Site Servicing Report Addendum

99 Parkdale Avenue

J.L.Richards

ENGINEERS · ARCHITECTS · PLANNERS

Value through **service** and **commitment**

Site Servicing Report Addendum
99 Parkdale Avenue

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1.0 INTRODUCTION

1.1 Background

In 2019, J.L. Richards & Associates Limited (JLR) was retained by Brigil, under their umbrella company 11034936 Canada Inc., to prepare engineering documents in support of a Site Plan Application for a Condominium Tower sited at 99 Parkdale Avenue. These documents consisted of a Site Servicing Report and Engineering Drawings that addressed water, sanitary, storm and stormwater management servicing associated with the development of a Condominium Tower on Parkdale Avenue. Since then, several submissions were made and subsequently Approval was granted to the City of Ottawa. The approved documents consisted of the Site Servicing Report (March 20, 2020) and Engineering Drawings sealed on March 13, 2020 and May 6, 2020.

1.2 Purpose of Addendum

The approved Site Servicing Report and associated Engineering Drawings presented detailed servicing strategies for wastewater, water and storm/stormwater management. The water and wastewater servicing which was approved was based on achieving the following municipal requirements:

Ottawa Sewer Design Guidelines (October 2012) complete with the following Technical Bulletins:

- ISTB-2012-01;
- ISTDB-2014-01;
- ISTDB-2016-01;
- ISTDB-2018-01;
- ISTDB-2019-01; and
- ISTDB-2019-02;

City of Ottawa Water Distribution Guidelines complete with the following Technical Bulletins:

- ISTDB-2010-02;
- ISTDB-2014-02; and
- ISTDB-2018-02.

Since the Approval of the 5th design submission, additional coordination was undertaken with the Owner's architect and Mechanical Engineer to confirm municipal servicing to the mechanical room and to complete the preparation of the Water Data Card.

During the coordination with the mechanical engineer, JLR was informed that although servicing met municipal requirements, it was not consistent with the requirements of the Ontario Building Code (OBC). Specifically, changes were to be made for water and wastewater servicing. As a result, the approved Servicing Drawing S1 (March 13, 2020) was to be revised. Refer to Drawing S1 for a copy of the approved Servicing Drawing. Given the proposed changes, the City advised

that the updated servicing was to be documented in a Site Servicing Report Addendum. Therefore, the purpose of this Site Servicing Report Addendum is to document the revised servicing for both water and wastewater, and to discuss any impacts.

1.3 Proposed Servicing Revisions

1.3.1 Water Servicing

Due to the building size, the OBC requires that water servicing consists of a 200 mm diameter watermain for the purpose of fire protection. Given the requirement for watermain reliability, the approved twin 150 mm diameter watermains (refer to Appendix A) are proposed to be revised to twin 200 mm diameter watermains as depicted on the revised Servicing Drawing (refer to Appendix B for copy of revised S1, dated June 24, 2020).

The headloss calculations shown in Section 2.7 of the Approved Site Servicing Report (March 20, 2020) have been revised from the twin 150 mm diameter watermains to twin 200 mm diameter watermains. Section 2.7 (below) shows the updated headloss calculations associated with twin 200 mm diameter watermains. Given that Section 2.1 to 2.6 remain unchanged, they have not been repeated in the water servicing section below.

1.3.2 Wastewater Servicing

Due to the building size, the OBC requires that wastewater servicing consists of a 300 mm diameter sanitary sewer. Consequently, the approved 150 mm diameter sanitary sewer (refer to Appendix A) is proposed to be revised to a 300 mm diameter sanitary sewer as depicted on the revised Servicing Drawing (refer to Appendix B for copy of revised S1, dated June 24, 2020). Given the larger sanitary sewer size, a maintenance hole is now being proposed to be constructed at the connection point with the existing 375 mm diameter sanitary sewer as the proposed sewer size is greater than 50% of the diameter of the mainline concrete pipe. The revised Servicing Drawing (Drawing S1) included in Appendix B shows the proposed manhole addition.

The capacity verification shown in Section 3.3 of the Approved Site Servicing Report (March 20, 2020) have been revised from a 150 mm diameter sanitary sewer to a 300 mm diameter sanitary sewer. Section 3.3 (below) shows the updated capacity calculations associated with the proposed 300 mm diameter sanitary sewer. Given that Section 3.1 to 3.2 remain unchanged, they have not been repeated in the wastewater servicing section below.

2.0 WATER SERVICING

2.7 Headloss Calculations

The revised servicing as presented on Drawing S1 (Appendix B) was evaluated under domestic (peak hour and maximum HGL pressure check) as well as during a maximum day combined to a fire flow demand condition. The twin 200 mm diameter watermain service laterals are ±9.4 m in length and as such, the headloss calculations were based on a 10 m long service lateral. Sections 2.7.1 to 2.7.3 summarizes the headloss calculations and associated findings.

2.7.1 Peak Hour Demand

The headloss was calculated along one of the proposed 200 mm diameter water service laterals (refer to S1, Appendix B), from the existing Parkdale Avenue 200 mm diameter watermain to 99 Parkdale. Based on a total peak hour demand of 6.32 L/s, a headloss of 0.0045 m in total was estimated (Appendix C). When this headloss is subtracted from the Parkdale Avenue supply HGL of 107.5 m, a residual HGL of 47.496 m was calculated at the building face (Appendix C).

The calculated HGL of 107.496 m represents a pressure of 466 kPa (67.6 psi). Consequently, the calculated pressure exceeds the minimum pressure constraint of 275 kPa (40 psi) based on the peak demand drawn from one of the twin 200 mm diameter watermains. It should be noted that given the height of the Condominium Tower, a booster pump is to be sized by the Owner's mechanical engineer to deliver the domestic demands to the users.

2.7.2 Maximum Day Demand plus Fire Flow

The headloss was calculated under a maximum day of 4.21 L/s combined to a fire flow (69.2 L/s) to demonstrate that one of the proposed twin 200 mm diameter watermains can deliver the flows to the building (Appendix C). Based on the combined demand of 73.41 L/s (4.21 L/s + 69.20 L/s), this overall demand will generate a headloss of 0.4188 m on one of the twin 200 mm diameter watermains (Appendix C).

When the headloss of 0.4188 m is subtracted from the Parkdale Avenue supply HGL of 106.0 m, a residual HGL of 105.581 m was calculated at the building face, representing a pressure of 447 kPa (64.8 psi). Consequently, the minimum pressure constraint of 140 kPa (20 psi) is met by one of the proposed twin 200 mm diameter watermains. From that point, a fire pump is to be sized by the Owner's mechanical engineer to supply the domestic demands and flows to the fire suppression system.

2.7.3 High Pressure Check

The OBC requires that a high-pressure check (maximum hydraulic grade elevation) be performed on the proposed system to ensure that the maximum pressure constraint of 552 kPa (80 psi) of the Ontario Code & Guide for Plumbing is not exceeded. To verify this criterion, a minimum hour demand of 0.37 L/s was used based on the peaking factor of 0.275 in accordance with Table 3-3 of the MOE Design Guidelines.

Based on the HGL of 115.0 m (at the Parkdale Avenue 200 mm diameter watermain), the pressure at the Tower is 55 m (115.0 m – 60.0 m) based on a calculated headloss of 0.000023 m (Appendix C). This corresponds to a pressure of 540 kPa (78.3 psi). Consequently, the calculated pressure does not exceed the maximum pressure constraint of 552 kPa and the installation of a pressure reducing valve (PRV) in the mechanical room is not warranted. It is proposed that the mechanical engineer confirms whether a PRV is warranted.

2.8 Summary and Conclusions

Based on the revised calculations for the proposed twin 200 mm diameter watermains, the pressure and flow criteria have been met. It is, therefore, recommended that proposed twin 200 mm diameter watermains, as shown on the revised Site Servicing (Drawing S1 – Appendix B), be constructed to provide water servicing for the proposed Condominium Tower recognizing that domestic and fire pumps will be sized by the Owner's mechanical engineer.

3.0   WASTEWATER SERVICING

3.3   Theoretical Sanitary Peak Flow and Proposed Sanitary Servicing

Wastewater flows from the 99 Parkdale Avenue Condominium Tower will outlet into the municipal system (Parkdale Avenue 375 mm diameter sanitary sewer) via a proposed 300 mm diameter sanitary sewer. Based on the proposed densities for apartment buildings (as recommended by the OSDG), the peak wastewater flows were calculated based on the design value of 280 L per capita per day and population of 412. A peak wastewater flow of 5.39 L/s was calculated for 99 Parkdale based on the following parameters:

i)	Residential average unit flow rate of 280 L per capita per day;
ii)	Theoretical population of 412;
iii)	Peaking factor of 4.00, calculated in accordance with the Harmon formula;
iv)	Total infiltration allowance of 0.05 L/s (0.1372 ha x 0.33 L/s) in accordance with the OSDG and ISTB-2018-01.

It should be noted that the above calculated peak flow of 5.39 L/s for the 99 Parkdale is marginally higher than the previous calculated peak flow of 5.17 L/s (4%) estimated and approved as part of the July 2012 Site Plan Control Application. The calculated peak flow of 5.39 L/s was used as the design target for the purpose of sizing the proposed sanitary service lateral.

Proposed Sanitary Service Lateral Sizing

To accommodate the above design flow target of 5.39 L/s, a proposed 300 mm diameter sanitary sewer is proposed at a minimum slope of 1.0% (refer to Drawing S1, Appendix B), which is capable in accommodating the sanitary peak design flow. The proposed 300 mm diameter sewer at 1.0% will provide a free-flowing capacity of ±100 L/s. It should also be noted that the proposed theoretical peak wastewater flow of 5.39 L/s represents less than 5% of the total capacity of the 375 mm diameter sanitary sewer (based on a sewer section with the flatter slope) along Parkdale Avenue.

3.4   Summary and Conclusions

Based on the above wastewater servicing details, it is recommended that the proposed wastewater servicing shown on the Site Servicing (Drawing S1, Appendix B) be implemented to provide wastewater servicing for the proposed Condominium Tower.

J.L. RICHARDS & ASSOCIATES LIMITED

Prepared by: Prepared by:

Steve Picken   Guy Forget, P.Eng.
Civil Designer   Senior Water Resources Engineer

CANADA'S BEST MANAGED COMPANIES

www.jlrichards.ca

Appendix A

Drawing S1(March 13, 2020)
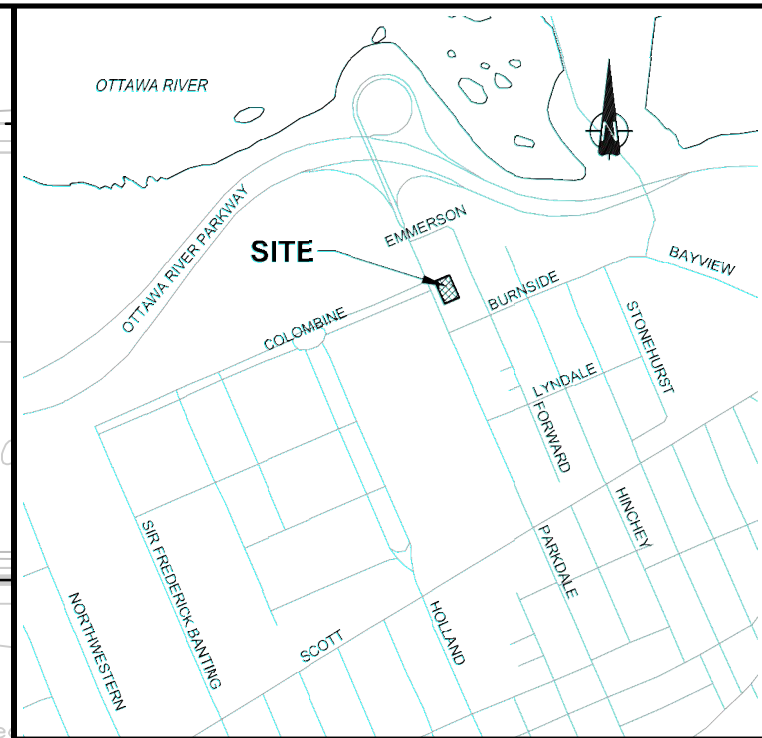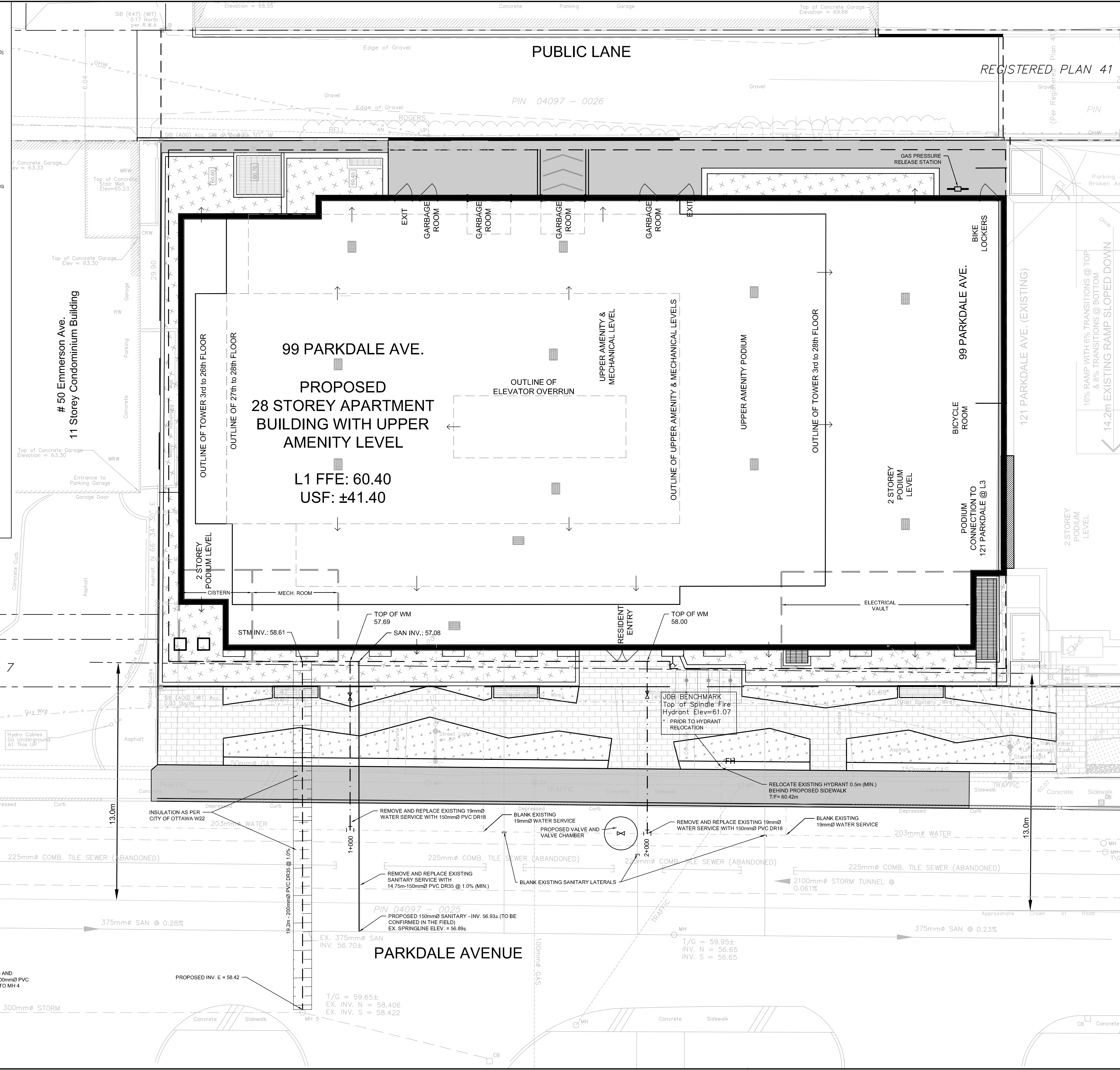
GENERAL CONSTRUCTION NOTES :

1. ALL MATERIALS AND CONSTRUCTION TO BE IN ACCORDANCE WITH CURRENT CITY OF OTTAWA (COA) STANDARDS AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS (OPSS & OPSD) SEWER AND WATERMAIN MATERIAL TYPES AND DISINFECTION.

2. SUPPLY AND CONSTRUCT ALL SEWERS AND APPURTENANCES IN ACCORDANCE WITH CURRENT CITY OF OTTAWA (COA) STANDARDS AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS (OPSS & OPSD) ROADS AND PUBLIC WORKS.

3. VALVES TO BE OPERATED BY CITY OF OTTAWA STAFF ONLY.

4. NO CONNECTION TO EXISTING WATER NETWORK SHALL BE COMPLETED UNTIL A WATER PERMIT IS OBTAINED FROM THE CITY OF OTTAWA (COO). COA FORCES TO COMPLETE WATERMAIN CONNECTIONS. EXCAVATION, BACKFILLING AND REINSTATEMENT TO BE COMPLETED BY CONTRACTOR.

5. UNLESS OTHERWISE NOTED, DIMENSIONS FROM STREET LINE ARE TO THE CENTRELINE OF SEWER OR MANHOLE.

6. THE INSIDE DIAMETER OF PIPES ARE REFERRED TO IN PLAN VIEW.

7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING LOCATES FROM ALL UTILITY COMPANIES TO LOCATE EXISTING UTILITIES PRIOR TO EXCAVATION.

8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATION, BACKFILL, REINSTATEMENT OF ALL AREAS DISTURBED DURING CONSTRUCTION. AND ALL ASSOCIATED WORKS TO THE SATISFACTION OF THE ENGINEER AND CITY OF OTTAWA.

9. THE CONTRACTOR SHALL BE RESPONSIBLE TO DETERMINE, VIA EXCAVATION, THE EXACT LOCATION AND ELEVATION OF THE EXISTING WATERMAINS, SEWERS AND UNDERGROUND STRUCTURES AS REQUIRED FOR ALL CONNECTIONS, RELOCATIONS AND BLANKINGS.

10. 99 PARKDALE AVENUE SERVICING DESIGN DRAWINGS TO BE READ IN CONJUNCTION WITH THE SERVICING REPORT (FEBRUARY 2020) PREPARED BY J.L. RICHARDS & ASSOCIATES.

11. ALL WATERMAINS AND WATER SERVICES LESS THAN 2.4m FROM A STORM SEWER, CATCH BASIN OR MANHOLE SHALL BE INSULATED IN ACCORDANCE WITH THE CITY OF OTTAWAS REQUIREMENTS AS SET OUT IN CITY'S OF OTTAWA SPECIFICATION F-7014.

12. AT ALL CONNECTION POINTS, REINSTATE SURFACES TO EXISTING CONDITION OR BETTER.
-ASPHALT RESTORATION SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DRAWING No. R10.
-THICKNESS OF GRANULARS AND ASPHALT LAYERS SHALL MATCH EXISTING

13. REFER TO ARCHITECTURAL DRAWINGS FOR SITE LAYOUT.

14. BENCHMARK: TOP OF SPINDLE OF FIRE HYDRANT LOCATED ON EAST SIDE OF PARKDALE AVENUE WITH ELEVATION = 61.07m. AS PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. (AOV). BENCHMARK IS VALID UNTIL HYDRANT IS RELOCATED. BENCHMARK IS TO BE TRANSFERRED BY AOV PRIOR TO RELOCATING THE HYDRANT.

15. INSULATE FULL LENGTH OF 200Ø STORM SERVICE AS PER CITY OF OTTAWA W22.

NORTH WATERMAIN TABLE-Sta. 1+000 to 1+010.5
PVC DR-18 CL.150

SIZES	STATION ALONG WM	DETAIL	FINISHED GRADE	TOP OF WM
	1+000	TAPPING VALVE & SLEEVE	59.80	57.40
	1+007.3	VALVE & VB	60.09	57.69
	1+007.8	FACE OF UNDERGROUND PARKING STRUCTURE	60.09	57.69

SOUTH WATERMAIN TABLE-Sta. 2+000 to 2+010.5
PVC DR-18 CL.150

SIZES	STATION ALONG WM	DETAIL	FINISHED GRADE	TOP OF WM
	2+000	TAPPING VALVE & SLEEVE	60.10	57.70
	2+007.3	VALVE & VB	60.30	57.90
	2+007.8	FACE OF UNDERGROUND PARKING STRUCTURE	60.30	58.00

ASPHALT PAVEMENT STRUCTURE FOR REAR LANE

*300mm (MIN.) GRAN.'B' TYPE II
150mm GRAN.'A'
50mm SP19.0
40mm SP12.5

REFER TO GEOTECHNICAL REPORT

* GRANULAR 'B' THICKNESS TO BE CONFIRMED BY GEOTECHNICAL ENGINEER AT TIME OF CONSTRUCTION AND/OR SUBGRADE PREPARATION.

PUBLIC LANE

REGISTERED PLAN 41

PIN 04097 - 0026

GAS PRESSURE RELEASE STATION

99 PARKDALE AVE.

PROPOSED
28 STOREY APARTMENT
BUILDING WITH UPPER
AMENITY LEVEL

L1 FFE: 60.40
USF: ±41.40

OUTLINE OF TOWER 3rd to 26th FLOOR
OUTLINE OF 27th to 28th FLOOR
UPPER AMENITY & MECHANICAL LEVEL
OUTLINE OF UPPER AMENITY & MECHANICAL LEVELS
UPPER AMENITY PODIUM
OUTLINE OF TOWER 3rd to 28th FLOOR
OUTLINE OF ELEVATOR OVERRUN

EXIT
GARBAGE ROOM
GARBAGE ROOM
GARBAGE ROOM
GARBAGE ROOM
EXIT
BIKE LOCKERS

99 PARKDALE AVE.
121 PARKDALE AVE. (EXISTING)

BICYCLE ROOM

2 STOREY PODIUM LEVEL

PODIUM CONNECTION TO 121 PARKDALE @ L3

2 STOREY PODIUM LEVEL

2 STOREY PODIUM LEVEL
CISTERN
MECH. ROOM

50 Emmerson Ave.
11 Storey Condominium Building

ELECTRICAL VAULT

RESIDENT ENTRY

STM INV.: 58.61
SAN INV.: 57.08
TOP OF WM 57.69
TOP OF WM 58.00

LOT 7

JOB BENCHMARK
Top of Spindle Fire
Hydrant Elev=61.07
PRIOR TO HYDRANT RELOCATION

RELOCATE EXISTING HYDRANT 0.5m (MIN.) BEHIND PROPOSED SIDEWALK
T/F= 60.42m

INSULATION AS PER CITY OF OTTAWA W22

REMOVE AND REPLACE EXISTING 19mmØ WATER SERVICE WITH 150mmØ PVC DR18
BLANK EXISTING 19mmØ WATER SERVICE
PROPOSED VALVE AND VALVE CHAMBER
REMOVE AND REPLACE EXISTING 19mmØ WATER SERVICE WITH 150mmØ PVC DR18
BLANK EXISTING 19mmØ WATER SERVICE

REMOVE AND REPLACE EXISTING SANITARY SERVICE WITH 14.75m-150mmØ PVC DR35 @ 1.0% (MIN.)
BLANK EXISTING SANITARY LATERALS

203mmØ WATER
203mmØ WATER

13.0m
13.0m

225mmØ COMB. TILE SEWER (ABANDONED)
2100mmØ STORM TUNNEL
225mmØ COMB. TILE SEWER (ABANDONED)
2100mmØ STORM TUNNEL @ 0.061%
225mmØ COMB. TILE SEWER (ABANDONED)

50mmØ GAS
150mmØ GAS

PIN 04097 - 0025
PROPOSED 150mmØ SANITARY - INV. 56.93± (TO BE CONFIRMED IN THE FIELD)
EX. SPRINGLINE ELEV. = 56.89±

375mmØ SAN @ 0.28%
375mmØ SAN
375mmØ SAN @ 0.23%

CAP EXIST. CB LEAD AND INSTALL NEW 7m - 200mmØ PVC DR35 @ 1.0% LEAD TO MH 4
INV. S = 58.68
INV. N = 58.75

PROPOSED INV. E = 58.42

PARKDALE AVENUE

LEGEND

	EXISTING CATCH BASIN
	PROPOSED WATERMAIN & VALVE
	EXISTING WATERMAIN, VALVE & HYDRANT
	EXISTING SANITARY SEWER & MANHOLE
	EXISTING STORM SEWER & MANHOLE
	PROPOSED SANITARY SEWER
	PROPOSED STORM SEWER & MANHOLE
	RETAINING WALL
FF =154.48	FINISHED FLOOR ELEVATION
M	WATER METER
R	REMOTE WATER METER
	SIAMESE CONNECTION
	PROPOSED BUILDING ENTRANCE
	OVERFLOW ROOF SCUPPER
	PROPERTY LINE
	OUTLINE OF UNDERGROUND PARKING LEVELS

03	ISSUED TO CITY FOR REVIEW - THIRD SUBMISSION	13/03/2020
02	ISSUED TO CITY FOR REVIEW - SECOND SUBMISSION	07/02/2020
01	ISSUED TO CITY FOR REVIEW - FIRST SUBMISSION	22/10/2019
No.	ISSUE / REVISION	DD/MM/YY

VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING.

SCALE: 1:100

CLIENT:
BRIGIL
www.jlrichards.ca

CONSULTANT:
J.L.Richards
ENGINEERS·ARCHITECTS·PLANNERS

CONSULTANT:

PROFESSIONAL STAMP
PROJECT NORTH

PROJECT:
99 PARKDALE AVENUE
OTTAWA ONTARIO

DRAWING:
SITE SERVICING PLAN

DESIGN:	SP
DRAWN:	SP
CHECKED	LD
JLR #:	25205-100

DRAWING #:
S1

Appendix B

Drawing S1 (June 24, 2020)

GENERAL CONSTRUCTION NOTES :

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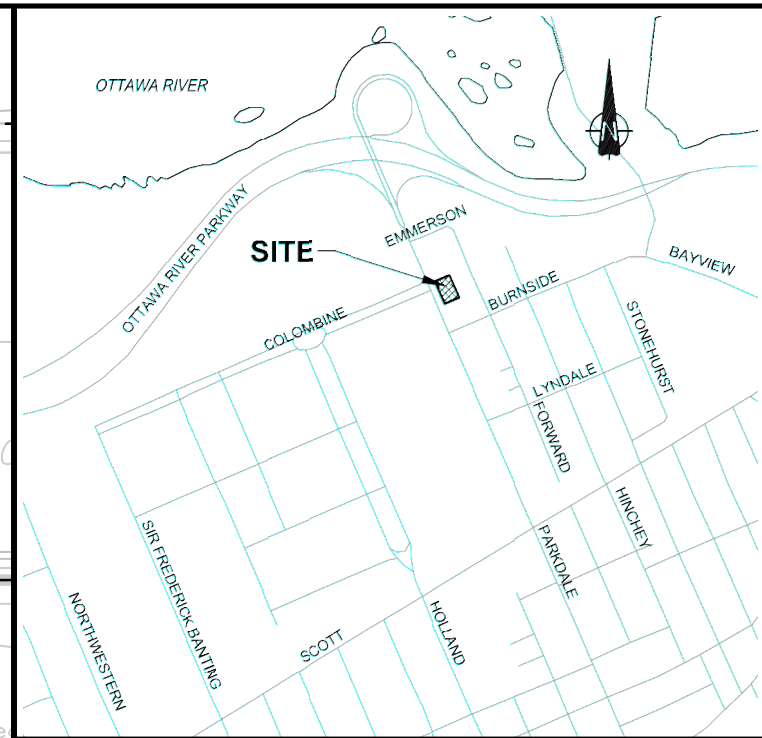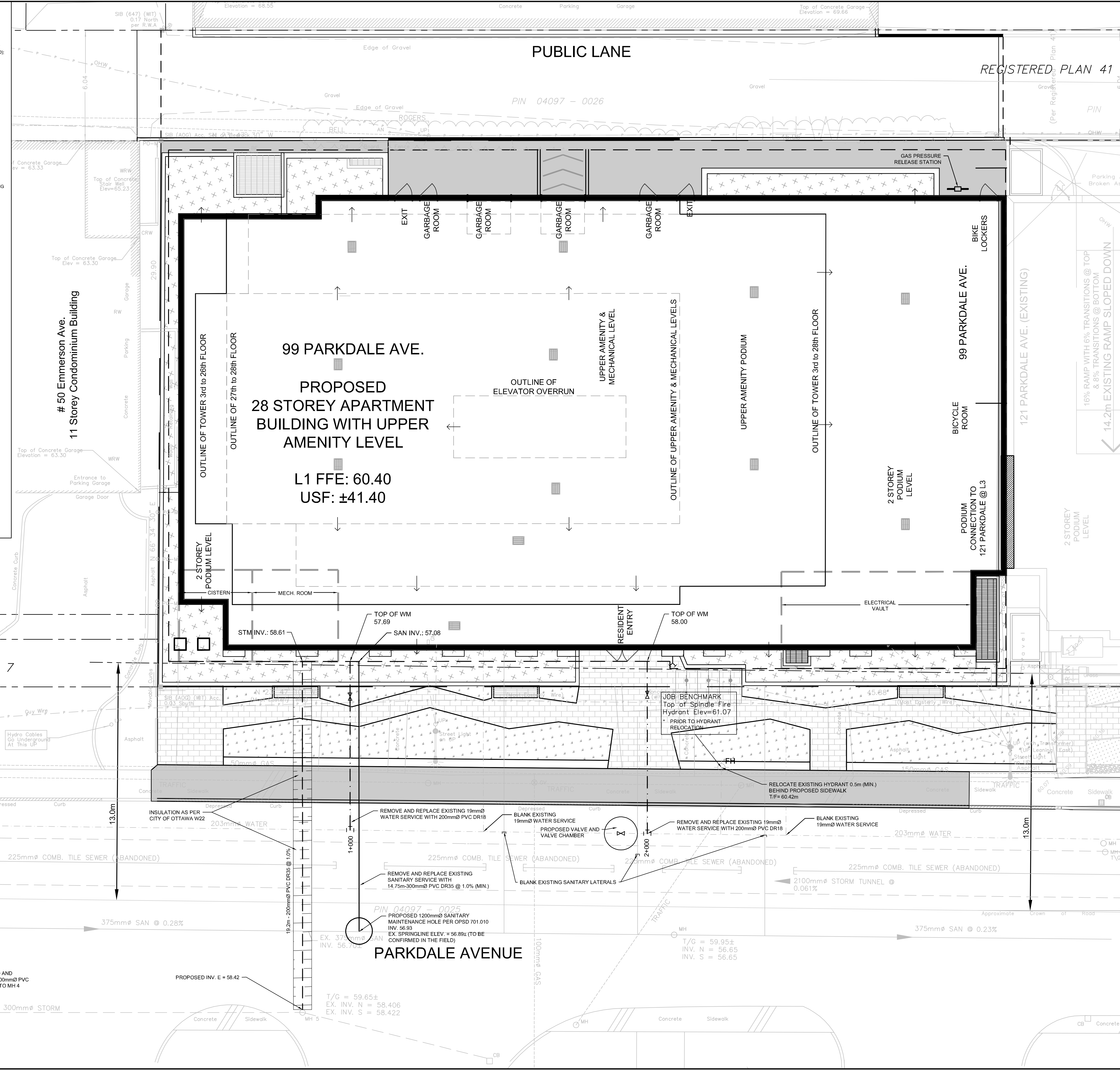15. INSULATE FULL LENGTH OF 200Ø STORM SERVICE AS PER CITY OF OTTAWA W22.

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PVC DR-18 CL.150

SIZES	STATION ALONG WM	DETAIL	FINISHED GRADE	TOP OF WM
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SOUTH WATERMAIN TABLE - Sta. 2+000 to 2+010.5
PVC DR-18 CL.150

SIZES	STATION ALONG WM	DETAIL	FINISHED GRADE	TOP OF WM
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ASPHALT PAVEMENT STRUCTURE FOR REAR LANE

*300mm (MIN.) GRAN.'B' TYPE II
150mm GRAN.'A'
50mm SP19.0
40mm SP12.5

REFER TO GEOTECHNICAL REPORT

* GRANULAR 'B' THICKNESS TO BE CONFIRMED BY GEOTECHNICAL ENGINEER AT TIME OF CONSTRUCTION AND/OR SUBGRADE PREPARATION.

PUBLIC LANE

REGISTERED PLAN 41

PIN 04097 - 0026

GAS PRESSURE RELEASE STATION

EXIT GARBAGE ROOM GARBAGE ROOM GARBAGE ROOM GARBAGE ROOM EXIT BIKE LOCKERS

99 PARKDALE AVE.

50 Emmerson Ave. 11 Storey Condominium Building

OUTLINE OF TOWER 3rd to 26th FLOOR

OUTLINE OF 27th to 28th FLOOR

99 PARKDALE AVE.

PROPOSED 28 STOREY APARTMENT BUILDING WITH UPPER AMENITY LEVEL

L1 FFE: 60.40
USF: ±41.40

UPPER AMENITY & MECHANICAL LEVEL

OUTLINE OF ELEVATOR OVERRUN

OUTLINE OF UPPER AMENITY & MECHANICAL LEVELS

UPPER AMENITY PODIUM

OUTLINE OF TOWER 3rd to 28th FLOOR

121 PARKDALE AVE. (EXISTING)

BICYCLE ROOM

2 STOREY PODIUM LEVEL

2 STOREY PODIUM LEVEL

PODIUM CONNECTION TO 121 PARKDALE @ L3

2 STOREY PODIUM LEVEL

MECH. ROOM

CISTERN

STM INV.: 58.61
SAN INV.: 57.08
TOP OF WM 57.69

RESIDENT ENTRY

TOP OF WM 58.00

ELECTRICAL VAULT

LOT 7

JOB BENCHMARK
Top of Spindle Fire Hydrant Elev=61.07
PRIOR TO HYDRANT RELOCATION

RELOCATE EXISTING HYDRANT 0.5m (MIN.) BEHIND PROPOSED SIDEWALK
T/F= 60.42m

INSULATION AS PER CITY OF OTTAWA W22

REMOVE AND REPLACE EXISTING 19mmØ WATER SERVICE WITH 200mmØ PVC DR18

BLANK EXISTING 19mmØ WATER SERVICE

PROPOSED VALVE AND VALVE CHAMBER

REMOVE AND REPLACE EXISTING 19mmØ WATER SERVICE WITH 200mmØ PVC DR18

BLANK EXISTING 19mmØ WATER SERVICE

203mmØ WATER

203mmØ WATER

REMOVE AND REPLACE EXISTING SANITARY SERVICE WITH 14.75m-300mmØ PVC DR35 @ 1.0% (MIN.)

BLANK EXISTING SANITARY LATERALS

225mmØ COMB. TILE SEWER (ABANDONED)

225mmØ COMB. TILE SEWER (ABANDONED)

225mmØ COMB. TILE SEWER (ABANDONED)

100mmØ STORM TUNNEL

2100mmØ STORM TUNNEL

2100mmØ STORM TUNNEL @ 0.061%

375mmØ SAN @ 0.28%

375mmØ SAN @ 0.23%

UPSTREAM SAN MH INV. S = 56.81

PIN 04097 - 0025

PROPOSED 1200mmØ SANITARY MAINTENANCE HOLE PER OPSD 701.010
INV. 56.93
EX. SPRINGLINE ELEV. = 56.89± (TO BE CONFIRMED IN THE FIELD)

T/G = 59.95±
INV. N = 56.65
INV. S = 56.65

PARKDALE AVENUE

CAP EXIST. CB LEAD AND INSTALL NEW 7m - 200mmØ PVC DR35 @ 1.0% LEAD TO MH 4
INV. S = 58.68
INV. N = 58.75

PROPOSED INV. E = 58.42

300mmØ STORM

T/G = 59.65±
EX. INV. N = 58.406
EX. INV. S = 58.422

EX. INV. W = 58.621
EX. INV. S = 58.096

LEGEND

	EXISTING CATCH BASIN
	PROPOSED WATERMAIN & VALVE
	EXISTING WATERMAIN, VALVE & HYDRANT
	EXISTING SANITARY SEWER & MANHOLE
	EXISTING STORM SEWER & MANHOLE
	PROPOSED SANITARY SEWER
	PROPOSED STORM SEWER & MANHOLE
	RETAINING WALL
FF =104.48	FINISHED FLOOR ELEVATION
M	WATER METER
R	REMOTE WATER METER
	SIAMESE CONNECTION
	PROPOSED BUILDING ENTRANCE
	OVERFLOW ROOF SCUPPER
	PROPERTY LINE
	OUTLINE OF UNDERGROUND PARKING LEVELS

SCALE: 1:100

CLIENT:
BRIGIL
www.jlrichards.ca

CONSULTANT:
JR J.L.Richards
ENGINEERS · ARCHITECTS · PLANNERS

PROFESSIONAL STAMP
M. K. L. DALRYMPLE
JUNE 24, 2020
PROVINCE OF ONTARIO

PROJECT NORTH

PROJECT:
99 PARKDALE AVENUE
OTTAWA ONTARIO

DRAWING:
SITE SERVICING PLAN

DESIGN:	SP
DRAWN:	SP
CHECKED	LD
JLR #:	25205-100

DRAWING #: S1

City File No: D07-12-19-0176   Plan No: 18067

Appendix C

Headloss Calculations

99 Parkdale Avenue Condominium Tower
Brigil (11034936 Canada Inc.)
25205-100

Headloss Calculations (Hazen Williams Equation)

Calculate headloss in a given pipe length based on flows and C value

HL = 10.675 * L * Q^1.852 / (C^1.856 * D ^4.8704)

Where,

HL = Headloss (m)

L - Length (m)

Q - Flow (m^3/s)

C - Hazen Williams "C"

D - Main Diameter (m)

Water Demand	Flow - Q	Flow - Q	Length	C	D	HeadLoss	HGL (m)	HGL @ Tower	Tower Elevation	Pressure @ Tower		Requirement	Criteria
Condition	(L/s)	(m^3/s)	(m)		(m)	(m)	@ 200mm WM	(m)	(m)	(m)	(kPa)		Acheived?
Average Day	1.34	0.00134	10	100	0.2								
Maximum Day	4.21	0.00421	10	100	0.2								
Peak Hour	6.32	0.00632	10	100	0.2	0.0045	107.5	107.496	60	47.496	466	275	Yes
Maximum HGL	0.37	0.00037	10	100	0.2	0.000023	115.0	115.000	60	55.000	540	552	Yes
Maximum Day Plus Fire (Q = 4.21 L/s + 69.2 L/s)	73.41	0.07341	10	100	0.2	0.4188	106.0	105.581	60	45.581	447	140	Yes

Domestic Booster Pump & Fire Pump to be designed by the Owner's Mechanical Engineer