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Stittsville, Ontario K2S 1E9
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www.dsel.ca

GRADING AND STORMWATER MANAGEMENT MEMORANDUM

DATE: 2020-05-29 *EMAIL*

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

SUBJECT: **Proposed Amendment to 1309 Carling Avenue – Phase 1 Site Plan Application**
City File Number: D07-12-18-0170

OUR FILE: DSEL Project No. 18-1028

ATTACHMENTS:

- Site Plan, SP-1 by Roderick Lahey Architect Incorporated., Dated May 21, 2020 (Proposed Amendment)
- Site Plan, SP-1, by Roderick Lahey Architect Incorporated., Dated September 10th, 2019 (Previously Approved)
- Grading Plan, GP-1, by DSEL, Dated May 29th, 2020 (Proposed Amendment)
- Grading Plan, GP-1, by DSEL, Dated July 19th, 2019 (Previously Approved)
- Site Servicing Plan, SSP-1, by DSEL, Dated May 29th, 2020 (Proposed Amendment)
- Site Servicing Plan, SSP-1, by DSEL, Dated July 19th, 2019 (Previously Approved)
- Stormwater Management Plan, SWM-1, by DSEL, Dated May 29th, 2020 (Proposed Amendment)
- Stormwater Management Plan, SWM-1, by DSEL, Dated July 19th, 2019 (Previously Approved)
- Stormwater Management Calculations, by DSEL, Dated May 29th, 2020 (Proposed Amendment)
- Stormwater Management Calculations, by DSEL, Dated July, 2020 (Previously Approved)

RioCan Holdings Incorporated has provided a revised site plan (SP-1) dated May 21, 2020, included at the back of this memo. The updated site plan proposes to amend the previously approved site plan application D07-12-18-0170.

The following memo addresses the impact of the updated site plan on the previously approved Functional Servicing and Stormwater Management Report prepared by David Schaeffer Engineering Ltd, dated July 2019.

The updated Site Plan proposes modifications to the drive aisle and parking layout located northeast of the proposed building. Based on the updated site plan there are no proposed changes to the number of dwellings, commercial area, amenity area or total building area, therefore, anticipated water and wastewater servicing is consistent with the previously approved report.

The revised site plan resulted in updates to the previously approved grading and stormwater management plans, ***GP-1*** and ***SWM-1***, dated July 2019. As shown on the revised ***GP-1*** and ***SWM-1***, drainage areas have been updated however drainage patterns have been kept consistent with the previously approved plans.

Table 1 summarizes the previously approved release rates and onsite storage required to meet established target release rates from the existing approved stormwater management plan. The previous established allowable release rate was ***67.3 L/s***.

Table 1 - Previously Approved SWM Summary

Control Area	5-Year Release Rate (L/s)	5-Year Storage (m^3)	100-Year Release Rate (L/s)	100-Year Required Storage (m^3)	100-Year Available Storage (m^3)
Unattenuated Areas (UN1)	14.8	0.0	28.1	0.0	0.0
Unattenuated Areas (UN2)	4.1	0.0	8.8	0.0	0.0
Attenuated Area (C1)	11.8	4.5	17.2	11.8	11.9
Attenuated Area (C2+ BLD)	1.8	132.5	3.9	255.0	264.5
Attenuated Area (C3)	5.7	0.8	6.1	28.6	29.8
Total	**38.1**	**137.8**	**64.1**	**295.4**	**306.2**

The attached storm calculation sheets illustrate the previously approved plan and proposed amendment.

Table 2, summarizes the anticipated release rates and onsite storage required to meet established target release rates as proposed by the amendment based on the updated drainage parameters.

Table 2 - Proposed Amendment SWM Summary

Control Area	5-Year Release Rate (L/s)	5-Year Storage (m^3)	100-Year Release Rate (L/s)	100-Year Required Storage (m^3)	100-Year Available Storage (m^3)
Unattenuated Areas (UN1)	13.8	0.0	29.4	0.0	0.0
Unattenuated Areas (UN2)	2.9	0.0	6.3	0.0	0.0
Attenuated Area (C1)	11.3	4.3	17.7	11.5	11.9
Attenuated Area (C2+ BLD)	4.4	115.5	6.1	242.9	265.2
Attenuated Area (C3)	5.6	0.6	6.1	28.1	29.8
Total	**38.0**	**120.3**	**65.6**	**282.5**	**306.9**

As demonstrated above, the proposed 100-year stormwater release rate is less than the allowable of ***67.3 L/s***.

The proposed stormwater design conforms to all relevant ***City Standards*** and Policies and meets the design objectives.

DSEL trusts that the above will be sufficient to support an amendment to the previously approved grading plan 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.

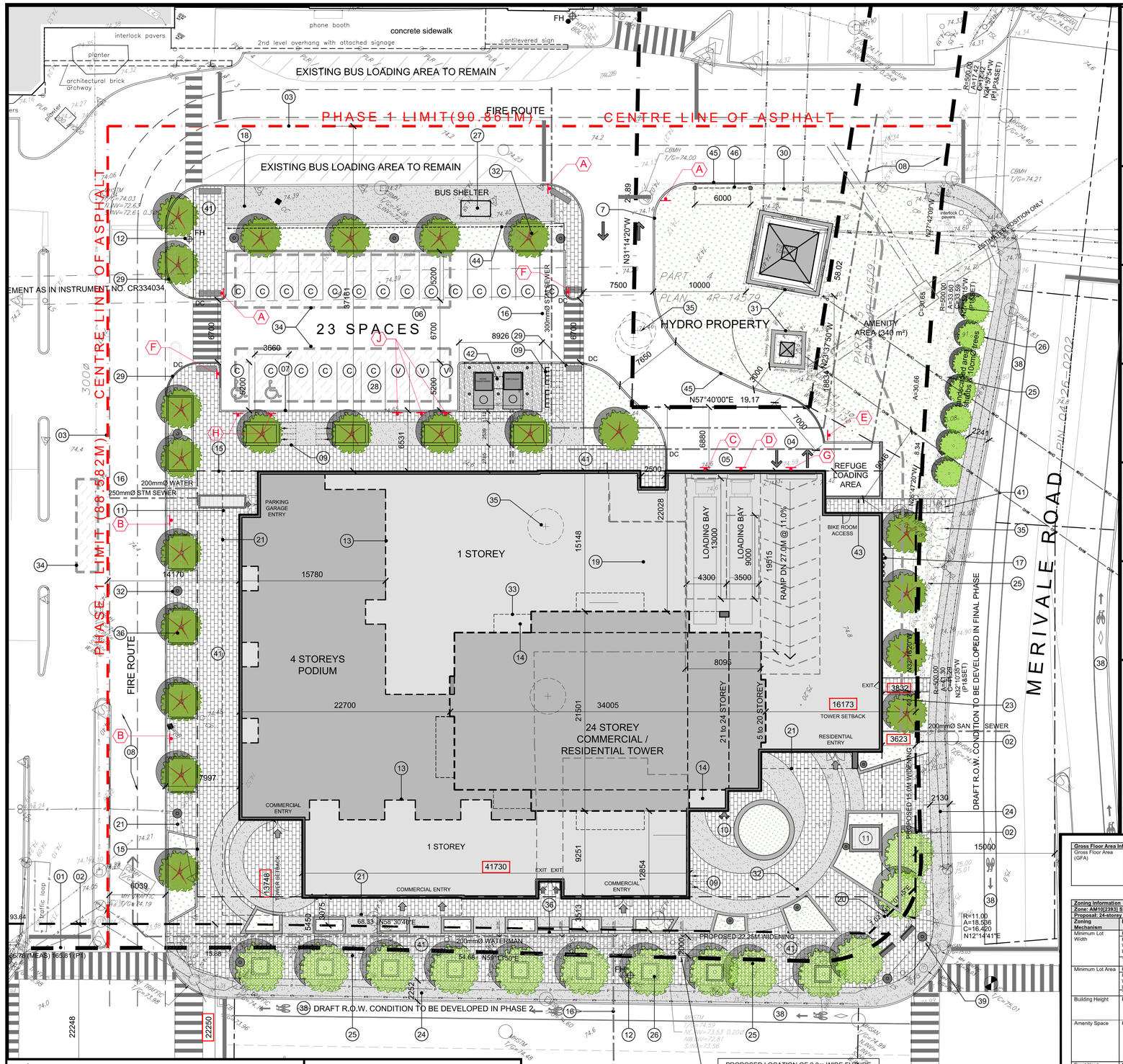
LICENSED PROFESSIONAL ENGINEER
A. D. FOBERT
100090626
2020-05-29
PROVINCE OF ONTARIO
Job# 18-1028

Per: Adam D. Fobert, P.Eng.

Prepared by,
David Schaeffer Engineering Ltd.

Per: Brandon N. Chow

Z:\Projects\18-1028_RioCAN_Westgate-Phase-1\B_Design\B3_Reports\B3-2_Servicing (DSEL)\2020-05_memo\2020-05-29_1028_memo_cmk.docx



KEY MAP

LEGAL DESCRIPTION

TOPOGRAPHIC PLAN of
LOTS 45, 46, 50 TO 57 INCLUSIVE AND
PART OF LOT 49
REGISTERED PLAN NO. 348 AND PART OF
LOT 48, NO. 311 AND PART OF LOTS 22 & 23
CONCESSION 1 (OTTAWA FRONT)
(GEOGRAPHIC TOWNSHIP OF NEPEAN)
CITY OF OTTAWA

PROJECT DEVELOPER

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DRAWING NOTES

1. PROPERTY LINE
2. PROPOSED ROAD WIDENING
3. PHASING LINE
4. PARKING GARAGE ENTRY DRIVEWAY / RAMP WITH TRENCH DRAIN
5. GARBAGE / LOADING BAY ENTRY
6. COMMERCIAL / VISITOR ASPHALT PARKING LOT
7. 150mm BARRIER CURB
8. EXISTING SITE ENTRY TO REMAIN
9. BICYCLE PARKING SPACES (0.6 x 1.8M) WITH RACK
10. SIAMESE CONNECTION
11. AIR INTAKE / EXHAUST GRILL
12. FIRE HYDRANT
13. OUTLINE OF PODIUM LEVELS ABOVE
14. OUTLINE OF TOWER LEVELS ABOVE
15. OUTLINE OF UNDERGROUND PARKING LEVELS
16. PROPOSED LOCATION OF UNDERGROUND UTILITIES
17. GAS REGULATOR / METER EQUIPMENT AREA
18. EX. CONCRETE SIDEWALK WITH STREET CURB TO BE REBUILT
19. EXISTING 1 STOREY BUILDING TO BE REMOVED
20. 5.0 x 5.0m SITE TRIANGLE
21. CANOPY ABOVE GROUND FLOOR
22. SITE FURNITURE - SEE LANDSCAPE PLAN
23. SWALE - SEE CIVIL PLAN
24. EXISTING CITY SIDEWALK
25. EXISTING WALL / FENCE TO BE REMOVED
26. EXISTING CITY TREES TO REMAIN
27. EXISTING BUS STOP / SHELTER TO REMAIN
28. STANDARD PARKING SPACE 2.6 x 5.2 m
29. DEPRESSED CURB WITH TWSI AS REQUIRED
30. EXISTING PARKING LOT / CURBS / ISLANDS / LIGHTS POLES... TO BE REMOVED
31. EXISTING HYDRO TOWER WITH CONCRETE BARRIERS AT BASE
32. LIGHT STANDARD
33. BALCONY ABOVE
34. STORM WATER STORAGE SYSTEM
35. EXISTING TREE TO BE REMOVED
36. LOW STEP, MAXIMUM HEIGHT 190mm
37. EXISTING BLACK METAL CITY BENCH
38. BICYCLE LANE
39. STREET / SIDEWALK LIGHTING
40. DISABLED PARKING SPACE 3.66 x 5.2 m
41. 2.0M WIDE PEDESTRIAN - HARD SURFACE WALK
42. HYDRO TRANSFORMER / EQUIPMENT
43. RETAINING WALL, UNDER 0.6 m
44. 1.2 m HT. BLACK METAL PICKET FENCE
45. DEPRESSED CURB
46. BOLLARD WITH BAR STYLE GATE

PROJECT INFORMATION

ZONING	AM10[2393] S368
SITE AREA	36,896 sq. m. (397,145) sq. ft.
BUILDING HEIGHT	AREA 'A' = 24 STOREYS AREA 'B' = 36 STOREYS
AMENITY AREA - 6m² PER UNIT	1,218 sq. m.

PROJECT STATISTICS - PHASE 1 ONLY

SITE AREA		7,191.2 sq. m. (77,405) sq. ft.
BUILDING HEIGHT	(78.0 M)	24 STOREYS
AVERAGE MEAN GRADE		(GEO. ELEV.) 74.80

GROSS BUILDING - AREAS
(CITY OF OTTAWA'S DEFINITION)

PARKING LEVELS (2 LEVELS U/G)		0.0 sq. m. (000) sq. ft.
GROUND FLOOR		1,804.1 sq. m. (19,419) sq. ft.
2nd to 4th FLOOR	3 x 1,045.0 sq. m. 3 x (11,246) sq. ft.	3,135.0 sq. m. (33,744) sq. ft.
5th FLOOR		0.0 sq. m. 000 sq. ft.
6th to 10th FLOOR	5 x 510.9 sq. m. 5 x (5,499) sq. ft.	2,554.4 sq. m. (27,495) sq. ft.
11th to 20th FLOOR	10 x 515.05 sq. m. 10 x (5,544) sq. ft.	5,150.5 sq. m. (5,544.0) sq. ft.
21st & 22nd FLOOR	2 x 460.6 sq. m. 2 x (4,958) sq. ft.	921.2 sq. m. (9,916) sq. ft.
23rd & 24th FLOOR	2 x 393.8 sq. m. 2 x (4,239) sq. ft.	787.6 sq. m. (8,478) sq. ft.
MECHANICAL FLOOR		0.0 sq. m. (000) sq. ft.
TOTAL AREA		14,532.8 sq. m. (154,492) sq. ft.

UNIT STATISTICS

STUDIO UNIT	13
1 BEDROOM UNIT	135
2 BEDROOM UNIT	65
TOTAL	213
COMMERCIAL RETAIL	1,612.3 sq. m. (17,355) sq. ft.
COMMERCIAL RESTAURANT	191.8 sq. m. (2,065) sq. ft.

AMENITY AREA

EXTERIOR COMMUNAL AT GRADE	340.0 sq. m. 3,660 sq. ft.
5th FLOOR COMMUNAL AMENITY ROOM	480.0 sq. m. 5,167 sq. ft.
5th FLOOR COMMUNAL ROOF TOP PATIO	645.0 sq. m. 6,943 sq. ft.
PRIVATE BALCONIES	1,505.0 sq. m. 16,200 sq. ft.
TOTAL =	2,970.0 sq. m. 31,970 sq. ft.
REQUIRED - 6.0M² PER UNIT (213) =	1,278.0 sq. m. 13,756 sq. ft.
REQUIRED COMMUNAL @ 50% =	639.0 sq. m. 6,878 sq. ft.

LOT COVERAGE

PAVED SURFACE =	1,848.9 sq. m.	25.7%
BUILDING FOOTPRINT =	2,830.0 sq. m.	39.3%
LANDSCAPE OPEN SPACE =	2,512.3 sq. m.	35.0%
TOTAL =	7,191.2 sq. m.	100.0%

CAR PARKING - PROVIDED

RESIDENTIAL UNITS	0.61 per UNIT	124
RESIDENTIAL VISITOR	0.1 per UNIT	20
COMMERCIAL RETAIL	3.24 per 1,000 sq. ft.	64
COMMERCIAL CAFÉ		0
TOTAL		208
STANDARD PARKING SPACE	2.6 x 5.2 m	185
SMALL CAR PARKING SPACE	2.4 x 4.6 m	18
HANDICAPPED SPACE	3.66 x 5.2 m	5

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT.

ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.

THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT.

DO NOT SCALE DRAWINGS.

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NOTATION SYMBOLS:

- (00) INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
- (00) INDICATES ASSEMBLIE TYPE; REFER TO TYPICAL ASSEMBLIES SCHEDULE.
- (00) INDICATES WINDOW TYPE; REFER TO WINDOW ELEVATIONS AND DETAILS ON A900 SERIES.
- (000) INDICATES DOOR TYPE; REFER TO DOOR SCHEDULE AND DETAILS ON A900 SERIES.
- 00 / TITLE / SCALE — DETAIL NUMBER; TITLE; DETAIL REFERENCE PAGE; DETAIL CROSS REFERENCE PAGE

No.	DESCRIPTION	DATE
22	ISSUED FOR ASI #007	May 12, 20
21	ISSUED FOR REVIEW	May 6, 20
20	REVISED HYDRO CLEARANCES	Apr. 8, 20
19	ISSUED FOR CONSTRUCTION	Mar. 5, 20
18	ISSUED FOR TENDER # 4	Jan. 17, 20
17	ISSUED FOR PUBLIC MEETING	Oct. 31, 19
16	ISSUED FOR CONCRETE & REBAR TENDER	Oct. 18, 19
15	GENERAL REVISION - NOT ISSUED	Oct. 9, 19
14	ISSUED FOR SPC ROUND #4 COMMENTS	Sept. 10, 19
13	ISSUED FOR BUILDING PERMIT	Sept. 3, 19
12	ISSUED FOR EXCAVATION PERMIT	Aug. 22, 19
11	ISSUED FOR EXC. / ELEV. / R.A. TENDER	Aug. 22, 19
10	HYDRO CHANGES	Aug. 15, 19
9	ISSUED FOR SPC ROUND #3 COMMENTS	July 17, 19
8	ISSUED FOR 33% REVIEW	June 7, 19
7	UPDATED ZONING STAT SHEETS	June 3, 19
6	ISSUED FOR SPC ROUND #1 COMMENTS	Mar. 22, 19
5	ISSUED FOR HYDRO EMI STUDY	Mar. 14, 19
4	ISSUED FOR CONSULTANT COORDINATION	Feb. 28, 19
3	ISSUED FOR COMMUNITY MEETING	Jan. 09, 19
2	ISSUED FOR SITE PLAN CONTROL	Oct. 31, 18
1	ISSUED FOR ZONING AMENDMENT	Dec. 21, 15

REVISIONS:

ARCHITECT SEAL: ONTARIO ASSOCIATION OF ARCHITECTS — RODERICK LAHEY LICENCE 4375
SEAL DATE: STAMP DATE

NORTH ARROW:

CLIENT: RIO CAN

ARCHITECT: rla/architecture — roderick lahey architect inc.
56 beech street, ottawa, ontario K1S 3J6
t.613.724.9932 f. 613.724.1209 rlaarchitecture.ca

PROJECT TITLE:
WESTGATE
1309 CARLING AVENUE
OTTAWA ONTARIO

SHEET TITLE:
SITE PLAN
PHASE 1
WESTGATE LANDS

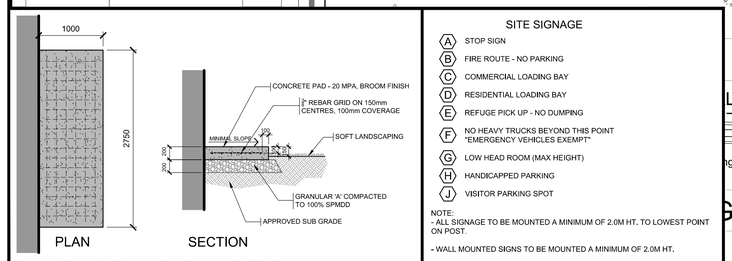
DRAWN:	CHECKED:
RV	R.V.
SCALE: 1:200	SHEET No. SP-1
PROJECT No. 1807	

D07-12-18-0170

Gross Floor Area Information			
Gross Floor Area (GFA)	Phase 1	Residential	12,548.7 m2
		Retail Tenant 1	1,649.8 m2
		Retail Tenant 2	221.2 m2
		Total	14,419.7 m2
	Retained Westgate Lands	Shopping Centre	11,073 m2
		Office	3,810 m2

Zoning Information Zone: AM10[2393] S368 – Arterial Mainstreet, Subzone 10, Exception 2393, Schedule 368 Proposal: 24-storey mixed-use building with a two-storey underground parking garage			
Zoning Mechanism	Required		Provided
Minimum Lot Width	Phase 1	No minimum	84.20 m
	Retained Westgate Lands	No minimum	144.29 m
	Total	No minimum	228.49 m
Minimum Lot Area	Phase 1	No minimum	7,191.2 m2
	Retained Westgate Lands	No minimum	29,704.8 m2
	Total	No minimum	36,896 m2
Building Height	Phase 1	Minimum 7.5m containing at least two storeys *Section 185(10)(e)(ii)* Maximum 24 storeys as per S.368	78.0 m 24 storeys
Amenity Space	Phase 1	No. required private amenity space (terraces and balconies)	1,505 m2 See SP-1 stats for brake down
		639 square metres communal area *(50% of 1,278m2)*	2,125 m2 (480 m2 indoor and 1,645 m2 outdoor)
		1,278 square metres total required for a mixed-use building, with 9 or more dwelling units (6m2 x 213 DU = 1,278)	3,630 m2
Front Yard Setback (Carling Avenue)	Minimum 0m *Section 185(10)(b)(i)* Maximum 7m *Section 185(10)(g) and Exception 2393* At least 50% of the frontage along the front lot line must be occupied by building walls located within 7m for a mixed-use building *Section 185(10)(b)(i) and (ii)(1) and Exception 2393*		to property line 5.45 m to ROW 3.075 m 18% of the entire Carling Avenue frontage. The remaining amount will be satisfied in future phases.
Corner Side Yard setback (Merivale Road)	Minimum 0m *Section 185(10)(b)(i)* Maximum 6m *Exception 2393*		3.50m
Minimum Rear Yard Setback	n/a for phase 1		n/a
Minimum & Maximum Interior Side Yard Setback	n/a (no interior side yards in Phase 1)		n/a
Minimum Glazing of Ground Floor	A minimum of 50% of the surface area of the ground floor façade, measured from the average grade up to a height of 4.5m, facing a public street must be comprised of transparent glazing and active customer or resident entrance access doors. *Section 185(10)(h)*		73% of the ground floor façade facing Carling Avenue is transparent glazing and active access doors. 51.0% of the ground floor façade facing Merivale Road is transparent glazing and active access doors.
Minimum Height of Ground Floor	Any portion of a mixed-use building located within 10m of a front lot line or corner lot line requires a minimum ground floor height of 4.5m *Section 185(10)(e)(i)*		5.6 m

Parking & Loading Information Schedule 1A, Zoning By-law 2008-250: Area Y: Inner Urban Mainstreets				
Performance Standard			Required	Proposed
Vehicular Parking	Phase 1	101 spaces (213DU – 12DU = 201DU x 0.5 = 101)	Minimum number of parking spaces for Dwelling Units in a mixed-use building is 0.5 per dwelling unit	124 spaces
		20 spaces (213DU – 12DU = 201DU x 0.1 = 20.1)	Minimum number of parking spaces for Visitors is 0.1 per dwelling unit	20 spaces
		31 spaces Retail Space 1 (Total Retail GFA 1,804m2) =	Minimum number of parking spaces for shopping centre use is 1.7 per 100m2 of GFA	64 spaces
		3 spaces	Minimum Number of spaces to be reserved for physically disabled persons (By-law 2003-530, Part C)	5 spaces
		152 spaces	Total number of parking spaces within Phase 1 Lands	208 spaces (185 spaces within 2-levels of U/G & 23 surface spaces)
	Retained Westgate Lands	188 spaces 11,073 m2 (gross leasable floor area of shopping centre use)	Minimum number of parking spaces for shopping centre use is 1.7 per 100m2 of gross leasable floor area	273 spaces
		38 spaces 3,810 m2 (gross floor area of office use)	Minimum number of parking spaces for office use is 1 per 100m2 of GFA	40 spaces
		226 spaces	Total	313 spaces
	Total (Phase 1 and Retained)	378 spaces		521 spaces
	Additional parking provided on leased hydro land	n/a		309 spaces
Bicycle Parking	Phase 1	107 (0.5x 213DU = 107)	Minimum number of parking spaces for Dwelling Units is 0.5 per dwelling unit	120 spaces
		5 spaces	Minimum number of parking spaces for Shopping Centre Use is 1 per 500m2 of GFA	10 spaces
		112 spaces	Total number of bicycle parking spaces within Phase 1 Lands	130 spaces
	Retained Westgate Lands	22 spaces	Minimum number of parking spaces for Shopping Centre Use is 1 per 500m2 of GFA	20 spaces
		15 spaces	Minimum number of parking spaces for Office Use is 1 per 250m2 of GFA	10 spaces
	Total (Phase 1 and Retained)	149 spaces		160 spaces
Loading	Phase 1	n/a	Minimum number of loading spaces	2 spaces
	Retained Westgate Lands	2 spaces	Minimum number of loading spaces	3 spaces
	Total	2 spaces		5 spaces
	Minimum loading space width and length	3.5 x 9.0 m 4.3 x 13 m		3.5 x 9.0 m 4.3 x 13 m
	Minimum width of driveway accessing loading space	6.0 m		6.0 m



PLAN OF GAS EQUIPMENT CONCRETE PAD

SITE SIGNAGE

- (A) STOP SIGN
- (B) FIRE ROUTE - NO PARKING
- (C) COMMERCIAL LOADING BAY
- (D) RESIDENTIAL LOADING BAY
- (E) REFUGE PICK UP - NO DUMPING
- (F) NO HEAVY TRUCKS BEYOND THIS POINT "EMERGENCY VEHICLES EXEMPT"
- (G) LOW HEAD ROOM (MAX HEIGHT)
- (H) HANDICAPPED PARKING
- (J) VISITOR PARKING SPOT

NOTE:
- ALL SIGNAGE TO BE MOUNTED A MINIMUM OF 2.0M HT. TO LOWEST POINT ON POST.
- WALL MOUNTED SIGNS TO BE MOUNTED A MINIMUM OF 2.0M HT.
- OVERHEAD SIGNS TO BE MOUNTED AT LOWEST EDGE OF BUILDING ABOVE

1 / SP-1 SITE PLAN (PHASE 1)
SCALE = 1 : 200
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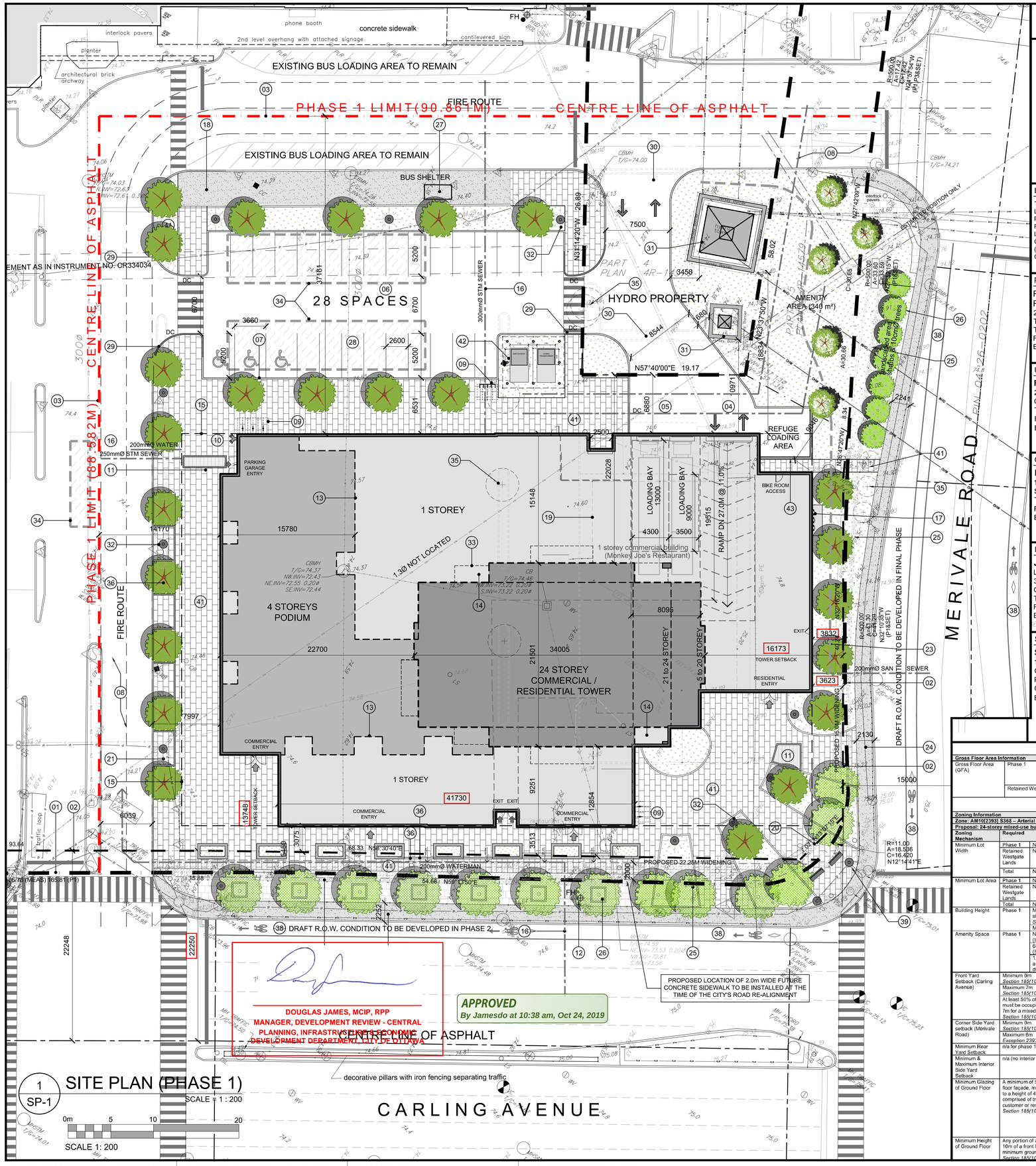
SCALE 1: 200



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22. SITE FURNITURE - SEE LANDSCAPE PLAN
23. SWALE - SEE CIVIL PLAN
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25. EXISTING WALL / FENCE TO BE REMOVED
26. EXISTING CITY TREES TO REMAIN
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33. BALCONY ABOVE
34. STORM WATER STORAGE SYSTEM
35. EXISTING TREE TO BE REMOVED
36. LOW STEP, MAXIMUM HEIGHT 190mm
37. EXISTING BLACK METAL CITY BENCH
38. BICYCLE LANE
39. STREET / SIDEWALK LIGHTING
40. DISABLED PARKING SPACE 3.66 x 5.2 m
41. 2.0M WIDE PEDESTRIAN - HARD SURFACE WALK
42. HYDRO TRANSFORMER / EQUIPMENT
43. RETAINING WALL, UNDER 0.6 m

PROJECT INFORMATION

ZONING	AM10[2393] S368
SITE AREA	36,896 sq. m. (397,145) sq. ft.
BUILDING HEIGHT	AREA 'A' = 24 STOREYS AREA 'B' = 36 STOREYS
AMENITY AREA - 6m² PER UNIT	1,218 sq. m.

PROJECT STATISTICS - PHASE 1 ONLY

SITE AREA		7,191.2 sq. m. (77,405) sq. ft.
BUILDING HEIGHT	(78.0 M)	24 STOREYS
AVERAGE MEAN GRADE	(GEO. ELEV.)	74.80

GROSS BUILDING - AREAS
(CITY OF OTTAWA'S DEFINITION)

PARKING LEVELS (2 LEVELS U/G)		0.0 sq. m. (0000) sq. ft.
GROUND FLOOR		1,804.1 sq. m. (19,419) sq. ft.
2nd to 4th FLOOR	3 x 1,045.0 sq. m. 3 x (11,248) sq. ft.	3,135.0 sq. m. (33,744) sq. ft.
5th FLOOR		0.0 sq. m. 000 sq. ft.
6th to 10th FLOOR	5 x 510.9 sq. m. 5 x (5,499) sq. ft.	2,554.4 sq. m. (27,495) sq. ft.
11th to 20th FLOOR	10 x 515.05 sq. m. 10 x (5,544) sq. ft.	5,150.5 sq. m. (5,544.0) sq. ft.
21st & 22nd FLOOR	2 x 460.6 sq. m. 2 x (4,958) sq. ft.	921.2 sq. m. (9,916) sq. ft.
23rd & 24th FLOOR	2 x 393.8 sq. m. 2 x (4,239) sq. ft.	787.6 sq. m. (8,478) sq. ft.
MECHANICAL FLOOR		0.0 sq. m. (0000) sq. ft.
TOTAL AREA		14,532.8 sq. m. (154,492) sq. ft.

UNIT STATISTICS

STUDIO UNIT	13
1 BEDROOM UNIT	135
2 BEDROOM UNIT	65
TOTAL	213

COMMERCIAL RETAIL	1,612.3 sq. m. (17,355) sq. ft.
COMMERCIAL RESTAURANT	191.8 sq. m. (2,065) sq. ft.

AMENITY AREA

EXTERIOR COMMUNAL AT GRADE	340.0 sq. m. 3,660 sq. ft.
5th FLOOR COMMUNAL AMENITY ROOM	480.0 sq. m. 5,167 sq. ft.
5th FLOOR COMMUNAL ROOF TOP PATIO	645.0 sq. m. 6,943 sq. ft.
PRIVATE BALCONIES	1,505.0 sq. m. 16,200 sq. ft.
TOTAL =	2,970.0 sq. m. 31,970 sq. ft.
REQUIRED - 6.0M² PER UNIT (213) =	1,278.0 sq. m. 13,756 sq. ft.
REQUIRED COMMUNAL @ 50% =	639.0 sq. m. 6,878 sq. ft.

LOT COVERAGE

PAVED SURFACE =	1,848.9 sq. m.	25.7%
BUILDING FOOTPRINT =	2,830.0 sq. m.	39.3%
LANDSCAPE OPEN SPACE =	2,512.3 sq. m.	35.0%
TOTAL =	7,191.2 sq. m.	100.0%

CAR PARKING - PROVIDED

RESIDENTIAL UNITS	0.61 per UNIT	130
RESIDENTIAL VISITOR	0.1 per UNIT	20
COMMERCIAL RETAIL	3.24 per 1,000 sq. ft.	63
COMMERCIAL CAFÉ		0
TOTAL		213
STANDARD PARKING SPACE	2.6 x 5.2 m	201
SMALL CAR PARKING SPACE	2.4 x 4.6 m	7
HANDICAPPED SPACE	3.66 x 5.2 m	5

Gross Floor Area Information			
Gross Floor Area (GFA)	Phase 1	Residential	12,548.7 m2
		Retail Tenant 1	1,649.8 m2
		Retail Tenant 2	221.2 m2
		Total	14,419.7 m2
	Retained Westgate Lands	Shopping Centre	11,073 m2
		Office	3,810 m2

Zoning Information			
Zone: AM10[2393] S368 – Arterial Mainstreet, Subzone 10, Exception 2393, Schedule 368			
Proposal: 24-storey mixed-use building with a two-storey underground parking garage			
Zoning Mechanism	Required		Provided
Minimum Lot Width	Phase 1	No minimum	84.20 m
	Retained Westgate Lands	No minimum	144.29 m
	Total	No minimum	228.49 m
Minimum Lot Area	Phase 1	No minimum	7,191.2 m2
	Retained Westgate Lands	No minimum	29,704.8 m2
	Total	No minimum	36,896 m2
Building Height	Phase 1	Minimum 7.5m containing at least two storeys *Section 185(10)(e)(i)*	78.0 m 24 storeys
		Maximum 24 storeys as per S.368	
Amenity Space	Phase 1	No. required private amenity space (terraces and balconies)	1,505 m2 See SP-1 stats for brake down
		639 square metres communal area (50% of 1,278m2)	2,125 m2 (480 m2 indoor and 1,645 m2 outdoor)
		1,278 square metres total required for a mixed-use building, with 9 or more dwelling units (6m2 x 213 DU = 1,278)	3,630 m2
Front Yard Setback (Carling Avenue)	Minimum 0m *Section 185(10)(b)(i)* Maximum 7m *Section 185(10)(g) and Exception 2393*		to property line 5.45 m to ROW 3.075 m
		At least 50% of the frontage along the front lot line must be occupied by building walls located within 7m for a mixed-use building *Section 185(10)(b)(i) and (d)(1) and Exception 2393*	18% of the entire Carling Avenue frontage. The remaining amount will be satisfied in future phases.
Corner Side Yard setback (Merivale Road)	Minimum 0m *Section 185(10)(b)(i)* Maximum 6m *Exception 2393*		3.50m
Minimum Rear Yard Setback	n/a for phase 1		n/a
Minimum & Maximum Interior Side Yard Setback	n/a (no interior side yards in Phase 1)		n/a
Minimum Glazing of Ground Floor	A minimum of 50% of the surface area of the ground floor façade, measured from the average grade up to a height of 4.5m, facing a public street must be comprised of transparent glazing and active customer or resident entrance access doors. *Section 185(10)(h)*		73% of the ground floor façade facing Carling Avenue is transparent glazing and active access doors. 51.0% of the ground floor façade facing Merivale Road is transparent glazing and active access doors.
Minimum Height of Ground Floor	Any portion of a mixed-use building located within 16m of a front lot line or corner lot line requires a minimum ground floor height of 4.5m *Section 185(10)(e)(i)*		5.6 m

Parking & Loading Information				
Schedule 1A, Zoning By-law 2008-250: Area Y: Inner Urban Mainstreets				
Performance Standard			Required	Proposed
Vehicular Parking	Phase 1	Minimum number of parking spaces for Dwelling Units in a mixed-use building is 0.5 per dwelling unit	101 spaces (213DU – 12DU = 201DU x 0.5 = 101)	130 spaces
		Minimum number of parking spaces for Visitors is 0.1 per dwelling unit	20 spaces (213DU – 12DU = 201DU x 0.1 = 20.1)	20 spaces
		Minimum number of parking spaces for shopping centre use is 1.7 per 100m2 of GFA	31 spaces Retail Space 1 (Total Retail GFA 1,804m2) =	63 spaces
		Minimum Number of spaces to be reserved for physically disabled persons (By-law 2003-530, Part C)	3 spaces	5 spaces
		Total number of parking spaces within Phase 1 Lands	152 spaces	213 spaces (185 spaces within 2 levels of U/G & 28 surface spaces)
	Retained Westgate Lands	Minimum number of parking spaces for shopping centre use is 1.7 per 100m2 of gross leasable floor area	188 spaces 11,073 m2 (gross leasable floor area of shopping centre use)	273 spaces
		Minimum number of parking spaces for office use is 1 per 100m2 of GFA	38 spaces 3,810 m2 (gross floor area of office use)	40 spaces
		Total	226 spaces	313 spaces
	Total (Phase 1 and Retained)		378 spaces	526 spaces
	Additional parking provided on leased hydro land		n/a	309 spaces
Bicycle Parking	Phase 1	Minimum number of parking spaces for Dwelling Units is 0.5 per dwelling unit	107 (0.5x 213DU = 107)	132 spaces
		Minimum number of parking spaces for Shopping Centre Use is 1 per 500m2 of GFA	5 spaces	10 spaces
		Total number of bicycle parking spaces within Phase 1 Lands	112 spaces	142 spaces
	Retained Westgate Lands	Minimum number of parking spaces for Shopping Centre Use is 1 per 500m2 of GFA	22 spaces	20 spaces
		Minimum number of parking spaces for Office Use is 1 per 250m2 of GFA	15 spaces	10 spaces
	Total (Phase 1 and Retained)		37 spaces	167 spaces
Loading	Phase 1	Minimum number of loading spaces	n/a	2 spaces
	Retained Westgate Lands	Minimum number of loading spaces	2 spaces	3 spaces
	Total		2 spaces	5 spaces
	Minimum loading space width and length		3.5 x 9.0 m 4.3 x 13 m	3.5 x 9.0 m 4.3 x 13 m
	Minimum width of driveway accessing loading space		6.0 m	6.0 m

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT.

ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.

THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT.

DO NOT SCALE DRAWINGS.

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NOTATION SYMBOLS:

- 00 — INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
- 00 — INDICATES ASSEMBLIE TYPE; REFER TO TYPICAL ASSEMBLIES SCHEDULE.
- 00 — INDICATES WINDOW TYPE; REFER TO WINDOW ELEVATIONS AND DETAILS ON A900 SERIES.
- 000 — INDICATES DOOR TYPE; REFER TO DOOR SCHEDULE AND DETAILS ON A900 SERIES.
- 00 / TITLE / SCALE — DETAIL NUMBER; DETAIL REFERENCE PAGE; DETAIL CROSS REFERENCE PAGE

No.	DESCRIPTION	DATE
14	ISSUED FOR SPC ROUND #4 COMMENTS	Sept. 10, 19
13	ISSUED FOR BUILDING PERMIT	Sept. 3, 19
12	ISSUED FOR EXCAVATION PERMIT	Aug. 22, 19
11	ISSUED FOR EXC. / ELEV. / R.A. TENDER	Aug. 22, 19
10	HYDRO CHANGES	Aug. 15, 19
9	ISSUED FOR SPC ROUND #3 COMMENTS	July 17, 19
8	ISSUED FOR 33% REVIEW	June 7, 19
7	UPDATED ZONING STAT SHEETS	June 3, 19
6	ISSUED FOR SPC ROUND #1 COMMENTS	Mar. 22, 19
5	ISSUED FOR HYDRO EMI STUDY	Mar. 14, 19
4	ISSUED FOR CONSULTANT COORDINATION	Feb. 28, 19
3	ISSUED FOR COMMUNITY MEETING	Jan. 09, 19
2	ISSUED FOR SITE PLAN CONTROL	Oct. 31, 18
1	ISSUED FOR ZONING AMENDMENT	Dec. 21, 15

REVISIONS:

ARCHITECT SEAL: ONTARIO ASSOCIATION OF ARCHITECTS — RODERICK J. LAHEY — LICENCE 4375

SEAL DATE: STAMP DATE

NORTH ARROW:

CLIENT: RIO CAN

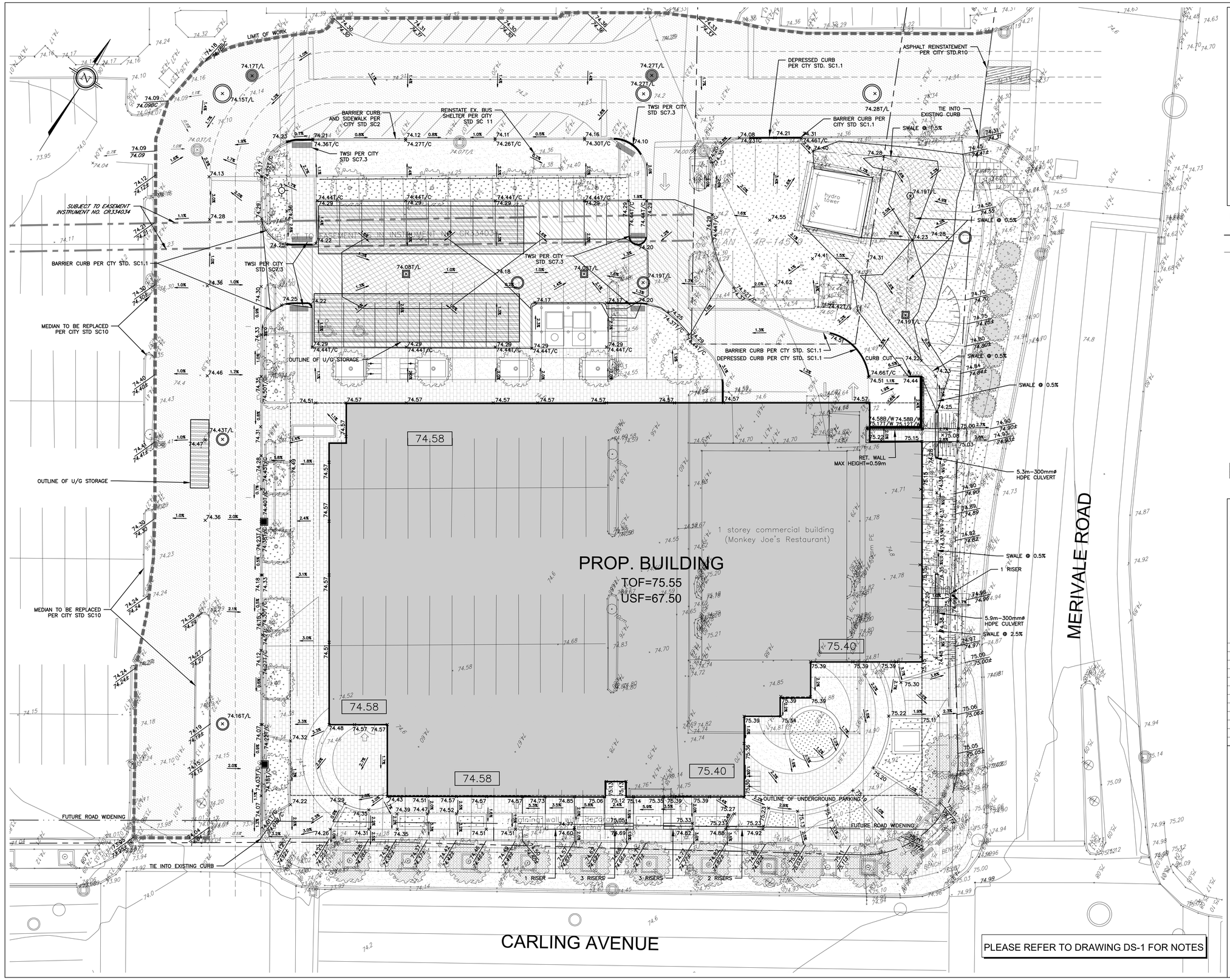
ARCHITECT:
rla/architecture
roderick lahey architect inc.
56 beech street, ottawa, ontario K1S 3J6
t.613.724.9932 f.613.724.1209 rlaarchitecture.ca

PROJECT TITLE:
WESTGATE
1309 CARLING AVENUE
OTTAWA ONTARIO

SHEET TITLE:
SITE PLAN
PHASE 1
WESTGATE LANDS

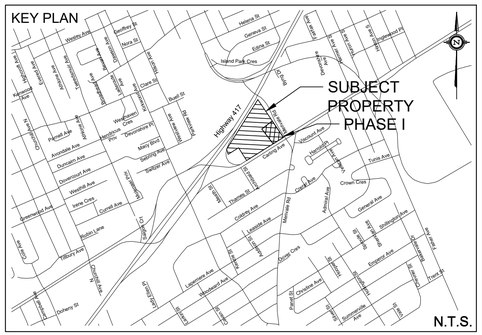
DRAWN:	CHECKED:
RV	R.V.
SCALE: 1:200	SHEET No. SP-1
PROJECT No. 1807	

D07-12-18-0170



PLEASE REFER TO DRAWING DS-1 FOR NOTES

KEY PLAN



LEGEND

	PROPERTY LINE
	PROPOSED SWALE
100.00	EXISTING SPOT ELEVATION
100.00	PROPOSED SPOT ELEVATION
100.00T/C	PROPOSED TOP OF CURB ELEVATION
100.00B/W	PROPOSED BOTTOM OF WALL ELEVATION
100.00T/W	PROPOSED TOP OF WALL ELEVATION
100.00T/L	PROPOSED TOP OF LID ELEVATION
100.00H/P	PROPOSED HIGH POINT
1.0%	EXISTING GRADE AND DIRECTION
1.0%	PROPOSED GRADE AND DIRECTION
3:1 SLOPE	PROPOSED 3:1 TERRACING
100.00 / 100.00	PROPOSED/EXISTING SPOT ELEVATION
	ROAD CUT REINSTATEMENT PER CITY STD. R10
	PROPOSED HEAVY DUTY ASPHALT
	PROPOSED STORM MANHOLE
	PROPOSED SANITARY MANHOLE
	PROPOSED CATCH BASIN
	PROPOSED CB 'L'
	PROPOSED FIRE HYDRANT
	EMERGENCY FLOW ROUTE
MAX PONDING INTERMEDIATE PONDING	SURFACE PONDING AREA
	DEPRESSED CURB
	PROPOSED CURB INLET CATCH BASIN
	PROPOSED SUB-SURFACE STORAGE
	PROPOSED RETAINING WALL
1R	RISERS
100.00 / 100.00	INTERPOLATED GRADE TO BE CONFIRMED BY SITE CONTRACTOR

TOPOGRAPHIC INFORMATION
TOPOGRAPHIC INFORMATION PROVIDED BY STANTEC
PROJ. NO. 161613355-114
DATED AUGUST 8, 2015

SITE PLAN INFORMATION
SITE PLAN PROVIDED BY RLA ARCHITECTURE
PROJ. NO. 1807
DATED MAY 21, 2020

GEOTECHNICAL STUDY
GEOTECHNICAL RECOMMENDATIONS PROVIDED BY GOLDER ASSOCIATES LTD.
PROJ. NO. 18106595-1000
DATED NOVEMBER 2018

SITE SERVICING AND STORMWATER MANAGEMENT STUDY
SERVICING AND STORMWATER MANAGEMENT RECOMMENDATIONS PROVIDED BY DSEL
PROJ. NO.18-1028
DATED JULY 2019
STORMWATER MANAGEMENT MEMO DATED MAY 2020

BENCH MARK
LOCATED MONUMENT 01919680315
ELEV=83.635

No.	BY	YY.MM.DD	DESCRIPTION
7	C.M.K.	20.05.29	REVISED PER SITE PLAN
6	C.M.K.	20.05.11	ISSUED FOR CONTRACTOR COORDINATION
5	B.N.C.	20.03.20	ISSUED FOR CONSTRUCTION
4	A.A.S.	20.03.09	ISSUED FOR CONSTRUCTION
3	B.N.C.	19.07.19	ISSUED FOR MUNICIPAL REVIEW
2	B.N.C.	19.04.03	ISSUED FOR MUNICIPAL REVIEW
1	C.M.K.	18.11.06	ISSUED FOR MUNICIPAL REVIEW

PROJECT No.18-1028

LICENSED PROFESSIONAL ENGINEER A. D. FOBERT 100090626 2020-05-29 PROVINCE OF ONTARIO

REVIEWED BY

GRADING PLAN
1309 CARLING AVENUE - PHASE I

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Tel. (613) 836-0856
Fax. (613) 836-7183
www.DSEL.ca

DRAWN BY:	C.M.K.	CHECKED BY:	R.D.F.	DRAWING NO.	SHEET NO.
DESIGNED BY:	A.J.G.	CHECKED BY:	A.D.F.	GP-1	2 of 6
SCALE:	1:200	DATE:	NOVEMBER 2018		

CITY PLAN No.: 17818

CITY FILE No.: D07-12-18-0170

z:\projects\18-1028_riocan_westgate-phase-1\b_design\b2_drawings\b2-2_main (dsel)\spa_sub3\spa_2020-05-29_1028.dwg

PONDING AREA=762.6m²
MAX. DEPTH IN PARKING=0.21m
V AVAILABLE=144.2m³
V 5-YEAR REQUIRED=114.1m³
5-YEAR MAX PONDING ELEV=73.26m
V 100-YEAR REQUIRED=242.4m³
100-YEAR MAX PONDING ELEV=74.29m

LIMIT OF WORK

TIE INTO EXISTING CURB

SUBJECT TO EASEMENT INSTRUMENT NO. OR334034

BARRIER CURB PER CTY STD. SC1.1

OUTLINE OF U/G STORAGE

PONDING AREA=261.4m²
MAX. PONDING DEPTH=0.26m
V AVAILABLE=29.8m³
V 5-YEAR REQUIRED=0.7m³
5-YEAR MAX PONDING ELEV=74.21m
V 100-YEAR REQUIRED=28.0m³
100-YEAR MAX PONDING ELEV=74.45m

SWALE @ 0.5%

SWALE @ 1.5%

CURB CUT

RET. WALL
MAX HEIGHT=0.59m

5.3m-300mmø HDPE CULVERT

SWALE @ 2.5%

PROP. BUILDING
TOF=75.55
USF=67.50

1 storey commercial building
(Monkey Joe's Restaurant)

74.58

75.40

hydro tower

OUTLINE OF UNDERGROUND PARKING

FUTURE ROAD WIDENING

retaining wall with decorative pillars

MERIVALE ROAD

CARLING AVENUE

PLEASE REFER TO DRAWING DS-1 FOR NOTES

DOUGLAS JAMES, MCIP, RPP
MANAGER, DEVELOPMENT REVIEW - CENTRAL
PLANNING, INFRASTRUCTURE & ECONOMIC
DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

APPROVED
By Jamesdo at 10:27 am, Oct 24, 2019

KEY PLAN

SUBJECT PROPERTY PHASE I

N.T.S.

LEGEND

PROPERTY LINE	PROPOSED HEAVY DUTY ASPHALT
PROPOSED SWALE	PROPOSED STORM MANHOLE
100.00 EXISTING SPOT ELEVATION	PROPOSED SANITARY MANHOLE
100.00 PROPOSED SPOT ELEVATION	PROPOSED CATCH BASIN
100.00T/C PROPOSED TOP OF CURB ELEVATION	PROPOSED CB 'L'
100.00B/W PROPOSED BOTTOM OF WALL ELEVATION	PROPOSED FIRE HYDRANT
100.00T/W PROPOSED TOP OF WALL ELEVATION	EMERGENCY FLOW ROUTE
100.00T/L PROPOSED TOP OF LID ELEVATION	SURFACE PONDING AREA (MAX PONDING / INTERMEDIATE PONDING)
1.0% EXISTING GRADE AND DIRECTION	DEPRESSED CURB
1.0% PROPOSED GRADE AND DIRECTION	PROPOSED CURB INLET CATCH BASIN
3:1 SLOPE PROPOSED 3:1 TERRACING	PROPOSED SUB-SURFACE STORAGE
100.00 / 100.00 PROPOSED/EXISTING SPOT ELEVATION	PROPOSED RETAINING WALL
	1R RISERS
ROAD CUT REINSTATEMENT PER CITY STD. R10	100.00 / 100.00z INTERPOLATED GRADE TO BE CONFIRMED BY SITE CONTRACTOR

NOT FOR CONSTRUCTION

TOPOGRAPHIC INFORMATION
TOPOGRAPHIC INFORMATION PROVIDED BY STANTEC
PROJ. NO. 161613355-114
DATED AUGUST 8, 2015

SITE PLAN INFORMATION
SITE PLAN PROVIDED BY RLA ARCHITECTURE
PROJ. NO. 1807
DATED JULY 17, 2019

GEOTECHNICAL STUDY
GEOTECHNICAL RECOMMENDATIONS PROVIDED BY GOLDER ASSOCIATES LTD.
PROJ. NO. 18106595-1000
DATED NOVEMBER 2018

SITE SERVICING AND STORMWATER MANAGEMENT STUDY
SERVICING AND STORMWATER MANAGEMENT RECOMMENDATIONS PROVIDED BY DSEL
PROJ. NO.18-1028
DATED JULY 2019

BENCH MARK
LOCATED MONUMENT 01919680315
ELEV=83.635

No.	BY	YY.MM.DD	DESCRIPTION
3	B.N.C.	19.07.19	ISSUED FOR MUNICIPAL REVIEW
2	B.N.C.	19.04.03	ISSUED FOR MUNICIPAL REVIEW
1	C.M.K.	18.11.06	ISSUED FOR MUNICIPAL REVIEW

PROJECT No.18-1028

LICENSED PROFESSIONAL ENGINEER R. D. FREEL 100163197 2019-07-19 6-1028 PROVINCE OF ONTARIO

REVIEWED BY

GRADING PLAN
1309 CARLING AVENUE - PHASE I

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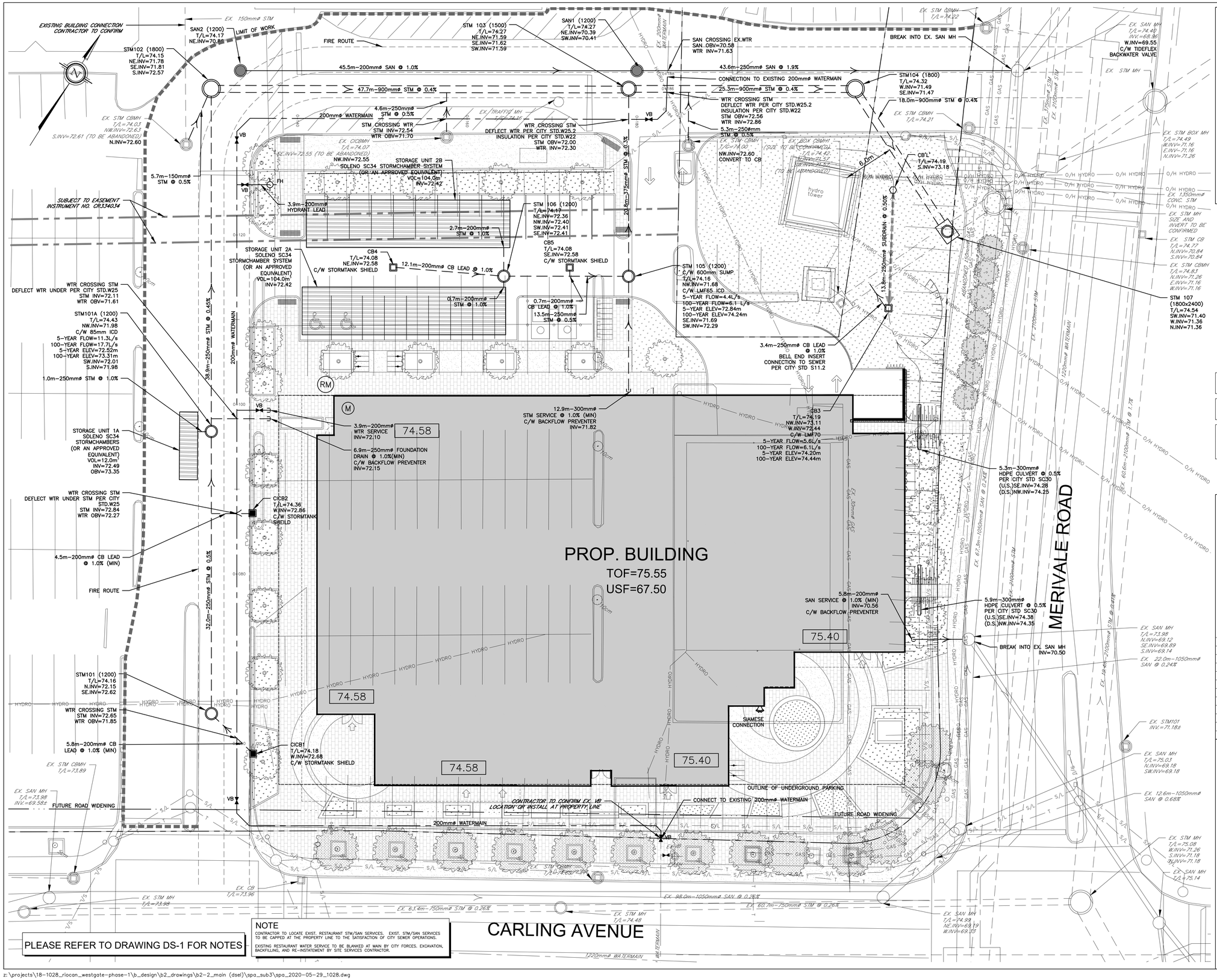
DRAWN BY:	C.M.K.	CHECKED BY:	R.D.F.	DRAWING NO.	SHEET NO.
DESIGNED BY:	A.J.G.	CHECKED BY:	A.D.F.	GP-1	2 of 6
SCALE:	1:200	DATE:	NOVEMBER 2018		

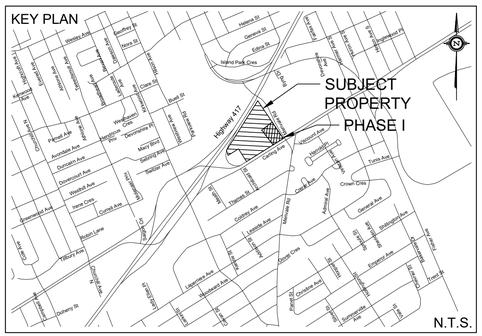
CITY PLAN No.: 17818

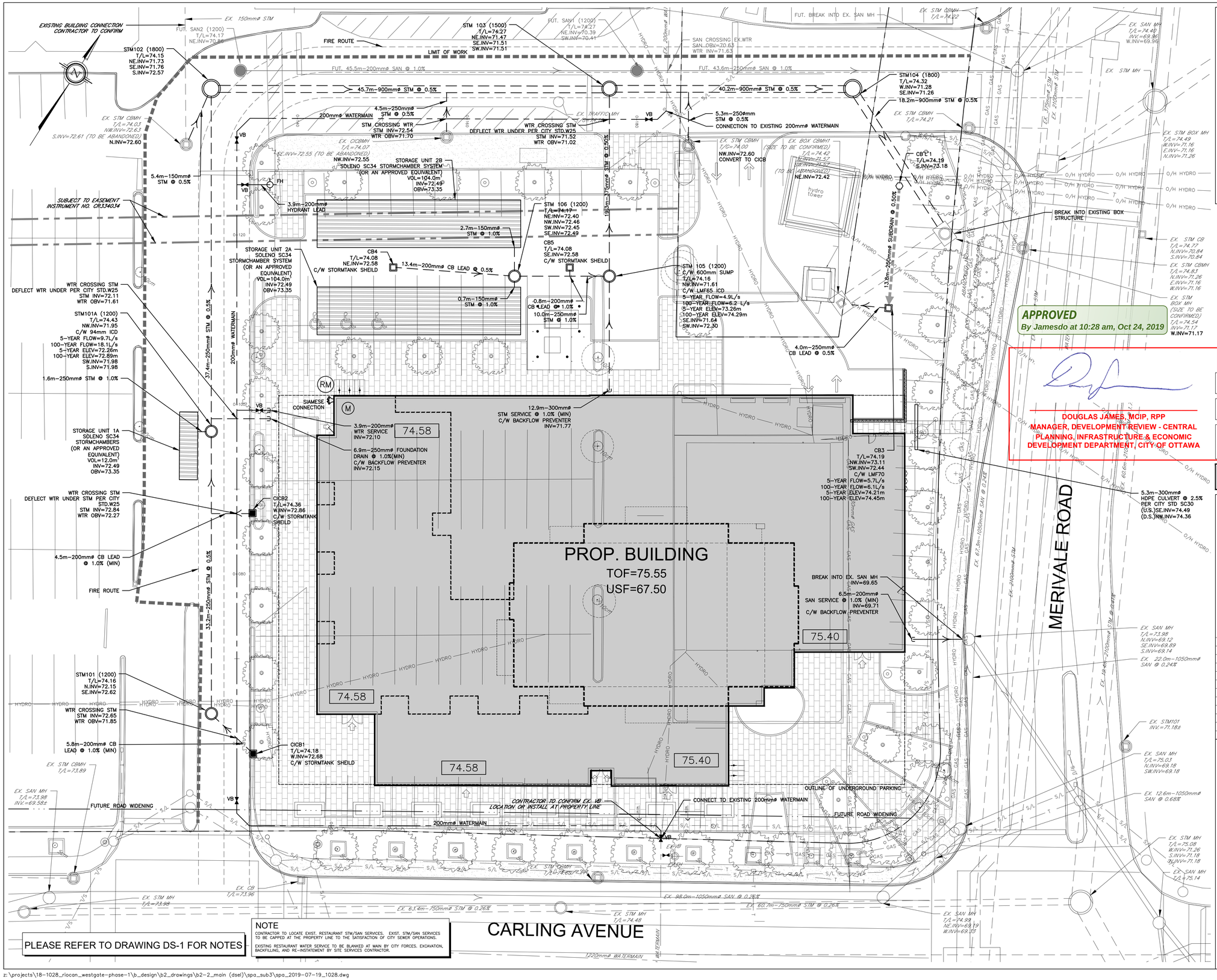
CITY FILE No.: D07-12-18-0170

z:\projects\18-1028_riocan_westgate-phase-1\b_design\b2_drawings\b2-2_main (dsel)\spa_sub3\spa_2019-07-19_1028.dwg



KEY PLAN

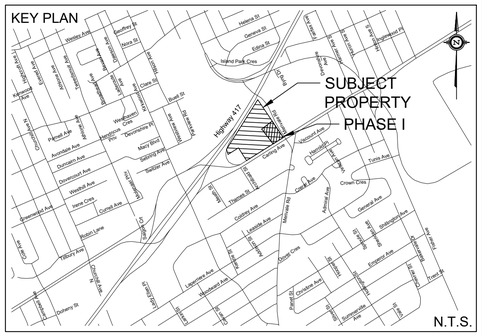

SUBJECT PROPERTY PHASE I
Highway 417
Carling Ave
Richmond Rd
Island Park Dr
Woodroffe Ave
Maple Park Crescent
Hazeldean Rd
Fernbank Crescent
Terry Fox Dr
Kanata Ave
Moodie Dr
Prince of Wales Dr
Strandherd Dr
Greenbank Rd
Cedarview Rd
Jockvale Rd
Longfields Dr
Fallowfield Dr
Bank St
Leitrim Rd
Rideau River
Rideau Canal
Hunt Club Rd
Walkley Rd
Riverside Dr
Conroy Rd
Airport Pkwy
Bronson Ave
Preston St
Parkdale Ave
Holland Ave
Merivale Rd
Fisher Ave
Baseline Rd
Heron Rd
Data Centre Rd
Moodie Dr
Carling Ave
Richmond Rd
Wellington St
Scott St
Queensway
Highway 417
Carling Ave
Fisher Ave
Merivale Rd
Kirkwood Ave
Iona St
Clyde Ave
Lanark Ave
Grant Ave
Cambie Ave
Gladstone Ave
Somerset St W
Chamberlain Ave
Bronson Ave
Kent St
Lyon St
Parkdale Ave
Tweedsmuir Ave
Churchill Ave N
Churchill Ave S
Richmond Rd
Byron Ave
Armstrong St
Holland Ave
Cartier St
Booth St
Gladstone Ave
Carling Ave
Dow's Lake
Preston St



NOTE
CONTRACTOR TO LOCATE EXIST. RESTAURANT STM/SAN SERVICES. EXIST. STM/SAN SERVICES TO BE CAPPED AT THE PROPERTY LINE TO THE SATISFACTION OF CITY SEWER OPERATIONS.

EXISTING RESTAURANT WATER SERVICE TO BE BLANKED AT MAIN BY CITY FORCES. EXCAVATION, BACKFILLING, AND RE-INSTATEMENT BY SITE SERVICES CONTRACTOR.

KEY PLAN



LEGEND

— — —	PROPERTY LINE	○	PROPOSED STORM MANHOLE
— — —	PROPOSED WATERMAIN	◉	PROPOSED SANITARY MANHOLE
———	PROPOSED SANITARY SEWER	◘	PROPOSED CATCH BASIN
— — —	PROPOSED STORM SEWER	○	PROPOSED CB 'T or 'L'
▬▬▬	PROPOSED PERFORATED SUBDRAIN	■	PROPOSED CURB INLET CATCH BASIN
GAS	EXISTING GAS	⋈ VB	PROPOSED VALVE BOX
HYDRO	EXISTING UNDERGROUND HYDRO	◇—	PROPOSED FIRE HYDRANT
S/L	EXISTING STREET LIGHT LINES		PROPOSED SIAMESE CONNECTION
O/H HYDRO	EXISTING OVERHEAD HYDRO	(RM)	PROPOSED REMOTE WATER METER
T	EXISTING TRAFFIC LINES	(M)	PROPOSED WATER METER

APPROVED
By Jamesdo at 10:28 am, Oct 24, 2019

DOUGLAS JAMES, MCIP, RPP
MANAGER, DEVELOPMENT REVIEW - CENTRAL
PLANNING, INFRASTRUCTURE & ECONOMIC
DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

EXISTING UNDERGROUND SERVICES AND UTILITY LOCATIONS DERIVED FROM THE BEST AVAILABLE DATA, AS-CONSTRUCTED DRAWINGS, UTILITY DRAWINGS AND INFRASTRUCTURE MAPPING PROVIDED BY THE CITY OF OTTAWA.

CONTRACTOR TO CONFIRM ELEVATIONS AND LOCATIONS OF EXISTING UNDERGROUND SERVICES AND UTILITIES WITHIN THE RIGHT OF WAY PRIOR TO INSTALLATION OF SITE SERVICING INFRASTRUCTURE.

THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT THE FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

NOT FOR CONSTRUCTION

TOPOGRAPHIC INFORMATION
TOPOGRAPHIC INFORMATION PROVIDED BY STANTEC
PROJ. NO. 161613355-114
DATED AUGUST 8, 2015

SITE PLAN INFORMATION
SITE PLAN PROVIDED BY RLA ARCHITECTURE
PROJ. NO. 1807
DATED JULY 17, 2019

GEOTECHNICAL STUDY
GEOTECHNICAL RECOMMENDATIONS PROVIDED BY GOLDER ASSOCIATES LTD.
PROJ. NO. 18106595-1000
DATED NOVEMBER 2018

SITE SERVICING AND STORMWATER MANAGEMENT STUDY
SERVICING AND STORMWATER MANAGEMENT RECOMMENDATIONS PROVIDED BY DSEL
PROJ. NO.18-1028
DATED JULY 2019

BENCH MARK
LOCATED MONUMENT 01919680315
ELEV=83.635

No.	BY	YY.MM.DD	DESCRIPTION
3	B.N.C.	19.07.19	ISSUED FOR MUNICIPAL REVIEW
2	B.N.C.	19.04.03	ISSUED FOR MUNICIPAL REVIEW
1	C.M.K.	18.11.06	ISSUED FOR MUNICIPAL REVIEW

PROJECT No18-1028

LICENSED PROFESSIONAL ENGINEER R. D. FREEL 100163197 2019-07-19 18-1028 PROVINCE OF ONTARIO

REVIEWED BY

SITE SERVICING PLAN
1309 CARLING AVENUE - PHASE I

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RIOCAN HOLDINGS INC.
2300 Young Street Suite 500
Toronto, Ontario, M4P 1E4
Tel. 1-800-465-2733

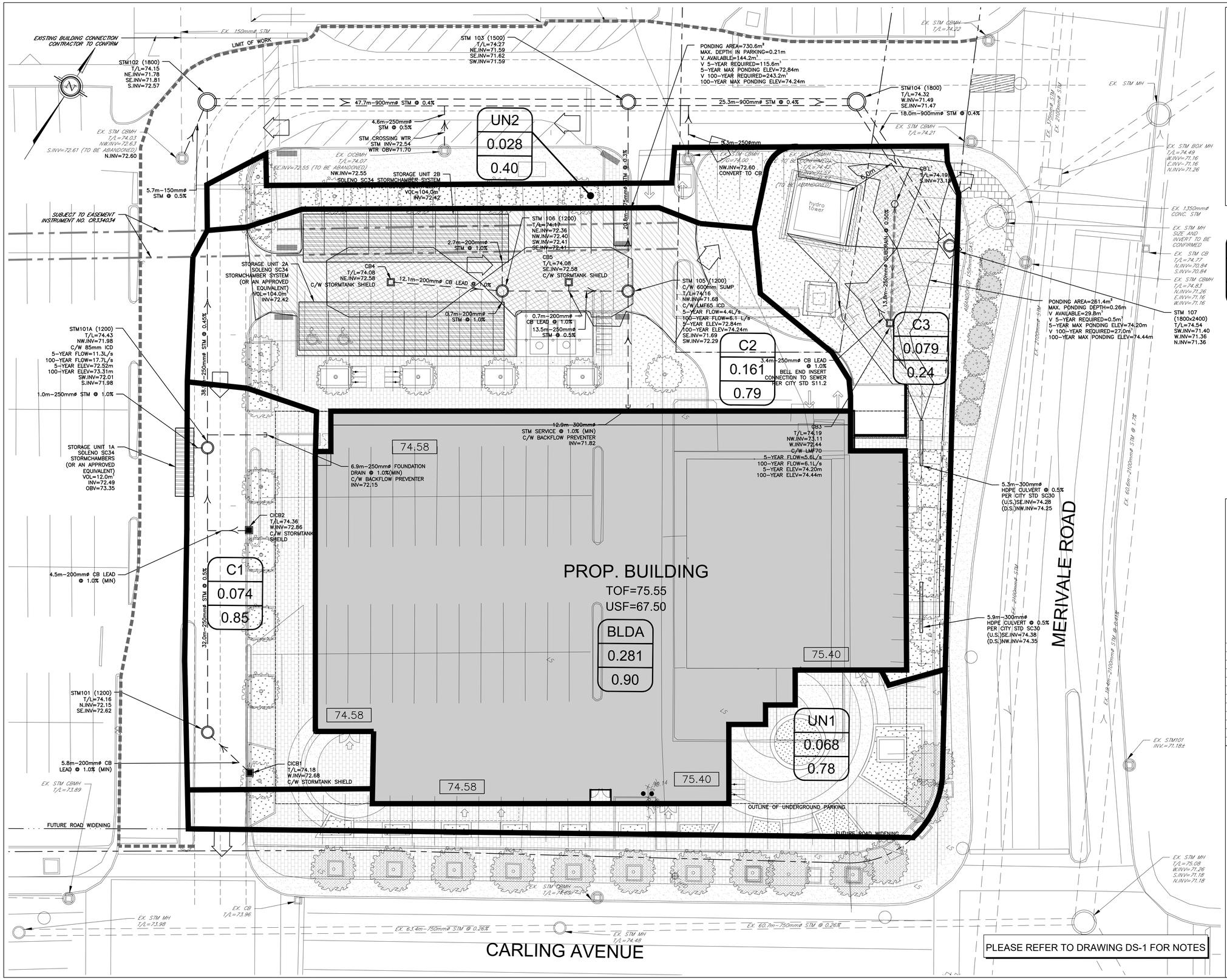
DSEL
david schaeffer engineering ltd
SMART SUBDIVISIONS™
120 Iber Road Unit 103
Stittsville, Ontario, K2S 1E9
Tel. (613) 836-0856
Fax. (613) 836-7183
www.DSEL.ca

DRAWN BY:	C.M.K.	CHECKED BY:	R.D.F.	DRAWING NO.	SHEET NO.
DESIGNED BY:	A.J.G.	CHECKED BY:	A.D.F.	SSP-1	3 of 6
SCALE:	1:200	DATE:	NOVEMBER 2018		

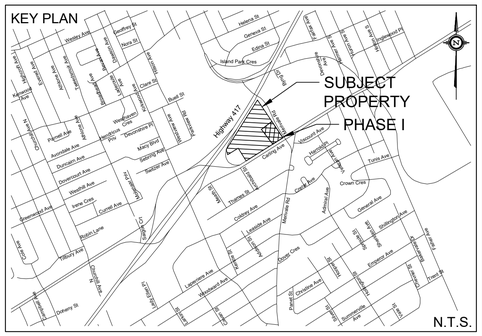
CITY PLAN No.: 17818

CITY FILE No.: D07-12-18-0170

z:\projects\18-1028_riocan_westgate-phase-1\b_design\b2_drawings\b2-2_main (dsel)\spa_sub3\spa_2019-07-19_1028.dwg



KEY PLAN



LEGEND

EX6
4.010
0.19

DRAINAGE AREA ID
AREA IN Ha
RATIONAL METHOD RUNOFF COEFFICIENT

- PROPERTY LINE
- PROPOSED STORM SEWER
- DRAINAGE DIVIDE
- PROPOSED SWALE
- PROPOSED PERFORATED SUBDRAIN
- PROPOSED STORM MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED CB 'T'
- EMERGENCY FLOW ROUTE
- SURFACE PONDING AREA
  - MAX PONDING
  - INTERMEDIATE PONDING

TOPOGRAPHIC INFORMATION
TOPOGRAPHIC INFORMATION PROVIDED BY STANTEC
PROJ. NO. 161613355-114
DATED AUGUST 8, 2015

SITE PLAN INFORMATION
SITE PLAN PROVIDED BY RLA ARCHITECTURE
PROJ. NO. 1807
DATED MAY 21, 2020

GEOTECHNICAL STUDY
GEOTECHNICAL RECOMMENDATIONS PROVIDED BY GOLDER ASSOCIATES LTD.
PROJ. NO. 18106595-1000
DATED NOVEMBER 2018

SITE SERVICING AND STORMWATER MANAGEMENT STUDY
SERVICING AND STORMWATER MANAGEMENT RECOMMENDATIONS PROVIDED BY DSEL
PROJ. NO.18-1028
DATED JULY 2019
STORMWATER MANAGEMENT MEMO DATED MAY 2020

BENCH MARK
LOCATED MONUMENT 01919680315
ELEV=83.635

No.	BY	YY.MM.DD	DESCRIPTION
7	C.M.K.	20.05.29	REVISED PER SITE PLAN
6	C.M.K.	20.05.11	ISSUED FOR CONTRACTOR COORDINATION
5	B.N.C.	20.03.20	ISSUED FOR CONSTRUCTION
4	A.A.S.	20.03.09	ISSUED FOR CONSTRUCTION
3	B.N.C.	19.07.19	ISSUED FOR MUNICIPAL REVIEW
2	B.N.C.	19.04.03	ISSUED FOR MUNICIPAL REVIEW
1	C.M.K.	18.11.06	ISSUED FOR MUNICIPAL REVIEW

PROJECT No18-1028

LICENSED PROFESSIONAL ENGINEER A. D. FORBERT 100090626 2020-05-29 PROVINCE OF ONTARIO Job 18-1028

REVIEWED BY

STORMWATER MANAGEMENT PLAN
1309 CARLING AVENUE - PHASE I

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DRAWN BY:	C.M.K.	CHECKED BY:	R.D.F.	DRAWING NO.	SHEET NO.
DESIGNED BY:	A.J.G.	CHECKED BY:	A.D.F.	SWM-1	1 of 1
SCALE:	1:200	DATE:	NOVEMBER 2018		

CITY FILE No.: D07-12-18-0170
CITY PLAN No.: 17818

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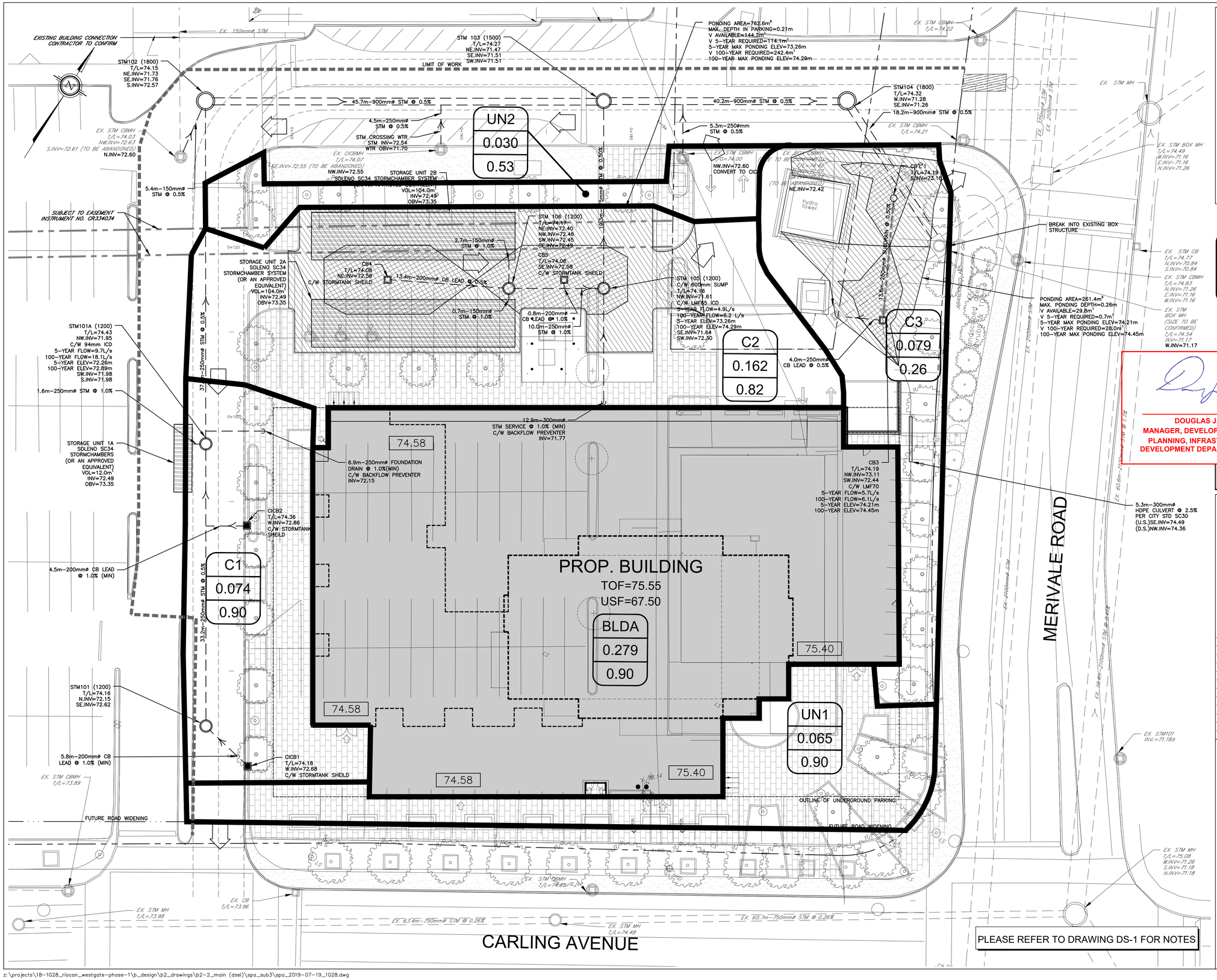

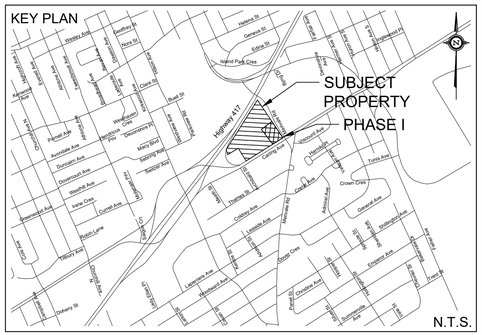

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MANAGER, DEVELOPMENT REVIEW - CENTRAL
PLANNING, INFRASTRUCTURE & ECONOMIC
DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

APPROVED
By Jamesdo at 10:31 am, Oct 24, 2019

NOT FOR CONSTRUCTION

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TOPOGRAPHIC INFORMATION PROVIDED BY STANTEC
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DATED AUGUST 8, 2015

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PROJ. NO. 1807
RECEIVED JULY 16, 2019

GEOTECHNICAL STUDY
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PROJ. NO. 18106595-1000
DATED NOVEMBER 2018

SITE SERVICING AND STORMWATER MANAGEMENT STUDY
SERVICING AND STORMWATER MANAGEMENT RECOMMENDATIONS PROVIDED BY DSEL
PROJ. NO.18-1028
DATED JULY 2019

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PROJECT No.18-1028

LICENSED PROFESSIONAL ENGINEER
R. D. FREEL
100163197
2019-07-19
PROVINCE OF ONTARIO

REVIEWED BY

STORMWATER MANAGEMENT PLAN
1309 CARLING AVENUE - PHASE I

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CITY FILE No.: D07-12-18-0170

z:\projects\18-1028_riocan_westgate-phase-1\b_design\b2_drawings\b2-2_main (dsel)\spa_sub3\spa_2019-07-19_1028.dwg

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

2016 AES Approved RELEASE RATE

				5-year		100-year	
Area ID	**Total Area (ha)**	**C**	**t_c (min)**	**i (mm/hr)**	**Q (L/s)**	**i (mm/hr)**	**Q (L/s)**
A1	3.69	0.50	20.0	70.3	360.0	70.3	360.0
A2	1.09	0.50	20.0	70.3	106.2	70.3	106.2
EX-1	0.34	0.20	20.0	70.3	13.2	120.0	22.5
Total	**5.12**				**479.4**		**488.7**

Target Flow Rate

				5-year		100-year	
Area ID	**Total Area (ha)**	**C**	**t_c (min)**	**i (mm/hr)**	**Q (L/s)**	**i (mm/hr)**	**Q (L/s)**
A1-1	0.64	0.50	20.0	70.3	62.4	70.3	62.4
A2-1	0.05	0.50	20.0	70.3	4.9	70.3	4.9
Total	**0.69**				**67.3**		**67.3**

Estimated Post Development Peak Flow from Unattenuated Areas

UN1	**Imp.**	**Perv.**	**Total**
Area	0.056	0.012	0.068
C	0.9	0.2	0.78

Area ID **UN1**
Total Area 0.068 ha
C 0.78 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)**
12.2	93.7	13.8	13.8	0.0	0.0	160.4	29.4	29.4	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)

UN2	**Imp.**	**Perv.**	**Total**
Area	0.008	0.020	0.028
C	0.9	0.2	0.40

Area ID **UN2**
Total Area 0.028 ha
C 0.40 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)**
12.2	93.7	2.9	2.9	0.0	0.0	160.4	6.3	6.3	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)

1309 Carling Avenue
Proposed Site Conditions - Phase I
Proposed Amendment

Estimated Post Development Peak Flow from Attenuated Areas

Area ID C1

C1	Imp.	Perv.	Total
Area	0.069	0.005	0.074
C	0.9	0.2	0.85

Total Subsurface Storage (m^3) 12.0

Stage Attenuated Areas Storage Summary

		Surface Storage			Surface and Subsurface Storage			
	Stage	Ponding	h_o	delta d	V*	V_{acc}**	$Q_{release}$†	$V_{drawdown}$
	(m)	(m^2)	(m)	(m)	(m^3)	(m^3)	(L/s)	(hr)
Orifice INV	71.98		0.00			0.0	0.0	0.00
U/G STORAGE INV	72.49		0.51	0.51	4.0	4.0	10.9	0.10
U/G STORAGE S/L	72.95		0.97	0.46	4.0	7.9	15.1	0.15
U/G STORAGE OBV	73.35		1.37	0.41	4.0	11.9	18.0	0.18
T/L	74.43		2.45	1.08	0.0	11.9	24.0	0.14

* V=Incremental storage volume
**V_{acc}=Total surface and sub-surface
† $Q_{release}$ = Release rate calculated from orifice equation

Orifice Location **STM101A** **Dia** 85
Total Area 0.074 ha
C 0.85 Rational Method runoff coefficient *Note: Rational Method Coefficient "C" increased by 25% for 100-year calculations*

	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)
1	203.5	35.8	11.3	24.6	1.5	351.4	72.5	17.7	54.8	3.3
5	141.2	24.9	11.3	13.6	4.1	242.7	50.1	17.7	32.4	9.7
10	104.2	18.3	11.3	7.1	4.3	178.6	36.9	17.7	19.2	11.5
15	83.6	14.7	11.3	3.5	3.1	142.9	29.5	17.7	11.8	10.6
20	70.3	12.4	11.3	1.1	1.3	120.0	24.8	17.7	7.1	8.5
25	60.9	10.7	10.7	0.0	0.0	103.8	21.4	17.7	3.7	5.6
30	53.9	9.5	9.5	0.0	0.0	91.9	19.0	17.7	1.3	2.3
35	48.5	8.5	8.5	0.0	0.0	82.6	17.0	17.7	0.0	0.0
40	44.2	7.8	7.8	0.0	0.0	75.1	15.5	17.7	0.0	0.0
45	40.6	7.2	7.2	0.0	0.0	69.1	14.3	17.7	0.0	0.0
50	37.7	6.6	6.6	0.0	0.0	64.0	13.2	17.7	0.0	0.0
55	35.1	6.2	6.2	0.0	0.0	59.6	12.3	17.7	0.0	0.0
60	32.9	5.8	5.8	0.0	0.0	55.9	11.5	17.7	0.0	0.0
65	31.0	5.5	5.5	0.0	0.0	52.6	10.9	17.7	0.0	0.0
70	29.4	5.2	5.2	0.0	0.0	49.8	10.3	17.7	0.0	0.0
75	27.9	4.9	4.9	0.0	0.0	47.3	9.8	17.7	0.0	0.0
80	26.6	4.7	4.7	0.0	0.0	45.0	9.3	17.7	0.0	0.0
85	25.4	4.5	4.5	0.0	0.0	43.0	8.9	17.7	0.0	0.0
90	24.3	4.3	4.3	0.0	0.0	41.1	8.5	17.7	0.0	0.0
95	23.3	4.1	4.1	0.0	0.0	39.4	8.1	17.7	0.0	0.0
100	22.4	3.9	3.9	0.0	0.0	37.9	7.8	17.7	0.0	0.0

5-year $Q_{attenuated}$ **11.25 L/s**
5-year Max. Storage Required **4.3 m^3**
Est. 5-year Storage Elevation **72.52 m**

100-year $Q_{attenuated}$ **17.69 L/s**
100-year Max. Storage Required **11.5 m^3**
Est. 100-year Storage Elevation **73.31 m**

1309 Carling Avenue
Proposed Site Conditions - Phase I
Proposed Amendment

Area ID C2+BLDA

C2+BLDA	Imp.	Perv.	Total
Area	0.416	0.026	0.442
C	0.9	0.2	0.86

Total Subsurface Storage (m^3) 208.0

Stage Attenuated Areas Storage Summary

		Surface Storage			Surface and Subsurface Storage			
	Stage	Ponding	h_o	delta d	V*	V_{acc}**	$Q_{release}$†	$V_{drawdown}$
	(m)	(m^2)	(m)	(m)	(m^3)	(m^3)	(L/s)	(hr)
Orifice INV	71.68		0.00			0.0	0	0.00
U/G STORAGE INV	72.42		0.74	0.74	68.6	68.6	3.75	5.08
U/G STORAGE S/L	73.03		1.35	0.61	68.6	137.3	4.7	8.11
U/G STORAGE OBV	73.64		1.96	0.61	68.6	205.9	5.2	11.00
T/L	74.08	0.4	2.40	0.44	0.1	206.0	5.75	9.95
0.10m Ponding	74.18	234.4	2.50	0.10	8.1	214.1	6	9.91
0.21m Ponding	74.29	741.0	2.61	0.11	51.0	265.2	6.1	12.08

* V=Incremental storage volume
**V_{acc}=Total surface and sub-surface
† $Q_{release}$ = Release rate calculated from Tempest LMF Curve

Orifice Location **STM105** **Dia** LMF65
Total Area 0.442 ha
C 0.86 Rational Method runoff coefficient *Note: Rational Method Coefficient "C" increased by 25% for 100-year calculations*

	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)
1	203.5	214.7	4.4	210.3	12.6	351.4	431.4	6.1	425.4	25.5
5	141.2	149.0	4.4	144.6	43.4	242.7	298.0	6.1	291.9	87.6
10	104.2	109.9	4.4	105.5	63.3	178.6	219.2	6.1	213.2	127.9
15	83.6	88.2	4.4	83.8	75.4	142.9	175.4	6.1	169.4	152.4
20	70.3	74.1	4.4	69.7	83.7	120.0	147.3	6.1	141.2	169.5
25	60.9	64.3	4.4	59.9	89.8	103.8	127.5	6.1	121.4	182.2
30	53.9	56.9	4.4	52.5	94.5	91.9	112.8	6.1	106.7	192.1
35	48.5	51.2	4.4	46.8	98.3	82.6	101.4	6.1	95.3	200.2
40	44.2	46.6	4.4	42.2	101.3	75.1	92.3	6.1	86.2	206.9
45	40.6	42.9	4.4	38.5	103.9	69.1	84.8	6.1	78.7	212.6
50	37.7	39.7	4.4	35.3	106.0	64.0	78.5	6.1	72.5	217.4
55	35.1	37.1	4.4	32.7	107.8	59.6	73.2	6.1	67.1	221.6
60	32.9	34.8	4.4	30.4	109.3	55.9	68.6	6.1	62.6	225.3
65	31.0	32.8	4.4	28.4	110.6	52.6	64.6	6.1	58.6	228.5
70	29.4	31.0	4.4	26.6	111.7	49.8	61.1	6.1	55.1	231.3
75	27.9	29.4	4.4	25.0	112.6	47.3	58.0	6.1	52.0	233.8
80	26.6	28.0	4.4	23.6	113.4	45.0	55.2	6.1	49.2	236.1
85	25.4	26.8	4.4	22.4	114.1	43.0	52.7	6.1	46.7	238.1
90	24.3	25.6	4.4	21.2	114.6	41.1	50.5	6.1	44.4	239.9
95	23.3	24.6	4.4	20.2	115.1	39.4	48.4	6.1	42.4	241.5
100	22.4	23.6	4.4	19.2	115.5	37.9	46.5	6.1	40.5	242.9

5-year $Q_{attenuated}$	**4.40 L/s**	**100-year $Q_{attenuated}$**	**6.06 L/s**
5-year Max. Storage Required	**115.5 m^3**	**100-year Max. Storage Required**	**242.9 m^3**
Est. 5-year Storage Elevation	**72.84 m**	**Est. 100-year Storage Elevation**	**74.24 m**

1309 Carling Avenue
Proposed Site Conditions - Phase I
Proposed Amendment

Estimated Post Development Peak Flow from Attenuated Areas

Area ID **C3**

C3	Imp.	Perv.	Total
Area	0.005	0.074	0.079
C	0.9	0.2	0.24

Stage Attenuated Areas Storage Summary

		Surface Storage			Surface and Subsurface Storage			
	Stage	Ponding	h_o	delta d	V*	V_{acc}**	$Q_{release}$†	$V_{drawdown}$
	(m)	(m^2)	(m)	(m)	(m^3)	(m^3)	(L/s)	(hr)
Orifice INV	72.44		0.00			0.0	0	0.00
Storage Pipe SL	72.57		0.13	0.13	0.0	0.0	1.5	0.00
Storage Pipe OBV	72.69		0.25	0.13	0.0	0.0	2.2	0.00
T/L	74.19	0.4	1.75	1.50	0.2	0.2	5.6	0.01
0.11m Ponding	74.30	83.9	1.86	0.11	3.3	3.5	6	0.16
0.26m Ponding	74.46	261.4	2.02	0.16	26.3	29.8	6.1	1.36

* V=Incremental storage volume
**V_{acc}=Total surface and sub-surface
† $Q_{release}$ = Release rate calculated from Tempest LMF Curve

Orifice Location **CB3** **Dia** LMF70
Total Area 0.079 ha
C 0.24 Rational Method runoff coefficient *Note: Rational Method Coefficient "C" increased by 25% for 100-year calculations*

	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)
1	203.5	10.9	5.6	5.3	0.3	351.4	82.9	6.1	76.8	4.6
5	141.2	7.6	5.6	1.9	0.6	242.7	57.3	6.1	51.2	15.4
10	104.2	5.6	5.6	0.0	0.0	178.6	42.1	6.1	36.1	21.6
15	83.6	4.5	4.5	0.0	0.0	142.9	33.7	6.1	27.6	24.9
20	70.3	3.8	3.8	0.0	0.0	120.0	28.3	6.1	22.2	26.7
25	60.9	3.3	3.3	0.0	0.0	103.8	24.5	6.1	18.4	27.6
30	53.9	2.9	2.9	0.0	0.0	91.9	21.7	6.1	15.6	28.1
35	48.5	2.6	2.6	0.0	0.0	82.6	19.5	6.1	13.4	28.1
40	44.2	2.4	2.4	0.0	0.0	75.1	17.7	6.1	11.6	28.0
45	40.6	2.2	2.2	0.0	0.0	69.1	16.3	6.1	10.2	27.6
50	37.7	2.0	2.0	0.0	0.0	64.0	15.1	6.1	9.0	27.0
55	35.1	1.9	1.9	0.0	0.0	59.6	14.1	6.1	8.0	26.3
60	32.9	1.8	1.8	0.0	0.0	55.9	13.2	6.1	7.1	25.6
65	31.0	1.7	1.7	0.0	0.0	52.6	12.4	6.1	6.3	24.7
70	29.4	1.6	1.6	0.0	0.0	49.8	11.8	6.1	5.7	23.8
75	27.9	1.5	1.5	0.0	0.0	47.3	11.2	6.1	5.1	22.8
80	26.6	1.4	1.4	0.0	0.0	45.0	10.6	6.1	4.5	21.7
85	25.4	1.4	1.4	0.0	0.0	43.0	10.1	6.1	4.0	20.7
90	24.3	1.3	1.3	0.0	0.0	41.1	9.7	6.1	3.6	19.5
95	23.3	1.3	1.3	0.0	0.0	39.4	9.3	6.1	3.2	18.3
100	22.4	1.2	1.2	0.0	0.0	37.9	8.9	6.1	2.9	17.1

5-year $Q_{attenuated}$	**5.65 L/s**	**100-year $Q_{attenuated}$**	**6.09 L/s**
5-year Max. Storage Required	**0.6 m^3**	**100-year Max. Storage Required**	**28.1 m^3**
Est. 5-year Storage Elevation	**74.20 m**	**Est. 100-year Storage Elevation**	**74.45 m**

1309 Carling Avenue
Proposed Site Conditions - Phase I
Proposed Amendment

Summary of Release Rates and Storage Volumes

Control Area	5-Year Release Rate (L/s)	5-Year Required Storage (m^3)	100-Year Release Rate (L/s)	100-Year Required Storage (m^3)	100-Year Available Storage (m^3)
Unattenuated Areas (UN1)	13.8	0.0	29.4	0.0	0.0
Unattenuated Areas (UN2)	2.9	0.0	6.3	0.0	0.0
Attenutated Area (C1)	11.3	4.3	17.7	11.5	11.9
Attenutated Areas (C2+BLDA)	4.4	115.5	6.1	242.9	265.2
Attenutated Area (C3)	5.6	0.6	6.1	28.1	29.8
Total	**38.0**	**120.3**	**65.6**	**282.5**	**306.9**

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

2016 AES Approved RELEASE RATE

				5-year		100-year	
Area ID	**Total Area (ha)**	**C**	**t_c (min)**	**i (mm/hr)**	**Q (L/s)**	**i (mm/hr)**	**Q (L/s)**
A1	3.69	0.50	20.0	70.3	360.0	70.3	360.0
A2	1.09	0.50	20.0	70.3	106.2	70.3	106.2
EX-1	0.34	0.20	20.0	70.3	13.2	120.0	22.5
Total	**5.12**				**479.4**		**488.7**

Target Flow Rate

				5-year		100-year	
Area ID	**Total Area (ha)**	**C**	**t_c (min)**	**i (mm/hr)**	**Q (L/s)**	**i (mm/hr)**	**Q (L/s)**
A1-1	0.64	0.50	20.0	70.3	62.4	70.3	62.4
A2-1	0.05	0.50	20.0	70.3	4.9	70.3	4.9
Total	**0.69**				**67.3**		**67.3**

Estimated Post Development Peak Flow from Unattenuated Areas

UN1	**Imp.**	**Perv.**	**Total**
Area	0.063	0.000	0.063
C	0.9	0.2	0.90

Area ID **UN1**
Total Area 0.063 ha
C 0.90 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)**
12.2	93.7	14.8	14.8	0.0	0.0	160.4	28.1	28.1	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)

UN2	**Imp.**	**Perv.**	**Total**
Area	0.014	0.016	0.030
C	0.9	0.2	0.53

Area ID **UN2**
Total Area 0.030 ha
C 0.53 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)**
12.2	93.7	4.1	4.1	0.0	0.0	160.4	8.8	8.8	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)

Estimated Post Development Peak Flow from Attenuated Areas

Area ID C1

C1	**Imp.**	**Perv.**	**Total**
Area	0.074	0.000	0.074
C	0.9	0.2	0.90

Total Subsurface Storage (m^3) 12.0

Stage Attenuated Areas Storage Summary

		Surface Storage			Surface and Subsurface Storage			
	Stage (m)	**Ponding (m^2)**	**h_o (m)**	**delta d (m)**	**V* (m^3)**	**V_{acc}** (m^3)**	**$Q_{release}$† (L/s)**	**$V_{drawdown}$ (hr)**
Orifice INV	71.95		0.00			0.0	0.0	0.00
U/G STORAGE INV	72.49		0.54	0.54	4.0	4.0	11.3	0.10
U/G STORAGE S/L	72.95		1.00	0.46	4.0	7.9	15.3	0.14
U/G STORAGE OBV	73.35		1.40	0.41	4.0	11.9	18.2	0.18
T/L	74.43		2.48	1.08	0.0	11.9	24.1	0.14

* V=Incremental storage volume
**V_{acc}=Total surface and sub-surface
† $Q_{release}$ = Release rate calculated from orifice equation

Orifice Location **STM101A** **Dia** 85
Total Area 0.074 ha
C 0.90 Rational Method runoff coefficient *Note: Rational Method Coefficient "C" increased by 25% for 100-year calculations*

	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)**
1	203.5	37.8	11.8	26.0	1.6	351.4	72.5	17.2	55.3	3.3
5	141.2	26.2	11.8	14.4	4.3	242.7	50.1	17.2	32.9	9.9
10	104.2	19.4	11.8	7.5	4.5	178.6	36.9	17.2	19.6	11.8
15	83.6	15.5	11.8	3.7	3.3	142.9	29.5	17.2	12.3	11.0
20	70.3	13.0	11.8	1.2	1.5	120.0	24.8	17.2	7.5	9.0
25	60.9	11.3	11.3	0.0	0.0	103.8	21.4	17.2	4.2	6.3
30	53.9	10.0	10.0	0.0	0.0	91.9	19.0	17.2	1.7	3.1
35	48.5	9.0	9.0	0.0	0.0	82.6	17.0	17.2	0.0	0.0
40	44.2	8.2	8.2	0.0	0.0	75.1	15.5	17.2	0.0	0.0
45	40.6	7.5	7.5	0.0	0.0	69.1	14.3	17.2	0.0	0.0
50	37.7	7.0	7.0	0.0	0.0	64.0	13.2	17.2	0.0	0.0
55	35.1	6.5	6.5	0.0	0.0	59.6	12.3	17.2	0.0	0.0
60	32.9	6.1	6.1	0.0	0.0	55.9	11.5	17.2	0.0	0.0
65	31.0	5.8	5.8	0.0	0.0	52.6	10.9	17.2	0.0	0.0
70	29.4	5.5	5.5	0.0	0.0	49.8	10.3	17.2	0.0	0.0
75	27.9	5.2	5.2	0.0	0.0	47.3	9.8	17.2	0.0	0.0
80	26.6	4.9	4.9	0.0	0.0	45.0	9.3	17.2	0.0	0.0
85	25.4	4.7	4.7	0.0	0.0	43.0	8.9	17.2	0.0	0.0
90	24.3	4.5	4.5	0.0	0.0	41.1	8.5	17.2	0.0	0.0
95	23.3	4.3	4.3	0.0	0.0	39.4	8.1	17.2	0.0	0.0
100	22.4	4.2	4.2	0.0	0.0	37.9	7.8	17.2	0.0	0.0

5-year $Q_{attenuated}$	**11.83**	**L/s**	**100-year $Q_{attenuated}$**	**17.22**	**L/s**
5-year Max. Storage Required	**4.5**	**m^3**	**100-year Max. Storage Required**	**11.8**	**m^3**
Est. 5-year Storage Elevation	**72.55**	**m**	**Est. 100-year Storage Elevation**	**73.34**	**m**

RioCan Holdings Inc.
1309 Carling Avenue
Proposed Site Conditions - Phase I
PREVIOUSLY APPROVED

Area ID C2+BLDA

C2+BLDA	Imp.	Perv.	Total
Area	0.421	0.019	0.441
C	0.9	0.2	0.87

Total Subsurface Storage (m^3) 208.0

Stage Attenuated Areas Storage Summary

		Surface Storage			Surface and Subsurface Storage			
	Stage	Ponding	h_o	delta d	V*	V_{acc}**	$Q_{release}$†	$V_{drawdown}$
	(m)	(m^2)	(m)	(m)	(m^3)	(m^3)	(L/s)	(hr)
Orifice INV	71.60		0.00			0.0	0	0.00
U/G STORAGE INV	72.49		0.89	0.89	68.6	68.6	1.3	14.67
U/G STORAGE S/L	72.95		1.35	0.46	68.6	137.3	1.8	21.19
U/G STORAGE OBV	73.35		1.75	0.41	68.6	205.9	3.2	17.88
T/L	74.08	0.4	2.48	0.73	0.1	206.0	4.7	12.18
0.10m Ponding	74.18	234.4	2.58	0.10	8.1	214.2	6.1	9.75
0.21m Ponding	74.29	725.3	2.69	0.11	50.3	264.5	6.2	11.85

* V=Incremental storage volume
**V_{acc}=Total surface and sub-surface
† $Q_{release}$ = Release rate calculated from Tempest LMF Curve

Orifice Location **STM105** **Dia** LMF65
Total Area 0.441 ha
C 0.87 Rational Method runoff coefficient *Note: Rational Method Coefficient "C" increased by 25% for 100-year calculations*

	5-year					100-year				
t_c	i	Q_{actual}‡	$Q_{release}$	Q_{stored}	V_{stored}	i	Q_{actual}‡	$Q_{release}$	Q_{stored}	V_{stored}
(min)	(mm/hr)	(L/s)	(L/s)	(L/s)	(m^3)	(mm/hr)	(L/s)	(L/s)	(L/s)	(m^3)
1	203.5	216.6	1.8	214.8	12.9	351.4	430.0	3.9	426.1	25.6
5	141.2	150.2	1.8	148.5	44.5	242.7	297.0	3.9	293.1	87.9
10	104.2	110.9	1.8	109.1	65.5	178.6	218.5	3.9	214.6	128.8
15	83.6	88.9	1.8	87.1	78.4	142.9	174.9	3.9	171.0	153.9
20	70.3	74.8	1.8	73.0	87.6	120.0	146.8	3.9	142.9	171.5
25	60.9	64.8	1.8	63.0	94.6	103.8	127.1	3.9	123.2	184.8
30	53.9	57.4	1.8	55.6	100.1	91.9	112.4	3.9	108.5	195.4
35	48.5	51.6	1.8	49.9	104.7	82.6	101.1	3.9	97.2	204.1
40	44.2	47.0	1.8	45.3	108.6	75.1	92.0	3.9	88.1	211.4
45	40.6	43.2	1.8	41.5	112.0	69.1	84.5	3.9	80.6	217.7
50	37.7	40.1	1.8	38.3	114.9	64.0	78.3	3.9	74.4	223.2
55	35.1	37.4	1.8	35.6	117.5	59.6	73.0	3.9	69.1	228.0
60	32.9	35.1	1.8	33.3	119.8	55.9	68.4	3.9	64.5	232.3
65	31.0	33.0	1.8	31.3	121.9	52.6	64.4	3.9	60.5	236.1
70	29.4	31.3	1.8	29.5	123.9	49.8	60.9	3.9	57.0	239.6
75	27.9	29.7	1.8	27.9	125.6	47.3	57.8	3.9	53.9	242.8
80	26.6	28.3	1.8	26.5	127.2	45.0	55.1	3.9	51.2	245.6
85	25.4	27.0	1.8	25.2	128.7	43.0	52.6	3.9	48.7	248.3
90	24.3	25.8	1.8	24.1	130.0	41.1	50.3	3.9	46.4	250.7
95	23.3	24.8	1.8	23.0	131.3	39.4	48.3	3.9	44.4	252.9
100	22.4	23.8	1.8	22.1	132.5	37.9	46.4	3.9	42.5	255.0

5-year $Q_{attenuated}$ **1.76 L/s** **100-year $Q_{attenuated}$** **3.88 L/s**
5-year Max. Storage Required **132.5 m^3** **100-year Max. Storage Required** **255.0 m^3**
Est. 5-year Storage Elevation **72.91 m** **Est. 100-year Storage Elevation** **74.27 m**

Estimated Post Development Peak Flow from Attenuated Areas

Area ID **C3**

C3	Imp.	Perv.	Total
Area	0.008	0.071	0.079
C	0.9	0.2	0.27

Stage Attenuated Areas Storage Summary

		Surface Storage			Surface and Subsurface Storage			
	Stage	Ponding	h_o	delta d	V*	V_{acc}**	$Q_{release}$†	$V_{drawdown}$
	(m)	(m^2)	(m)	(m)	(m^3)	(m^3)	(L/s)	(hr)
Orifice INV	72.44		0.00			0.0	0	0.00
Storage Pipe SL	72.57		0.13	0.13	0.0	0.0	1.5	0.00
Storage Pipe OBV	72.69		0.25	0.13	0.0	0.0	2.2	0.00
T/L	74.19	0.4	1.75	1.50	0.2	0.2	5.6	0.01
0.11m Ponding	74.30	83.9	1.86	0.11	3.3	3.5	6	0.16
0.26m Ponding	74.46	261.4	2.02	0.16	26.3	29.8	6.1	1.36

* V=Incremental storage volume
**V_{acc}=Total surface and sub-surface
† $Q_{release}$ = Release rate calculated from Tempest LMF Curve

Orifice Location **CB3** **Dia** LMF70
Total Area 0.079 ha
C 0.27 Rational Method runoff coefficient *Note: Rational Method Coefficient "C" increased by 25% for 100-year calculations*

	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)
1	203.5	12.0	5.7	6.3	0.4	351.4	83.8	6.1	77.7	4.7
5	141.2	8.3	5.7	2.6	0.8	242.7	57.9	6.1	51.8	15.5
10	104.2	6.1	5.7	0.5	0.3	178.6	42.6	6.1	36.5	21.9
15	83.6	4.9	4.9	0.0	0.0	142.9	34.1	6.1	28.0	25.2
20	70.3	4.1	4.1	0.0	0.0	120.0	28.6	6.1	22.5	27.0
25	60.9	3.6	3.6	0.0	0.0	103.8	24.8	6.1	18.7	28.0
30	53.9	3.2	3.2	0.0	0.0	91.9	21.9	6.1	15.8	28.5
35	48.5	2.9	2.9	0.0	0.0	82.6	19.7	6.1	13.6	28.6
40	44.2	2.6	2.6	0.0	0.0	75.1	17.9	6.1	11.8	28.4
45	40.6	2.4	2.4	0.0	0.0	69.1	16.5	6.1	10.4	28.0
50	37.7	2.2	2.2	0.0	0.0	64.0	15.3	6.1	9.2	27.5
55	35.1	2.1	2.1	0.0	0.0	59.6	14.2	6.1	8.1	26.8
60	32.9	1.9	1.9	0.0	0.0	55.9	13.3	6.1	7.2	26.1
65	31.0	1.8	1.8	0.0	0.0	52.6	12.6	6.1	6.5	25.2
70	29.4	1.7	1.7	0.0	0.0	49.8	11.9	6.1	5.8	24.3
75	27.9	1.6	1.6	0.0	0.0	47.3	11.3	6.1	5.2	23.3
80	26.6	1.6	1.6	0.0	0.0	45.0	10.7	6.1	4.6	22.3
85	25.4	1.5	1.5	0.0	0.0	43.0	10.2	6.1	4.2	21.2
90	24.3	1.4	1.4	0.0	0.0	41.1	9.8	6.1	3.7	20.0
95	23.3	1.4	1.4	0.0	0.0	39.4	9.4	6.1	3.3	18.9
100	22.4	1.3	1.3	0.0	0.0	37.9	9.0	6.1	2.9	17.7

5-year $Q_{attenuated}$	**5.67 L/s**		**100-year $Q_{attenuated}$**	**6.10 L/s**
5-year Max. Storage Required	**0.8 m^3**		**100-year Max. Storage Required**	**28.6 m^3**
Est. 5-year Storage Elevation	**74.21 m**		**Est. 100-year Storage Elevation**	**74.45 m**

Summary of Release Rates and Storage Volumes

Control Area	5-Year Release Rate (L/s)	5-Year Required Storage (m^3)	100-Year Release Rate (L/s)	100-Year Required Storage (m^3)	100-Year Available Storage (m^3)
Unattenuated Areas (UN1)	14.8	0.0	28.1	0.0	0.0
Unattenuated Areas (UN2)	4.1	0.0	8.8	0.0	0.0
Attenutated Area (C1)	11.8	4.5	17.2	11.8	11.9
Attenutated Areas (C2+BLDA)	1.8	132.5	3.9	255.0	264.5
Attenutated Area (C3)	5.7	0.8	6.1	28.6	29.8
Total	**38.1**	**137.8**	**64.1**	**295.4**	**306.2**