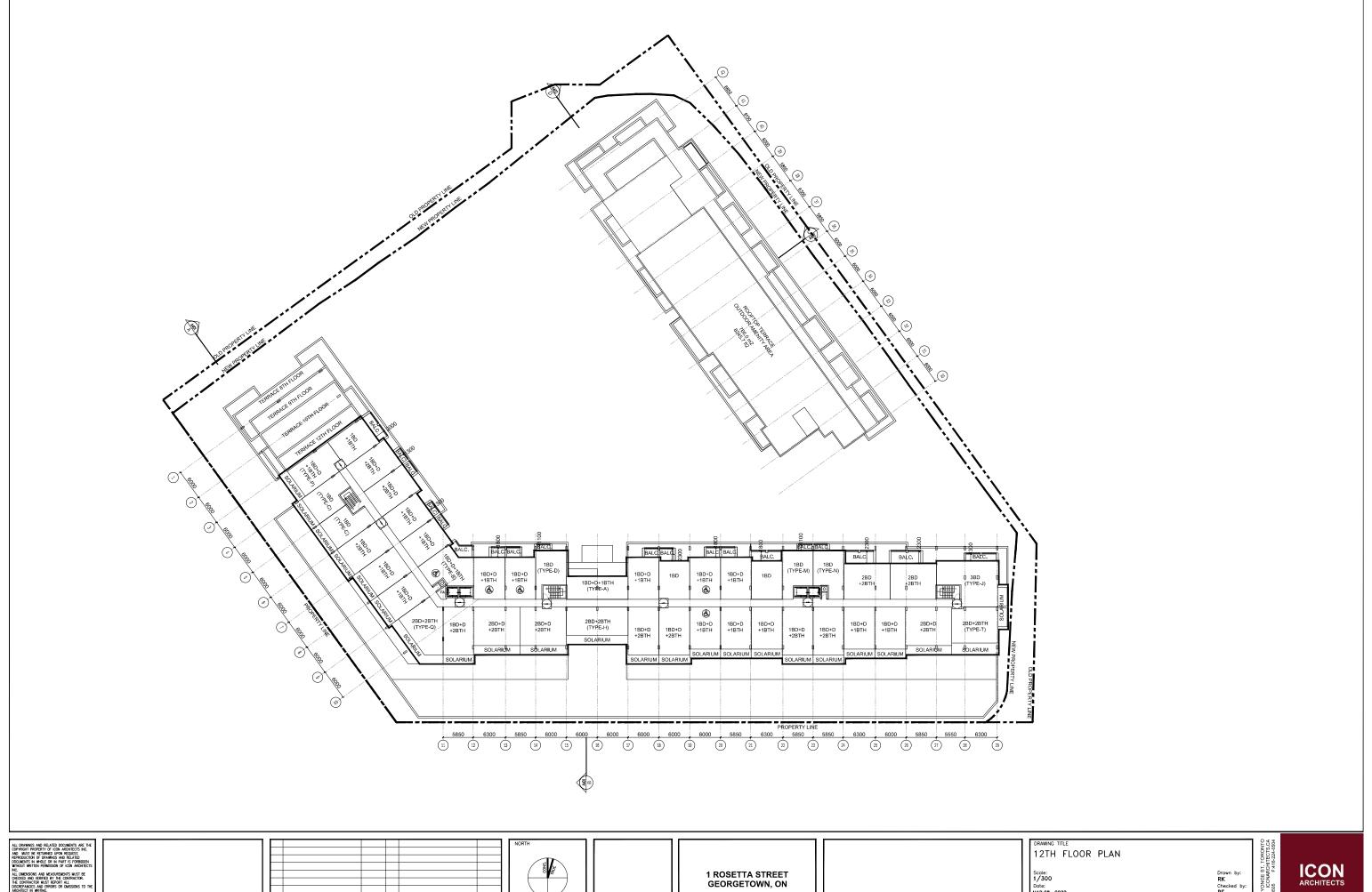










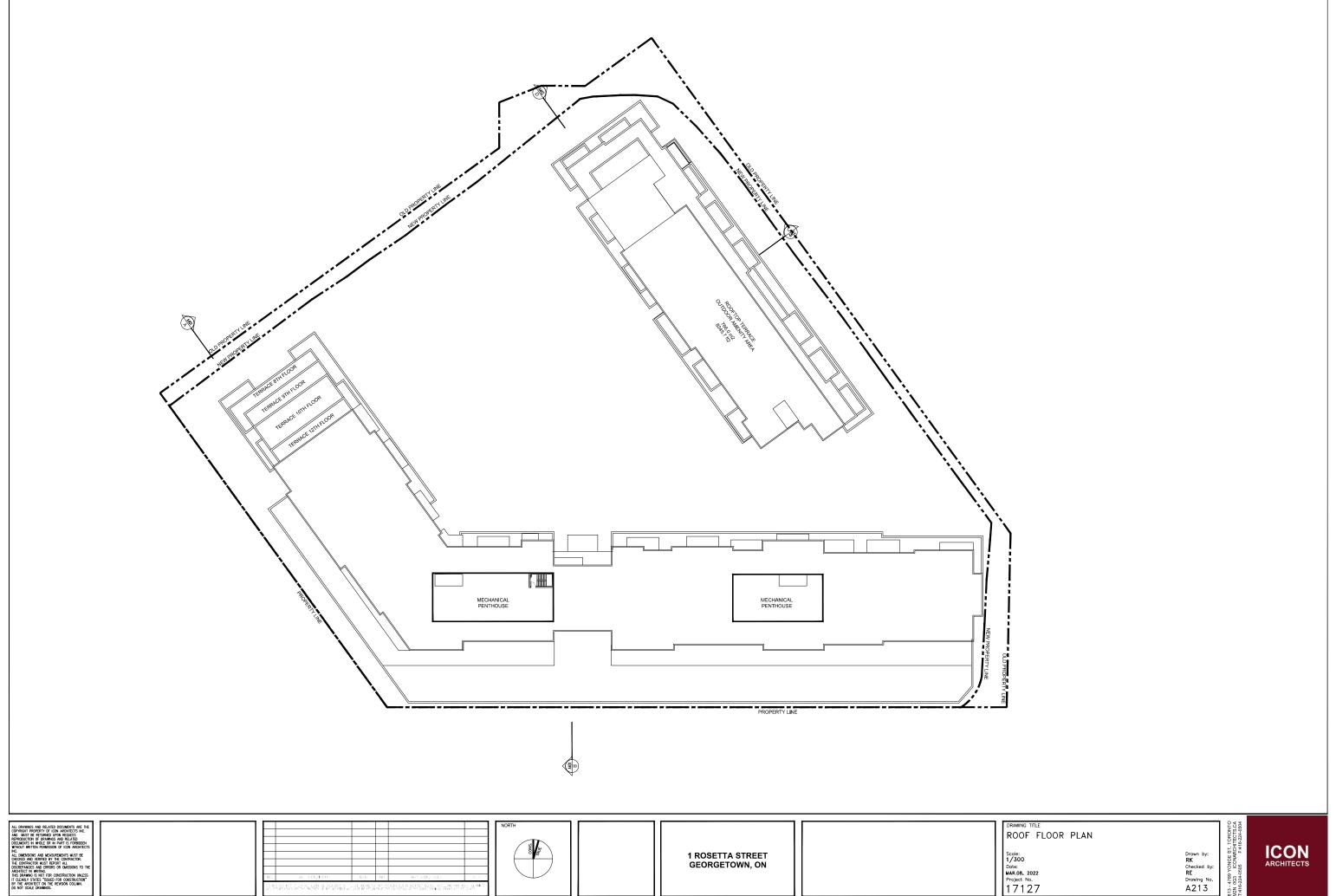


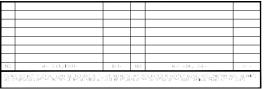






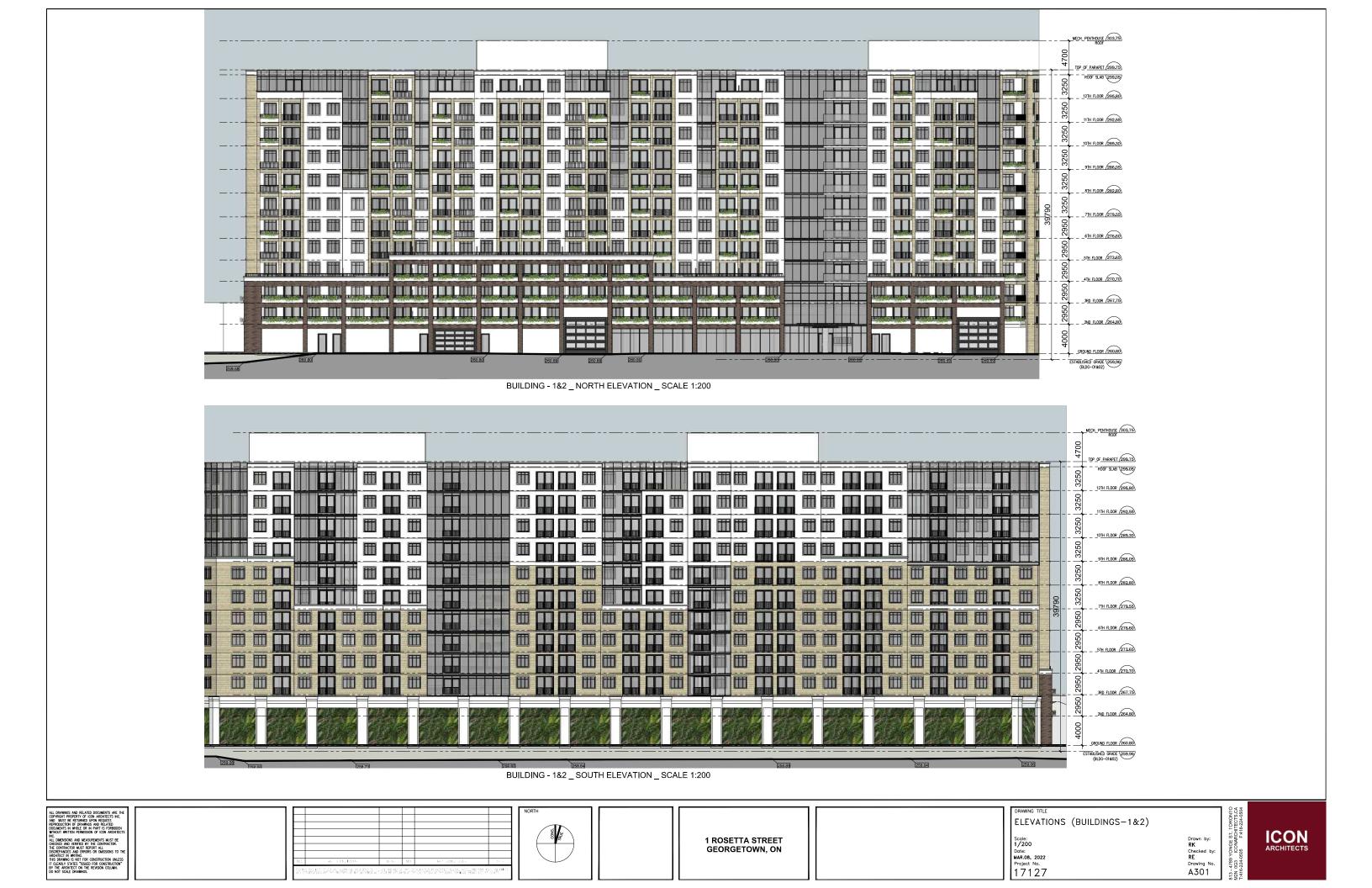
Scale: 1/300 Date: MAR.08, 2022 Project No. 17127





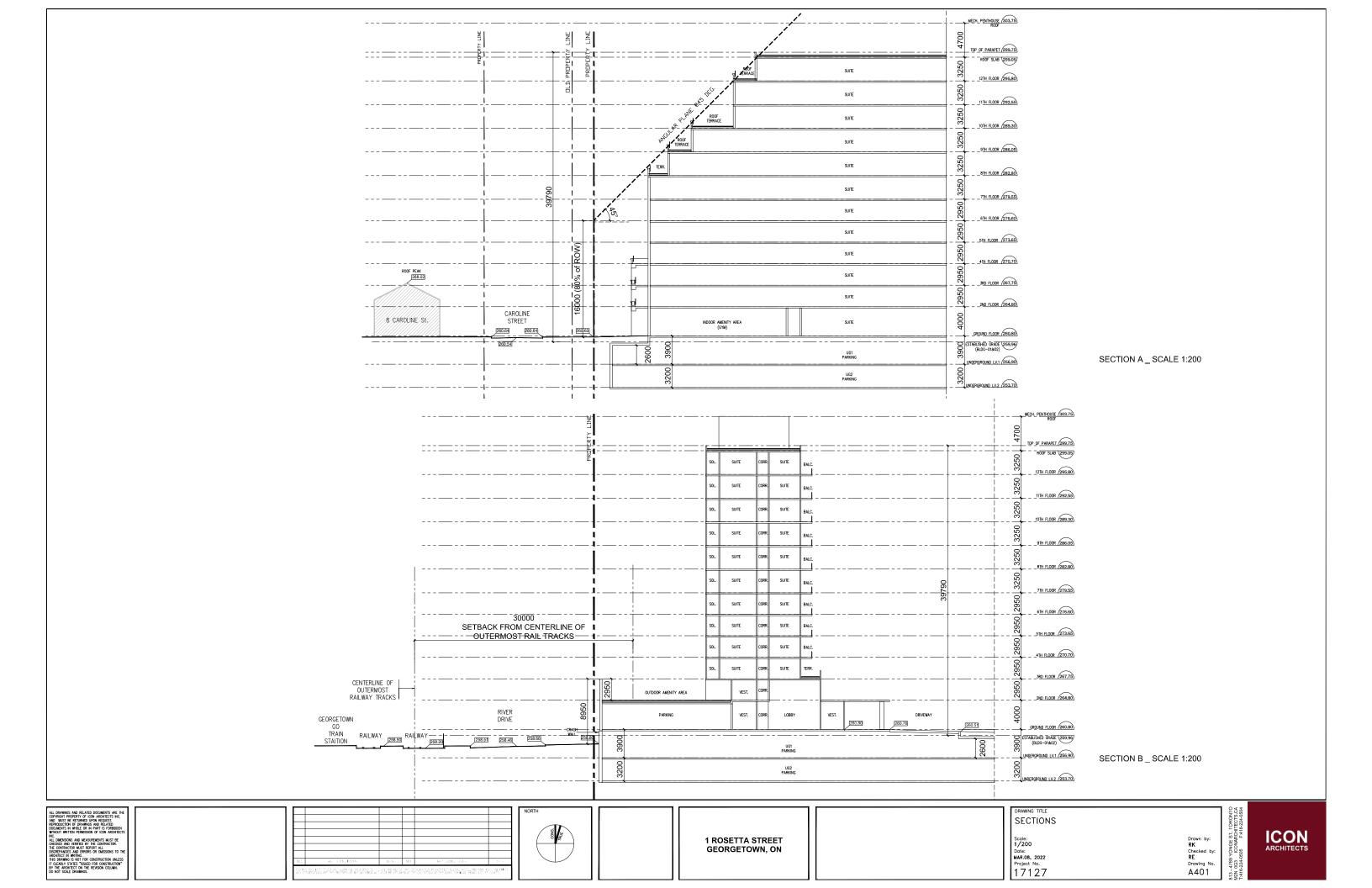


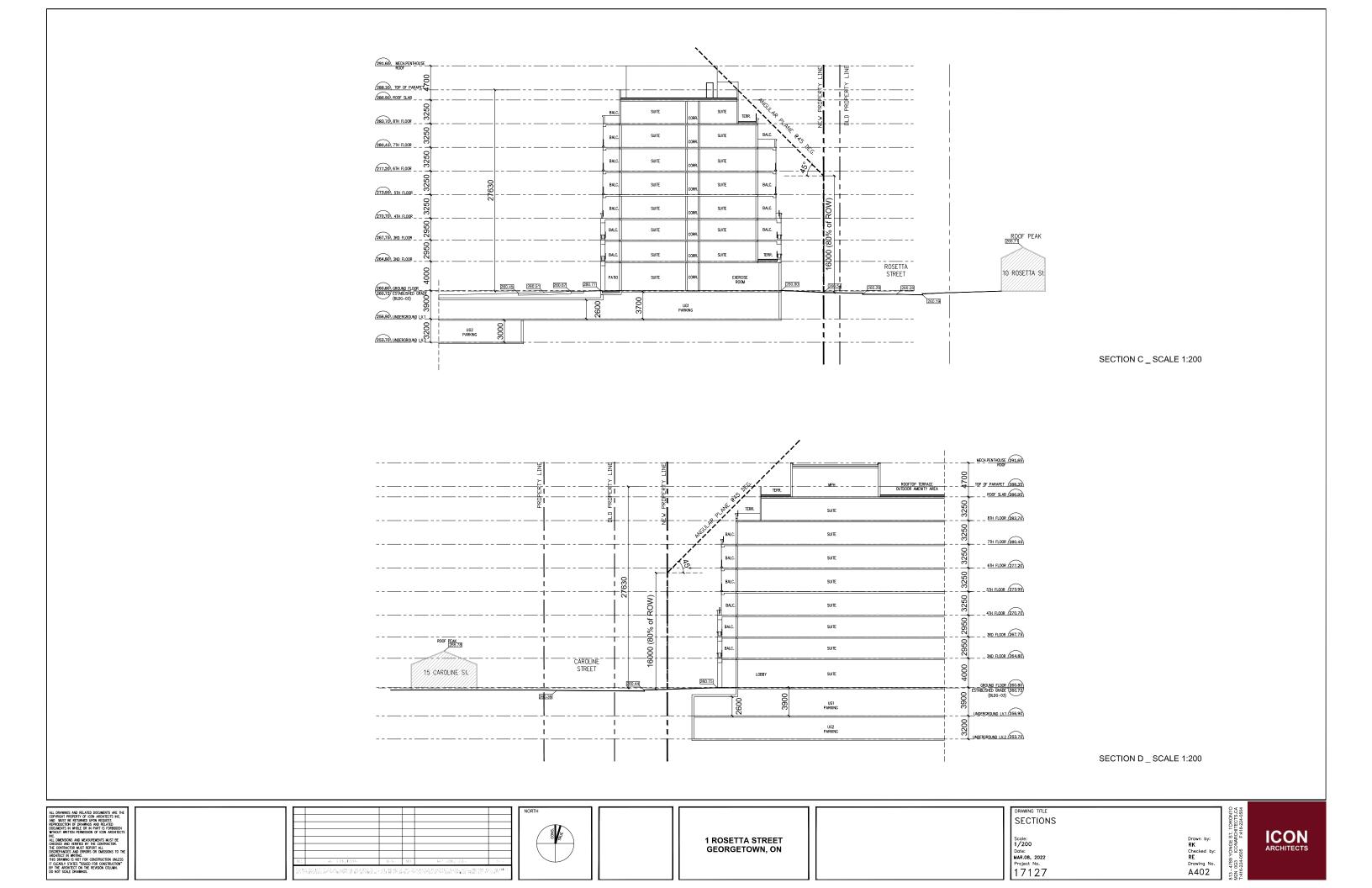
Scale: 1/300 Date: MAR.08, 2022 Project No. 17127











REMOVED EX. TEE & VALVE CONNECTED TO EX. 200mm WM. -WITH 45° H. BEND AND 22.5° H. BEND

-CONNECTED TO EX. 300mm PVC WM. WITH 45° H. BEND

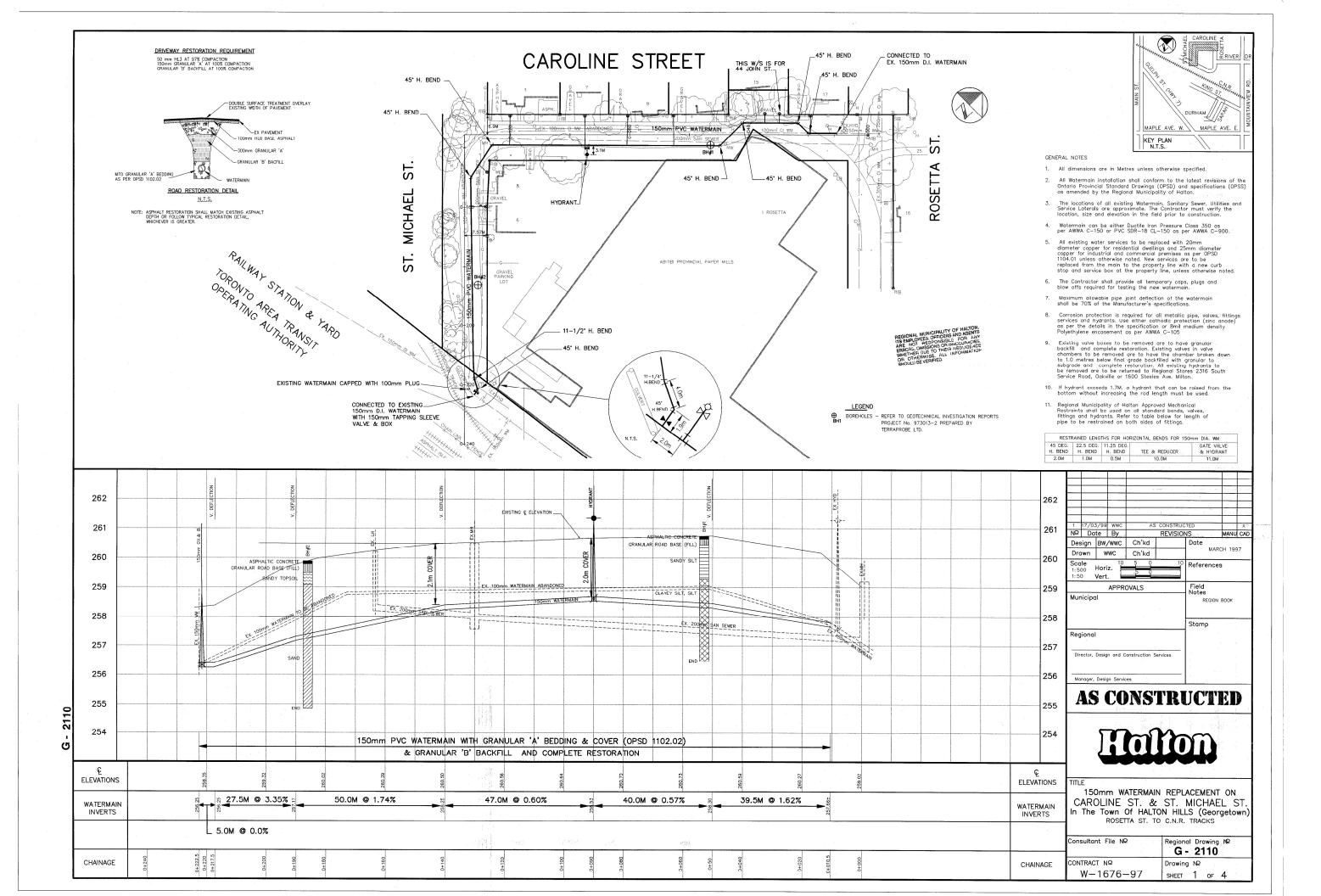
- MH3

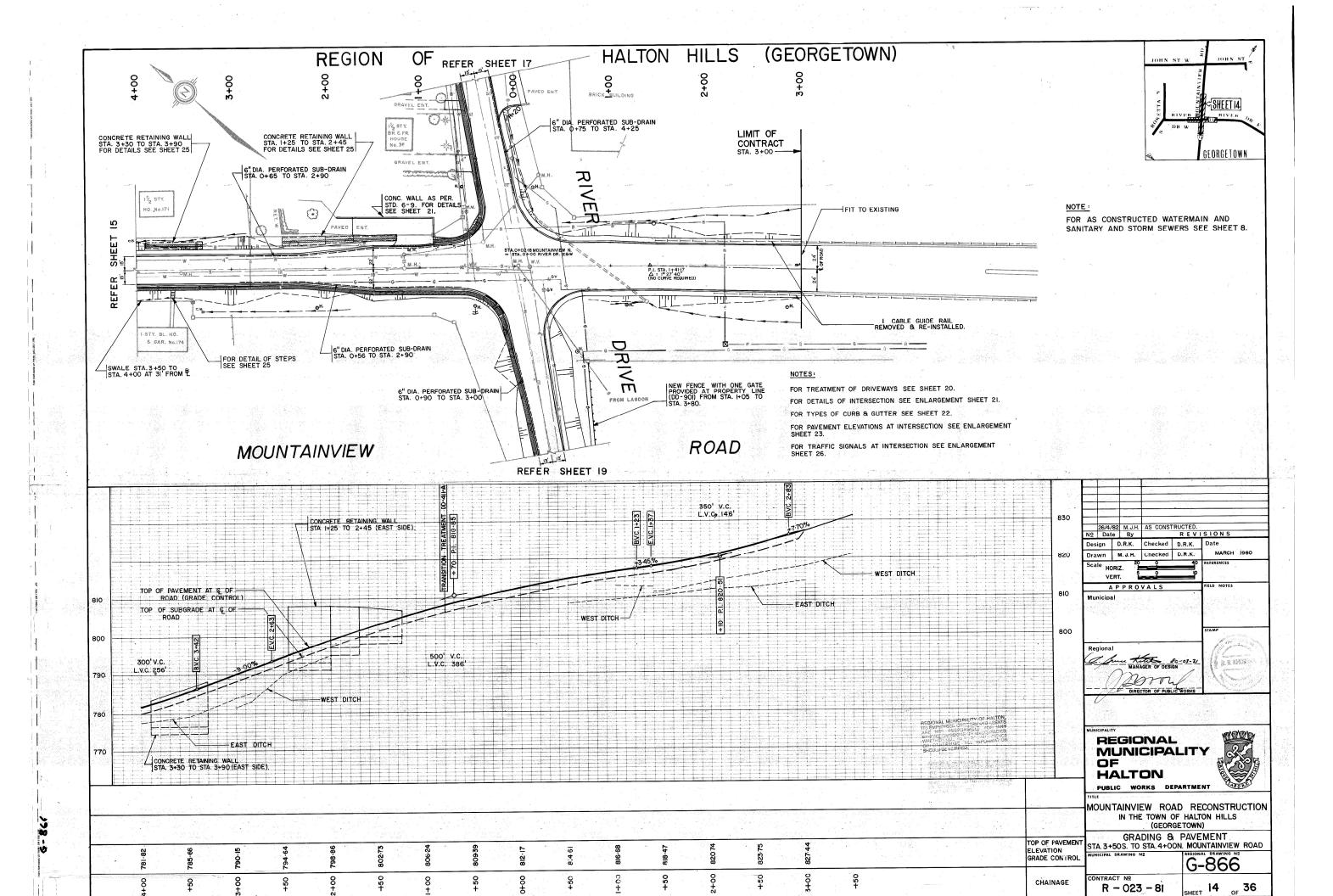
- 45° BEND

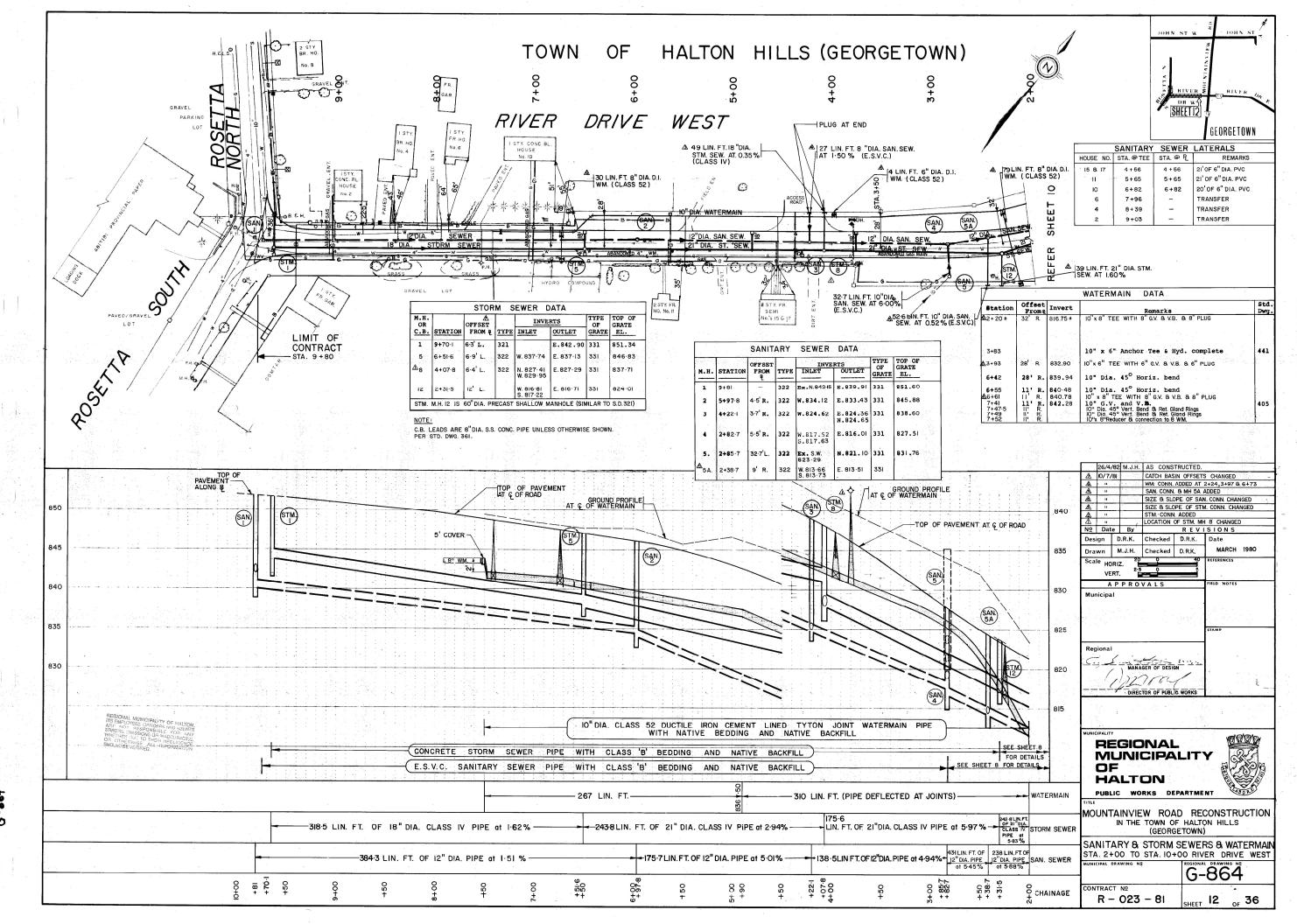
PR-2095-05 3 of

9

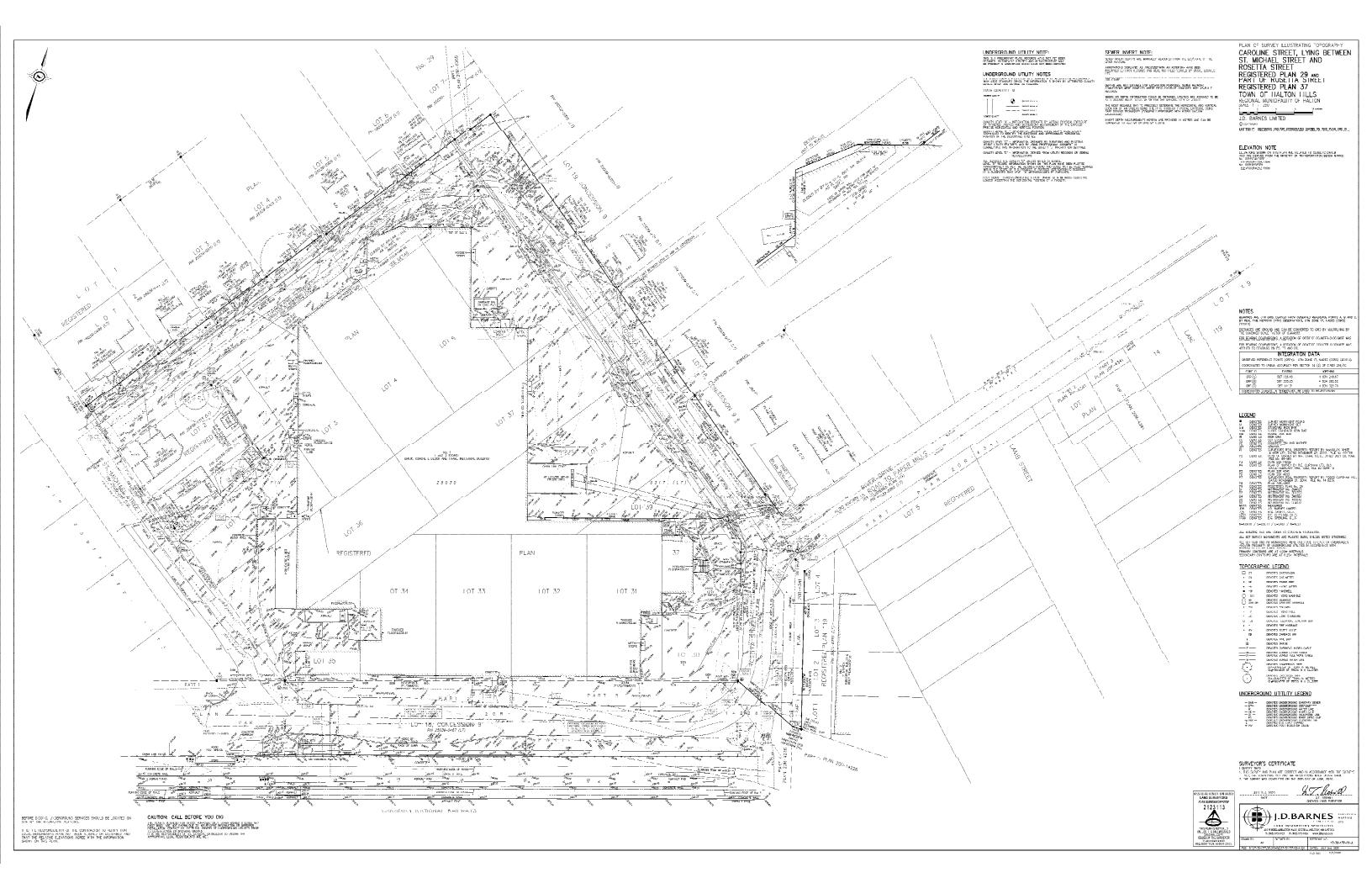
3046







C. 524



Appendix B – Water Analysis

Hydrant Flow Test (River Road) Water Demand, Fire Demand, and Hazen-Williams Calculations



81 Todd Road Suite 202 Georgetown Ont. L7G 4R8

(o) 905-467-5853 (C) 905-971-9956 (e) mark@aquacom.ca

SITE NAME

I B I GROUP

TEST DATE TIME

MONDAY 14 DECEBER 2020 @ 1105 AM

SITE ADDRESS

7 RIVER RD, GEORGETOWN, R OF HALTON

TECHNICIANS

G. SUTHERLAND, B. SUTHERLAND

COMMENTS

ASSISTANCE FROM RofH OPERATOR

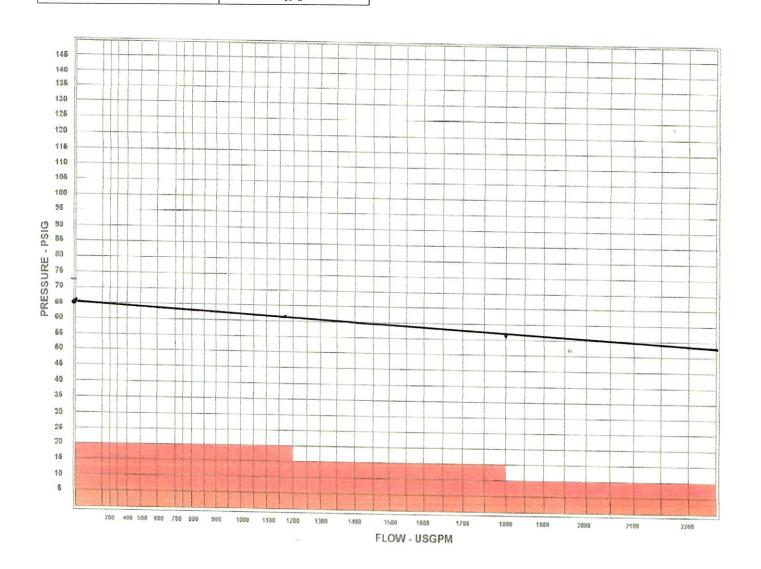
LOCATION OF FLOW HYDRANT

LOCATION OF RESIDUAL HYDRANT

7 RIVER RD

4 DANIEL CT AT RIVER RD

# OUTLETS	SIZE INCHES	PITO PSI	FLOW USGPM	RESIDUAL PSI	STATIC PSI	PIPE DIA. MM
ONE	2.50	45	1151	61	65	
TWO	2.50	29	1798	57		200MM
		THEORETICAL	4569	20	TEST #	ONE
NOZZLE COE	FF.	90			1 707 STREET ST. ST. ST. ST. ST. ST. ST. ST. ST. ST	



1 Rosetta Street, Georgetown

The Paper Mill

DOMESTIC DEMAND CALCULATIONS

Project Name: 1 Rosetta Street Project Number: 125082

Date: February 25, 2022 Designed By: Carly Mason, B.Eng

Peaking Factors						
Land Use	Peak Hour	Maximum Day				
Residential	4.00	2.25				

1. Based on the City of Toronto Standards and

2. OBC, Part 8 "Sewage Systems", OBC Table 8.2.1.3.A and 8.2.1.3.B

3. ADD = 275 L/cap/day for residential uses

4. ADD = 250 L/cap/day for commercial uses

					(ADDxP.F.)	(ADDxP.F.)
Component	No. Units	Density	Population	ADD (L/s)	PHD (L/s)	MDD (L/s)
Residential - 1 Bedroom	490	1.328 pp/unit	651	2.07	8.28	4.66
Residential - 2+ Bedroom	150	1.724 pp/unit	259	0.82	3.29	1.85
	0	0.000 pp/unit	0	0.00	0.00	0.00
_		Totals	909	2.89	11.58	6.51

FIRE FLOW DEMAND CALCULATIONS

 $F = 220C\sqrt{A}$

Based on the Water Supply for Public Fire Protecetion Manual, 1999 by the Fire Underwriters Survey

Step 1: Calculate Fire Flow (based on area)



F = required fire flow (L/min)

C = coefficient related to type of construction

0.6 for fire resistive (fully protected, 3-hr ratings)

0.8 for non combustable (i.e. unprotected metal buildings)

1.0 for ordinary construction

1.5 for wood frame construction

A = total floor area excluding basements 50% below grade

Step 2: Adjustment for Building Occupancy (shall not be less than 2000 L/s)

Occupancy Adjustment =	-0.15	Ī	Non-Combustable	-25%	Free Burning	15%
F ₁ = Fire Flow x Adjustment =	7,650	L/min	Limited	-15%	Rapid Burning	25%
•		_	Combustable)	No change		

Step 3: Adjust F1 for Fire Supression System

Sprinkler Adjustment =	30%		Automatic Sprinklers (monitored)
$F_2 = F_1 \times Adjustment =$	2,295	L/min	Adequately Designed System

Step 4: Adjust F1 for Exposure / Proximity (shall not exceed 75%)

Proximity Adjustment =	30%	(max 75%)
$F_3 = F_1 \times Factor =$	2,295	L/min

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

-50%

-30%

Step 5: Calculate Adjusted Fire Flow (shall not be less than 2000 L/min or greater than 45,000 L/min)

7,650	L/min
2,295	L/min
2,295	L/min
8,000	 L/min
133.3	L/s
139.8	L/s
	2,295 2,295 8,000 133.3

Fire Flow = $F_1 - F_2 + F_3$

Checks:

Fire Flow greater than 2000 L/min Fire Flow less than 45,000 L/min

^{*} If vertical openings are inadequately protected, consider two largest two largest adjoining floors plus 50% of each of any floors above up to eight floors.

^{*} If vertical openings are adequately protected (one hour rating), consider largest floor area + 25% of two immediately floors.

1 Rosetta Street, Georgetown

Head Loss Calculations

The Paper Mill



Project Name: 1 Rosetta Street

Project Number: 125082

Date: February 25, 2022
Designed By: Carly Mason, B.Eng

Hydrant Flow Test Results

Flow	Flow	Flow	Pressure	Pressure
(gpm)	(L/s)	(L/min)	(psi)	(kPa)
0	0.00	0	65	448
1,151	72.62	4,357	61	421
1,798	113.44	6,806	57	393

(1 gal = 3.785 L)

Residual Pressure at Main

Source: Walski, Thomas M. (2007): Advanced Water Distribution Modeling and Management

$$Q_{\rm R} = Q_{\rm F} \times \frac{hr^{0.54}}{hf^{0.54}}$$

where: Q_R = flow predicted at desired residual pressure

Q_F = total flow measured during test

 h_r = pressure drop to desired residual pressure h_f = pressure drop to measured during test

Domestic Fire

Flow	Flow	Flow	Residual Pressure @ Mair	
(gpm)	(L/s)	(L/min)	(psi)	(kPa)
184	11.6	695	64.9	447
2,217	139.8	8,391	53.2	367

Residual Pressure at Building

$$h_L = \frac{10.675 * L * Q^{1.85}}{C^{1.85} * D^{4.8655}}$$

	Domestic	
L=	90.0	m
Q=	0.012	m ³ /s
C=	100	
D=	150	m
h _L =	0.5	m
h _L =	20.1	in
$h_L =$	0.7	psi
$h_L =$	5.0	kPa

where: h_L = Pressure Drop (m) L = Length of Service (m) Q = Flow Rate (m³/s) C = Roughness Coefficient D = Pipe Diameter (m)

Fire	
90.0	m
0.140	m ³ /s
110	
200	m
10.6	m
418.3	in
15.1	psi
104.2	kPa
	90.0 0.140 110 200 10.6 418.3 15.1

Domestic Fire

Flow	Flow	Flow	Residual Pressure @ Bldg.	
(gpm)	(L/s)	(L/min)	(psi)	(kPa)
184	11.6	695	64.2	442
2,217	139.8	8,391	38.1	263

Residual Pressure (DOMESTIC) at building is greater than 40 psi (275 kPa).

Residual Pressure (FIRE) at building is greater than 20 psi (140 kPa).

Appendix C – Sanitary Analysis

Sanitary Design Calculations Sanitary Capacity Review (TMIG)

1 Rosetta Street

The Paper Mill

Pre-development San. Flow - Industrial =
Pre-development San. Flow - Residential =
Post-development San. Flow =

Infiltration (dry weather) =

34 L/cd 275 L/cd 275 L/cd 0.286 L/s/ha

Mannings=

Minimum flow velocity =

Maximum flow velocity =

0.013

0.6 m/s

3.0 m/s

Sanitary Sewer Design Sheet

Project Name: 1 Rosetta Street

Project Number: 125082

Date: February 25, 2022 Designed By: Carly Mason

DESIGN FLOW CALCULATIONS												SEWER D	DESIGN & AN	IALYSIS					
	Area (ha) Nimber of	Density	Population		Cumulative Population	Kav	Peaking Factor	Sewage Flow (L/s)	Infiltration Flow (L/s)	Industrial Flow (L/s)	Total Flow, Qd (L/s)	Diameter	Pipe Slope	Pipe Length	Сараску,	Full Flow Velocity	Actual Velocity	Percent of Full Flow (%)	Notes
	Units							(1)	(2)	(3)		(mm)	(%)	(m)	Qf (L/s)	(m/s)	V (m/s)		\longmapsto
Pre-Development																			
Industrial	1.3492 ha	125 pp/ha	169	1.3492	169	0.81	3.39	0.000	0.386	0.067	0.45								
Residential	0.0865 ha	55 pp/ha	5	0.0865	5	0.81	3.61	0.012	0.025	0.000	0.04								
										Total	0.49								
Post-Development																			
Infiltration	1.4356 ha		0.00	1.4356	0	1	3.83	0.000	0.411		0.411								
1 Bedroom	490 Units	1.328 pp/unit	651		651	1	3.83	7.936			7.936								
2+ Bedrooms	150 Units	1.724 pp/unit	259		259	1	3.83	3.157			3.157								
										-	44.504	050	4.000/	10.5	20.0	4.00	0.00	10.50/	
										Total	11.504	250	1.00%	16.5	62.0	1.22	0.93	18.5%	\vdash

Appendix D – Stormwater Analysis

Stormwater Design Calculations Pre- and Post-Development Drainage Area Plans

1 Rosetta Drive

Post-Development Runoff Coefficients

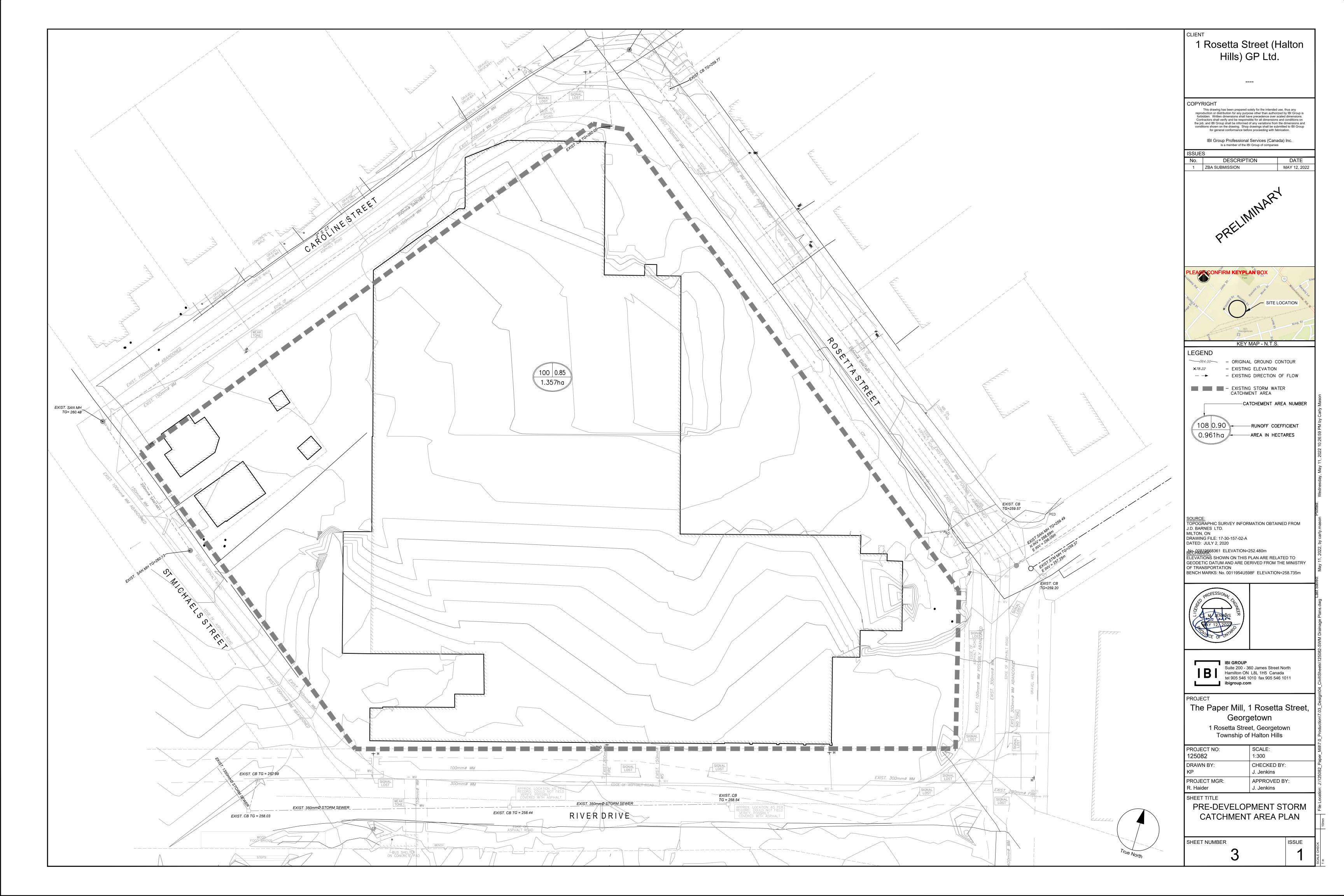
The Paper Mill

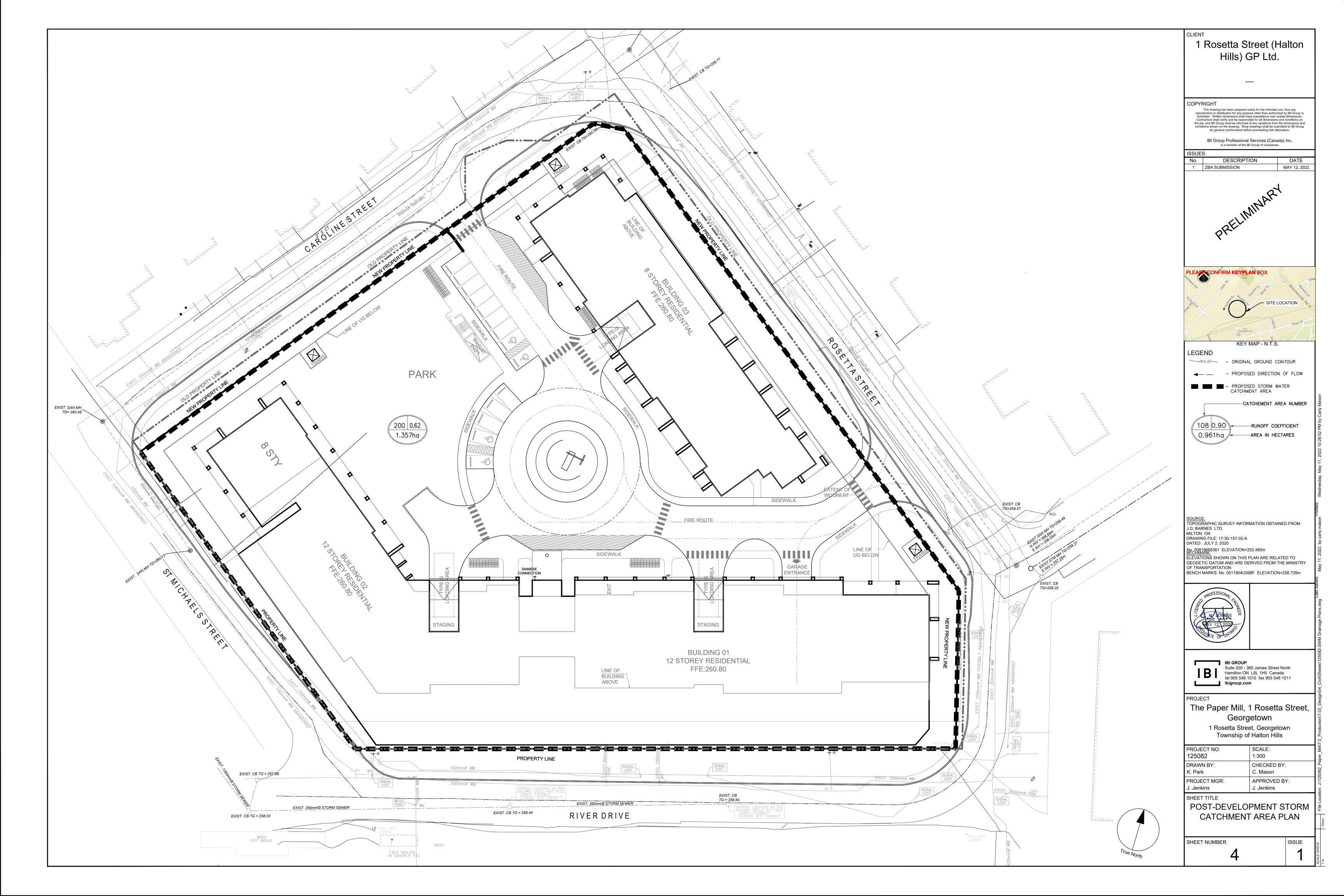
Project Name: 1 Rosetta Drive Project Number: 125082

Date: May 10, 2022 Designed By: Carly Mason, B.Eng

Pre-Development Pre-Development							
Conventional Roof	8,269	60.9%	0.90	0.55			
Green Roof:	0	0.0%	0.50	0.00			
Landscaping:	1,002	7.4%	0.25	0.02			
Permeable Pavers:	0	0.0%	0.55	0.00			
Impervious:	4,301	31.7%	0.90	0.28			
Total Area:	13,572	100%		0.85			

Total Post-Developme	ent			
Conventional Roof	6,271	46.2%	0.90	0.42
Green Roof:	0	0.0%	0.50	0.00
Landscaping:	4,005	29.5%	0.25	0.07
Permeable Pavers:	3,296	24.3%	0.55	0.13
Impervious:		0.0%	0.90	0.00
Total Area:	13,572	100.0%		0.62





Appendix E – Engineering Plans

Site Grading Plan Site Servicing Plan



1 ROSETTA STREET (HALTON HILLS) GP Ltd.

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IBI Group Professional Services (Canada) Inc. is a member of the IBI Group of companies

DESCRIPTION

ISSUED FOR ZONING APPLICATION MAY 12, 2022





PROPERTY LINE	
PROPOSED GRADE	× 149.50
EXISTING GRADE	× 149.33EX
PROPOSED GRADE (TOP OF CURB)	★ 149.65TC
PROPOSED GRADE (BOTTOM OF CURB)	★ 149.65BC
PROPOSED OGS	
PROPOSED SANITARY MANHOLE	
PROPOSED SINGLE CATCH BASIN	
EXISTING STORM MANHOLE	\bigcirc
EXISTING SANITARY MANHOLE	
EXISTING CATCH BASIN	
PROPOSED VALVE AND BOX	-o- WV
PROPOSED FIRE HYDRANT	- ? - H
EXISTING OVERLAND FLOW ROUTE	
OVERLAND FLOW ROUTE	\leftarrow

SOURCE:
TOPOGRAPHIC SURVEY INFORMATION OBTAINED FROM
J.D. BARNES LTD.
MILTON, ON
DRAWING FILE: 17-30-157-02-A
DATED: JULY 2, 2020

BECHMARK.

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE MINISTRY OF TRANSPORTATION
BENCH MARKS: No. 0011954U598F ELEVATION=258.735m



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Hamilton ON L8L 1H5 Canada
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ibigroup.com

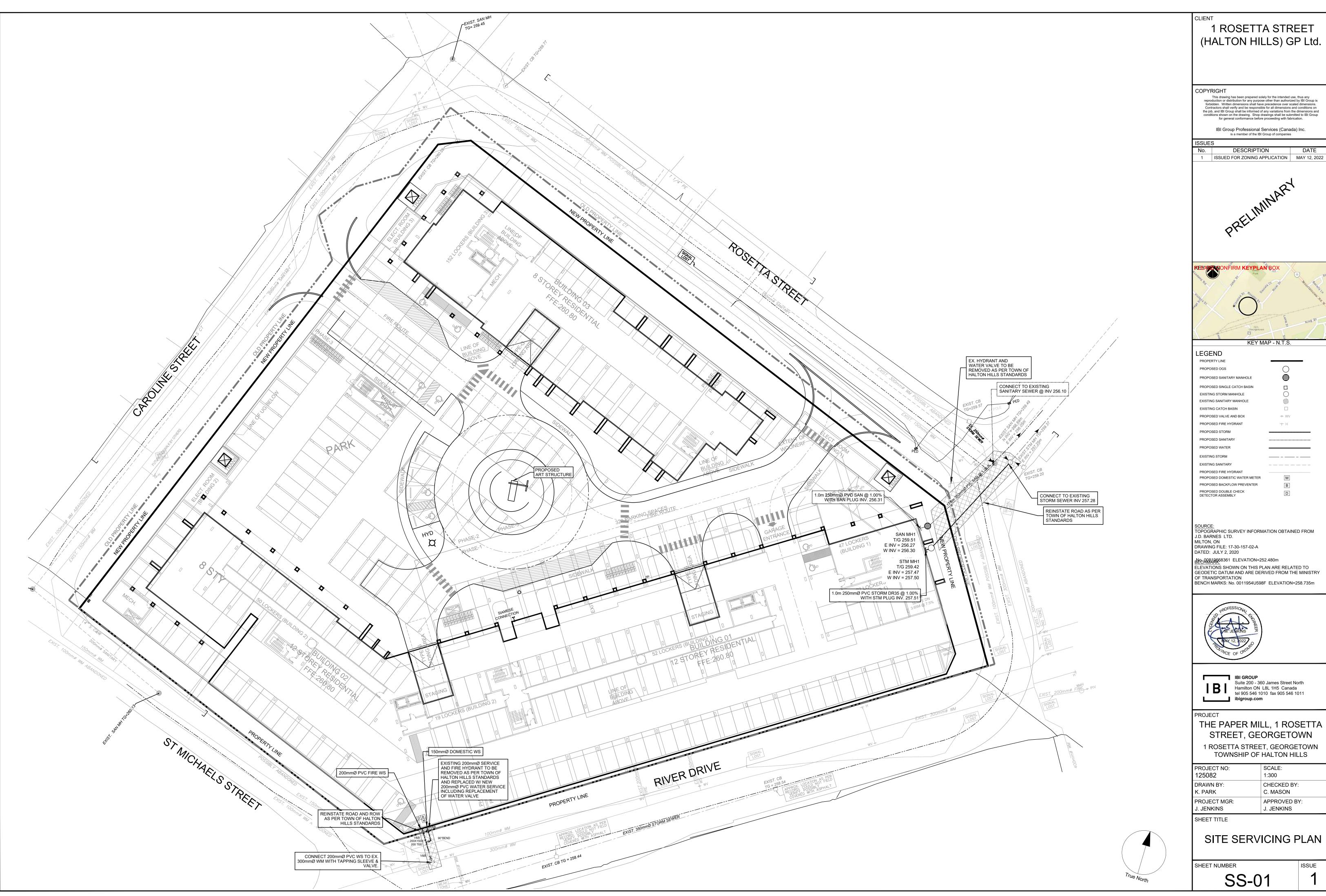
THE PAPER MILL, 1 ROSETTA STREET, GEORGETOWN 1 ROSETTA STREET, GEORGETOWN TOWNSHIP OF HALTON HILLS

125082	1:300
DRAWN BY: K. PARK	CHECKED BY: C. MASON
PROJECT MGR: J. JENKINS	APPROVED BY: J. JENKINS

SITE GRADING PLAN

SHEET NUMBER

SG-01



1 ROSETTA STREET



STREET, GEORGETOWN 1 ROSETTA STREET, GEORGETOWN