120 Iber Road, Unit 103
Stittsville, Ontario K2S 1E9
Tel (613) 836-0856
Fax (613) 836-7183
www.dsel.ca

STORMWATER MANAGEMENT MEMORANDUM

DATE: 2020-09-11 *EMAIL*

TO: **City of Ottawa IAD Review Officer**

SUBJECT: **Proposed Stormwater Management for the 847 Woodroffe Avenue Zoning By-Law Amendment and Part Lot Control Application**
City File Number:
D02-02-20-0040 & D07-08-20-0011

OUR FILE: DSEL Project No. 20 -1163

ATTACHMENTS:

- Site Plan, by Evolution Design and Drafting, Dated May 21, 2020;
- Existing Stormwater Drainage Plan, SWM-1, by DSEL, Dated September 11th, 2020;
- Proposed Stormwater Drainage Plan, SWM-2, by DSEL, Dated September 11th, 2020; and
- Stormwater Management Calculations, by DSEL, Dated Sept 10th, 2020.

HP Urban has retained DSEL to provide engineering services in support of the Zoning By-law Amendment and Part Lot Control Application at 847 Woodroffe Avenue. The applicant has been requested to provide a stormwater management brief to resolve comments received from City staff on July 10th 2020. As the site proposes to increase the impermeable areas of the property it has been requested to minimize the overland drainage to the existing rear yard swale located at the North edge of the site.

The following memo addresses the impact of the post-development drainage on the rear-yard drainage swale system and the storm sewer within Woodroffe Avenue.

The existing site consists of a single-family home with garage and paved drive-way. The total site area is approximately ***0.068 ha*** with ***0.053 ha*** of the site currently draining to the rear-yard swale. Rear-yard swale drainage is tributary to the 300 mm diameter storm sewer within Georgina Drive.

Table 1, below, summarizes the estimated pre-development release rates from the site.

Table 1 – Existing Stormwater Drainage Rates Summary

Area	5-Year Release Rate (L/s)	100-Year Release Rate (L/s)
Existing Drainage to Woodroffe (EX-1)	2.8	6.0
Existing Drainage to rear-yard (EX-2)	7.0	15.1
Total	***9.8***	***21.1***

The Site Plan proposes to construct a multi-unit dwelling consisting of 8 units and 4 surface parking spots. The development proposes to increase the percentage of impermeable area. As a result, the stormwater management design proposes to minimize the overland drainage to the existing rear-yard swale at the North of the site. The proposed design contemplates decreasing the area tributary to the rear-yard to ***0.016 ha***.

Table 2, summarizes the estimated post-development release rates from the site

Table 2 - Proposed Stormwater Drainage Rates Summary

Area	5-Year Release Rate (L/s)	100-Year Release Rate (L/s)
Proposed Drainage to Woodroffe (A1)	11.7	25.1
Proposed Drainage to rear-yard (A2)	2.6	5.5
Total	***14.3***	***30.6***

As shown by drawings ***GP-1*** and ***SSP-1,*** stormwater will be collected and conveyed to the existing 375 mm diameter storm sewer within Woodroffe Avenue via a 200 mm diameter storm sewer system. As demonstrated above, the proposed development reduces flow to the neighbouring properties abutting the rear of the property by approximately 63%.

The stormwater drainage tributary to the Woodroffe sewer will be increased by approximately 77%. City staff to advise if the increased flow can be accommodated by the municipal infrastructure.

DSEL trusts that the above will be sufficient to support for the Zoning By-law Amendment and Part-lot application for 847 Woodroffe Avenue to allow the proposed development to proceed. Please contact the undersigned if you have any questions.

Prepared by,
David Schaeffer Engineering Ltd.

C. Kelly

Per: Charlotte M. Kelly, EIT.

Reviewed by,
David Schaeffer Engineering Ltd.

Per: Alison J. Gosling, P.Eng.

Z:\Projects\20-1163_HPUrban_847-Woodroffe\B_Design\B3_Reports\B3-2_Servicing (DSEL)\2020-09_memo\2020-09-09_1163_memo.docx

1 PERSPECTIVE FRONT FROM RIGHT

SCALE:

2 PERSPECTIVE REAR FROM LEFT

SCALE:

Evolution
DESIGN & DRAFTING
613-884-7068

847 WOODROFFE AVE (LEFT UNIT)

BASEMENT: 618 SQ.FT./UNIT

GROUND FLOOR: 635 SQ.FT./UNIT

SECOND FLOOR: 725 SQ.FT./UNIT

TOTAL: 1360 SQ.FT./UNIT (NO BSMT. INCL.)

MARCH 31, 2020 - D1

ALL HOUSE RENDERINGS ARE ARTIST CONCEPTIONS. ALL FLOOR PLANS ARE APPROXIMATE DIMENSIONS. ACTUAL USEABLE FLOOR SPACE MAY VARY FROM THE STATED AREA. E & OE

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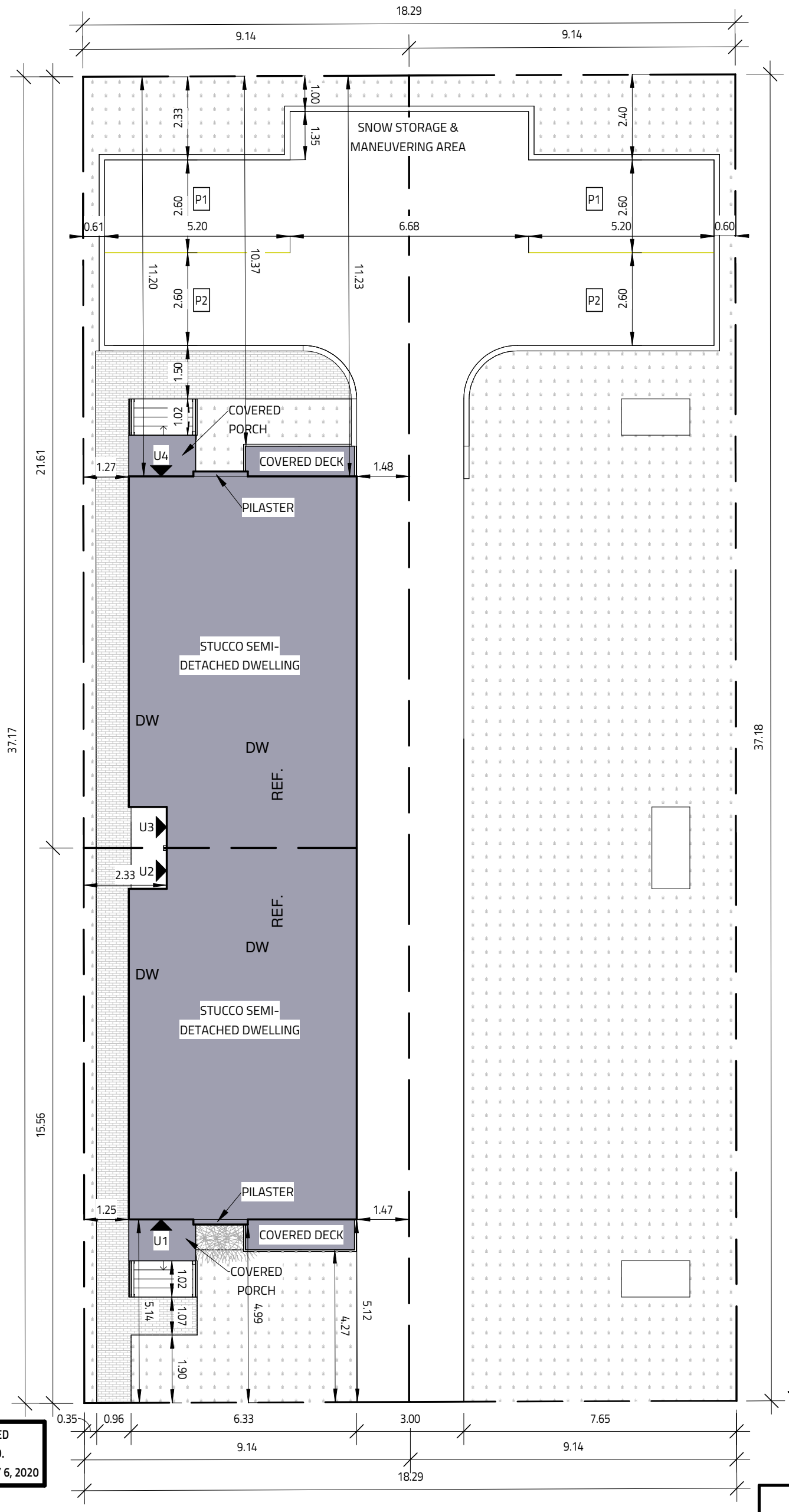

ARCHITECTURAL SITE PLAN PREPARED
BASED ON STANTEC GEOMATICS LTD.
SURVEY SIGNED & DATED FEBRUARY 6, 2020

WOODROFFE AVE.

MARCH 31, 2020 - D1

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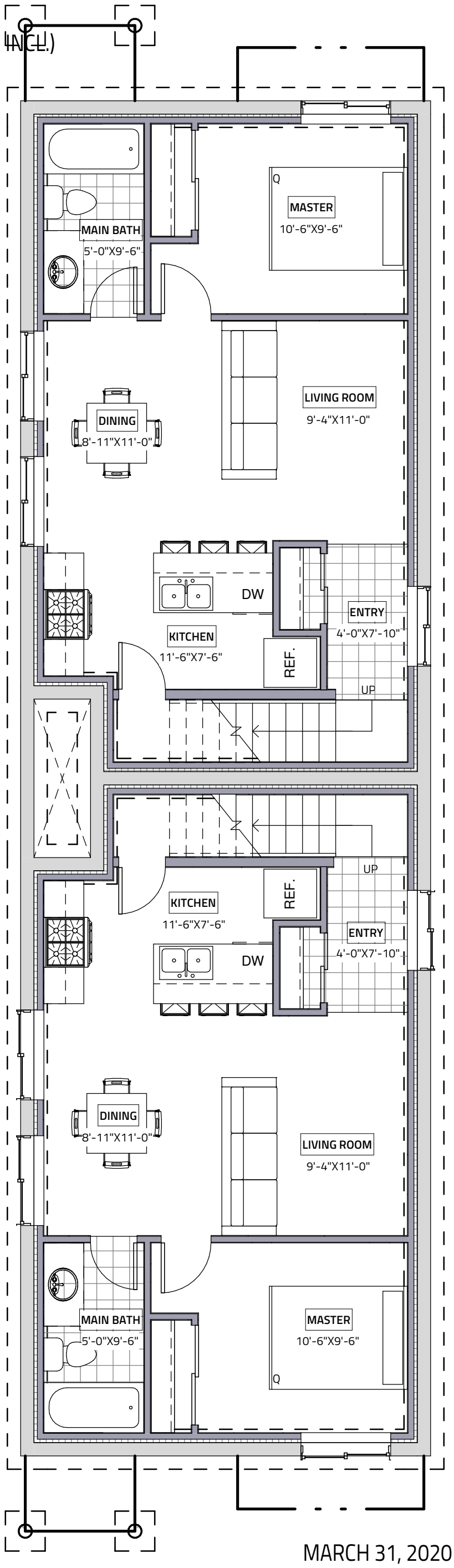

1 0-T/O BASEMENT SLAB

SCALE: 3/16" = 1'-0"

MARCH 31, 2020 - D1

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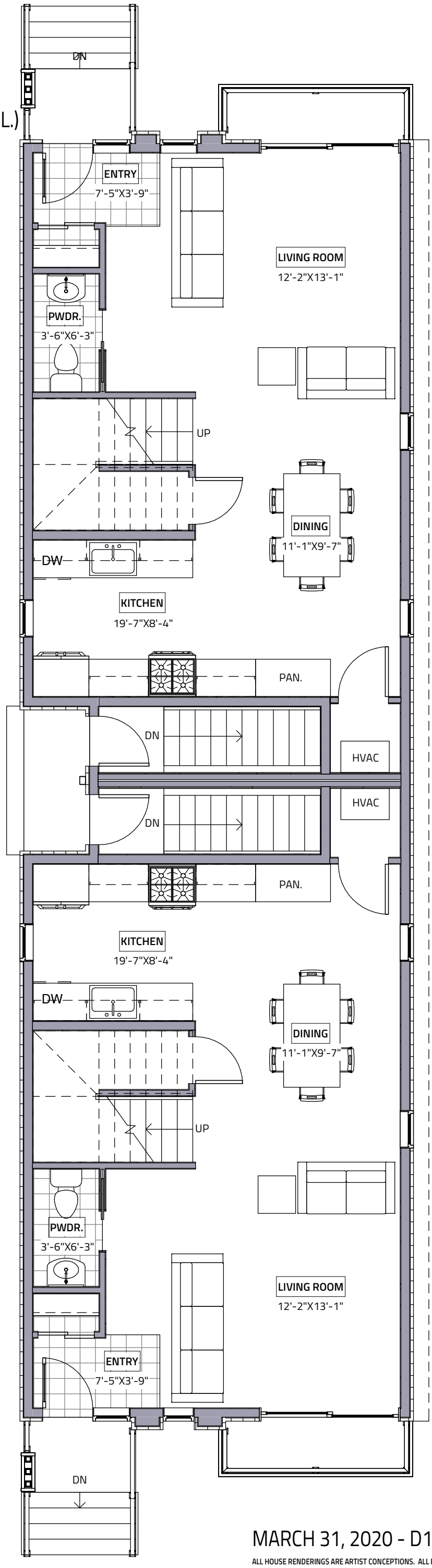

1 1-GROUND FLOOR

SCALE: 3/16" = 1'-0"

MARCH 31, 2020 - D1

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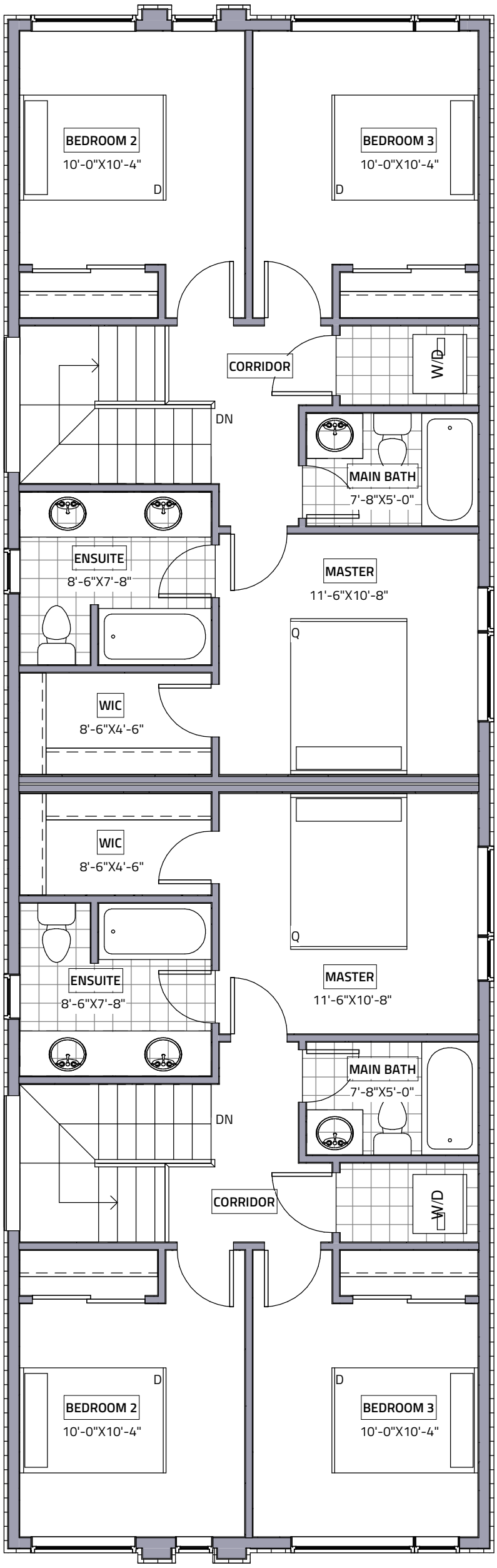

1 2-SECOND FLOOR

SCALE: 3/16" = 1'-0"

MARCH 31, 2020 - D1

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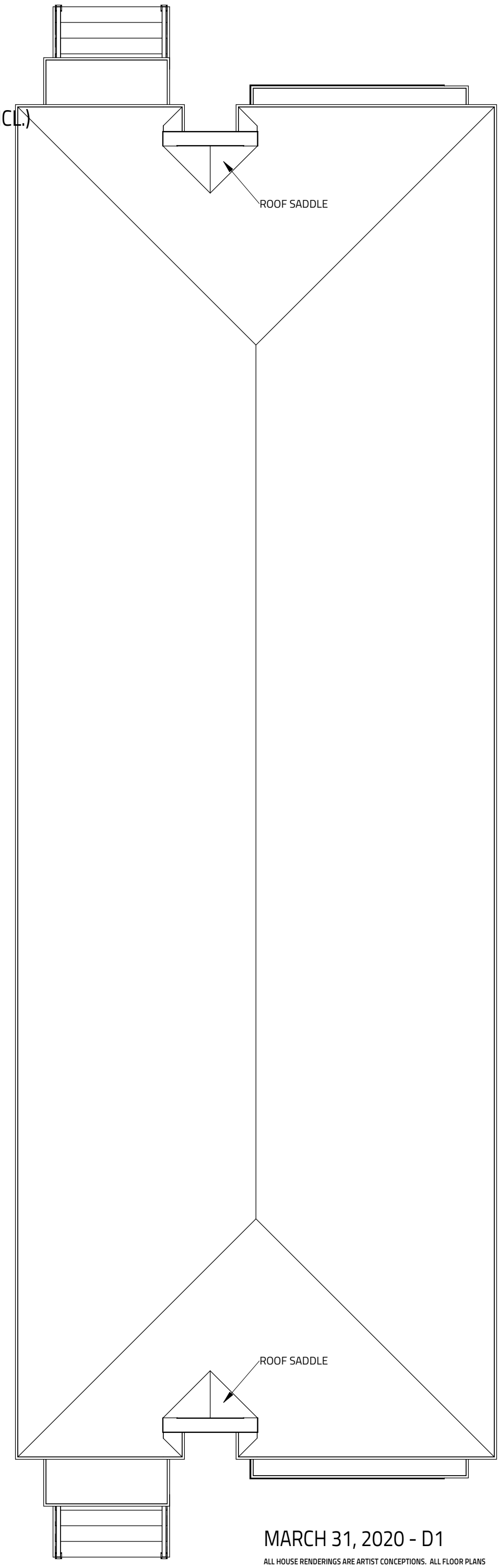

1 3-ROOF PLAN

SCALE: 3/16" = 1'-0"

MARCH 31, 2020 - D1

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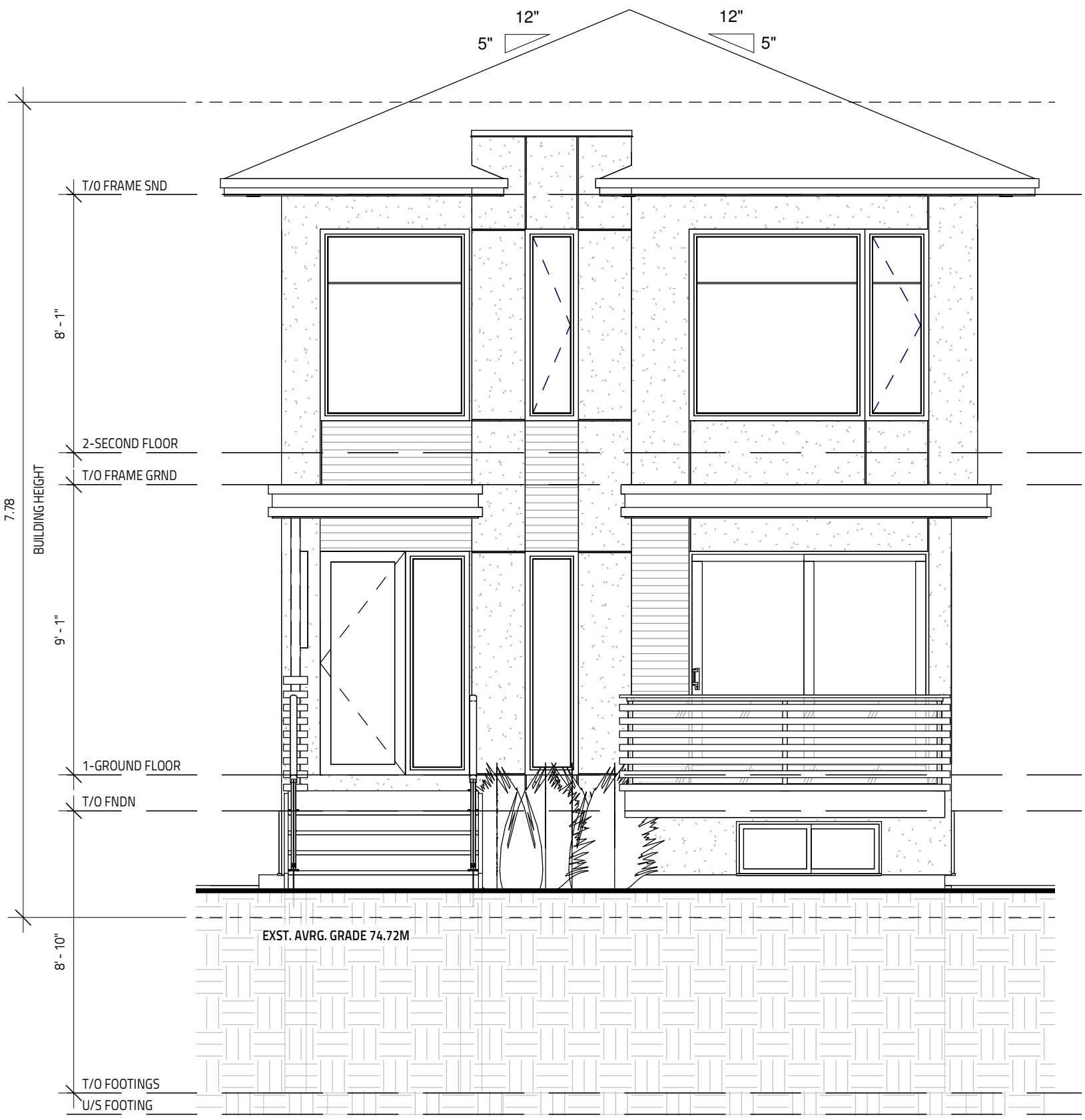

1 FRONT ELEVATION

SCALE: 1/4" = 1'-0"

MARCH 31, 2020 - D1

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1 REAR ELEVATION

SCALE: 1/4" = 1'-0"

MARCH 31, 2020 - D1

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Evolution
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613-884-7068 /// 613-808-7185

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Evolution
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1 LEFT ELEVATION

SCALE: 3/16" = 1'-0"

MARCH 31, 2020 - D1

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TOTAL: 1360 SQ.FT./UNIT (NO BSMT. INCL.)

Evolution
DESIGN & DRAFTING
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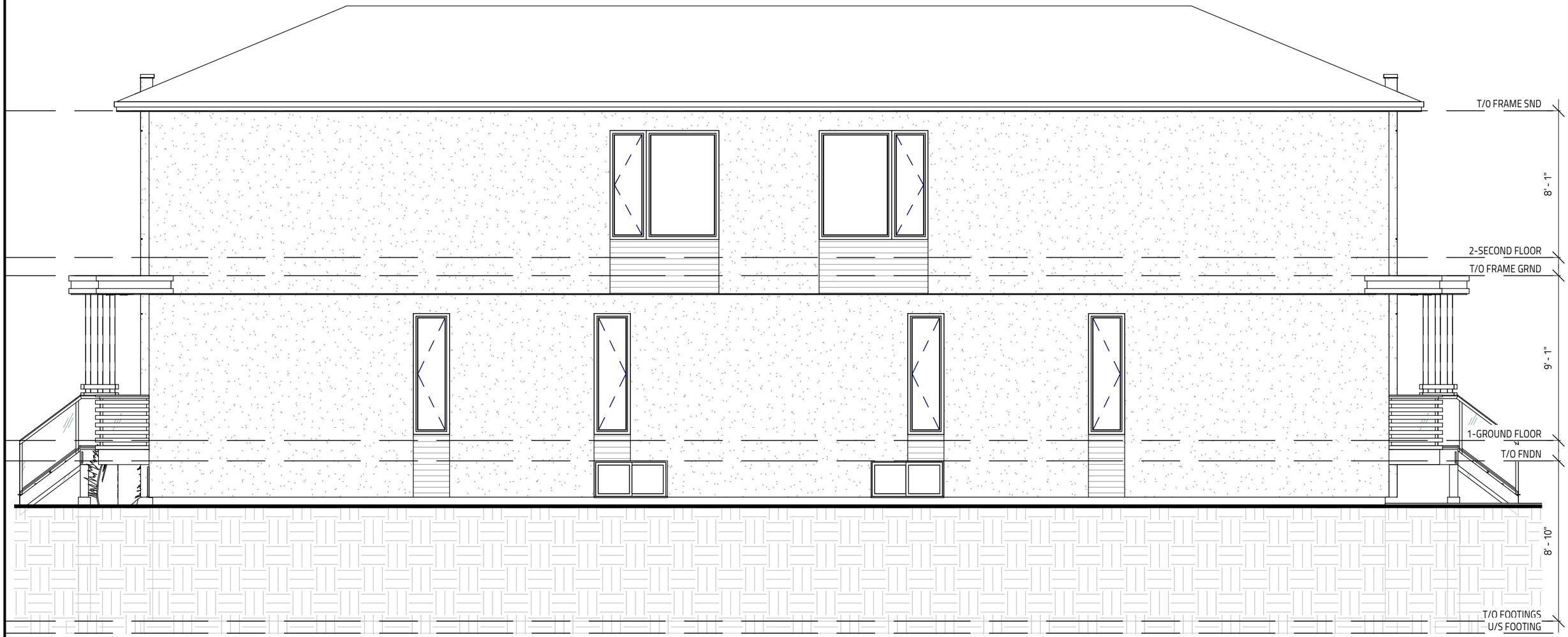

1 RIGHT ELEVATION

SCALE: 3/16" = 1'-0"

MARCH 31, 2020 - D1

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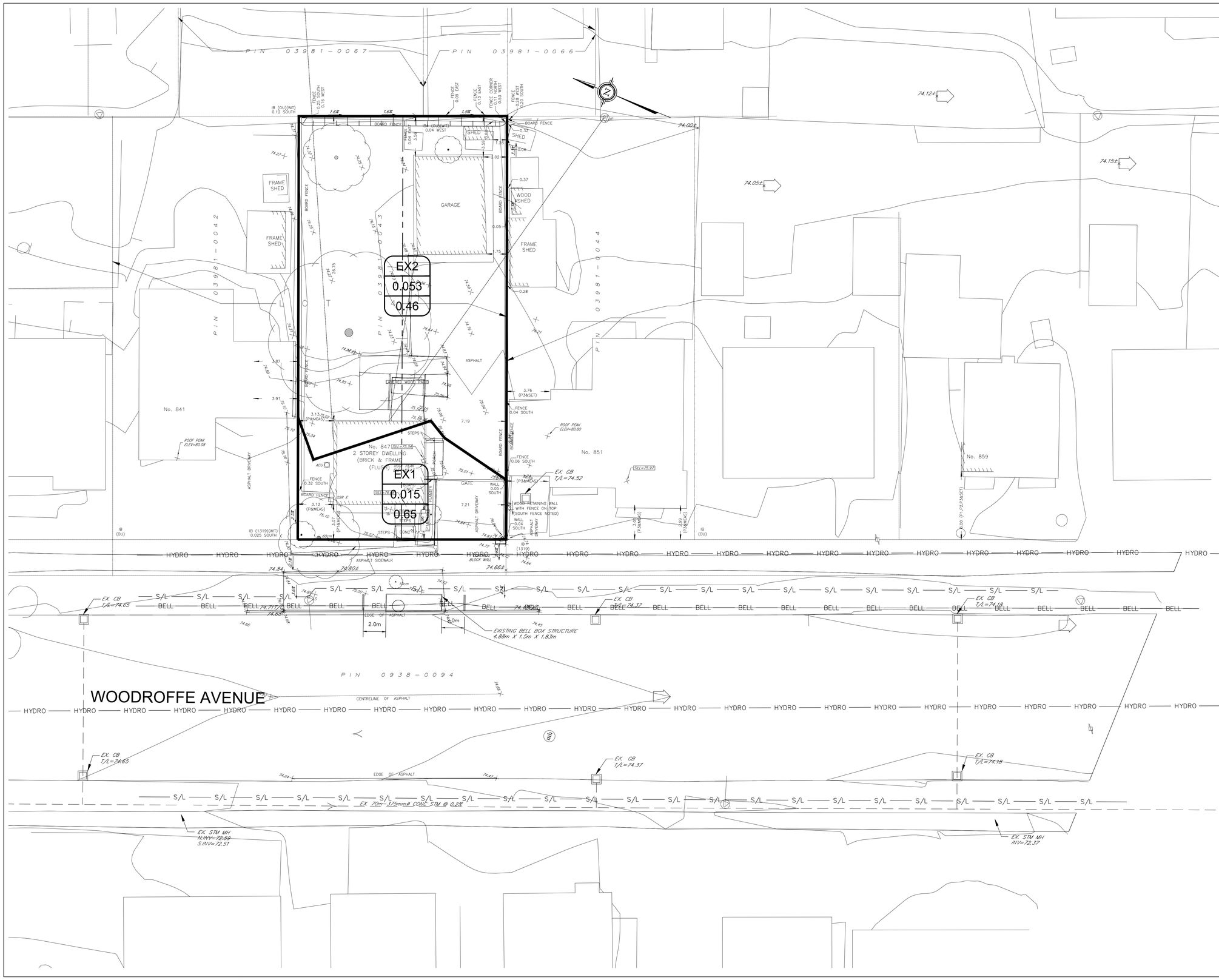

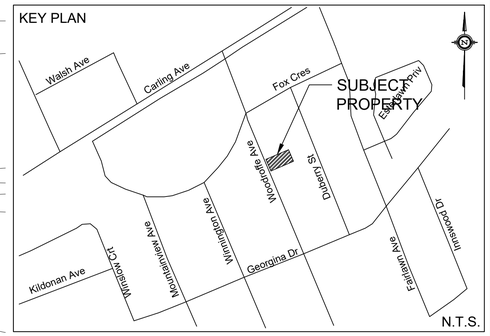

LEGEND

EX6	DRAINAGE AREA ID
4.010	AREA IN Ha
0.19	RATIONAL METHOD RUNOFF COEFFICIENT

PROPERTY LINE

NOT FOR CONSTRUCTION

TOPOGRAPHIC INFORMATION
TOPOGRAPHIC INFORMATION PROVIDED BY STANTEC GEOMATICS LTD.
PROJ. NO. 161614174-110
DATED FEBRUARY 6, 2020

SITE PLAN INFORMATION
SITE PLAN PROVIDED BY EVOLUTION DESIGN AND DRAFTING
PROJ. NO.
DATED MARCH 31, 2020

BENCH MARK
AS PER THE TOPOGRAPHIC SURVEY, THE ELEVATIONS SHOWN HEREON ARE GEODETIC (CGVD-1928:1978) AND ARE DERIVED FROM THE CAN-NET VRS NETWORK MONUMENT
ELEV=95.23

No.	BY	YY.MM.DD	DESCRIPTION
2	C.M.K.	20.09.11	ISSUED FOR MUNICIPAL REVIEW
1	A.J.G.	20.05.19	ISSUED FOR MUNICIPAL REVIEW

LICENSED PROFESSIONAL ENGINEER
A. J. GOSLING
100226726
20-1163
2020-09-11
PROVINCE OF ONTARIO

PROJECT No.20-1163

EXISTING STORMWATER DRAINAGE PLAN
847 WOODROFFE AVENUE

© DSEL

HP URBAN & STIRLING GROUP
1148 Julia Court
Ottawa, ON K0A T0

DSEL
david schaeffer engineering ltd
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DRAWN BY:	C.M.K.	CHECKED BY:	A.J.G.	DRAWING NO.	SHEET NO.
DESIGNED BY:	C.M.K.	CHECKED BY:	A.D.F.	SWM-1	1 of 2
SCALE:	1:150	DATE:	MAY 2020		

CITY FILE No.: D02-02-20-0040 & D07-08-20-0011

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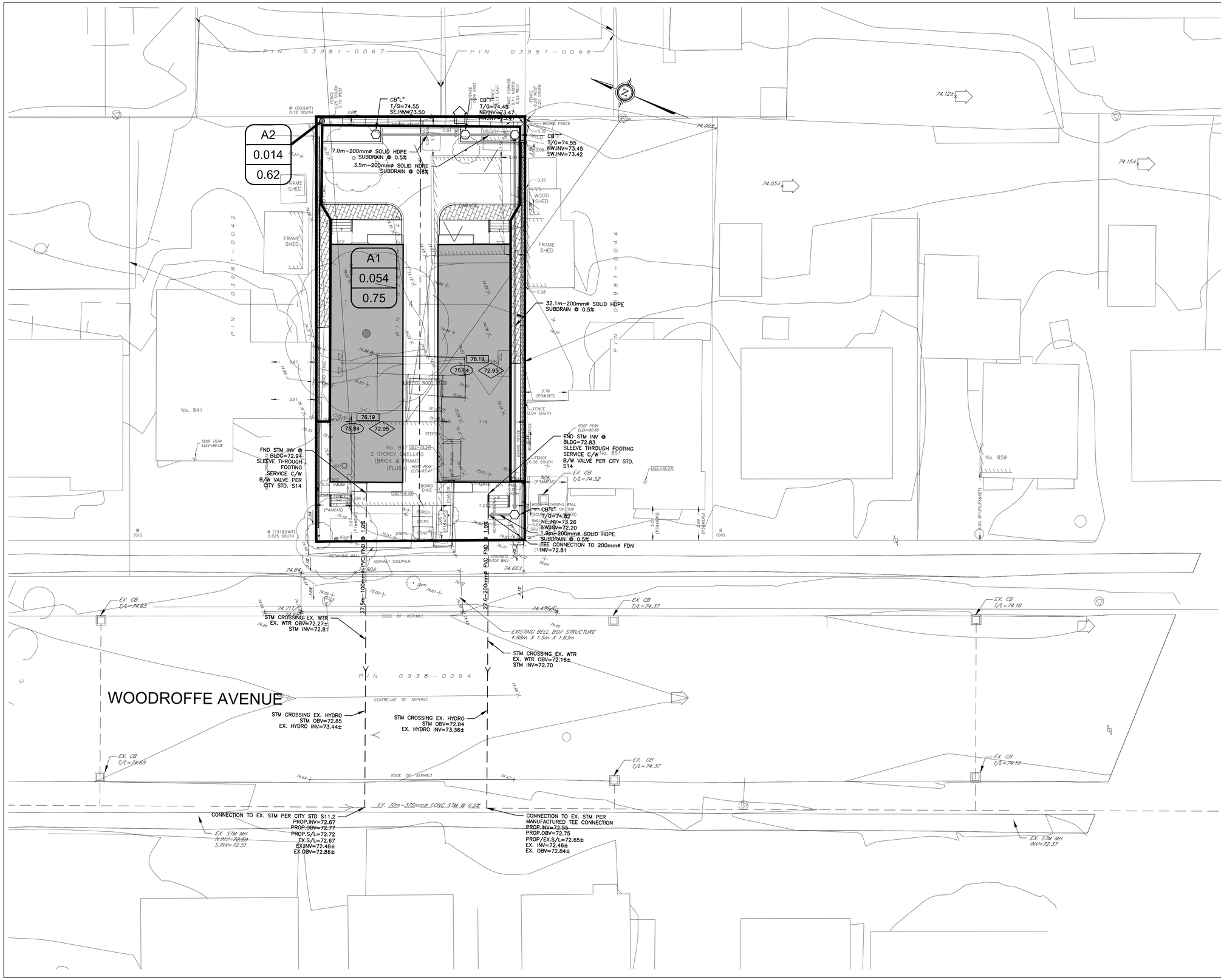
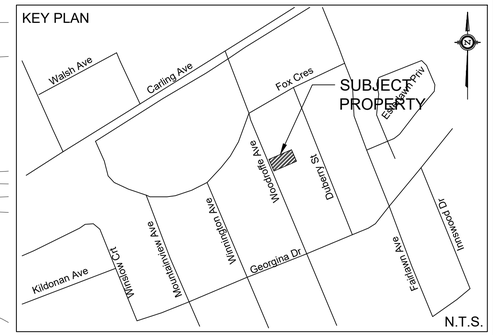


KEY PLAN



LEGEND

DRAINAGE AREA ID	PROPERTY LINE
AREA IN Ha	PROPOSED STORM SEWER
RATIONAL METHOD RUNOFF COEFFICIENT	DRAINAGE DIVIDE
	PROPOSED SWALE
	PROPOSED PERFORATED SUBDRAIN
	PROPOSED STORM MANHOLE
	PROPOSED CATCH BASIN
	PROPOSED CB 'T'
	EMERGENCY FLOW ROUTE

NOT FOR CONSTRUCTION

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LICENSED PROFESSIONAL ENGINEER
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PROPOSED STORMWATER DRAINAGE PLAN
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DRAWN BY:	C.M.K.	CHECKED BY:	A.J.G	DRAWING NO.	SHEET NO.
DESIGNED BY:	C.M.K.	CHECKED BY:	A.D.F.	SWM-2	2 of 2
SCALE:	1:150	DATE:	MAY 2020		

CITY FILE No.: D02-02-20-0040 & D07-08-20-0011

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847 Woodroffe Road

Existing Site Conditions - Runoff to Woodroffe

Estimated Peak Stormwater Flow Rate
City of Ottawa Sewer Design Guidelines, 2012

Existing Drainage (EX-1) Charateristics From Internal Site

Area	0.015	ha
C	0.65	Rational Method runoff coefficient
L	10.39	m
Up Elev	75.16	m
Dn Elev	74.81	m
Slope	3.4	%
Tc	10.0	min

1) Time of Concentration per Federal Aviation Administration

$$t_c = \frac{1.8(1.1-C)L^{0.5}}{S^{0.333}}$$

tc, in minutes
C, rational method coefficient, (-)
L, length in ft
S, average watershed slope in %

Estimated Peak Flow

	2-year	**5-year**	**100-year**	
i	76.8	104.2	178.6	mm/hr
Q	2.1	2.8	6.0	L/s

Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

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847 Woodroffe Road

Existing Site Conditions - Runoff to Existing Rear Yard Swale

Estimated Peak Stormwater Flow Rate
City of Ottawa Sewer Design Guidelines, 2012

Existing Drainage (EX-2) Charateristics From Internal Site

Area	0.053	ha
C	0.46	Rational Method runoff coefficient
L	27	m
Up Elev	75.04	m
Dn Elev	74.14	m
Slope	3.3	%
Tc	10.0	min

1) Time of Concentration per Federal Aviation Administration

$$t_c = \frac{1.8(1.1-C)L^{0.5}}{S^{0.333}}$$

tc, in minutes
C, rational method coefficient, (-)
L, length in ft
S, average watershed slope in %

Estimated Peak Flow

	2-year	**5-year**	**100-year**	
i	76.8	104.2	178.6	mm/hr
Q	5.2	7.0	15.1	L/s

Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

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Stormwater - Proposed Development
City of Ottawa Sewer Design Guidelines, 2012

Estimated Post Development Peak Flow from 847 Woodroffe Avenue Site

Area ID **A1**
Total Area 0.054 ha
C 0.75 Rational Method runoff coefficient

	5-year					100-year				
t_c (min)	i (mm/hr)	Q_{actual} (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)	i (mm/hr)	Q_{actual}* (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10.0	104.2	11.7	11.7	0.0	0.0	178.6	25.1	25.1	0.0	0.0

Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

Area ID **A2**
Total Area 0.014 ha
C 0.62 Rational Method runoff coefficient

	5-year					100-year				
t_c (min)	i (mm/hr)	Q_{actual} (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)	i (mm/hr)	Q_{actual}* (L/s)	$Q_{release}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10.0	104.2	2.6	2.6	0.0	0.0	178.6	5.5	5.5	0.0	0.0

Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)