Assessment of Adequacy of Public Services Report

Official Plan Amendment and Zoning By-law Amendment

30 Cleary Avenue,
Ottawa, ON

Prepared for:

Theia Partners

Attention:
Scott Bentley

LRL File No.: 230437.00

November 10, 2023

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1 INTRODUCTION AND SITE DESCRIPTION

LRL Associates LTD. was retained by **Theia Partners** to prepare a functional serviceability report to support Zoning Bylaw Amendment and an Official Plan Amendment of the property located at **30 Cleary Avenue** within the City of Ottawa.

The subject site is within the Bay Ward 7, located backing onto the Kichi Zibi Mikan Parkway, accessed via Cleary Avenue and has an approximate area of 2.07 ha. Under the City of Ottawa Zoning by-law, the property is currently zoned as I1A [314] H(13.8). The land consists of three (3) existing buildings, paved areas as well as some landscaping. The subject site can be seen below in Figure 1.

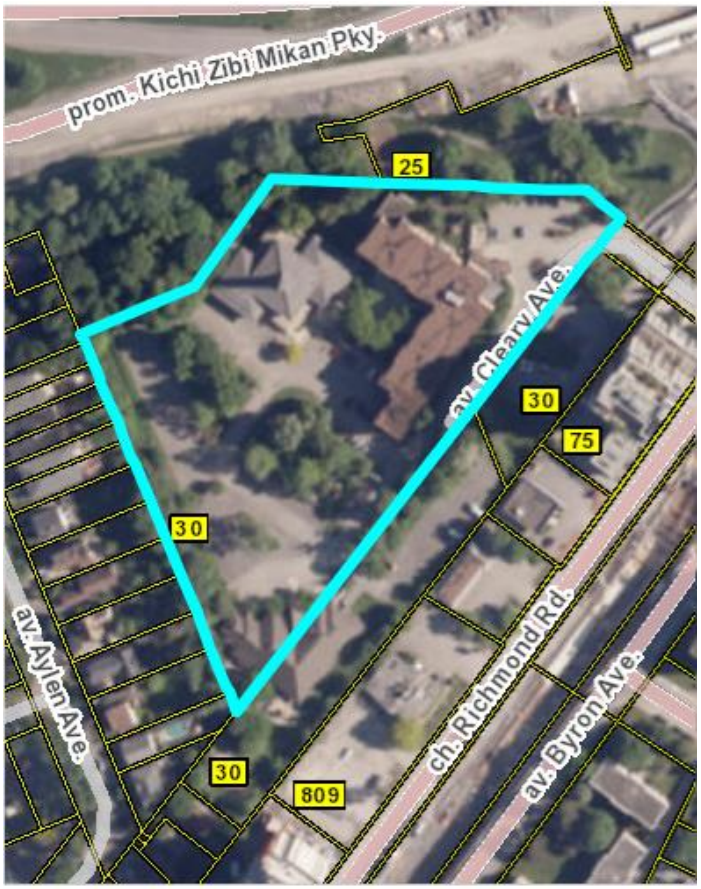

Figure 1: Arial View of Subject Site

The Official Plan amendment and Zoning by-law amendment will formally establish zoning frameworks and amend the secondary plan to facilitate future development on the south west portion of the site currently occupied by surface parking.

2 EXISTING SITE AND AVAILABLE SERVICES

The subject property is currently occupied by three (3) separate building; Unitarian House of Ottawa and The First Unitarian Congregation of Ottawa in the North East portion of the site, as well as the River Parkway Children's Centre in the south corner of the site. The balance of the property not occupied by buildings is landscape greenspace, and asphalt for vehicular circulation and surface parking.

Given that the property houses development in it's current state, there is localized sanitary sewers, water distribution and storm networks utilized to service the existing buildings and surrounding parking lot.

Based on the topography and site survey information, the property generally slopes in the north direction towards forested land, ultimately towards the Kichi Zibi Mikan parkway and Ottawa river. The existing site topographical survey can be found in ***Appendix A.***

Sewer and watermain mapping, along with as-built information collected from the City of Ottawa (included in ***Appendix C***) indicate the following existing infrastructure located within road entering the property.

Cleary Avenue:

- 250mmØ PVC Sanitary sewer
- 450mmØ CONC Storm sewer
- 245mmØ PVC Watermain

3 CONCEPT DEVELOPMENT

Based on the site plan from Figurr, the intended area that will be developed is approximately 0.57ha. This development will be located along the west border of the site, where there is currently asphalt surface parking. The contemplated development comprises two (2) multistorey buildings, with a shared underground parking garage. Building one (1) will be 6 stories high and will house 66 units. Building two (2) will be 16 stories and will house 148 units. The development will have a total of 214 residential units. Additionally, each building will have designated amenity spaces on levels one and the highest storeys.

There are two levels of underground parking, parking level one (1) is shared by both buildings and has a total of 59 parking spaces and 113 bike parking spaces. Parking level 2 is located below building 2 and has a total of 39 parking spaces and 47 bike parking spaces. For additional detail of the proposed development, refer to the Concept Site Plan prepared by Figurr Architects Collective included in ***Appendix B.***

4 WATER SUPPLY SERVICING

The subject property lies within the City of Ottawa 1W water distribution network pressure zone. There is an existing 245 mm watermain within Cleary Avenue. There are currently two (2) existing

fire hydrants within close proximity of the subject property. Refer to ***Appendix D*** for the water pressure zone and location of fire hydrants.

According to the City of Ottawa Water Distribution Guidelines (Technical Bulletin ISDTB-2014-02), since the subject site is anticipated to house more than 50 residential units, it is required to be serviced by two water service laterals, separated by an isolation valve, for redundancy and to avoid creation of a vulnerable service area. Hence, the contemplated development is anticipated to be serviced via two (2) 150 mm diameter services. One of the connections will be via the 245mm watermain within Cleary Avenue. In order to provide a secondary connection, ongoing liaison and review is taking place to determine the preferred and constructable option. Potential exists to provide a secondary connection through the following options:

- Direct connection into the water main along Richmond Road via a mutually agreed upon servicing easement through neighbouring properties fronting Richmond.
- A secondary line running up Cleary Avenue from Richmond, separated by an isolation valve.

During the detailed design stage of the building, the two service laterals are to be looped Inside the building in coordination with the mechanical engineer.

Table 1, included below, summarizes the City of Ottawa Design Guidelines design parameters in the preparation of the water demand estimate.

Table 1: City of Ottawa Design Guidelines- Water Design Parameters

Design Parameter	Value
Residential Bachelor / 1 Bedroom Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 P/unit
Residential 3 Bedroom Apartment	3.1 P/unit6
Commercial Average Daily Demand	2.8 L/m^2/d
Average Daily Demand	280 L/d/per
Minimum Depth of Cover	2.4 m from top of watermain to finished grade
Desired operating pressure range during normal operating conditions	350 kPa and 480 kPa
During normal operating conditions pressure must not drop below	275 kPa
During normal operating conditions pressure shall not exceed	552 kPa
During fire flow operating conditions pressure must not drop below	140 kPa
**Table updated to reflect technical Bulletin ISDTB-2018-02*	

4.1 Residential Water Demands

Anticipated population demands have been interpreted from the Concept Plans by Figurr. The contemplated development is anticipated to include **214** residential units, which translates to a population of **358.2** persons as per the City of Ottawa Water Distribution Design Guidelines. Table

1 below summarizes the proposed population count as interpreted using Table 4.1 of the *City of Ottawa Water Distribution Design Guidelines*.

Table 2: Development Residential Population Estimate

Unit Type	Persons Per Unit	Number of Units	Population
1 Bedroom Apartment	1.4	136	190.4
2 Bedroom Apartment	2.1	74	155.4
3 Bedroom Apartment	3.1	4	12.4
	Total	**214**	**358.2**

The required water supply requirements for the residential units in the proposed subdivision have been calculated using the following formula:

Where:

$$Q = (q \times P \times M)$$

q = average water consumption (L/capita/day)
P = design population (capita)
M = Peak factor

With reference to *Table 4.2 of the City of Ottawa Water Distribution Design Guidelines and Table (3-3) MOE Peaking Factors*, using an average water consumption rate of 280 L/c/d, a calculated Maximum Daily Demand Factor and Maximum Hour Demand Factor of 3.3 and 5.0, respectively, anticipated demands were calculated as follows:

- Average daily domestic water demand is **1.16** L/s,
- Maximum daily demand is **3.88** L/s, and
- Maximum hourly demand is **19.35** L/s.

4.2 Amenity Water Demands

As previously mentioned, the architectural plans indicate that a portion of the floor area will be dedicated to amenity space. The total amenity space in buildings one (1) and building two (2) is approximately **393 m²**.

The required water supply requirements for the commercial space within the proposed subdivision have been calculated using the following formula:

Where:

$$Q = (q \times A \times M)$$

q = average water consumption (L/m^2/day)
A = commercial area (m^2)
M = Peak factor

With reference to Table 4.2 of the *City of Ottawa Water Distribution Design Guidelines* and *technical bulletin ISTB-18-02*, using an average water consumption rate of 2.8 L/m^2/d, a calculated Maximum Daily Demand Factor and Maximum Hour Demand Factor of 1.5 and 1.8, respectively, anticipated commercial demands were calculated as follows:

- Average daily domestic water demand is **0.013** L/s,
- Maximum daily demand is **0.019** L/s, and
- Maximum hourly demand is **0.034** L/s.

4.3 Total Water Demands & Watermain Sizing

Based on calculated residential and commercial demands for the concept development, the total anticipated water demands are as follows;

- Average daily domestic water demand is **1.17** L/s,
- Maximum daily demand is **3.90** L/s, and
- Maximum hourly demand is **19.38** L/s.

For greater detail on Water Demand Calculations, please refer to ***Appendix D.***

During the Site Plan Control design stage and as the detailed building design progresses, fire demands will have to be determined using the FUS method. Boundary conditions will be requested from the City of Ottawa to ensure that sufficient pressure exists to service the proposed development. Pressures will need to meet the required pressure range stated in Table 1 as per City of Ottawa Design Guidelines.

There are two private hydrants located within 75m of the proposed development. The can provide the development with a total available fire flow of 11,356L/min. It will be confirmed at the detailed design stage if the private hydrants will meet the required development fire demands. A joint use agreement will be required to utilize the private hydrants.

5 SANITARY SERVICE

There is an existing 200mmØ PVC municipal sanitary sewer within Cleary Avenue. As per pre-consultation with City staff, it is anticipated that the contemplated development will connect to the existing 200mm sanitary sewer within Cleary Avenue via a single 150 mm diameter sanitary service lateral, to be connected to all proposed buildings through the underground parking garage.

The total anticipated post development total flow was calculated to be is **4.91 L/s** as a result of proposed residential population, commercial use and a small portion of infiltration. Refer to **Appendix E** for further information on the calculated sanitary flows.

Based on information available from the as-bult profile data along Cleary Avenue provided by the City of Ottawa, the existing 250mmØ PVC sanitary sewer has a slope of approximately 0.35% which translates to existing maximum capacity of approximately **35.18 L/s**. The anticipated wet wastewater flows from the contemplated development represent approximately 14% of the maximum existing sewer capacity.

Sanitary capacity would need to be reviewed with the City of Ottawa during detailed design stage to ensure the existing sanitary sewer has adequate capacity for the proposed sanitary flows. Additionally, further review could take place to expand to the actual water usage of the existing users on site to understand the expected flows currently discharging to this sewer.

6 STORMWATER MANAGEMENT

6.1 Existing Stormwater Infrastructure

The subject property lies within the Ottawa River West sub-watershed. There is an existing 450mmØ CONC Storm sewer located within 30 Cleary Avenue.

In pre-development conditions, the stormwater runoff from the subject site would generally flow uncontrolled overland in the north direction offsite towards NCC lands. Refer to ***Appendix A*** for topographical survey showing existing contours and grades. However, it is understood that this redevelopment will instead require the capture and control to eliminate any additional runoff being directed in this direction.

There is currently a stormwater system in place for the building in the south corner of the property as well as a 525mm diameter storm sewer used to convey flows from offsite from the development located at 851 Richmond Road. During the detailed design stage, this will be a critical consideration to ensure that the drainage from both developments are managed.

6.2 Design Criteria

The stormwater management criteria for this development is based on pre-consultation with City of Ottawa officials, the City of Ottawa Sewer Design Guidelines including City of Ottawa Stormwater Management Design Guidelines, 2012 (City standards), as well as the Ministry of the Environment's Stormwater Planning and Design Manual, 2003 (SWMPD Manual).

The stormwater management will need to meet the following stormwater design criteria;

- Meet an allowable release rate based on the pre-development Rational Method Coefficient or a maximum of 0.50.
- Control the post-development flows to the 2-year pre-development flows for all events up to and including the 100-year storm.
- The time of concentration is to be calculated, min Tc = 10mins
- Based on coordination with the RVCA, enhanced quality treatment (80% TSS removal) prior to release from site will be required.
- Implement stormwater management plan to demonstrate that no additional runoff will be directed to the NCC owned lands to the north.

6.3 Proposed Stormwater Management System

The contemplated development is anticipated to outlet to the existing 450mmØ CONC private storm sewer located within Cleary Avenue. It is anticipated that catch basin manholes will collect surface water within the parking lot. Roof drains on building rooftops will be utilised to collect and direct runoff to the building's mechanical system to a cistern. A storm service lateral outlet will be used to discharge flows from the cistern to the proposed storm system onsite.

Based on stormwater objectives for the subject site, the allowable release rate for the contemplated development is **60.85L/s** for all storms up to and including the 100-year storms. To meet the stormwater objectives, the contemplated development may contain a combination of stormwater storage within a cistern and surface storage within the asphalt parking lot.

As detailed site design progresses and during the Site Plan Control stage, detailed stormwater design will commence. The total amount of required storage will be determined based on the final grading design. The storage volume requirements will be based on the allowable release rate of **60.85L/s** and the uncontrolled and controlled onsite watersheds.

It is anticipated that the contemplated development would utilize an Oil/Grit Separator (OGS) to achieve the required **80% TSS** removal treatment as specified by RVCA. The OGS would be required to treat all contaminated runoff collected in the surface parking lot before runoff is discharged into ditch.

7 CONCLUSION

This evaluation is limited to assessing the serviceability of the site described within this document to support an Official Plan Amendment and Zoning By-law Amendment.

Based on the *Site Plan* provided by Figurr, included in **Appendix B**, the following conclusions, in relation to the serviceability of the site, can be made:

- **Water**:
  - The contemplated development is anticipated to be serviced via a 150mm dual connection.
  - One of the tie-in connections will be via the 245mmØ PVC Watermain located in Cleary Avenue. At this time the second connection cannot be confirmed. However, two possible connection locations are via an easement through a neighbouring

property directly into Richmond Road, or a secondary watermain in Cleary Avenue, separated from the existing connecting via an isolation valve.
    - Domestic demands from the proposed development based on projected populations and amenity space are expected to be in the range of **1.17 L/s** for the Average daily demand, **3.90 L/s** for the maximum daily and **19.38 L/s** for maximum hourly.
    - As detailed building design progresses, and confirmation for location of secondary connection is concluded, fire demands are to be calculated and boundary conditions will be requested from the City of Ottawa to ensure that sufficient water pressures will be available to service the site.
    - There are at least two (2) existing private fire hydrants available to service the proposed development. A joint use agreement will be required to utilize the private hydrants. They will provide a combined fire flow of **11,256 L/min** to the site.
- **Sanitary**:
    - The anticipated sanitary sewer flows are **4.91 L/s** as a result of proposed residential population, commercial use and a small portion of infiltration.
    - It is anticipated to service the contemplated development via a 200 mm diameter sanitary service lateral to be connected to the existing 250mm sanitary sewer within the Cleary Avenue ROW.
    - The proposed sanitary discharge represents approximately 14% of the maximum capacity of the existing receiving sewer leg. Existing water demands for the users on site can further help to confirm that the existing sanitary sewer can accommodate conveying this discharge towards Richmond Road.

- **Stormwater**:
    - Site stormwater runoff will need to be controlled to a pre-development release rate of **60.85 L/s.**
    - Volume storage will be determined at the detailed design stage. Post development storage will be obtained through use of an underground cistern and surface storage within the parking lot.
    - It is anticipated that an OGS will be installed to treat all contaminated runoff to an enhanced quality treatment level (80% TSS removal).
    - The subject site is anticipated to outlet to the 450mmØ CONC Storm sewer located within Cleary Avenue.

Shall the concept plan change in relation to the number of units, building footprint, or impervious area of the site, the conclusions above would no longer be appropriate. During the detailed design stage of this development, the storm, sanitary and water servicing details will be further defined and confirmed.

Prepared by:

LRL Associates Ltd.

Tamara Harb, EIT
Civil Designer

Virginia Johnson, P.Eng.
Civil Engineer

APPENDIX A

Site Topographical Survey

![Stantec logo]

Stantec Geomatics Ltd.
300-1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com

TOPOGRAPHIC SURVEY OF

LOTS 8, 9 & 10 & PART OF LOTS 6 & 7 (WEST CLYBOURNE AVENUE) PART OF LOTS 6 & 7 (EAST CLYBOURNE LOTS), PART OF LOT 6 (WEST ARDMORE AVENUE), PART OF CLYBOURNE AVENUE (CLOSED BY BY-LAW CR573286), PART OF GORMAN STREET (CLOSED BY BY-LAW CR573286) REGISTERED PLAN NO.236 AND PART OF LOTS 26 & 27 CONCESSION 1 (OTTAWA FRONT)

CITY OF OTTAWA

Stantec Geomatics Ltd.
ONTARIO LAND SURVEYORS

Scale 1:250
5 0 5 10 15 METRES

METRIC CONVERSION

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

BEARING NOTE

BEARINGS ARE GRID, DERIVED FROM THE CAN-NET VRS NETWORK OBSERVATIONS ON NCC HORIZONTAL CONTROL MONUMENTS 19773035 AND 19680191, CENTRAL MERIDIAN, 76°30' WEST LONGITUDE MTM ZONE 9. NAD83 (CSRS) (2010.0).

19773035 N:5006060.00 E:324888.04
19680191 N:5033563.88 E:388064.92

ELEVATION NOTE

ELEVATIONS SHOWN HEREON ARE GEODETIC (CGVD-1928:1978) AND ARE DERIVED FROM THE CAN-NET VRS NETWORK MONUMENT: OTTAWA ELEVATION=95.230.

LEGEND

■	DENOTES	FOUND MONUMENTS
□	"	SET MONUMENTS
IB	"	IRON BAR
IBø	"	ROUND IRON BAR
SIB	"	STANDARD IRON BAR
SSIB	"	SHORT STANDARD IRON BAR
CC	"	CUT CROSS
CP	"	CONCRETE PIN
WIT	"	WITNESS
PIN	"	PROPERTY IDENTIFICATION NUMBER
M/MEAS	"	MEASURED
PROP	"	PROPORTIONED
OU	"	ORIGIN UNKNOWN
SG	"	STANTEC GEOMATICS LTD.
P1	"	PLAN 5R-6767
P2	"	PLAN BY 857, DATED NOV.14, 2007
P3	"	PLAN BY AOV, DATED DEC.17, 2014
P4	"	PLAN 4R-28689
P5	"	PLAN 4R-34953
ACU	"	AIR CONDITIONING UNIT
AN	"	ANCHOR
AP	"	AIR PUMP
ANT	"	ANTENNA
BH	"	BOREHOLE
BIB	"	HOSE BIB
BKR	"	BIKE RACK
BOL	"	BOLLARD
BOUL	"	BOULDER
CB	"	CATCH BASIN
CBMH	"	CB MANHOLE
CSV	"	CURB STOP VALVE
DRN	"	DRAIN
EPOST	"	ELECTRICAL OUTLET
FP	"	FLAG POLE
FL	"	FLOOD LIGHT
FTF	"	FUEL TANK FILLER CAP
GC	"	GARBAGE CAN
GFL	"	PIPE FLANGE (GAS)
GFP	"	GAS FUEL PUMP
GP	"	POLE GUYWIRE
GSR	"	GAS SERVICE REGULATOR
GV	"	GAS VALVE
HIC	"	HICKENBOTTOM
HLS	"	HYDRO LIGHT STANDARD
HM	"	HYDRO METER
HTN	"	HYDRO TRANSFORMER
HW	"	HAND WELL
HYD	"	FIRE HYDRANT
JBX	"	JUNCTION BOX
LS	"	LIGHT STANDARD
MB	"	MAILBOX
MP	"	MONITORING PIN
MH	"	MAINTENANCE HOLE UNIDENTIFIED
MHB	"	MAINTENANCE HOLE BELL
MHF	"	MAINTENANCE HOLE FIBRE OPTIC
MHH	"	MAINTENANCE HOLE HYDRO
MHSAN	"	MAINTENANCE HOLE SANITARY
MHSTM	"	MAINTENANCE HOLE STORM
MHT	"	MAINTENANCE HOLE TRAFFIC
MW	"	MONITORING WELL
NPB	"	NEWS PAPER BOX
OLS	"	LIGHT STANDARD ORNAMENTAL
OW	"	OBSERVATION WELL
PKM	"	PARKING METER
PLBX	"	PULL BOX
PLR	"	PILLAR
SCP	"	SUMP/CATCH PIT
SCV	"	SPRINKLER CONTROL VALVE
SH	"	SPRINKLER HEAD
SIA	"	SIAMESE CONNECTION
SN	"	SIGN
TBL	"	TABLE
TB BELL	"	TERMINAL BOX - BELL
TB CATV	"	TERMINAL BOX - CABLE
TCB	"	TRAFFIC CONTROL BOX
UMB	"	MARKER BELL UNDERGROUND
UMC	"	MARKER CABLE UNDERGROUND
UMG	"	MARKER GAS UNDERGROUND
UMO	"	MARKER OIL UNDERGROUND
UP	"	UTILITY POLE
VB	"	VALVE BOX
VC	"	VALVE CHAMBER
WV	"	WATER VALVE
	"	TREE STUMP
	"	TREE CONIFEROUS (D.B.H. SHOWN)
	"	TREE DECIDUOUS (D.B.H. SHOWN)

TREE DRIP LINE

UNDERGROUND TELEPHONE

UNDERGROUND HYDRO

WATERMAIN

GASMAIN

STORM SEWER

UNDERGROUND FIBRE OPTIC

SURVEYOR'S CERTIFICATE

I CERTIFY THAT :

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 8th DAY OF JUNE, 2023.

DATE

FRANCIS LAU
ONTARIO LAND SURVEYOR

DRAWN: CT CHECKED: CK PM: CT FIELD: CA/AW PROJECT No.: 161614713-111

APPENDIX B

Concept Site Plan

KEY PLAN

PROPERTY DESCRIPTION

6 & 16 STOREY RESIDENTIAL BUILDINGS	
CITY OF OTTAWA PIN NUMBER	04751-0119
MUNICIPAL ADDRESS	30 Cleary ave

SITE INFORMATION

LOT AREA: 20,680 sqm

LOT FRONTAGE: NEED CLARIFICATION ON LOT LIMITS

LOT DEPTH: NEED CLARIFICATION ON LOT LIMITS

BUILDING INFORMATION

BUILDING AREA: MARKET BUILDING = 994sqm, OAHS Building= 930 sqm

BUILDING FLOOR AREA: OAHS BLDG = 6080 sqm, MARKET BLDG=12832 sqm, P1=2898sqm, P2=1953sqm

PROPOSED USE: APARTMENT DWELLINGS

UNIT BREAKDOWN - MARKET BUILDING:		UNIT MIX:
LEVEL 1:	9 UNITS	5x 1BD, 1x 1BD+D, 2x 2BD, 1x 3BD
LEVEL 2-4:	11 UNITS	2x 1BD, 5x 1BD+D, 3x 2BD, 1x 3BD
LEVEL 5-15	9 UNITS	1x ST, 3x 1BD, 1x 1BD+D, 4x 2BD
LEVEL 16	7 UNITS	3x 1BD, 4x 2BD
TOTAL	**148 UNITS**	

UNIT BREAKDOWN - OAHS BUILDING:		UNIT MIX:
LEVEL 1:	6 UNITS	4x 1BD, 1x 1BD+D, 2 x 2BD
LEVEL 2-6:	12 UNITS	5x 1BD,2x 1BD+D, 3x 2BD,1 x 3BD
TOTAL	**66 UNITS**	

MARKET & OAHS BUILDINGS TOTAL 214 UNITS

ZONING TABLE I1A[314]H(13.8)

CITY OF OTTAWA ZONING BY-LAW No. 2008-250	REQUIRED	PROPOSED
MINIMUM LOT AREA	400m²	TOTAL LOT AREA=20,680sqm
MINIMUM LOT WIDTH	15m	NEED CLARIFICATION
MINIMUM FRONT YARD SETBACK	3m	42,760m
MINIMUM CORNER SIDE YARD SETBACK	4.5m	6.19m
MINIMUM INTERIOR SIDE YARD SETBACK	7.5m	NEED CLARIFICATION ON LOT LIMITS
MINIMUM REAR YARD SETBACK	Abutting R1, R2 or R3:7.5m Other cases: 4.5m	10.5m
MAXIMUM BUILDING HEIGHT	13.8m	MARKET BUILDING=51m OAHS= 19.5m
VEHICLE PARKING REQUIREMENTS (AREA Z)	No off-street motor vehicle parking is required to be provided within Area Z (By-law 2016-249)	UNDERGROUND PARKING TOTAL=98 SPACES ABOVE= 15 SPACES
VISITOR VEHICLE PARKING REQUIREMENTS	0.2 Spaces per unit *Despite (1), within Areas B, X, Y and Z, no visitor parking spaces are required for the first twelve dwelling units on a lot. (By-law 2016-249).* *Despite (1), within Areas X, Y and Z, no more than thirty visitor parking spaces are required per building (By-law 2016-249).*	MARKET=148 UNITS X0.2 SPACES=30 VISITOR PARKING SPACES OAHS=66 UNITS X 0.2= 14 VISITOR SPACES
PARKING AREA AND SURROUNDING LANDSCAPING	No requirements	NEED CLARIFICATION ON LOT LIMITS
AMENITY AREA REQUIREMENTS	6m² per dwelling unit, and 10% of the gross floor area of each rooming unit. Minimum 50% of the required total amenity area to be communal. MARKET= 6m² x 148 units=888sqm OAHS= 6m² x 66 units= 396 sqm	MARKET BUILDING= 632 sqm PRIVATE 454 sqm COMMUNAL 1086 sqm TOTAL OAHS BUILDING=847 sqm (ALL COMMUNAL)
BICYCLE PARKING SPACES	0.5 per dwelling unit	MARKET BUILDING=124 HORIZONTAL SPACES, STACKED=18X2=36 SPACES 160 SPACES TOTAL OAHS= 33 HORIZONTAL STACKED= 16X2=32 SPACES 65 SPACES TOTAL

LEGEND

	SOFT LANDSCAPING	FD	FLOOR DRAIN
	PAVERS REFER TO LANDSCAPE	UP	UTILITY POLE
	ASPHALT PAVING	OHW	OVERHEAD UTILITY WIRES
	CONCRETE	L.S.	LIGHT STANDARD
	RIVERSTONE REFER TO LANDSCAPE	DC	DEPRESSED CURB
	EXISTING BUILDING ELEMENT TO BE REMOVED		NEW TREE (REFER TO LANDSCAPE DRAWINGS)
	EXISTING FENCE		
	NEW BOARD FENCE REFER TO LANDSCAPE		
	LOT LINE		EXISTING TREE (REFER TO LANDSCAPE DRAWINGS)
	SETBACK LINE		
	DESIGNATED BUILDING ENTRANCE / EXIT		NEW PLANTING AREA (REFER TO LANDSCAPE DRAWINGS)
FH	FIRE HYDRANT. REFER TO CIVIL		
CB CB	CATCH BASIN	77.70	EXISTING GROUND ELEVATION [TO DETERMINE EXISTING AVERAGE GRADE]
MH	MANHOLE	58.84	NEW GROUND ELEVATION REFER TO CIVIL

NOTE: 'X'-E INDICATES EXISTING TO REMAIN

No.	Date	Émis pour / Object
1	YYYY-MM-DD	ISSUED FOR
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Architecte D'intérieur / *Interior Designer*

Urbaniste / *Urban Planner*

FOTENN Planning + Design

Architecte / *Architect* (Paysagiste/ *Landscape*)

Ingénieur / *Engineer* (Civil / *Civil*)

Ingénieur / *Engineer* (Mécanique / *Mechanical*)

Ingénieur / *Engineer* (Électricité / *Electrical*)

Ingénieur / *Engineer* (Structure / *Structure*)

Client / *Client*

Architecte / *Architect* Collectif d'architectes

fig. 1
3550, Saint-Antoine O.
Montréal QC H4C 1A9
T. 514 861-5122

fig. 2
190 Somerset St W #206
Ottawa ON KP 0J4
T. 613 695-6122

figurr
www.figurr.ca

Sceau / *Seal*

Note:

L'entrepreneur doit vérifier toutes les dimensions et informations sur le site et aviser immédiatement l'architecte de toutes erreurs ou omissions.

Contractor shall verify all information and dimensions on site and immediately report any errors or omissions to the architect.

Projet / *Project*

THEIA - FIRST UNITARIAN

30 Cleary avenue
Ottawa ON

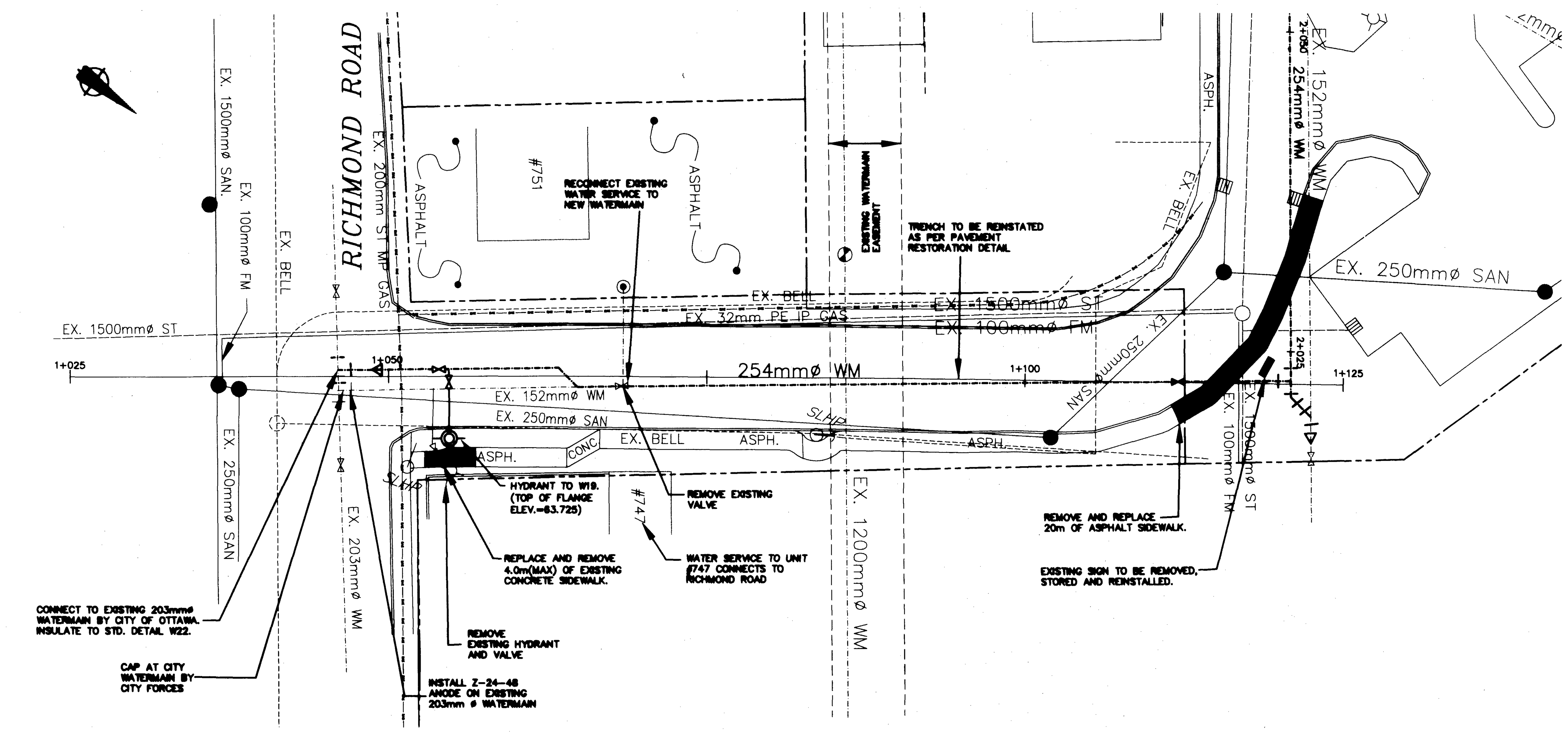
Titre / *Title*

SITE PLAN

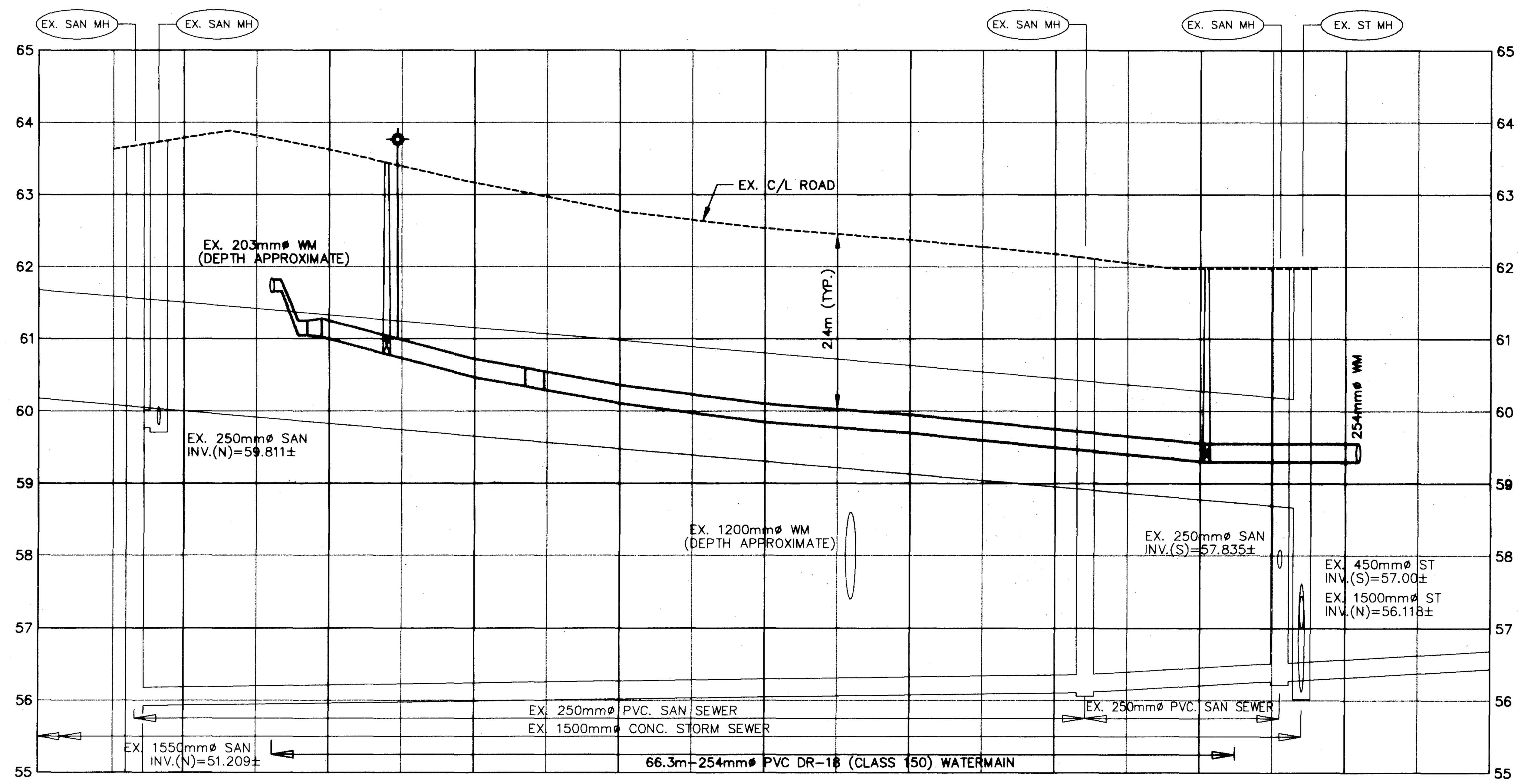
Dessiné par / *Drawn by*: RH + ZK	No. projet / *Project number*: *2314*
Vérifié par / *Verified by*: RC	No. dessin / *Drawing number*: A010
Échelle / *Scale*: *1:250*	Révision / *Revision*: 0
Date de création du dessin / *Drawing creation date*: 2023-08-01	

APPENDIX C

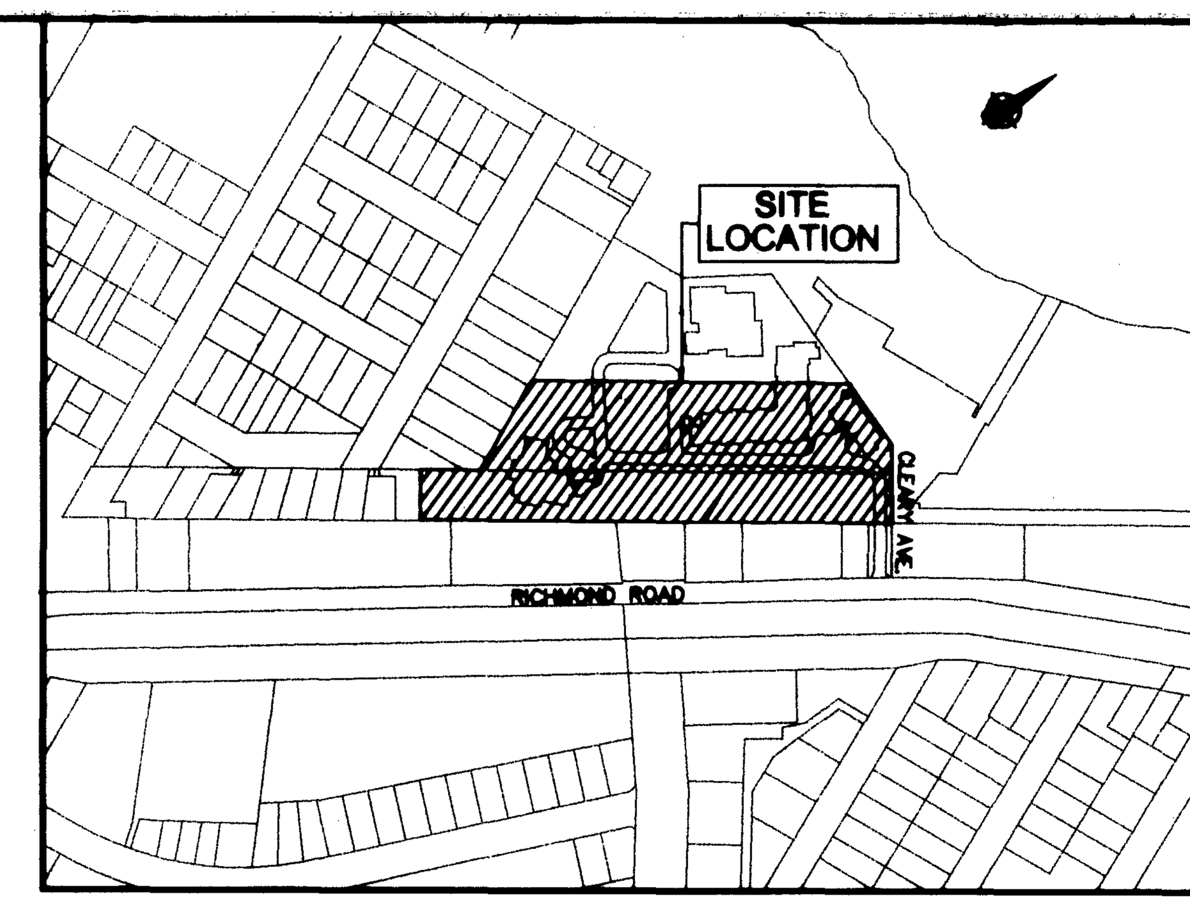
As-Built Road Profiles – Cleary Avenue



CLEARY AVENUE



C.L. ROAD CHAINAGE	EX. C/L ROAD ELEVATION	PROP. TOP WATERMAIN ELEVATION	EX. STORM SEWER INV. ELEVATION	EX. SANITARY SEWER INV. ELEVATION	
1+030					
1+036.66				55.463±	
1+038.27				59.768±	
1+040	63.78				
1+046.06					203X203 TEE
1+046.72					22.5° VERTICAL BEND
1+047.95					22.5° VERTICAL BEND
1+048.98		61.23			203X254 REDUCER
1+050	63.63	61.23			
1+053.95		61.02			254mm ø VALVE & VB
1+054.72	63.40	61.00			HYDRANT VALVE & VB
1+060	63.17	60.77			
1+063.4					45° HORIZONTAL BEND
1+064.8					45° HORIZONTAL BEND
1+070	62.78	60.38			
1+080	62.53	60.13			
1+090	62.37	59.97			
1+100	62.18	59.78			
1+102.10				56.108± / 56.118±	
1+110	61.98	59.58			
1+110.43		59.55			254mm ø VALVE & VB
1+112.4					APPROXIMATE LIMIT OF MUNICIPAL WATERMAIN
1+115.50				56.260± / 56.268±	
1+117.01			58.668±		
1+120		59.55			
1+120.89					254X254 TEE
1+130					



KEY PLAN

LEGEND

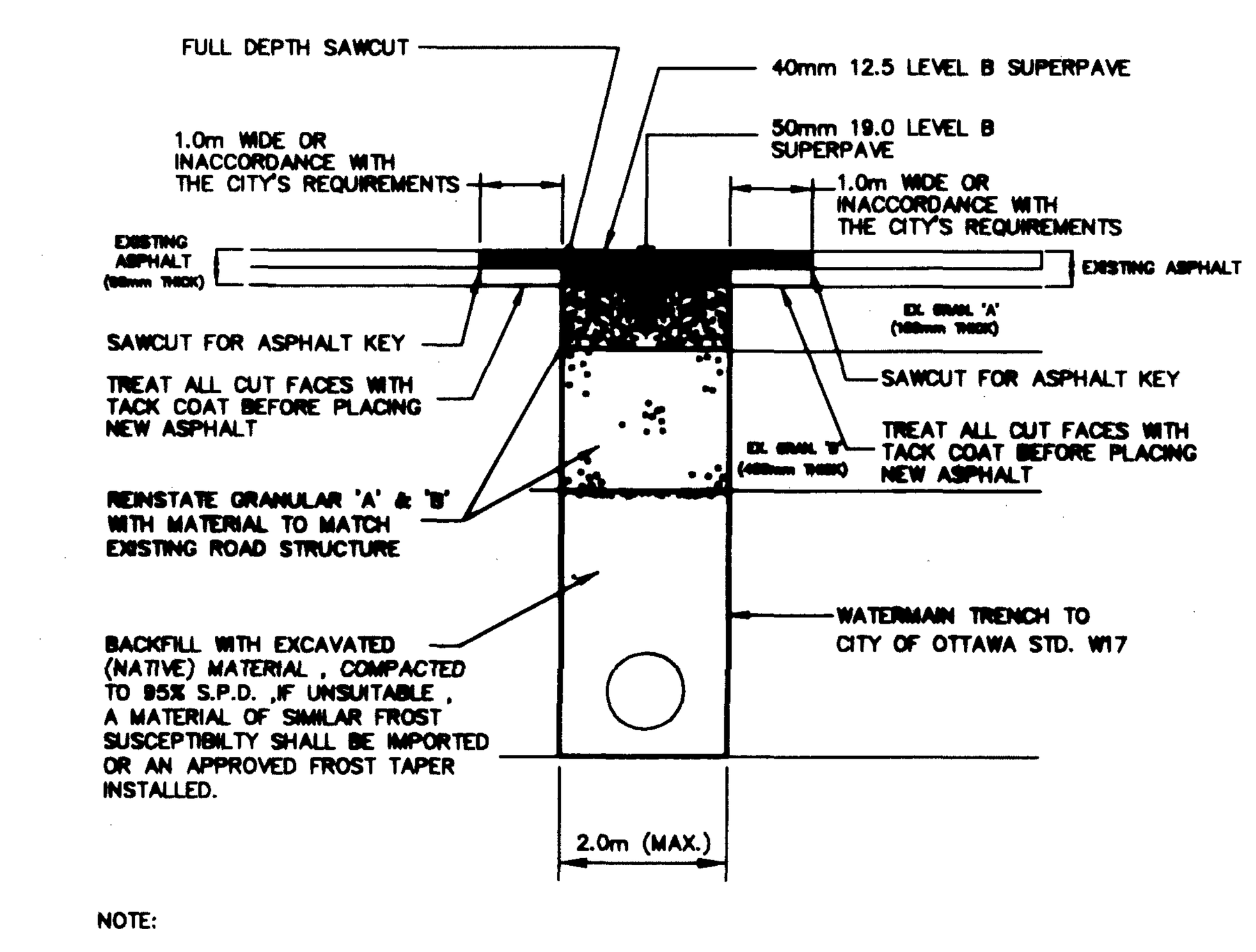
- EXISTING CATCH BASIN
- EXISTING WATERMAIN, VALVE & HYDRANT
- EXISTING SANITARY SEWER & MANHOLE
- EXISTING STORM SEWER & MANHOLE
- PROPOSED WATERMAIN, VALVE & HYDRANT
- WATERMAIN VALVE AND VALVE BOX
- TP4 63.52 (60.51) EX. GROUND ELEVATION / ROCK ELEVATION
- PROPERTY LINE

NOTE: PROPERTY BOUNDARIES ARE APPROXIMATE ONLY AND ARE NOT TAKEN FROM A PLAN OF SURVEY.

NO.	ISSUE	DATE
9	AS CONSTRUCTED INFO ADDED	25/08/09
8	ISSUED FOR UTILITY CIRCULATION	10/05/07
7	ISSUED FOR POST-TENDER ADDENDUM #6	01/02/07
6	ISSUED FOR M.O.E. APPROVAL	26/01/07
5	REVISED PER CITY COMMENTS	23/01/07
4	ISSUED FOR TENDER	01/11/06
3	ISSUED FOR SITE CLIENT REVIEW	27/10/06
2	ISSUED FOR SITE PLAN APPROVAL	15/08/06
1	CLIENT REVIEW	07/04/06

NOTES:

THE CONTRACTOR IS RESPONSIBLE TO DETERMINE THE EXACT LOCATION,SIZE,MATERIAL AND ELEVATION OF ALL SERVICES AND UTILITIES PRIOR TO CONSTRUCTION, PROTECT AND ASSUME RESPONSIBILITY FOR ALL UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.



NOTE:

1. ROAD CUT REINSTATEMENT TO CITY OF OTTAWA STD. R10.

PAVEMENT RESTORATION FOR WATERMAIN TRENCH

AS CONSTRUCTED INFORMATION

This drawing comprises the original design drawing updated to reflect Contractor supplied information as to final "as constructed" conditions. The Contractor supplied information has not been verified and, as such, this drawing is not warranted by J.L. Richards & Associates Limited for completeness or accuracy.

Date of Issue: August 25, 2009

SCALE: 1:250 H, 1:50 V

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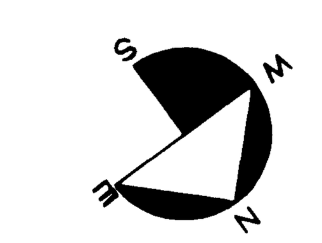
PROFESSIONAL STAMP

PROJECT NORTH



PROJECT NORTH

PROJECT:

RIVER PARKWAY PRESCHOOL CENTRE 40 CLEARY AVENUE

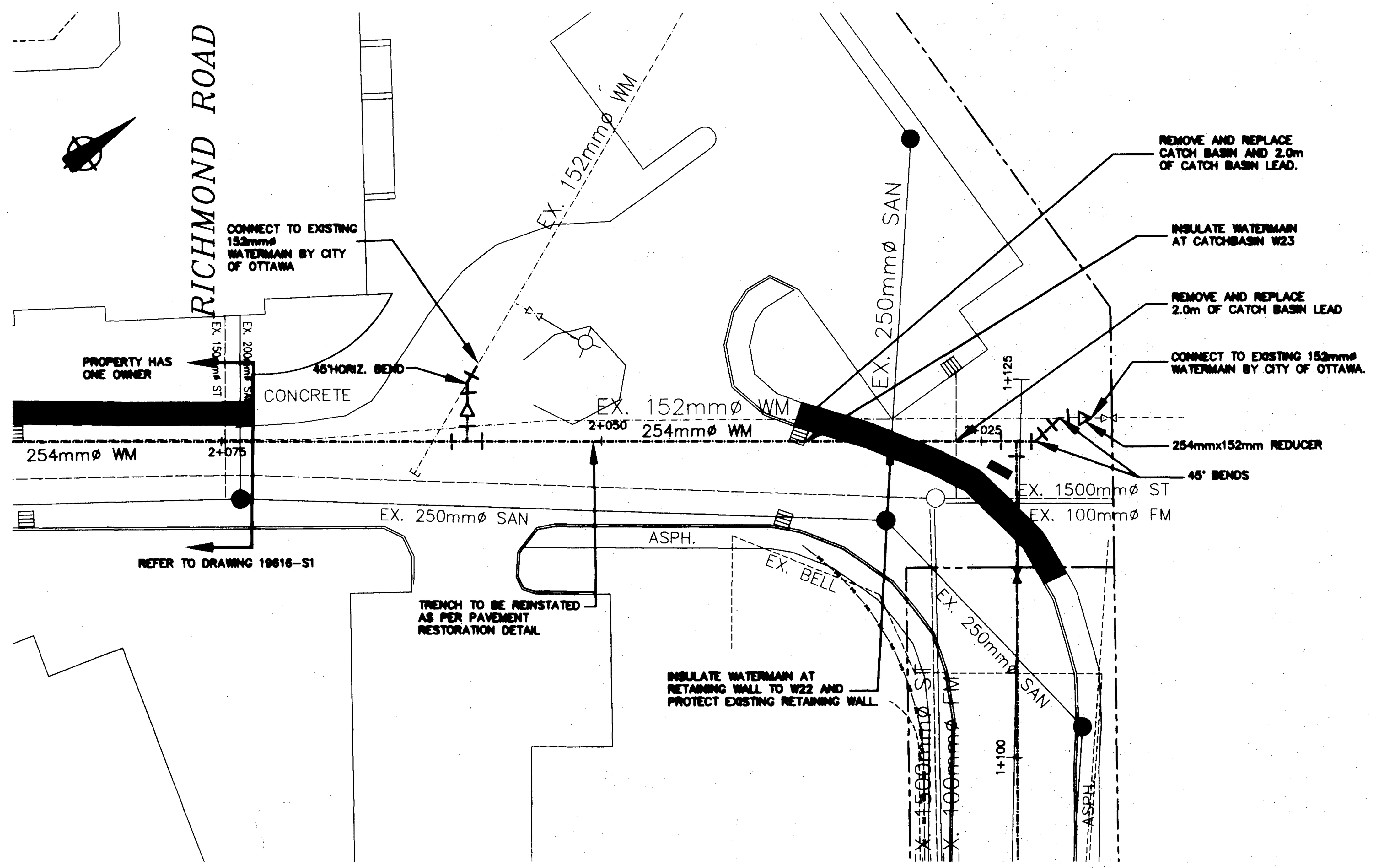
Ottawa, Ontario

DRAWING:

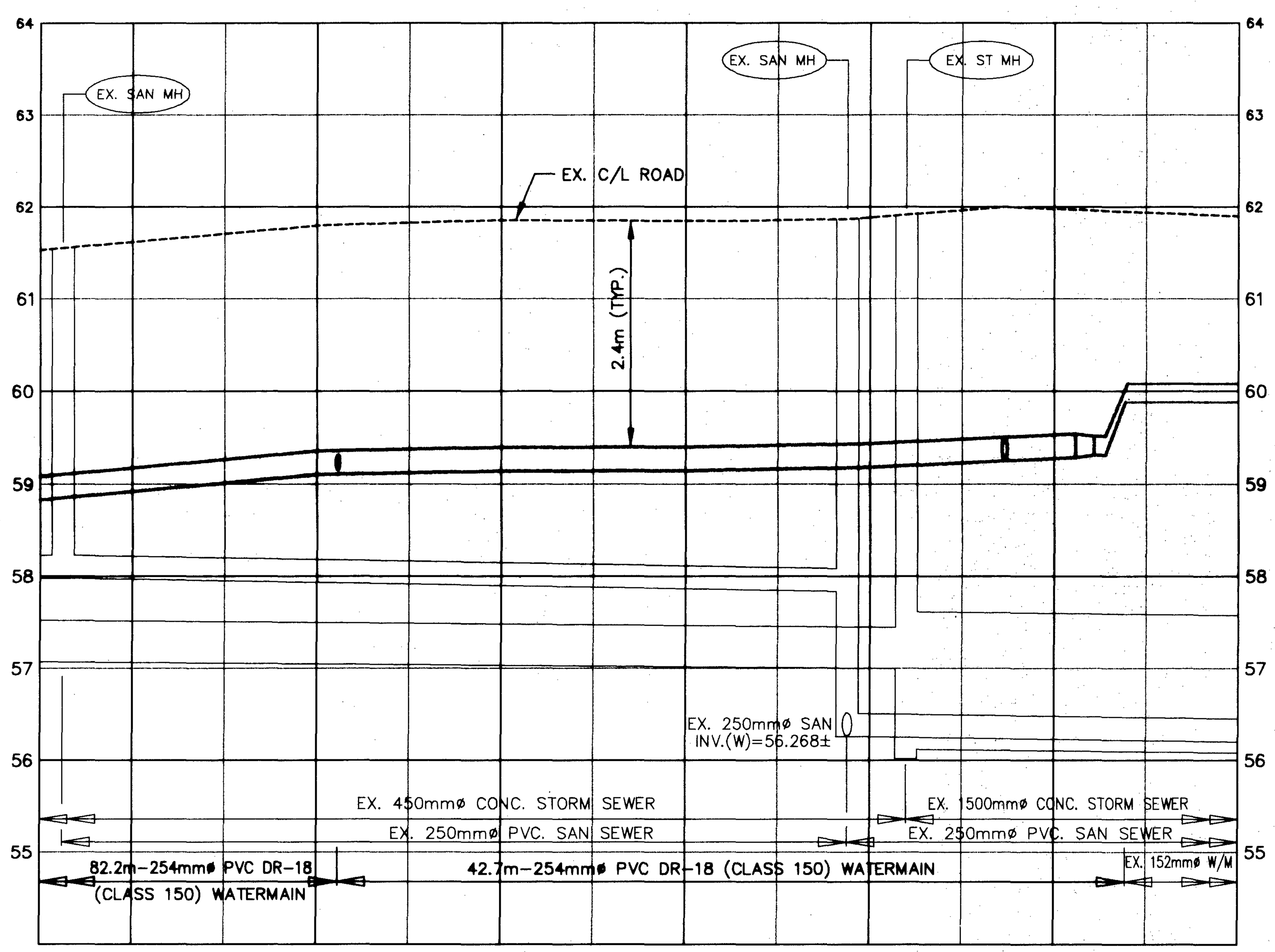
PLAN AND PROFILE CLEARY AVENUE

DESIGN:	K.D.D.	DRAWING NO.:	01
DRAWN:	J.B.B.		
CHECKED:	P.D.R.		
CAD FILE:	19616-01	JLR JOB NO.:	19616
PLOTTED:	May 10, 2007		

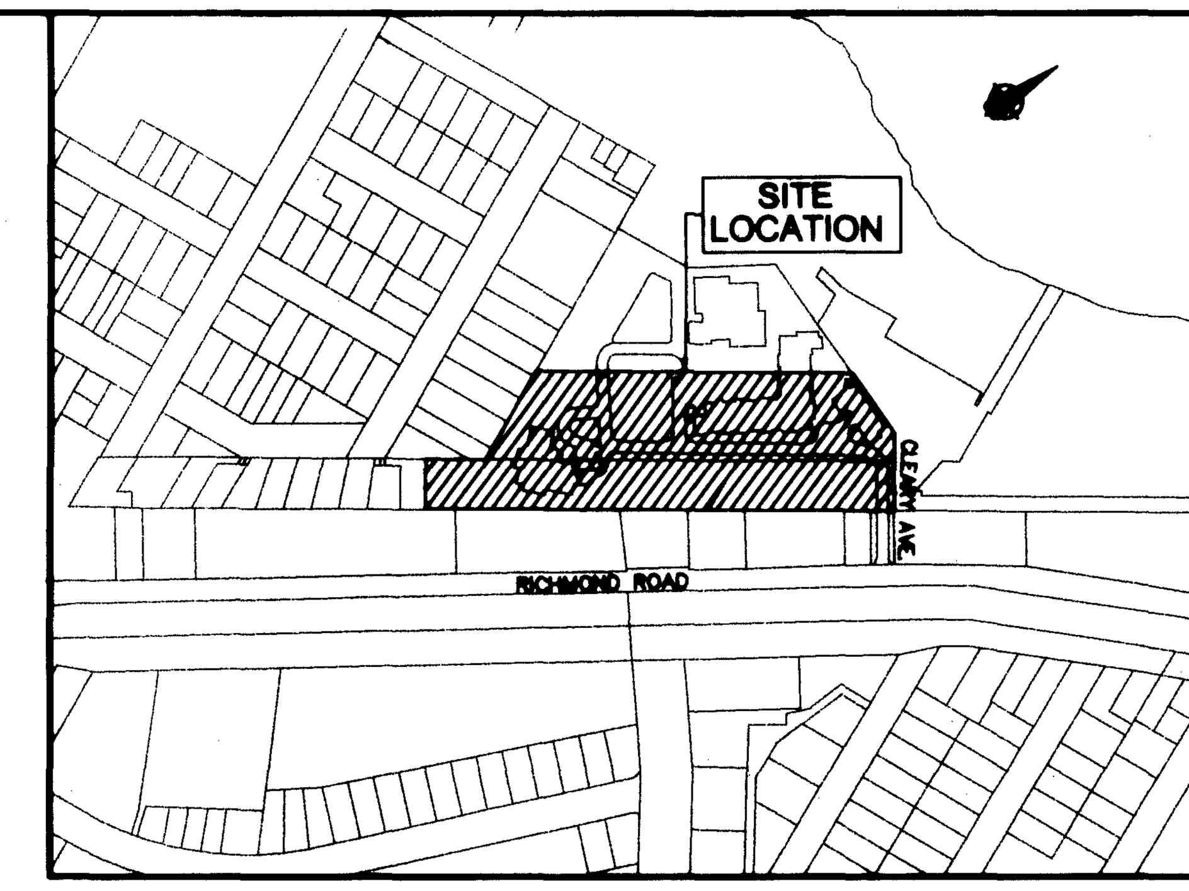
14306



CLEARY AVENUE



EX. C/L ROAD ELEVATION	61.53		61.62	61.80		61.85	61.85		61.88				61.98					61.80
PROP. TOP WATERMAIN ELEVATION	59.13		59.22	59.40		59.45	59.45		59.48				59.58					
EX. STORM SEWER INV. ELEVATION										57.000± 56.118±								
EX. SANITARY SEWER INV. ELEVATION	57.98±	57.98±			152X254 TEE			57.835± 56.260±			254X254 TEE	45° HORIZONTAL BEND		45° HORIZONTAL BEND	254X152 REDUCER	22.5° VERTICAL BEND	22.5° VERTICAL BEND	
C.L. ROAD CHAINAGE	2+075	0+073.8	2+070	2+060	2+058.9	2+050	2+040	2+031.2	2+030	2+028.0	2+022.7	2+021.4	2+020	2+019.9	2+018.3	2+017.2	2+016.0	2+010



KEY PLAN

LEGEND

- EXISTING CATCH BASIN
- EXISTING WATERMAIN, VALVE & HYDRANT
- EXISTING SANITARY SEWER & MANHOLE
- EXISTING STORM SEWER & MANHOLE
- PROPOSED WATERMAIN, VALVE & HYDRANT
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- TP4 63.52 (60.51) — EX. GROUND ELEVATION / ROCK ELEVATION
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NOTE:
PROPERTY BOUNDARIES ARE APPROXIMATE ONLY AND ARE NOT TAKEN FROM A PLAN OF SURVEY.

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PROFESSIONAL STAMP

PROJECT NORTH

PROJECT NORTH

PROJECT:
RIVER PARKWAY PRESCHOOL CENTRE
40 CLEARY AVENUE
Ottawa, Ontario

DRAWING:
PLAN AND PROFILE CLEARY AVENUE

DESIGN:	K.D.D.	DRAWING NO.:	02
DRAWN:	J.B.B.		
CHECKED:	P.D.R.		
CAD FILE:	19616-01	JLR JOB NO.:	19616
PLOTTED:	May 10, 2007		

14306

APPENDIX D

Water Demand Calculations and Figures

Water Supply Calculations

LRL File No.	230437
Date	2023-11-01
Prepared by	Tamara Harb
Location	30 Cleary Avenue

Water Demand based on the City of Ottawa Design Guidelines-Water Distribution, 2010

Domestic Demand			
Unit Type	**Persons Per Unit**	**Number of Units**	**Population**
1 Bedroom Apartment	1.4	136	190.4
2 Bedroom Apartment	2.1	74	155.4
3 Bedroom Apartment	3.1	4	12.4
	Total	**214**	**358.2**

**Based on a daily demand of 280L/day per person as identified by Appendix 4-A of the Sewer design guidelines.*

Average Water Consumption Rate	280	L/c/d		
Average Day Demand	**100,296**	**L/d**	**1.16**	**L/s**
Maximum Day Factor	3.3		Table (3-3) MOE Peaking Factors	
Maximum Daily Demand	**335,144**	**L/d**	**3.88**	**L/s**
Peak Hour Factor	5.0		Table (3-3) MOE Peaking Factors	
Maximum Hour Demand	**1,671,840**	**L/d**	**19.35**	**L/s**

Institutional / Commercial / Industrial Demand					
Property Type	**Unit Rate**		**Units**		**Demand (L/d)**
Commercial / Amenity	28000	L/ha/d	0.0393	ha	1100.4

Average Day Demand	**1,100**	**L/d**	**0.013**	**L/s**
Maximum Day Factor	1.5	(Design Guidelines-Water Distribution Table 4.2)		
Maximum Daily Demand	**1,651**	**L/d**	**0.019**	**L/s**
Peak Hour Factor	1.8	(Design Guidelines-Water Distribution Table 4.2)		
Maximum Hour Demand	**2,971**	**L/d**	**0.034**	**L/s**

TOTAL DEMAND				
Average Day Demand	**101,396**	**L/d**	**1.17**	**L/s**
Maximum Daily Demand	**336,795**	**L/d**	**3.90**	**L/s**
Maximum Hour Demand	**1,674,811**	**L/d**	**19.38**	**L/s**

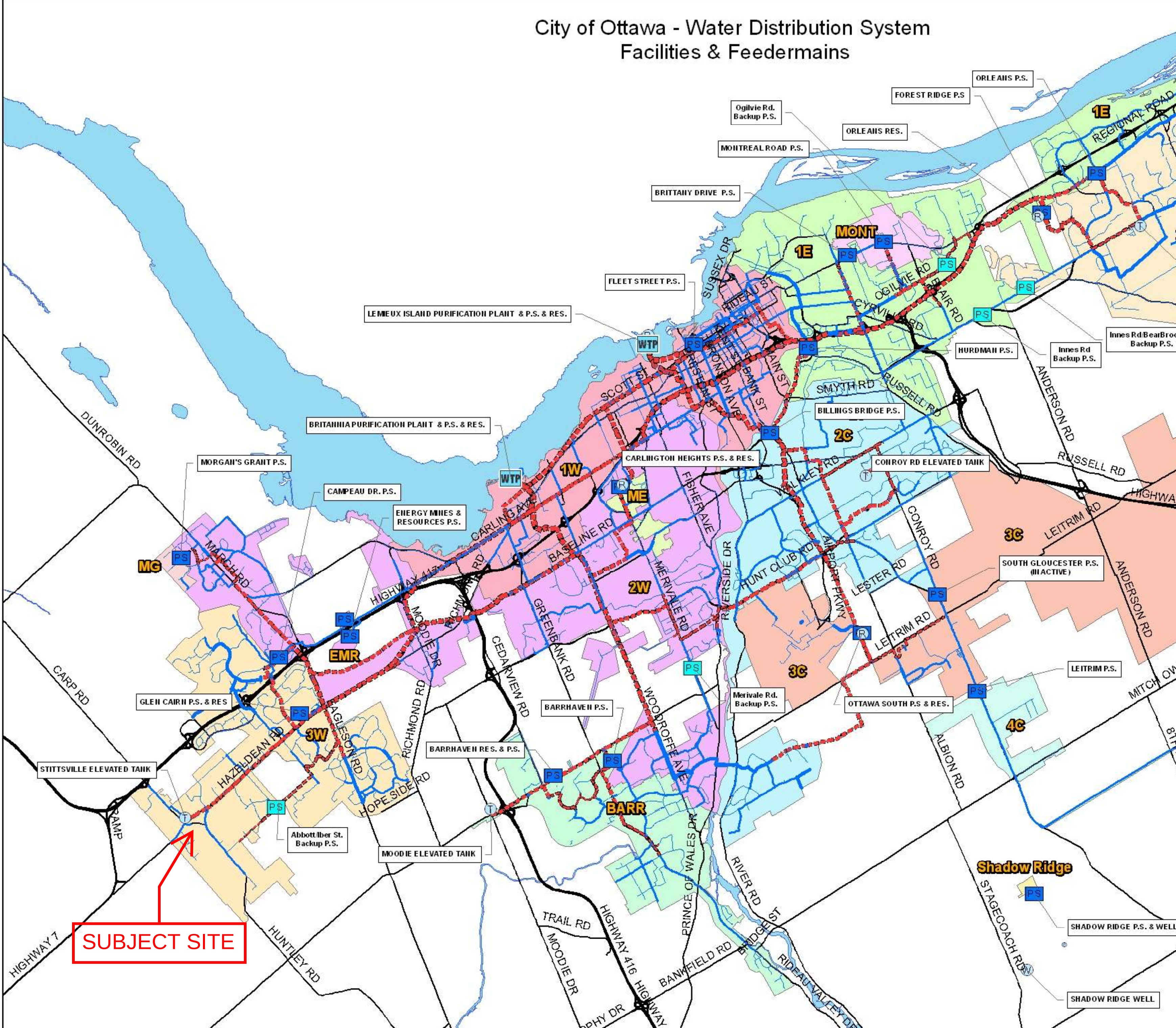
Water Service Pipe Sizing

Q = VA

Where: V = velocity
A = area of pipe
Q = flow rate

Assuming a maximum velocity of 1.8m/s, the diameter of pipe is calculated as:

Minimum pipe diameter (d) =	$(4Q/\pi V)^{1/2}$	
=	0.117	m
=	117	mm
Proposed pipe diameter (d) =	**150**	mm
=	**6**	Inches


City of Ottawa - Water Distribution System
Facilities & Feedermains
ORLEANS P.S.
FOREST RIDGE P.S
Ogilvie Rd. Backup P.S.
ORLEANS RES.
MONTREAL ROAD P.S.
BRITTANY DRIVE P.S.
FLEET STREET P.S.
LEMIEUX ISLAND PURIFICATION PLANT & P.S. & RES.
BRITANNIA PURIFICATION PLANT & P.S. & RES.
MORGAN'S GRANT P.S.
CAMPEAU DR. P.S.
ENERGY MINES & RESOURCES P.S.
CARLINGTON HEIGHTS P.S. & RES.
BILLINGS BRIDGE P.S.
HURDMAN P.S.
Innes Rd Backup P.S.
CONROY RD ELEVATED TANK
SOUTH GLOUCESTER P.S. (INACTIVE)
LEITRIM P.S.
OTTAWA SOUTH P.S & RES.
Merivale Rd. Backup P.S.
BARRHAVEN P.S.
BARRHAVEN RES. & P.S.
GLEN CAIRN P.S. & RES
STITTSVILLE ELEVATED TANK
Abbott/Iber St. Backup P.S.
MOODIE ELEVATED TANK
SHADOW RIDGE P.S. & WELL
SHADOW RIDGE WELL
Shadow Ridge
1E
MONT
2C
3C
4C
1W
ME
2W
MG
EMR
3W
BARR
WTP
PS
DUNROBIN RD
CARP RD
HIGHWAY 7
HUNTLEY RD
HAZELDEAN RD
EAGLESON RD
HOPE SIDE RD
RICHMOND RD
MOODIE DR
MARCH RD
HIGHWAY 417
CARLING AVE
BASELINE RD
GREENBANK RD
CEDARVIEW RD
WOODROFFE AVE
MERIVALE RD
FISHER AVE
SCOTT ST
RIVERSIDE DR
HUNT CLUB RD
AIRPORT PKWY
LESTER RD
LEITRIM RD
CONROY RD
ALBION RD
WALKLEY RD
SMYTH RD
RUSSELL RD
ANDERSON RD
OGILVIE RD
CYRVILLE RD
BLAIR RD
SUSSEX DR
RIDEAU ST
BANK ST
REGIONAL ROAD
PRINCE OF WALES DR
RIVER RD
TRAIL RD
HIGHWAY 416
BANKFIELD RD
BRIDGE ST
RIDEAU VALLEY DR
STAGECOACH RD
RAMP
SUBJECT SITE

APPENDIX E

Sanitary Flow Calculations

LRL File No. 230437
Project: Mixed-Use Development/High Density Residential
Location: 30 Cleary Avenue
Date: November 2, 2023

Sanitary Design Parameters

Average Daily Flow = 280 L/p/day
Commercial & Institutional Flow = 28000 L/ha/day
Light Industrial Flow = 35000 L/ha/day
Heavy Industrial Flow = 55000 L/ha/day
Maximum Residential Peak Factor = 4.0
Commercial & Institutional Peak Factor = 1.50
Industrial Peak Factor = as per Appendix 4-B = 7
Extraneous Flow = 0.33L/s/gross ha

Pipe Design Parameters

Minimum Velocity = 0.60 m/s
Manning's n = 0.013

LOCATION			RESIDENTIAL AREA AND POPULATION						COMMERCIAL		INDUSTRIAL			INSTITUTIONAL		C+I+I	INFILTRATION			TOTAL FLOW (l/s)	PIPE					
STREET	FROM	TO	AREA (Ha)	POP.	CUMMULATIVE AREA (Ha)	CUMMULATIVE POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (Ha)	ACCU. AREA (Ha)	AREA (Ha)	ACCU. AREA (Ha)	PEAK FACT.	AREA (Ha)	ACCU. AREA (Ha)	PEAK FLOW (l/s)	TOTAL AREA (Ha)	ACCU. AREA (Ha)	INFILT. FLOW (l/s)		LENGTH (m)	DIA. (mm)	SLOPE (%)	MATERIAL	CAP. (FULL) (l/s)	VEL. (FULL) (m/s)
Cleary Avenue	Bldg	*Cleary*	**0.570**	**358.2**	0.57	358.2	3.4	3.99	0.046	**0.046**	0.00	0.00	7.0	0.5	0.5	0.27	1.990	1.990	0.66	4.91	100.0	250	0.35%	PVC	35.18	0.72

NOTES	
	Populations have been estimated based on concept plan
	Areas of commercial space have been estimated based on concept plan

Designed: TH	PROJECT: Mixed-Use Development/High Density Residential		
Checked: V.J.	LOCATION: 30 Cleary Avenue		
Dwg. Reference: C.401	File Ref.: 230437	Date: 2022-10-19	Sheet No. 1 of 1

APPENDIX F

Stormwater Management Calculations

LRL File No.	230437
Project:	Site Plan Control Design
Location:	30 Cleary Ave
Date:	October, 2023
Designed:	V Johnson
Drawing Ref.:	C601

Stormwater Management Design Sheet

Runoff Equation

Q = 2.78CIA (L/s)
C = Runoff coefficient
I = Rainfall intensity (mm/hr) = $A / (Td + C)^B$
A = Area (ha)
T_c = Time of concentration (min)

Pre-development Stormwater Management - 2 Year Storm

2 year storm

I2 = 732.95 / (Td + 6.199)$^{0.81}$ **a = 732.951** **b = 0.810** **C = 6.199**

C =	0.50	max of 0.5 as per City of Ottawa
I =	76.8	mm/hr
Tc =	10	min
Total Area =	0.570	ha

Allowable Release Rate= 60.85 L/s