15M-00048-03

FUNCTIONAL SERVICING REPORT

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST AND 250 WINCOTT DRIVE

MONTRIN RICHVIEW GP INC.

NOVEMBER 2020

CITY OF TORONTO

FUNCTIONAL SERVICING REPORT

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST AND 250 WINCOTT DRIVE
M9R 2R5

MONTRIN RICHVIEW GP INC.

REZONING APPLICATION

PROJECT NO.: 15M-00048-03
DATE: NOVEMBER 2020

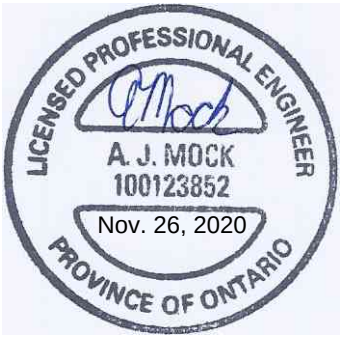
WSP

WSP.COM

SIGNATURES

PREPARED BY

Matthew Maloney, EIT
Designer



REVIEWED BY

Amanda Mock, P.Eng.
Project Manager

This report was prepared by WSP Canada Group Limited for the account of Montrin Richview Gp Inc., in accordance with the professional services agreement. The disclosure of any information contained in this report is the sole responsibility of the intended recipient. The material in it reflects WSP Canada Group Limited's best judgement in light of the information available to it at the time of preparation. Any use which a third party, other than the City of Toronto, makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. WSP Canada Group Limited accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This limitations statement is considered part of this report.

The original of the technology-based document sent herewith has been authenticated and will be retained by WSP for a minimum of ten years. Since the file transmitted is now out of WSP's control and its integrity can no longer be ensured, no guarantee may be given with regards to any modifications made to this document.

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1 INTRODUCTION

1.1 SCOPE OF MUNICIPAL SERVICING

WSP Canada Group Limited has been retained by Montrin Richview GP Inc. to prepare a Functional Servicing Report in support of the proposed development of 4620 Eglinton Avenue West and 250 Wincott Drive in the City of Toronto. The site is located at the north-west corner of Eglinton Avenue West and Wincott Drive and is approximately 3.05 ha in area. As shown in Figure 1.1, the site is bounded by Eglinton Avenue to the south, Wincott Drive to the east, an existing 11-storey building on the west, and an existing residential subdivision to the north. The purpose of the functional servicing report is to outline how water, sanitary and storm servicing will be provided for the redevelopment of the site.

1.2 EXISTING CONDITIONS

The north portion of the site is currently a retail plaza with at grade parking and the south portion of the site is currently undeveloped. There is an existing private access that enters the commercial area from Eglinton Avenue West. The existing site's parking lot is paved asphalt. Refer to Figure 1.2 for the Predevelopment Site Condition.

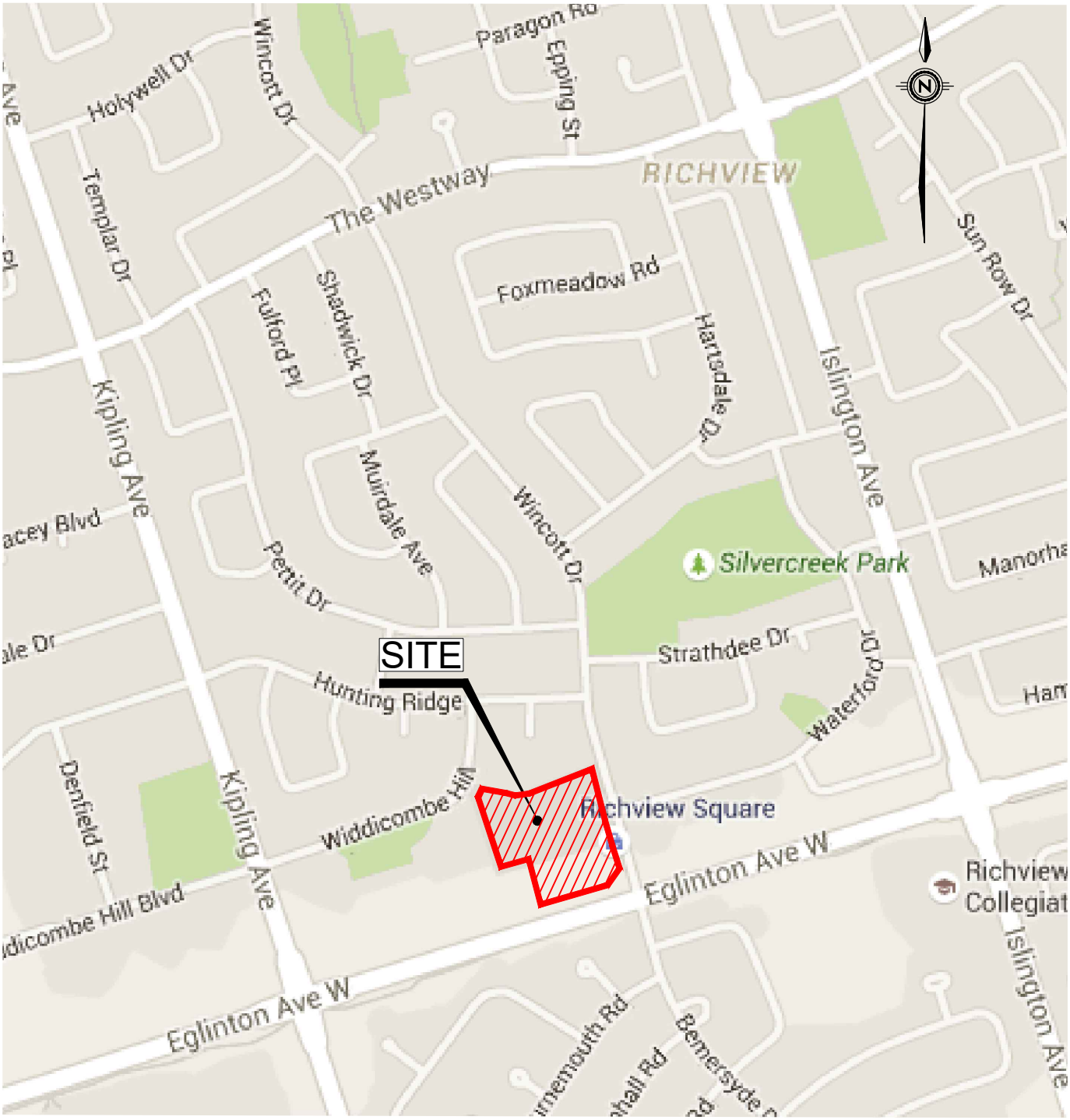
1.3 PROPOSED DEVELOPMENT

The proposed development consists of three towers with mixed retail and residential use. Building 'A' is 13 storeys of residential use with commercial space on the ground floor. Building 'B' is 13 storeys, which includes 1 storey of commercial space and 12 storeys of residential use. Building 'C' is 11 storeys, which includes a 2-storey retail podium and 9 storeys of residential use. In total, the three proposed towers contain 587 residential units and 11,038 m^2 of new retail area. The existing building at the north end of the site will be renovated and remain as commercial space with a reduced gross floor area. Service connections are proposed via Eglinton Avenue West and Widdicombe Hill. All vehicle access will be provided by the private road from Eglinton Avenue West as well as the existing entrances on Wincott Drive to the east and Widdicombe Hill to the northwest. Refer to Figure 1.3 for the Proposed Development Site Plan.

1.4 GROUNDWATER DISCHARGE

The client has retained a hydrogeologist to complete a groundwater study in support of the proposed development. This study will be provided under a separate cover. The hydrogeological work completed to date indicates that the lowest elevation of the 2 levels of underground parking is well above the existing water table for the site and therefore, there will be little to no groundwater discharge to the City's sewer system. However, it is acknowledged that seepage from infiltration of surface water will occur under certain circumstances such as a heavy rain fall event or spring season melts. Based on the chemical analysis completed to date on the site, the groundwater does not meet the requirements to be discharged to the storm sewer system, and exceeds the suspended solids requirement to discharge to the sanitary sewer system. Therefore, the groundwater will have to be treated prior to discharging to the sanitary sewer system. Details of the treatment system will be included in the private water discharge application to Toronto Water. The water will be collected in the building's sump, treated, and pumped to the municipal sanitary sewer at a maximum rate of 0.63L/s. An application for the temporary and permanent groundwater discharge will be made to Toronto Water once the mechanical systems for the building have been designed.

It should be noted that the 0.63 L/s groundwater flow has been included in the post development dry and wet weather modelling. Therefore, the sanitary sewers will have adequate capacity for the groundwater flow rate.



CLIENT

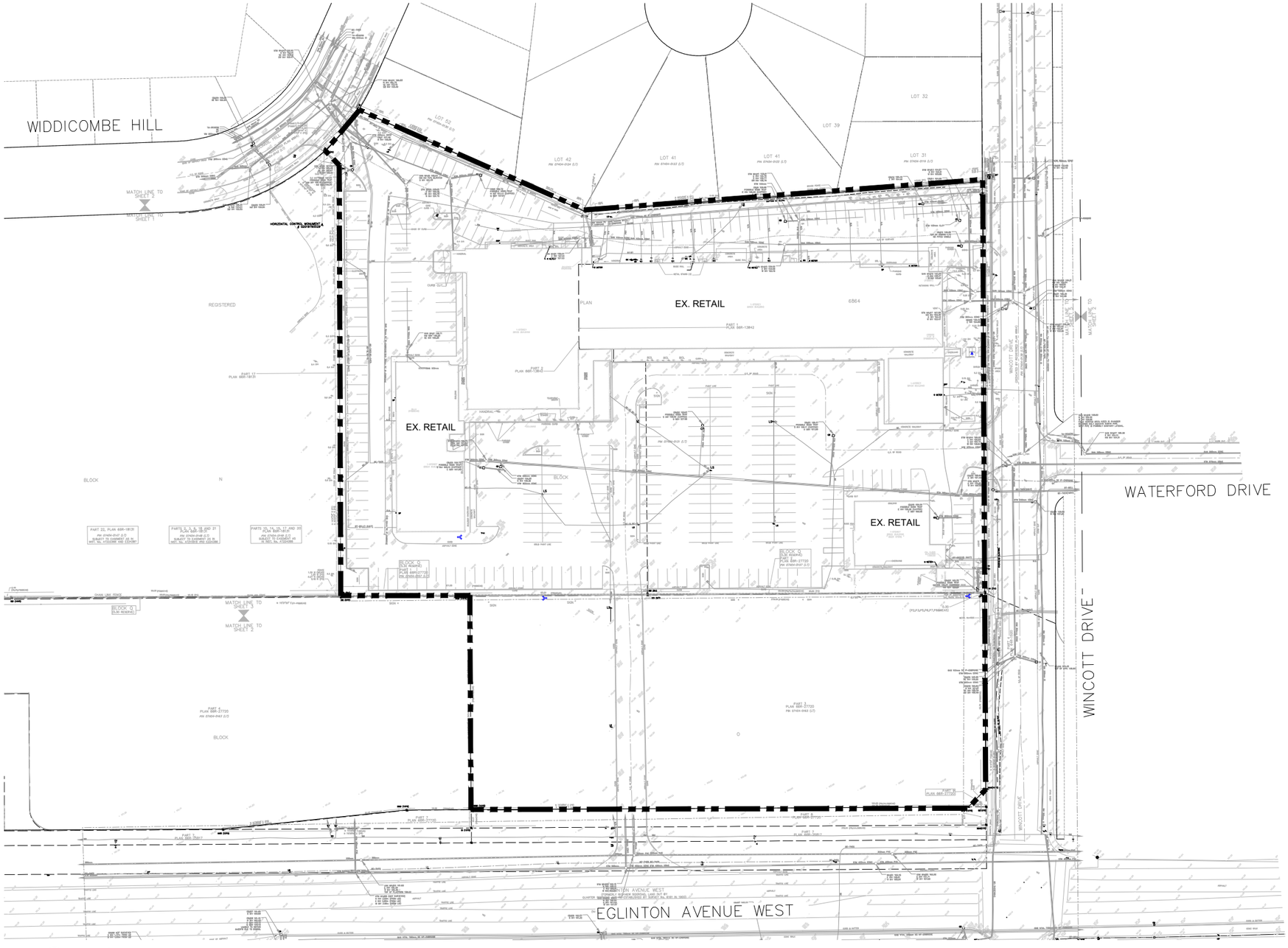
MONTRIN RICHVIEW GP INC.

TITLE

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST AND 250 WINCOTT DRIVE

SITE LOCATION PLAN

Checked	A.M.	Drawn	14 CAD
Date	NOV. 2020	Proj. No.	15M-00048-03
Scale	N.T.S	Figure No.	FIG 1.1



LEGEND

LIMIT OF PROPERTY

CLIENT

MONTRIN RICHVIEW GP INC.

TITLE

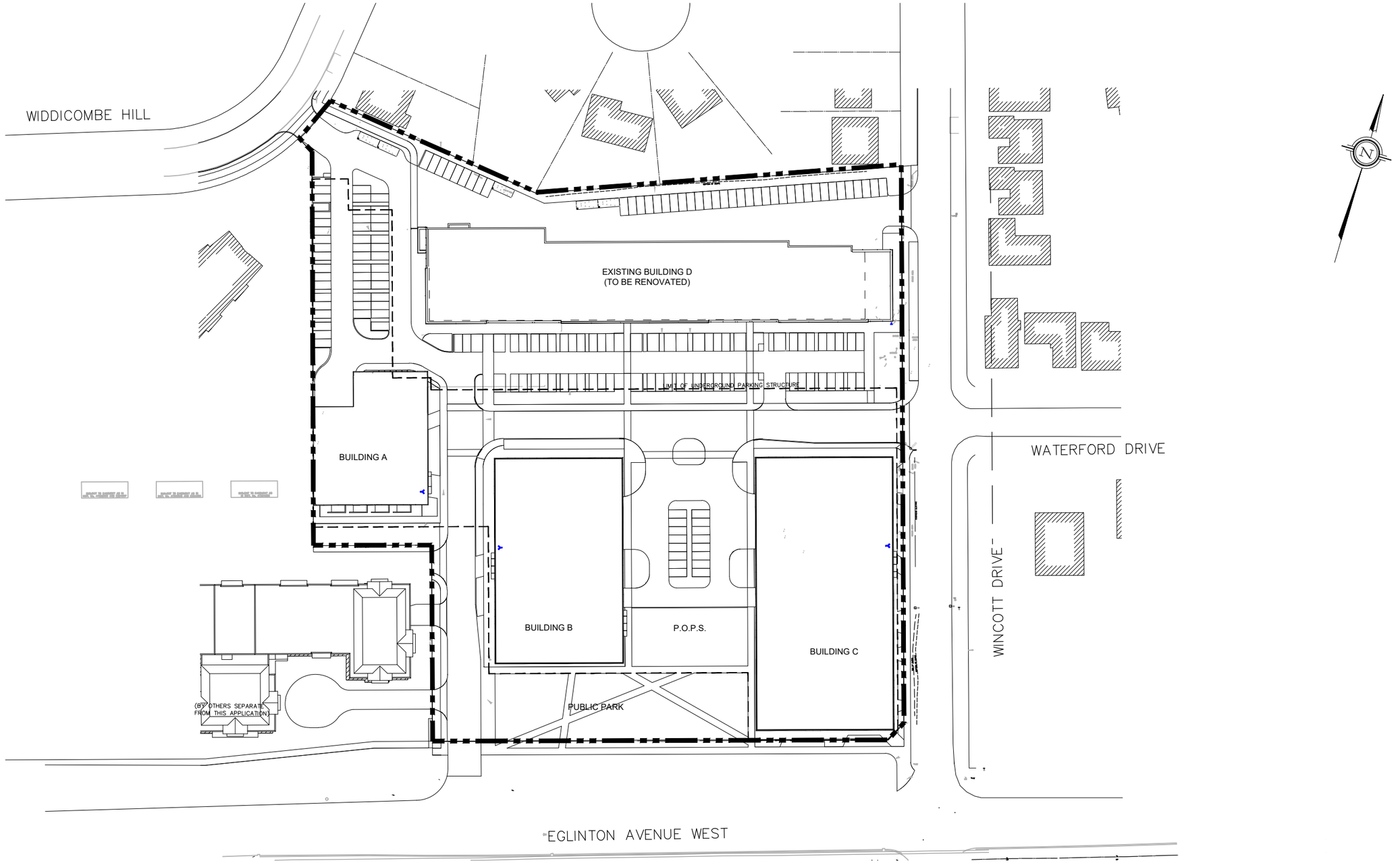
RICHVIEW SQUARE

4620 EGLINTON AVENUE WEST AND 250 WINCOTT DRIVE

PRE-DEVELOPMENT PLAN

wsp

Checked A.M.	Drawn 18 CAD
Date NOV. 2020	Proj. No. 15M-00048-03
Scale 1:1250	Figure No. FIG 1.2



LEGEND

LIMIT OF PROPERTY

CLIENT

MONTRIN RICHVIEW GP INC.

TITLE

RICHVIEW SQUARE

4620 EGLINTON AVENUE WEST AND 250 WINCOTT DRIVE

PROPOSED DEVELOPMENT PLAN

wsp

Checked A.M.	Drawn 18 CAD
Date NOV. 2020	Proj. No. 15M-00048-03
Scale 1:1250	Figure No. FIG 1.3

2 SANITARY DRAINAGE SYSTEM

2.1 EXISTING CONDITIONS

There is an existing 250mm diameter sanitary sewer south of the site on Eglinton Avenue West that flows west along Eglinton and connects into the existing Mimico Trunk Sewer. The section of sewer that runs from the site to the intersection of Eglinton Avenue and Widdicombe Hill was constructed in 2014. The design for this section of sewer completed by Husson and Cole Engineering had accounted for the proposed development. The servicing report and corresponding design sheets from Husson and Cole Engineering were referenced during the downstream sanitary analysis.

2.2 DESIGN PARAMETERS

The following sanitary design criteria have been taken from City of Toronto, Design Criteria for Sewers and Watermain, November 2014:

- Sanitary demand rate of 240 l/person/day for residential developments;
- Sanitary demand rate of 250 l/person/day for commercial developments;
- Population densities of 1.4 person per unit for one bedroom units;
- Population densities of 2.1 person per unit for two bedroom units;
- Population densities of 3.1 person per unit for three bedroom units;
- Peaking Factor of Residential = $1+14/(4+p)^{0.5}$, where p = population in thousands;
- Retail Equivalent Population of 1.1 people / $100m^2$ per floor space.
- Peaking Factor of commercial (included in flow).
- Extreme Wet Weather I/I Allowance of 0.26 L/s for new development
- Extreme Wet Weather I/I Allowance of 3.0 L/s/ha for existing drainage area

2.3 ESTIMATED DEMAND AND CAPACITY

The sanitary demands from the development have been estimated using the design criteria outlined in Section 2.2. The proposed flow and impact on the existing infrastructure system has been calculated in Appendix D and is discussed in more detail in Section 2.4.

2.4 PROPOSED SANITARY FLOWS

Based on the calculated sanitary flows found in Table 2.1, the site will generate a peak flow of 12.89 L/s. The site will connect to the existing 250 mm sanitary sewer on Eglinton Avenue West. Three sanitary control maintenance holes will be installed (one for each tower) immediately inside the

property line. Manholes will also be installed on the mainline sewer at each connection point. Installation of these connections is to be coordinated with the City of Toronto connections department. All other internal plumbing will meet Ontario Building Code requirements. The existing sanitary connection to Wincott Drive will remain to service the existing retail plaza. An additional 275 m^2 of retail space is proposed to be added to the east side of the existing building which will be serviced by the existing sanitary connection to Wincott Drive. However, more retail area is being removed than added, so the proposed development will reduce the sanitary flows to Wincott Drive.

Table 2-1 Sanitary Design Criteria

Residential one bedroom units	278 units
Residential two bedroom units	208 units
Residential three bedroom units	101 units
Total Residential Population	1,139
Commercial GFA	11,038 m^2
Commercial Equivalent Population	121
Residential Peaking Factor	3.76
Commercial Peaking Factor	1.00
Average Residential Sanitary Flow from Site	3.16 L/s
Peak Residential Sanitary Flow from Site	11.91 L/s
Commercial Sanitary Flow from Site	0.35 L/s
Groundwater Discharge	0.63 L/s
Net Increase in Sanitary Flow from Site	**12.89 L/s**

The existing sanitary sewer on Eglinton Avenue that the proposed site will connect to was designed by Husson and Cole Engineering, taking into account the additional flow from the proposed development. The sanitary analysis for the design of this sewer included a population of 1,710 for an area that included this development and two others (4650 Eglinton and National Homes). The population of the existing National Homes development is 184, while the 4650 Eglinton development which is under construction has a population of 304. The proposed development has an equivalent population (residential and commercial) of 1,261. The actual combined population for the three developments is 1,749, which is only a 2.3% increase to what was accounted for in the sewer design by others. This sewer has capacity to accept the proposed sanitary flows, as demonstrated in Appendix D.

Areas and populations from this design, along with populations from the neighbouring developments and record drawings from the City of Toronto, were used to complete a downstream sanitary analysis up to the Mimico Trunk Sewer. Under extreme wet weather flows in the post-development condition, the existing sewer was found to surcharge in a few sewer legs downstream of the site. A Hydraulic

Grade Line (HGL) analysis was completed for the system to confirm that the HGL will remain 1.8m below the ground. The pipe with the highest surcharge had a calculated HGL only 0.11m above the upstream obvert, and in the most critical leg of sewer, the HGL was found to be 2.64m below the ground. For detailed calculations, the sanitary design sheets and HGL sheet can be found in Appendix D.

Since the system is below capacity under dry weather conditions, and the HGL is more than 1.8m below the ground under extreme wet weather conditions, we conclude that the downstream sewer system is adequate for the proposed redevelopment and that no downstream sewer improvements are required to service this development.

WIDDICOMBE HILL

WATERFORD DRIVE

WINCOTT DRIVE

EGLINTON AVENUE WEST

EXISTING BUILDING D
(TO BE RENOVATED)

BUILDING A

BUILDING B

BUILDING C

LIMIT OF UNDERGROUND PARKING STRUCTURE

(BY OTHERS SEPARATE FROM THIS APPLICATION)

100ø SAN SEWER

150ø SAN SEWER

200ø SAN SEWER

250ø SAN SEWER

SAN CONTROL MH
(BUILDING B)

SAN CONTROL MH
(BUILDING C)

SAN CONTROL MH
(BUILDING A)

BREAK INTO EX. 250ø SAN SEWER AND INSTALL 1200ø MH

N

LEGEND

- LIMIT OF PROPERTY
- EX. SAN SEWER
- PROP. SAN SEWER AND MH
- PROP. SAN CONNECTION

CLIENT

MONTRIN RICHVIEW GP INC.

TITLE

RICHVIEW SQUARE

4620 EGLINTON AVENUE WEST AND 250 WINCOTT DRIVE

PROPOSED SANITARY SERVICING PLAN

wsp

Checked A.M.	Drawn 18 CAD
Date NOV. 2020	Proj. No. 15M-00048-03
Scale 1:1250	Figure No. FIG 2.1

3 WATER DISTRIBUTION

3.1 EXISTING CONDITIONS

There is an existing 300 mm diameter watermain south of the site on Eglinton Avenue West, a 200 mm diameter watermain north-west of the site along Widdicombe Hill, and a 300 mm diameter watermain east of the site on Wincott Drive. There are five fire hydrants located near the proposed development; two are located on the north side of Eglinton Avenue, one is located on the northeast corner of Eglinton and Wincott, and two are located on Wincott Drive.

3.2 DESIGN PARAMETERS

The following watermain design criteria have been taken from City of Toronto, Design Criteria for Sewers and Watermain, November 2009:

- Water demand rate of 191 l/person/day for proposed developments;
- Population densities of 1.4 person per unit for one bedroom units;
- Population densities of 2.1 person per unit for two bedroom units;
- Population densities of 3.1 person per unit for three bedroom units;
- Peak Hour Factor of Residential = 2.48;
- Peak Hour Factor of Commercial = 1.20;
- Retail Equivalent Population of 1.1 people / 100m^2 per floor space.
- Office Equivalent Population of 3.3 people / 100m^2 per floor space.

3.3 FUS FIRE FLOW AND HYDRANT FLOW TEST RESULTS

The required fire flow for the site is based on the Fire Underwriters Survey (FUS) requirements. The calculations are based on the largest floor area plus 25% of the floor area above, plus 25% of the floor area below as the proposed building will be fire resistive with vertical openings being adequately protected for a one-hour fire. The required fire flow for the development was calculated to be 1,665 USGPM (105 L/s) as shown in Appendix A.

Hydrant flow tests were completed on three hydrants adjacent to the site, one on each of Eglinton Avenue, Widdicombe Hill, and Wincott Drive. All three hydrants provided more than the required fire flow of 1,665 USGPM, therefore the existing hydrants will provide sufficient fire flow to the development. Refer to Appendix B for fire flow test results.

3.4 DOMESTIC WATER DEMAND

The domestic water demand for the proposed development can be calculated using the City of Toronto's design criteria for sewers and watermain, November 2014. The projected water demand for the proposed development has been estimated in Table 3.1.

Table 3-1 Projected Water Demand from Site

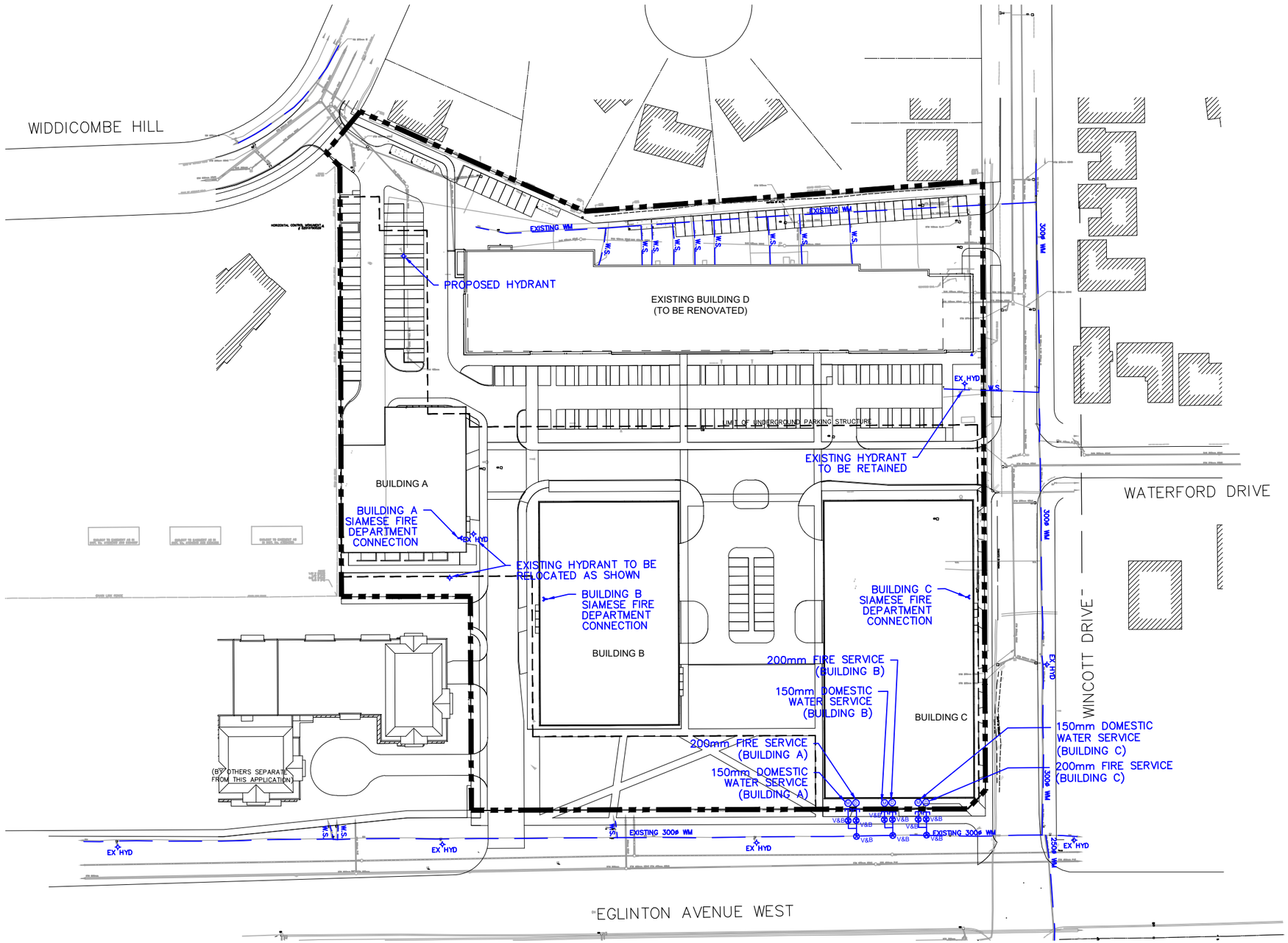
Residential one bedroom units	278 units
Residential two bedroom units	208 units
Residential three bedroom units	101 units
Total Residential Population	1,139
Peak Hour Factor	Residential Peaking Factor = 2.50 Commercial Peaking Factor = 2.50
Retail Equivalent Population Density	1.1 people per 100 m^2 of floor area
Commercial Floor Area	11,038 m^2
Equivalent Commercial & Retail Population	121
Average Water Demand from Site	2.79 L/s
Peak Water Demand from Site	**6.97 L/s**

The average day water demand for the site will be 2.79 L/s, while the peak water demand will be 6.79 L/s.

Based on the projected domestic demands, it is expected that the existing 300mm dia. watermain on Eglinton Avenue West will be sufficient to meet the domestic water demand of this development.

3.5 PROPOSED WATER SERVICE

The proposed water service connection will include both a 150 mm diameter domestic line and a 200 mm diameter fire line for each of the three proposed buildings. For Buildings 'A', 'B', and 'C', both domestic and fire services will connect to the existing 300 mm watermain on Eglinton Avenue south of the site. In accordance with City standards, water meters and a detector check valves will be installed as close to the property line as possible, and will be accessible from inside the building. All internal watermains will meet the Ontario Building Code requirements.



LEGEND

- LIMIT OF PROPERTY
- EX. WATERMAIN
- PROP. W/M CONNECTION
- V&B — PROP. VALVE & BOX
- V&C — EX. VALVE & CHAMBER
- (M) — WATER METER
- (D) — DETECTOR ASSEMBLY
- (B) — BACK FLOW PREVETER IN CHAMBER

CLIENT

MONTRIN RICHVIEW GP INC.

TITLE

RICHVIEW SQUARE

4620 EGLINTON AVENUE WEST AND 250 WINCOTT DRIVE

PROPOSED WATER SERVICING PLAN

wsp

Checked A.M.	Drawn 18 CAD
Date NOV. 2020	Proj. No. 15M-00048-03
Scale 1:1250	Figure No. FIG 3.1

4 STORMWATER MANAGEMENT AND STORM DRAINAGE

4.1 EXISTING CONDITIONS

There is an existing 375 mm diameter storm sewer on Waterford Drive, east of the site which connects into an existing 1650 mm diameter storm sewer on Summitcrest Drive. There are currently storm flows that enter the 300 mm diameter sewer along Wincott Drive from the site; the existing grading directs both the major and minor flows from the existing property into the existing storm sewer via catchbasins located on the property. There is a 525mm diameter storm sewer on Widdicombe Hill northwest of the site and a separate leg of 300 mm diameter sewer on Wincott to the northeast of the site, both of which flow north towards a 1050 mm diameter sewer on Strathdee Drive. There is also a 450 mm diameter storm sewer along Eglinton Avenue West to the south of the site which had been designed by Husson and Cole Engineering. The design had accounted for the proposed development, and the reports were referenced in the analysis of the proposed site. The site does not have any external drainage from other adjacent properties.

4.2 PROPOSED DEVELOPMENT

The City's WWFMG states that the maximum allowable discharge to a municipal sewer system is the 2 year pre-development flow rate up to and including the 100 year event. Based on this requirement, two stormwater management tanks will be sized to detain the water captured onsite during a 100 year storm and released at the 2 year pre-development rate to existing municipal storm sewers. One of the tanks will outlet to the existing 450mm sewer on Eglinton Avenue West, while the other will outlet to the existing 525mm sewer on Widdicombe Hill. The proposed sewer on Eglinton Avenue West had been designed with a portion of the proposed development accounted for. The parameters used in the design of the sewer have been matched in calculating the allowable release rate for this development.

The stormwater management tank for Buildings 'B' and 'C' is proposed to be located within the P1 level of the proposed parking structure, at the southeast corner, while the tank for Building 'A' is proposed to be located adjacent to the northwest corner of the P1 level. These tanks are discussed further in Sections 4.5.2 and 4.7. The exact locations will be coordinated with the mechanical and structural consultants and shown on future detailed design drawings. A control manhole will be installed within the property limit at each outlet and accessible from outside at all times. In case of tank overflow, the site will be graded to permit water to overflow onto the Eglinton Avenue and Widdicombe Hill right-of-way's. For detailed stormwater management calculations and storage tank layout, refer to

the separate Stormwater Management Report. The proposed storm service and proposed storm tank are both further discussed in the section 4.7 and section 4.8.

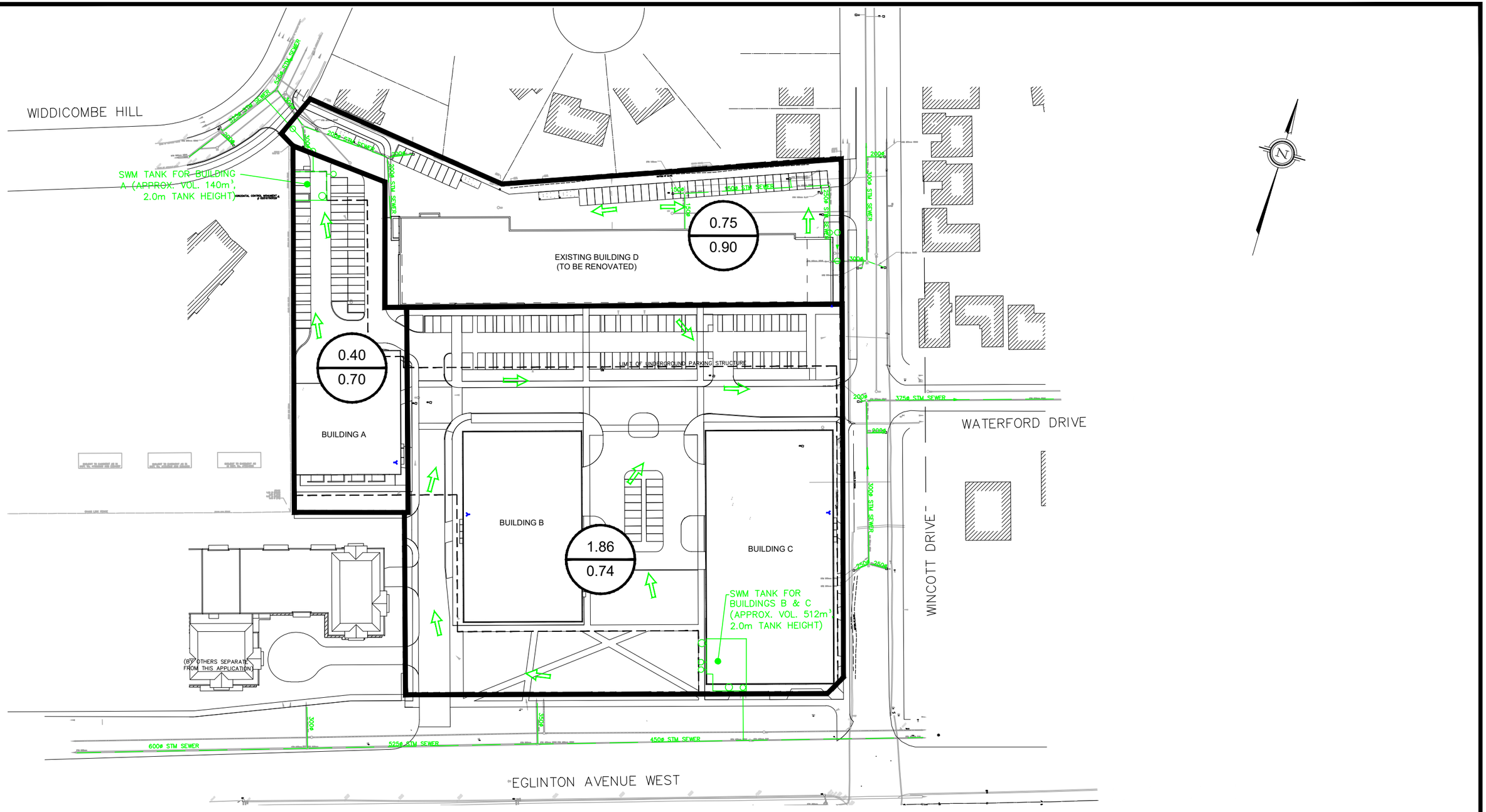
4.3 PROPOSED DEVELOPMENT DRAINAGE AREAS

The proposed development has three drainage areas that will direct the minor storm flow into three separate existing sewers. These areas can be found in the storm drainage plan, Figure 4.1. The northwest area (existing) will flow into the 525 mm diameter sewer on Widdicombe Hill, the northeast area will flow into the 300 mm diameter sewer on Wincott Drive northeast of the site, and the largest area on the south side of the site will flow into the 450 mm diameter sewer on Eglinton Avenue West south of the site.

The northeast and northwest drainage areas are currently flowing into the existing sewers on Wincott Drive and Widdicombe Hill respectively. The surface conditions in these areas match the existing conditions and therefore the storm flows from these areas will not change.

The post-development flow from the southern area is being controlled to the 2 year pre-development flow, therefore the proposed development will not require downstream capital improvements to service. The post development flows will be less than the predevelopment flows for every storm larger than a 2 year event, so the capacity of the storm sewer on Eglinton Avenue West will accommodate the flow discharging into the existing 450mm storm sewer.

The topography of the site is such that the overland flow drains northeast. Flows will be collected and directed via the mechanical system in the underground parking to the stormwater management tank on the south side of the site and ultimately to the sewer on Eglinton Avenue.



LEGEND

- LIMIT OF PROPERTY
- EX. STORM SEWER
- PROP. STORM CONNECTION
- OVERLAND FLOW
- 2.1 / 0.90 — DRAINAGE AREA / RUNOFF COEFICCIENT
- DRAINAGE BOUNDARY

CLIENT
MONTRIN RICHVIEW GP INC.

TITLE
RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST AND 250 WINCOTT DRIVE
PROPOSED STORM DRAINAGE PLAN

wsp

Checked	A.M.	Drawn	18 CAD
Date	NOV. 2020	Proj. No.	15M-00048-03
Scale	1:1250	Figure No.	FIG 4.1

4.4 WATER BALANCE

The City of Toronto Wet Weather Flow Management Guidelines (WWFMG) requires a water balance approach to storm runoff and has set as a minimum standard the retention of all flows from a 5mm storm event. Retention methods include infiltration, evaporation and rainwater reuse. The proposed parking garage covers most of the footprint of the site which will limit the use of rainwater infiltration to meet the water balance requirements. All discharge from roof and at grade areas will be directed to two stormwater management tanks adjacent to and within the P1 level of the parking garage for rainwater reuse. The required water balance volumes to be provided from the tanks are 10.0 m^3 and 54.3 m^3. Potential reuse methods include irrigation of the green roof and landscaped areas, toilet flushing in amenity areas, or any other non-potable demand in communal building areas. Stormwater reuse methods will be determined during the mechanical design of the building. Refer to Stormwater Management Report for water balance methods and volumes as well as more detailed calculations.

4.5 STORMWATER QUANTITY CONTROLS

4.5.1 ALLOWABLE OUTFLOW

The 2 year pre-development peak flow was calculated using the rational method with an inlet time of 10 minutes, a site area of 2.26 ha, and a run-off coefficient of 0.5 for the area draining to Widdicombe Hill. A runoff coefficient of 0.46 was used for the area draining to Eglinton Avenue West as per the design completed by Husson and Cole Engineering. The total allowable release rate from the site was calculated to be 138 L/s. Refer to Stormwater Management Report for more details.

4.5.2 REQUIRED STORAGE

As per City requirements, both the minor and major storm events will be controlled to the 2 year pre-development rate of 138 L/s for the site. The development will require two stormwater management tanks adjacent to and within the P1 level parking garage to control the storm flow and release it at the allowable rate. In order to achieve the control of the 100 year storm event, the required storage of the tanks will be 140 m^3 for Building ‘A’, and 712 m^3 for Buildings ‘B’ and ‘C’. The tank for Building ‘A’ will release storm flows at a rate of 33.1 L/s during the 100 year storm event through a 100mm diameter orifice plate. The tank for Buildings ‘B’ and ‘C’ will release storm flows at a rate no larger than 104.9 L/s during the 100 year storm event through a 150mm diameter orifice tube.

The modified rational method was used to determine the storage required to control the post development flows down to the allowable release rates. Refer to Stormwater Management Report for the calculations.

4.6 STORMWATER QUALITY CONTROLS

The City of Toronto's Wet Weather Flow Management Guidelines requires that all new developments provide long term removal of 80% of Total Suspended Solids (TSS) on an average annual basis. A treatment unit will be installed at the inlet of each stormwater management tank to ensure acceptable levels of Total Suspended Solids are achieved for runoff from the site, refer to the Stormwater Management report for details of the chosen unit. The proposed roof areas for the development will not be prone to sediment generation and can therefore be considered clean for the purposes of storm water quality control. Please refer to the Stormwater Management Report for more details.

4.7 PROPOSED STORM SERVICE – MINOR DRAINAGE SYSTEM

As previously mentioned and in coordination with the Stormwater Management Report, each building will connect to the stormwater management tanks via the building mechanical system. All proposed catchbasins in the at-grade parking area will be directed to one of the stormwater management tanks. Catchbasins above the underground parking will be directed to the tanks via the building mechanical system while catchbasins outside of the underground parking footprint will be directed to the tanks via PVC storm sewers. Refer to Figure 4.2 for the Strom Servicing Plan. All internal sewers will meet Ontario Building Code requirements.

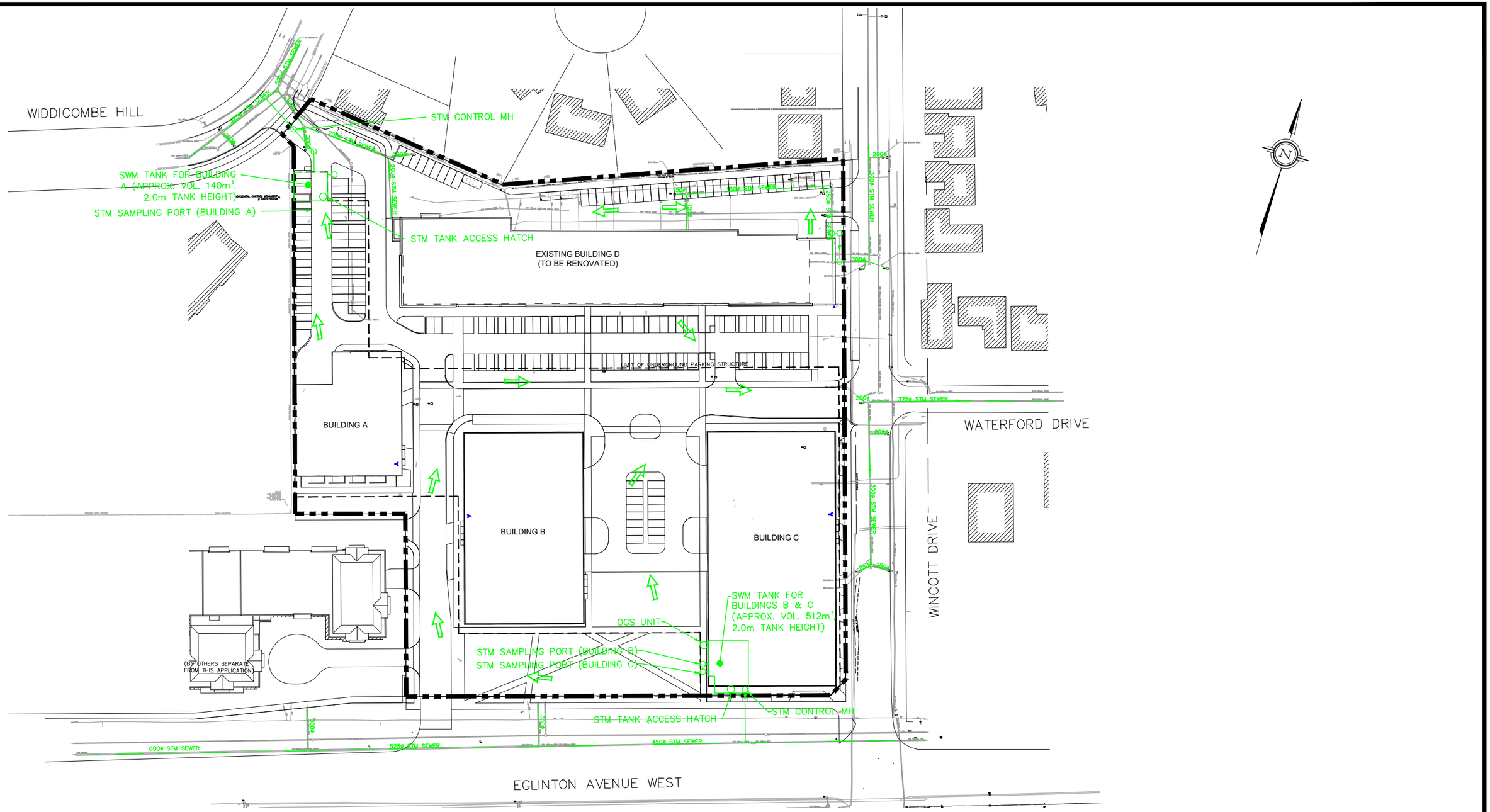
4.8 PROPOSED STORM SERVICE – MAJOR STORM DRAINAGE SYSTEM

The major storm drainage will be stored on site and released to the minor storm system at a maximum rate of 138 L/s, as mentioned in section 4.5.1 Allowable Outflow. Discharge from the new roof drainage systems and stormwater runoff from the various impervious outdoor amenity and terrace surfaces of the building will be directed to the stormwater management tanks. The area drains and trench drains will be sized to convey storm flows to the tanks without any overflow for all storm events up to the 100 year storm event. The area drains and trench drains will connect through the garage slab to the mechanical storm drainage system inside the building which will direct all flows to the stormwater management tanks.

For storms larger than the 100 year design storm, or if the tank outlets become blocked, the excess water in the tank will be directed via an overflow maintenance hole to grade and drained via the overland flow route to the municipal right-of-way. Refer to Figure 4.3 for the Site Grading Plan.

4.9 BASEMENT FLOODING PROTECTION PROGRAM

The area surrounding the proposed development has gone through a review as part of the City of Toronto's Basement Flooding Protection Program. The Basement Flooding Report for Area 35, prepared by Stantec in 2018, was obtained from the City of Toronto to review and identify any potential concerns that would affect the servicing of the proposed development. The report recommends storm sewer upgrades on Hunting Ridge, Wincott Drive, and Strathdee Drive north of the site due to flooding concerns. These sewers are downstream of the outlet from the north drainage area of the proposed development. Since the development both reduces the existing storm flow to Widdicombe Hill and eliminates the existing storm flow to Wincott Drive, downstream conditions will not be negatively impacted. The remainder of the storm flows will be directed to the new storm sewer on Eglinton Avenue which was designed to accept these flows. Therefore, no additional measures were necessary to prevent basement flooding in the area.



LEGEND

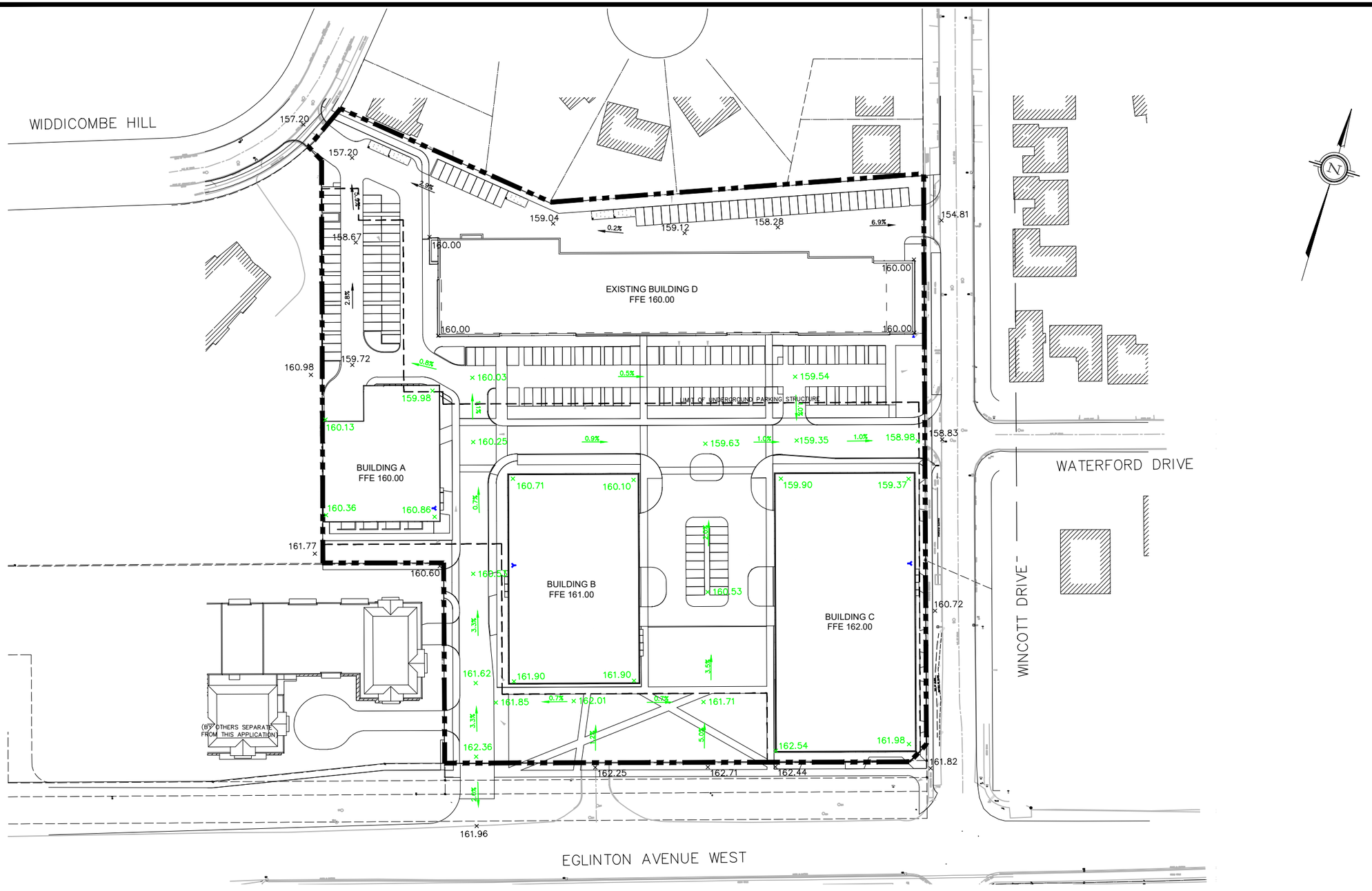
- LIMIT OF PROPERTY
- EX. STORM SEWER
- PROP. STORM CONNECTION
- OVERLAND FLOW

CLIENT
MONTRIN RICHVIEW GP INC.

TITLE
RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST AND 250 WINCOTT DRIVE
PROPOSED STORM SERVICING PLAN

wsp

Checked A.M.	Drawn 18 CAD
Date NOV. 2020	Proj. No. 15M-00048-03
Scale 1:1250	Figure No. FIG 4.2



LEGEND

LIMIT OF PROPERTY		×154.81	EXISTING ELEVATION
×159.80	PROPOSED ELEVATION	6.9%	EXISTING SLOPE
6.9%	PROPOSED SLOPE		

CLIENT

MONTRIN RICHVIEW GP INC.

TITLE

RICHVIEW SQUARE

4620 EGLINTON AVENUE WEST AND 250 WINCOTT DRIVE

PRELIMINARY SITE GRADING PLAN

wsp

Checked	A.M.	Drawn	18 CAD
Date	NOV. 2020	Proj. No.	15M-00048-03
Scale	1:1250	Figure No.	FIG 4.3

5 CONCLUSION

5.1 SANITARY

The existing 250 mm diameter sanitary sewer south of the site on Eglinton Avenue that flows west and connects into the existing Mimico Trunk sewer has sufficient capacity to convey the projected peak sanitary flow of 12.89 L/s. A separate sanitary control maintenance hole for each of the three proposed buildings will be installed immediately inside the property line. The control manhole will be accessible from the outside per City standard. Maintenance holes will also be provided on the mainline sewer at each of the three connection points.

The downstream sanitary sewers can adequately accommodate the proposed redevelopment. No downstream sanitary sewer improvements are required to service the proposed development.

5.2 WATER

The proposed water service connections will include a 150 mm diameter domestic line and a 200 mm diameter fire line for each of the three proposed buildings from the existing 300 mm diameter watermain on Eglinton Avenue. A water meter and a detector check valve will be installed as close to the property line as possible for each connection. All internal plumbing will meet Ontario Building Code requirements. The two fire connections will be separated by a proposed valve, as required. The fire connections will be required to provide 1,665 USGPM (105 L/s) of fire protection as per the FUS guideline. The existing watermains adjacent to the site will provide enough capacity for both fire flow and domestic demands of the proposed development.

5.3 STORM

The proposed storm service connections for the site will be two 250mm diameter PVC storm connections, one to the existing 525mm sewer on Widdicombe Hill, and one to the existing 450mm sewer on Eglinton Avenue West. The proposed development will reduce the flow from the site to a 2 year pre-development release rate during all storms up to, and including, the 100 year event. Therefore, there will be no negative impacts to the existing storm sewer system as a result of this development

APPENDIX

APPENDIX

A REQUIRED FUS FIRE FLOW CALCULATIONS

APPENDIX A

FIRE FLOW CALCULATIONS

Project: **250 Wincott Drive**
Job No.: **10-15074**

Fire flow required for a given area based on Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection (1999)

$$F = 220\ C\sqrt{A}$$

where

F = Fire flow in Litres per minute (Lpm)
C = coefficient related to the type of construction
A = total floor area in square metres

Calculations per FUS

1. *Estimate of Fire Flow*
C = 0.6 for fire resistive construction
A = 5015.8 m2 (largest GFA plus 25% of GFA for two immediately adjoining floors)1

F = 9,349 Lpm

2. *Occupancy Reduction*
25% reduction based on low hazard occupancy

25% reduction of 9349 Lpm = 2,337 Lpm
F = 9349 - 2337 = 7,012 Lpm

3. *Sprinkler Reduction*
30% reduction for NFPA Sprinkler System[2]

30% reduction of 7012 Lpm = 2,104 Lpm
F = 7012 - 2104 = 4,908 Lpm

4. *Separation Charge*

Face	Distance (m)	Charge				
West Side	41.00	5%				
East Side	44.00	5%				
North Side	42.00	5%				
South Side	40.00	5%				
	Total	20%	of	7,012	=	1,402 Lpm

F = 4908 + 1402
F = 6,310 Lpm (2,000 Lpm < F < 45,000 Lpm; OK)
F = 1,665 US GPM

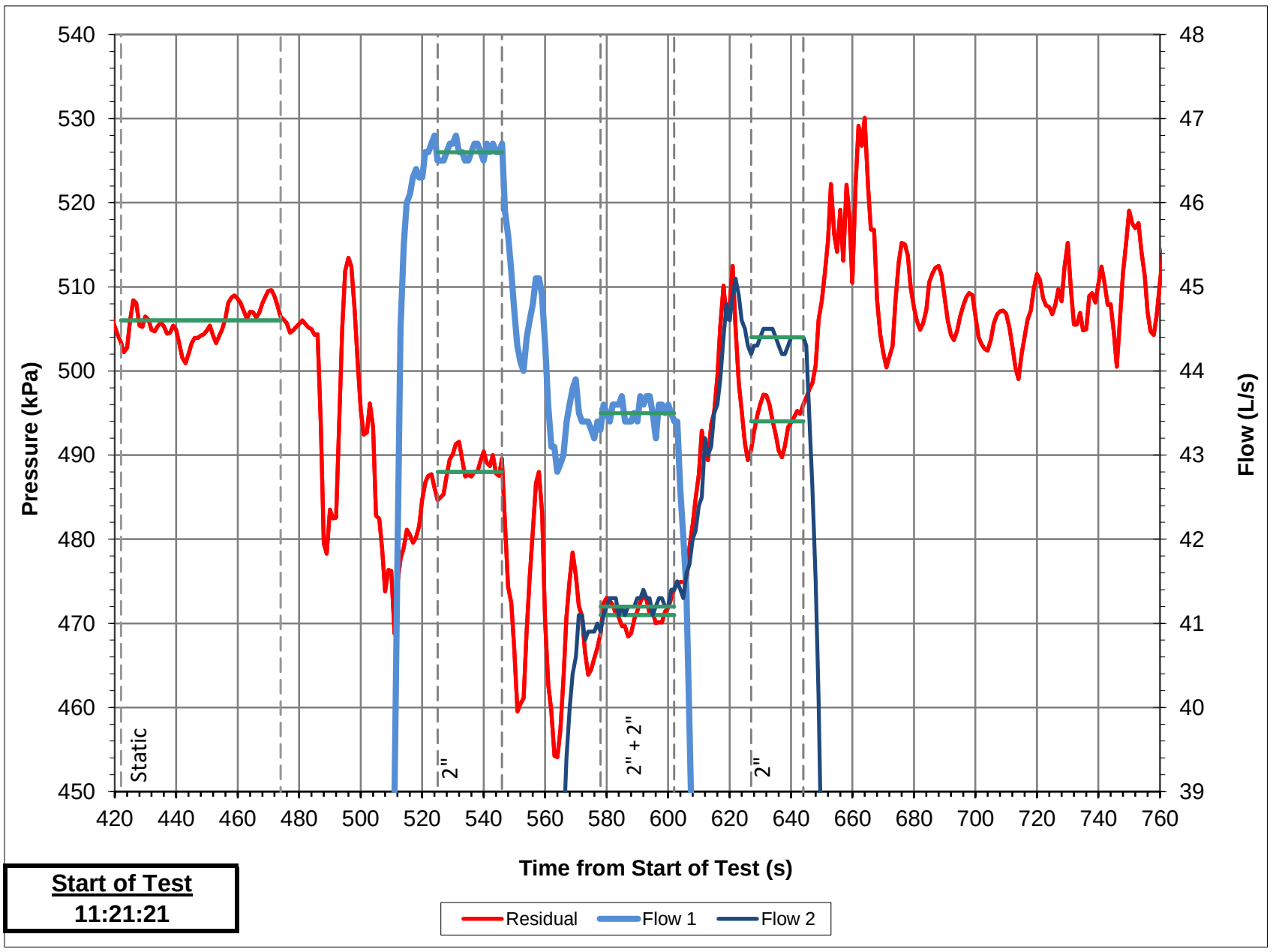
Notes

1. GFA based on "Project Information" by Core Architects, dated 2020-02-14
2. Assumed to have sprinkler protection.

APPENDIX

B HYDRANT FLOW TEST RESULTS

Test 1 - 4620 Eglinton Ave.



Start of Test
11:21:21

Subject Watermain Details				Subject Hydrant & Valve Details	
Diameter:		**Material:**		**Residual Hydrant:**	
Area:	N/A			**Flow Hydrant:**	

TABLE A: TESTED PRESSURES AND FLOWS

Point	Time		Residual		Flow Hydrant ()				Total Flow		Velocity
			on Residual Hydra		Port 1 (S1)		Port 2 (S2)				
	Start	Finish	(kPa)	(psi)	(L/s)	(GPM)	(L/s)	(GPM)	(L/s)	(GPM)	(m/s)
Static	422	474	506	73.4	0.0	0	0.0	0	0.0	0	N/A
2"	525	546	488	70.8	46.6	739	0.0	0	46.6	739	N/A
2"	627	644	494	71.6	0.0	0	44.4	704	44.4	704	N/A
1" + 2"			0	0.0	0.0	0	0.0	0	0.0	0	N/A
2" + 2"	578	602	471	68.3	43.5	689	41.2	653	84.7	1343	N/A

4620 Eglinton Ave.

HYDRANT FLOW TEST RESULTS

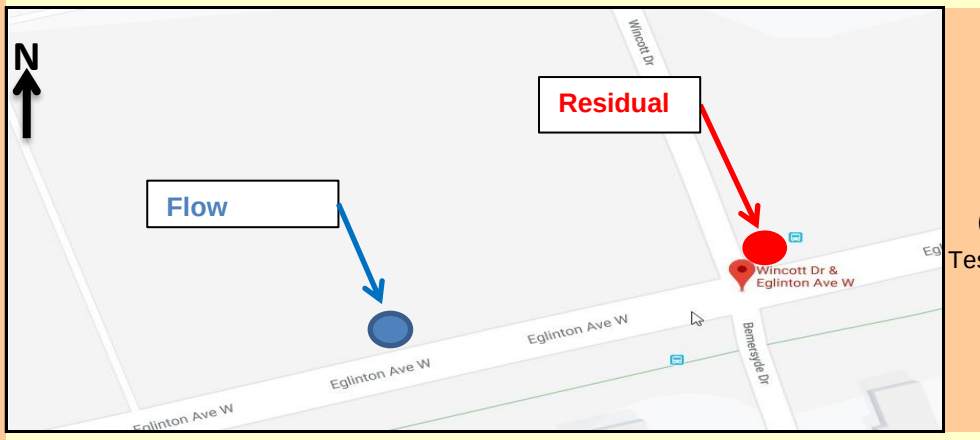
Date: 25-Sep-19 Time: 11:21 (hh/mm)

Tested By: Sen

Municipality: City of Toronto

Operator: Earin

Test No: 1



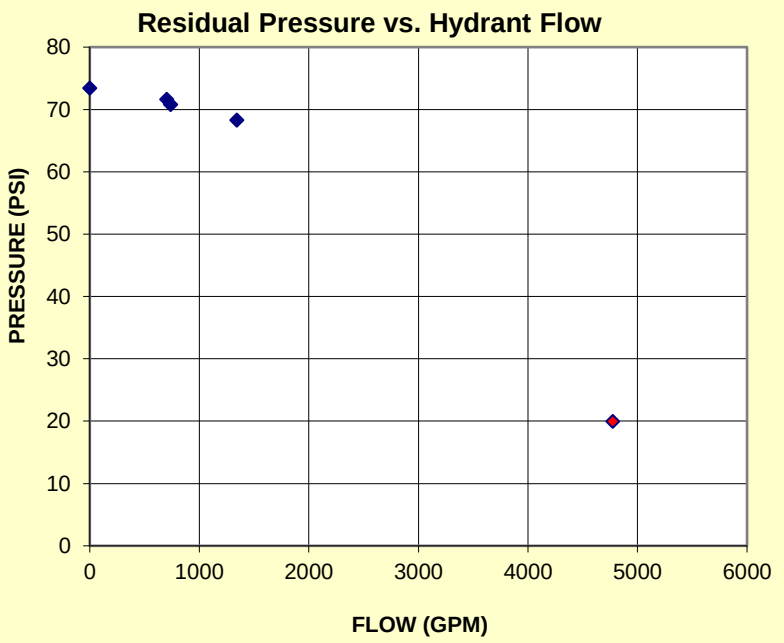
Conditions before Test (STATIC)

Residual Hydrant:	73.4 psi	506 kPa
Hydrant that will Flow:	73.4 psi	506 kPa
Δ pressure:	0.0 psi	0 kPa
Elevation Difference: (Flow El. - Residual El.)	0.0 ft	0.0 m

Test Notes:

TEST		TEST FLOW		RESIDUAL PRESSURE (psi)		Minimum Residual P_r (psi)	Fire Flow at Minimum Residual, Q_r (USGPM)	Fire Flow at Minimum Residual, Q_r (L/s)	6% Pressure Drop Achieved?
Port Size (in)	Nozzle Pressure (psi)	(USGPM)	(L/s)	Monitoring Hydrant	Flow Hydrant (Corrected) *				
STATIC	n/a	0	0	73.4	73.4				
Single Port Tests									
2	22.4	739.0	46.6	70.8	70.8	20	3788	239	NO
2	20.4	704.0	44.4	71.6	71.6	20	4405	278	NO
Two Port Test									
1						20			
2									
Two Port Test									
2	17.5	653.0	41.2	68.3	68.3	20	4775	301	YES
2	19.5	689.0	43.5						

* Pressure correction is equal to the elevation difference. Column 2 (and Table A) show the nozzle pressure while flowing.



Results			
Static Pressure		Flow at 20 psi (140kPa)*	
(psi)	(kPa)	(gpm)	(L/s)
73.4	506	4800	303

* Results carried to nearest 50 gpm or 100 gpm if over 1000 gpm

Hydrant Classification as per NFPA 291			
Class	AA	Color	BLUE

Water Discharged During Test:	9000 L

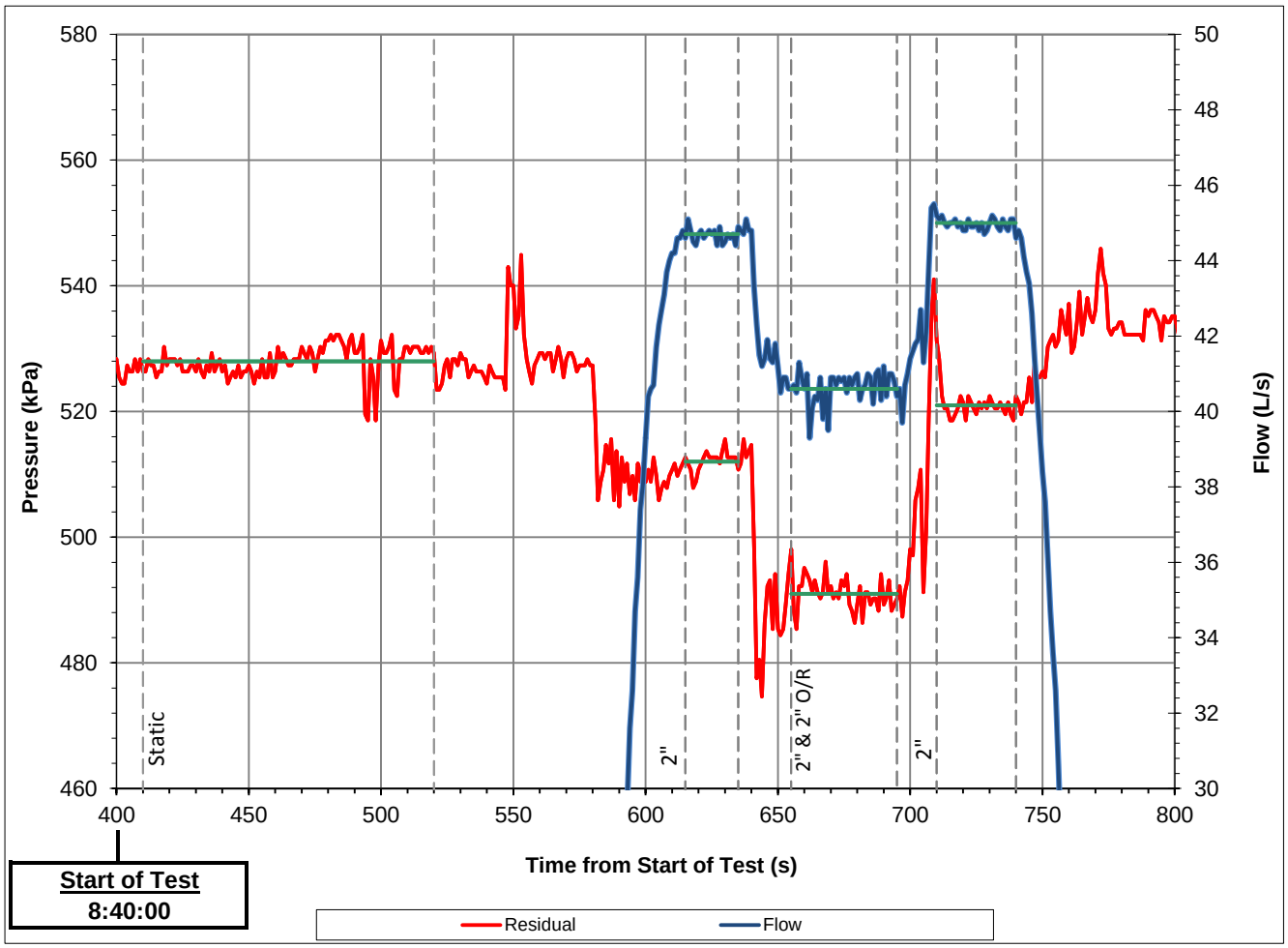
Rounded up to closest 100L

DISCLAIMER FOR FIRE FLOW TESTS

While WSP makes every effort to ensure that the information contained herein is accurate and up to date, WSP is not responsible for unintended or incorrect use of the data and information described and/or contained herein. The user must make his/her own determination as to its accuracy and suitability. The information is representative for a dynamic water system that may change over time.

WSP Canada Inc. 100 Commerce Valley Drive West, Thornhill, Ontario L3T 0A1 Tel.: (905) 882-1100

Test 1 - 4 Widdicombe Hill



Subject Watermain Details			
Diameter:	200 mm	**Material:**	N/A
Area:	0.031 m2		

Subject Hydrant Details	
Flow Residual:	N/A
Flow Hydrant 1:	N/A
Flow Hydrant 2:	

Point	Time		Residual 1		Flow Hydrant (N/A)				Total Flow		Velocity
			PL-1 on HN/A		Port 1 (<S1>)		Port 2 (<S2>)				
	Start	Finish	(kPa)	(psi)	(L/s)	(GPM)	(L/s)	(GPM)	(L/s)	(GPM)	(m/s)
Static	410	520	528	76.6	0.4	6	0.4	6	0.8	13	0.0
2"	615	635	512	74.3	44.7	709	44.7	709	89.4	1417	2.8
2"	710	740	521	75.6	45.0	713	45.0	713	90.0	1427	2.9
1" + 2"			0	0	0.0	0	0.0	0	0.0	0	0.0
2" + 2"	655	695	491	71.2	40.6	644	40.6	644	81.2	1287	2.6

4 Widdicombe Hill

HYDRANT FLOW TEST RESULTS

Date:	28/Nov/16	Time:	8:40 (hh/mm)	Municipality	Etobicoke
				Operator:	n/a
Tested By:	Jovan			Test No:	1

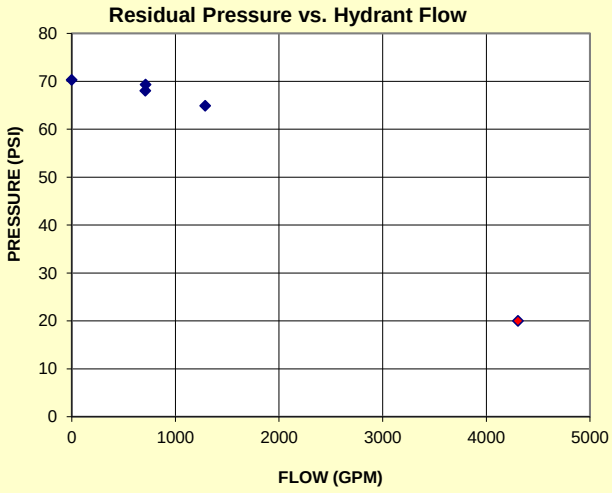
Initial Conditions

Pressure @ Residual:	76.6 psi	528 kPa
Pressure @ Flow:	70.3 psi	485 kPa
Δ pressure:	-6.3 psi	-43 kPa
Elevation Difference: (Flow El. - Residual El.)	-20.6 ft	-4.4 m

Test Notes:

Nozzle		FLOW		RESIDUAL PRESSURE (psi)		Minimum Residual P_r (psi)	Fire Flow at Minimum Residual, Q_r (USGPM)	Fire Flow at Minimum Residual, Q_r (L/s)	7% Pressure Drop Achieved?
Size (in)	Pressure Flow Gauge (psi)	(USGPM)	(L/s)	Monitoring Hydrant	Flowing Hydrant*				
STATIC		0	0	76.6	70.3				
Single Port Tests									
2	20.7	709.0	44.7	74.3	68.0	20	3769	238	NO
2	20.9	713.0	45.0	75.6	69.3	20	5980	377	NO
Two Port Test									
1						20			
2									
Two Port Test									
2	17	644.0	40.6	71.2	64.9	20	4307	272	YES
2	17	644.0	40.6						

*gain/loss in pressure due to elevation difference between flow & monitoring hydrants



Results			
Static Pressure		Flow at 20 psi (140kPa)*	
(psi)	(kPa)	(gpm)	(L/s)
70.3	485	4300	271

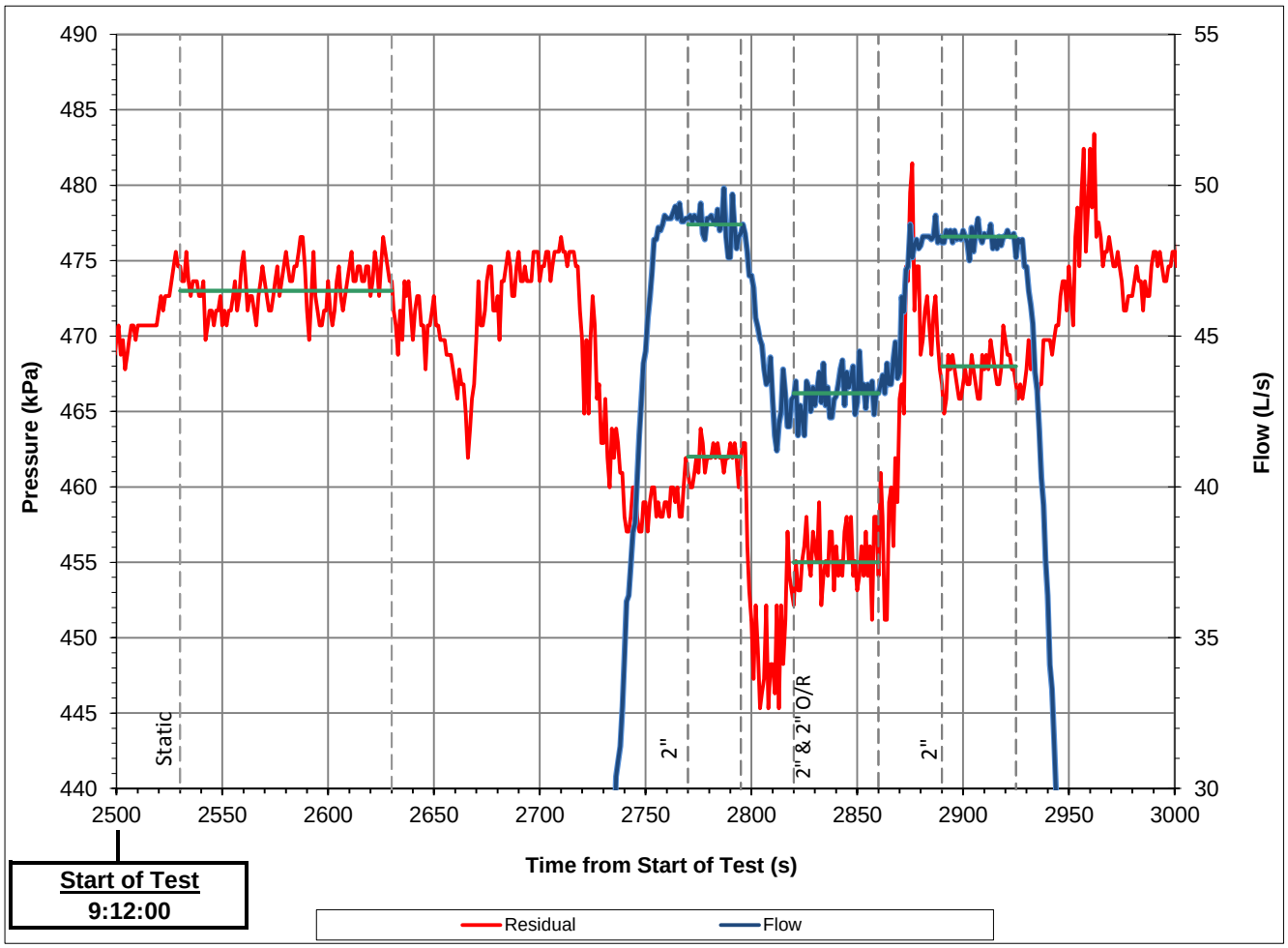
* Results carried to nearest 50 gpm or 100 gpm if over 1000 gpm

Hydrant Classification as per NFPA 291			
Class	AA	Color	BLUE

Water Discharged During Test:	72200 L

Rounded up to closest 100L

Test 2 - 265 Wincott Drive



Subject Watermain Details

Diameter:	200 mm	**Material:**	N/A
Area:	0.031 m2		

Subject Hydrant Details

Flow Residual:	N/A
Flow Hydrant 1:	N/A
Flow Hydrant 2:	

Point	Time		Residual 1		Flow Hydrant (N/A)				Total Flow		Velocity
			PL-1 on HN/A		Port 1 (<S1>)		Port 2 (<S2>)				
	Start	Finish	(kPa)	(psi)	(L/s)	(GPM)	(L/s)	(GPM)	(L/s)	(GPM)	(m/s)
Static	2530	2630	473	68.6	0.4	6	0.4	6	0.8	13	0.0
2"	2770	2795	462	67	48.7	772	48.7	772	97.4	1544	3.1
2"	2890	2925	468	67.9	48.3	766	48.3	766	96.6	1531	3.1
1" + 2"			0	0	0.0	0	0.0	0	0.0	0	0.0
2" + 2"	2820	2860	455	66	43.1	683	43.1	683	86.2	1366	2.7

265 Wincott Drive

HYDRANT FLOW TEST RESULTS

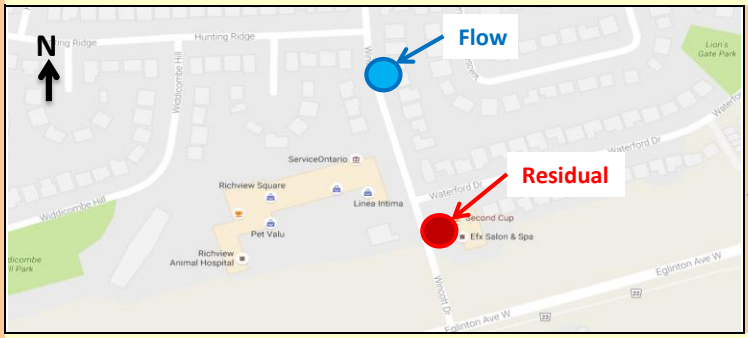
Date: 28/Nov/16 Time: 9:12 (hh/mm)

Municipality: Etobicoke

Operator: n/a

Tested By: Jovan

Test No: **2**



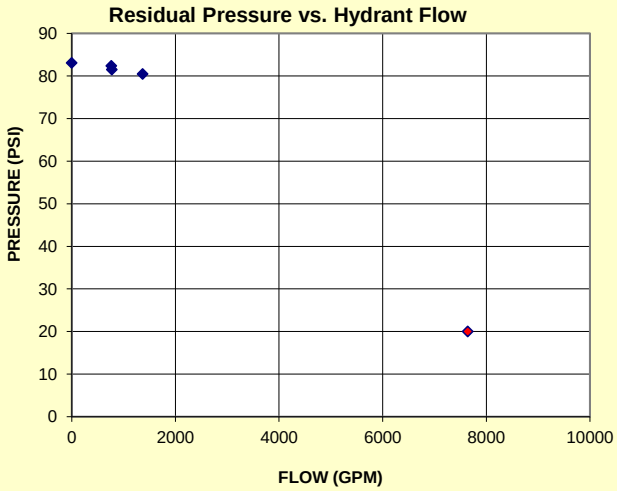
Initial Conditions

Pressure @ Residual:	68.6 psi	473 kPa
Pressure @ Flow:	83.1 psi	573 kPa
Δ pressure:	14.5 psi	100 kPa
Elevation Difference: (Flow El. - Residual El.)	47.6 ft	10.2 m

Test Notes:

Nozzle		FLOW		RESIDUAL PRESSURE (psi)		Minimum Residual P_r (psi)	Fire Flow at Minimum Residual, Q_r (USGPM)	Fire Flow at Minimum Residual, Q_r (L/s)	3% Pressure Drop Achieved?
Size (in)	Pressure Flow Gauge (psi)	(USGPM)	(L/s)	Monitoring Hydrant	Flowing Hydrant*				
STATIC		0	0	68.6	83.1				
Single Port Tests									
2	24.5	772.0	48.7	67	81.5	20	5610	354	NO
2	24.1	766.0	48.3	67.9	82.4	20	8688	548	NO
Two Port Test									
1						20			
2									
Two Port Test									
2	19.2	683.0	43.1	66	80.5	20	7641	482	YES
2	19.2	683.0	43.1						

*gain/loss in pressure due to elevation difference between flow & monitoring hydrants



Results			
Static Pressure		Flow at 20 psi (140kPa)*	
(psi)	(kPa)	(gpm)	(L/s)
83.1	573	7600	479

* Results carried to nearest 50 gpm or 100 gpm if over 1000 gpm

Hydrant Classification as per NFPA 291			
Class	AA	Color	BLUE

Water Discharged During Test:	20700 L

Rounded up to closest 100L

DISCLAIMER FOR FIRE FLOW TESTS

While WSP makes every effort to ensure that the information contained herein is accurate and up to date, WSP is not responsible for unintended or incorrect use of the data and information described and/or contained herein. The user must make his/her own determination as to its accuracy and suitability. The information is representative for a dynamic water system that may change over time.

WSP Canada Inc. 100 Commerce Valley Drive West, 6th Floor, Thornhill, Ontario L3T 0A1 Tel.: (905) 882-1100

APPENDIX

C DOMESTIC WATER DEMAND

DOMESTIC WATER DEMANDS

Project: **250 Wincott Drive**
Job No.: **10-15074**

Proposed Water Demands

Unit Type	Unit Count/ GFA (m²)	Occupancy Rate (ppu)	Equivalent Population	Per Capita Flow (L/cap/day)	Average Daily Demand (L/s)	Peak Hour		Max Day	
						Peaking Factor	Demand (L/s)	Peaking Factor	Demand (L/s)
1 Bedroom	278	1.4	389	191	0.86	2.50	2.15	1.30	1.12
2 Bedroom	208	2.1	437	191	0.97	2.50	2.41	1.30	1.26
3 Bedroom	101	3.1	313	191	0.69	2.50	1.73	1.30	0.90
Commercial GFA Prop	11038	1.1	121	191	0.27	2.50	0.67	1.30	0.35
TOTAL			**1261**		**2.79**		**6.97**		**3.62**

Notes:

1. Per capita flow and peaking factor are as per the City of Toronto Sewer and Watermain Design Manual.

2. Unit Counts and Floor Areas are per drawing A100 by CORE Architects dated October 9, 2020.

APPENDIX

D

SANITARY DESIGN SHEET

CITY OF TORONTO

DRY WEATHER SANITARY SEWER DESIGN
250 WINCOTT DRIVE
PRE-DEVELOPMENT CONDITION

A = area (ha)
p = person/A site
P = population = pA site
M = 1 + 14 / (4 + P/1000)
Q TOTAL = P FLOW + I l/s

P FLOW = MqP / 86400 = population flow l/s
I = 0.26 L/s/ha **(SITE)**
I =

q = 250 l/person/d **(ICI)**
q = 240 l/person/d **(RES)**
q = 450 l/person/d **(PROP NEW)**

Design Sheet No
Assess. Sheet No
Subdiv. File No

Designed by: M.M. **Chk'd. by:** A.J.M. **Date:** 08-Oct-20

STREET	MANHOLE FROM	MANHOLE TO	INCREMENT Comm. GFA (ha)	Res. Pop	Comm. Pop	A SITE (ha)	A GROSS ha	GW L/s	CUMULATIVE POP Residential	Commerical	M Harmon Factor	RES. FLOW l/s	COMM. FLOW l/s	I l/s	GW L/s	Q TOTAL l/s	S%	D mm	TYPE OF PIPE	Q FULL l/s	Q Capacity l/s	ACTUAL DEPTH,dm	ACTUAL VELOCITY m/s	M.H. INVERT DROP
EGLINTON AVENUE	EXT-1	55A				0.45	0.45		11		4.41	0.13		0.12			1.00	250	PVC	59.5	59.5			
EGLINTON AVENUE	55A	54A				0.13	0.58		11	0	4.41	0.13	0.00	0.15	0.00	**0.29**	1.00	250	PVC	59.5	59.2			
EGLINTON AVENUE	54A	53A					0.58		11	0	4.41	0.13	0.00	0.15	0.00	**0.29**	1.02	250	PVC	60.1	59.8			
EGLINTON AVENUE	53A	52A					0.58		11	0	4.41	0.13	0.00	0.15	0.00	**0.29**	0.54	250	PVC	43.7	43.4			
4650 EGLINTON (SHANNEX)	SITE	52A		304	86	0.85	0.85		304	86	4.08	3.44	0.24	0.22		**3.90**	1.60	250	PVC	75.2	71.3			
EGLINTON AVENUE	52A	51A					1.43		315	86	4.07	3.56	0.24	0.37	0.00	**4.17**	0.47	250	PVC	40.8	36.6			
NATIONAL HOMES	SITE	51A		184		1.86	1.86		184		4.16	2.13	0.00	0.48		**2.61**	1.44	250	PVC	71.4	68.8			
EGLINTON AVENUE	51A	50A					3.29		499	86	3.97	5.51	0.24	0.86	0.00	**6.60**	0.60	250	PVC	46.1	39.5			
EGLINTON AVENUE	50A	49A					3.29		499	86	3.97	5.51	0.24	0.86	0.00	**6.60**	0.56	250	PVC	44.5	37.9			
EGLINTON AVENUE	49A	48A				0.13	3.42		499	86	3.97	5.51	0.24	0.89	0.00	**6.64**	0.47	250	PVC	40.8	34.1			
EGLINTON AVENUE	48A	47A					3.42		499	86	3.97	5.51	0.24	0.89	0.00	**6.64**	0.92	250	PVC	57.0	50.4			
WOOD LOT	47A	46A				0.94	4.36		499	86	3.97	5.51	0.24	1.13	0.00	**6.88**	0.50	250	PVC	42.0	35.2			
WOOD LOT	46A	45A				0.63	4.99		499	86	3.97	5.51	0.24	1.30	0.00	**7.05**	0.50	250	PVC	42.0	35.0			
EGLINTON AVENUE	45A	44A				0.23	5.22		499	86	3.97	5.51	0.24	1.36	0.00	**7.11**	0.50	250	PVC	42.0	34.9			
EGLINTON AVENUE	44A	43A				0.15	5.37		499	86	3.97	5.51	0.24	1.40	0.00	**7.14**	0.50	250	PVC	42.0	34.9			
EGLINTON AVENUE	43A	42A				0.13	5.5		499	86	3.97	5.51	0.24	1.43	0.00	**7.18**	0.50	300	PVC	68.4	61.2			
EGLINTON AVENUE	42A	41A				0.15	5.65		499	86	3.97	5.51	0.24	1.47	0.00	**7.22**	0.55	300	PVC	71.7	64.5			
EGLINTON AVENUE	41A	40A				0.21	5.86		499	86	3.97	5.51	0.24	1.52	0.00	**7.27**	0.55	300	PVC	71.7	64.4			
EGLINTON AVENUE	40A	90				0.06	5.92		499	86	3.97	5.51	0.24	1.54	0.00	**7.29**	0.50	300	PVC	68.4	61.1			
FERNBROOK HOMES	SITE	90		240		2.03	2.03		240		4.12	2.75	0.00	0.53		**3.27**	0.50	250	PVC	42.0	38.8			
WIDDICOMBE HILL	82	83		497		2.17	2.17		497		3.98	5.49	0.00	0.56		**6.05**	0.99	250	VC	59.2	53.1			
WIDDICOMBE HILL	83	84					2.17		497		3.98	5.49	0.00	0.56		**6.05**	0.47	250	VC	40.8	34.7			
WIDDICOMBE HILL	84	85					2.17		497		3.98	5.49	0.00	0.56		**6.05**	0.64	250	VC	47.6	41.5			
WIDDICOMBE HILL	85	86		490		1.21	3.38		987		3.80	10.43	0.00	0.88		**11.31**	0.48	250	VC	41.2	29.9			
WIDDICOMBE HILL	86	87					3.38		987		3.80	10.43	0.00	0.88		**11.31**	0.49	300	VC	67.7	56.4			
WIDDICOMBE HILL	87	88		175		3.5	6.88		1162		3.76	12.13	0.00	1.79		**13.92**	1.07	300	VC	100.0	86.1			
WIDDICOMBE HILL	88	89		491		1.81	8.69		1653		3.65	16.75	0.00	2.26		**19.01**	0.58	300	VC	73.6	54.6			
WIDDICOMBE HILL	89	90					8.69		1653		3.65	16.75	0.00	2.26		**19.01**	0.47	375	VC	120.2	101.2			
EASEMENT	90	91		50		1.00	17.64		2442	86	3.52	23.86	0.24	4.59	0.00	**28.68**	0.31	375	PVC	97.6	68.9			
EASEMENT	91	92		735		1.50	19.14		3177	86	3.42	30.19	0.24	4.98	0.00	**35.41**	0.51	375	PVC	125.2	89.8			
EASEMENT	92	93					19.14		3177	86	3.42	30.19	0.24	4.98	0.00	**35.41**	0.37	375	PVC	106.6	71.2			
EASEMENT	93	94					19.14		3177	86	3.42	30.19	0.24	4.98	0.00	**35.41**	0.74	375	PVC	150.8	115.4			
EASEMENT	94	95					19.14		3177	86	3.42	30.19	0.24	4.98	0.00	**35.41**	0.33	375	PVC	101.4	66.0			
EASEMENT	95	168					19.14		3177	86	3.42	30.19	0.24	4.98	0.00	**35.41**	0.47	375	PVC	120.2	84.8			
MARTIN GROVE	167	168		1714		30.20	30.20		1714		3.64	17.32	0.00	7.85		**25.17**	0.27	450	CONC	148.1	123.0			
EGLINTON	168	169		585		14.90	64.24		5476	86	3.21	48.80	0.24	16.70	0.00	**65.74**	0.78	450	CONC	251.8	186.1			
EGLINTON	169	170					64.24		5476	86	3.21	48.80	0.24	16.70	0.00	**65.74**	0.76	450	CONC	248.5	182.8			
EGLINTON	170	171					64.24		5476	86	3.21	48.80	0.24	16.70	0.00	**65.74**	0.89	450	CONC	269.0	203.2			
EGLINTON	171	172					64.24		5476	86	3.21	48.80	0.24	16.70	0.00	**65.74**	0.82	450	CONC	258.2	192.4			
EGLINTON	172	173					64.24		5476	86	3.21	48.80	0.24	16.70	0.00	**65.74**	1.10	450	CONC	299.0	233.3			
EGLINTON	173	174					64.24		5476	86	3.21	48.80	0.24	16.70	0.00	**65.74**	1.06	450	CONC	293.5	227.8			
EGLINTON	174	175					64.24		5476	86	3.21	48.80	0.24	16.70	0.00	**65.74**	0.47	450	CONC	195.5	129.7			
EGLINTON	175	999 (Trunk)					64.24		5476	86	3.21	48.80	0.24	16.70	0.00	**65.74**	0.50	450	CONC	201.6	135.9			

CITY OF TORONTO

DRY WEATHER SANITARY SEWER DESIGN
250 WINCOTT DRIVE
POST-DEVELOPMENT CONDITION

A = area (ha)
p = person/A site
P = population = pA site
M = 1 + 14 / (4 + P/1000)

P FLOW = MqP / 86400 = population flow l/s
I = 0.26 L/s/ha
I =
Q TOTAL = P FLOW + I l/s

q = 250 l/person/d **(ICI)**
q = 240 l/person/d **(RES)**
q = 240 l/person/d **(PROP NEW)**

Design Sheet No
Assess. Sheet No
Subdiv. File No

Designed by: M.M. **Chk'd. by:** A.J.M. **Date:** 08-Oct-20

STREET	MANHOLE FROM	MANHOLE TO	INCREMENT Comm. GFA (ha)	Res. Pop	Comm. Pop	A SITE (ha)	A GROSS ha	GW L/s	CUMULATIVE POP Residential	Commerical	M Harmon Factor	RES. FLOW l/s	COMM. FLOW l/s	I l/s	GW L/s	Q TOTAL l/s	S%	D mm	TYPE OF PIPE	Q FULL l/s	Q Capacity l/s	ACTUAL DEPTH,d m	ACTUAL VELOCITY m/s	M.H. INVERT DROP
EGLINTON AVENUE	EXT-1	55A				0.45	0.45		11		4.41	0.13		0.12			1.00	250	PVC	59.5	59.5			
PROPOSED DEVELOPMENT	**SITE**	**55**	**1.10**	**1139**	**121**	**3.05**	**3.05**	**0.63**	**1139**	**121**	**3.76**	11.91	**0.34**	**0.79**	**0.63**	**13.66**	**2.00**	**250**	**PVC**	**84.1**	**70.4**			
EGLINTON AVENUE	55A	54A				0.13	3.63		1150	121	3.76	12.01	0.34	0.94	0.63	**13.92**	1.00	250	PVC	59.5	45.5			
EGLINTON AVENUE	54A	53A					3.63		1150	121	3.76	12.01	0.34	0.94	0.63	**13.92**	1.02	250	PVC	60.1	46.1			
EGLINTON AVENUE	53A	52A					3.63		1150	121	3.76	12.01	0.34	0.94	0.63	**13.92**	0.54	250	PVC	43.7	29.8			
4650 EGLINTON (SHANNEX)	SITE	52A		304	86	0.85	0.85		304	86	4.08	3.44	0.24	0.22		**3.90**	1.60	250	PVC	75.2	71.3			
EGLINTON AVENUE	52A	51A					4.48		1454	207	3.69	14.90	0.58	1.16	0.63	**17.27**	0.47	250	PVC	40.8	23.5			
NATIONAL HOMES	SITE	51A		184		1.86	1.86		184		4.16	2.13	0.00	0.48		**2.61**	1.44	250	PVC	71.4	68.8			
EGLINTON AVENUE	51A	50A					6.34		1638	207	3.65	16.61	0.58	1.65	0.63	**19.47**	0.60	250	PVC	46.1	26.6			
EGLINTON AVENUE	50A	49A					6.34		1638	207	3.65	16.61	0.58	1.65	0.63	**19.47**	0.56	250	PVC	44.5	25.0			
EGLINTON AVENUE	49A	48A				0.13	6.47		1638	207	3.65	16.61	0.58	1.68	0.63	**19.50**	0.47	250	PVC	40.8	21.3			
EGLINTON AVENUE	48A	47A					6.47		1638	207	3.65	16.61	0.58	1.68	0.63	**19.50**	0.92	250	PVC	57.0	37.5			
WOOD LOT	47A	46A				0.94	7.41		1638	207	3.65	16.61	0.58	1.93	0.63	**19.75**	0.50	250	PVC	42.0	22.3			
WOOD LOT	46A	45A				0.63	8.04		1638	207	3.65	16.61	0.58	2.09	0.63	**19.91**	0.50	250	PVC	42.0	22.1			
EGLINTON AVENUE	45A	44A				0.23	8.27		1638	207	3.65	16.61	0.58	2.15	0.63	**19.97**	0.50	250	PVC	42.0	22.1			
EGLINTON AVENUE	44A	43A				0.15	8.42		1638	207	3.65	16.61	0.58	2.19	0.63	**20.01**	0.50	250	PVC	42.0	22.0			
EGLINTON AVENUE	43A	42A				0.13	8.55		1638	207	3.65	16.61	0.58	2.22	0.63	**20.04**	0.50	300	PVC	68.4	48.3			
EGLINTON AVENUE	42A	41A				0.15	8.7		1638	207	3.65	16.61	0.58	2.26	0.63	**20.08**	0.55	300	PVC	71.7	51.6			
EGLINTON AVENUE	41A	40A				0.21	8.91		1638	207	3.65	16.61	0.58	2.32	0.63	**20.14**	0.55	300	PVC	71.7	51.6			
EGLINTON AVENUE	40A	90				0.06	8.97		1638	207	3.65	16.61	0.58	2.33	0.63	**20.15**	0.50	300	PVC	68.4	48.2			
FERNBROOK HOMES	SITE	90		240		2.03	2.03		240		4.12	2.75	0.00	0.53		**3.27**	0.50	250	PVC	42.0	38.8			
WIDDICOMBE HILL	82	83		497		2.17	2.17		497		3.98	5.49	0.00	0.56		**6.05**	0.99	250	VC	59.2	53.1			
WIDDICOMBE HILL	83	84					2.17		497		3.98	5.49	0.00	0.56		**6.05**	0.47	250	VC	40.8	34.7			
WIDDICOMBE HILL	84	85					2.17		497		3.98	5.49	0.00	0.56		**6.05**	0.64	250	VC	47.6	41.5			
WIDDICOMBE HILL	85	86		490		1.21	3.38		987		3.80	10.43	0.00	0.88		**11.31**	0.48	250	VC	41.2	29.9			
WIDDICOMBE HILL	86	87					3.38		987		3.80	10.43	0.00	0.88		**11.31**	0.49	300	VC	67.7	56.4			
WIDDICOMBE HILL	87	88		175		3.5	6.88		1162		3.76	12.13	0.00	1.79		**13.92**	1.07	300	VC	100.0	86.1			
WIDDICOMBE HILL	88	89		491		1.81	8.69		1653		3.65	16.75	0.00	2.26		**19.01**	0.58	300	VC	73.6	54.6			
WIDDICOMBE HILL	89	90					8.69		1653		3.65	16.75	0.00	2.26		**19.01**	0.47	375	VC	120.2	101.2			
EASEMENT	90	91		50		1.00	20.69		3581	207	3.38	33.58	0.58	5.38	0.63	**40.17**	0.31	375	PVC	97.6	57.5			
EASEMENT	91	92		735		1.50	22.19		4316	207	3.30	39.61	0.58	5.77	0.63	**46.58**	0.51	375	PVC	125.2	78.6			
EASEMENT	92	93					22.19		4316	207	3.30	39.61	0.58	5.77	0.63	**46.58**	0.37	375	PVC	106.6	60.1			
EASEMENT	93	94					22.19		4316	207	3.30	39.61	0.58	5.77	0.63	**46.58**	0.74	375	PVC	150.8	104.2			
EASEMENT	94	95					22.19		4316	207	3.30	39.61	0.58	5.77	0.63	**46.58**	0.33	375	PVC	101.4	54.8			
EASEMENT	95	168					22.19		4316	207	3.30	39.61	0.58	5.77	0.63	**46.58**	0.47	375	PVC	120.2	73.6			
MARTIN GROVE	167	168		1714		30.20	30.20		1714		3.64	17.32	0.00	7.85		**25.17**	0.27	450	CONC	148.1	123.0			
EGLINTON	168	169		585		14.90	67.29		6615	207	3.13	57.52	0.58	17.50	0.63	**76.22**	0.78	450	CONC	251.8	175.6			
EGLINTON	169	170					67.29		6615	207	3.13	57.52	0.58	17.50	0.63	**76.22**	0.76	450	CONC	248.5	172.3			
EGLINTON	170	171					67.29		6615	207	3.13	57.52	0.58	17.50	0.63	**76.22**	0.89	450	CONC	269.0	192.7			
EGLINTON	171	172					67.29		6615	207	3.13	57.52	0.58	17.50	0.63	**76.22**	0.82	450	CONC	258.2	182.0			
EGLINTON	172	173					67.29		6615	207	3.13	57.52	0.58	17.50	0.63	**76.22**	1.10	450	CONC	299.0	222.8			
EGLINTON	173	174					67.29		6615	207	3.13	57.52	0.58	17.50	0.63	**76.22**	1.06	450	CONC	293.5	217.3			
EGLINTON	174	175					67.29		6615	207	3.13	57.52	0.58	17.50	0.63	**76.22**	0.47	450	CONC	195.5	119.2			
EGLINTON	175	999 (Trunk)					67.29		6615	207	3.13	57.52	0.58	17.50	0.63	**76.22**	0.50	450	CONC	201.6	125.4			

CITY OF TORONTO

EXTREME WET WEATHER SANITARY SEWER DESIGN
250 WINCOTT DRIVE
PRE-DEVELOPMENT CONDITION

A = area (ha)
p = person/A site
P = population = pA site
M = 1 + 14 / (4 + P/1000)
q = 250 l/person/d **(ICI)**
q = 240 l/person/d **(RES)**

P FLOW = MqP / 86400 = population flow l/s
I = 0.26 L/s/ha **(SITE)**
I = 3 L/s/ha **(EXTERNAL)**
Q TOTAL = P FLOW + I l/s
q = 450 l/person/d **(PROP NEW)**

Design Sheet No
Assess. Sheet No
Subdiv. File No

Designed by: M.M. **Chk'd. by:** A.J.M. **Date:** 08-Oct-20

STREET	MANHOLE FROM	MANHOLE TO	INCREMENT Comm. GFA (ha)	Res. Pop	Comm. Pop	A SITE (ha)	A GROSS ha	GW L/s	CUMULATIVE POP Residential	Commerical	M Harmon Factor	RES. FLOW l/s	COMM. FLOW l/s	I l/s	GW L/s	Q TOTAL l/s	S%	D mm	TYPE OF PIPE	Q FULL l/s	Q Capacity l/s	ACTUAL DEPTH,d m	ACTUAL VELOCITY m/s	M.H. INVERT DROP
EGLINTON AVENUE	EXT-1	55A				0.45	0.45		11		4.41	0.13		1.35			1.00	250	PVC	59.5	59.5			
EGLINTON AVENUE	55A	54A				0.13	0.58		11	0	4.41	0.13	0.00	1.74	0.00	**1.87**	1.00	250	PVC	59.5	57.6			
EGLINTON AVENUE	54A	53A					0.58		11	0	4.41	0.13	0.00	1.74	0.00	**1.87**	1.02	250	PVC	60.1	58.2			
EGLINTON AVENUE	53A	52A					0.58		11	0	4.41	0.13	0.00	1.74	0.00	**1.87**	0.54	250	PVC	43.7	41.8			
4650 EGLINTON (SHANNEX)	SITE	52A		304	86	0.85	0.85		304	86	4.08	3.44	0.24	0.22		**3.90**	1.60	250	PVC	75.2	71.3			
EGLINTON AVENUE	52A	51A					1.43		315	86	4.07	3.56	0.24	1.96	0.00	**5.76**	0.47	250	PVC	40.8	35.0			
NATIONAL HOMES	SITE	51A		184		1.86	1.86		184		4.16	2.13	0.00	0.48		**2.61**	1.44	250	PVC	71.4	68.8			
EGLINTON AVENUE	51A	50A					3.29		499	86	3.97	5.51	0.24	2.44	0.00	**8.19**	0.60	250	PVC	46.1	37.9			
EGLINTON AVENUE	50A	49A					3.29		499	86	3.97	5.51	0.24	2.44	0.00	**8.19**	0.56	250	PVC	44.5	36.3			
EGLINTON AVENUE	49A	48A				0.13	3.42		499	86	3.97	5.51	0.24	2.83	0.00	**8.58**	0.47	250	PVC	40.8	32.2			
EGLINTON AVENUE	48A	47A					3.42		499	86	3.97	5.51	0.24	2.83	0.00	**8.58**	0.92	250	PVC	57.0	48.5			
WOOD LOT	47A	46A				0.94	4.36		499	86	3.97	5.51	0.24	5.65	0.00	**11.40**	0.50	250	PVC	42.0	30.6			
WOOD LOT	46A	45A				0.63	4.99		499	86	3.97	5.51	0.24	7.54	0.00	**13.29**	0.50	250	PVC	42.0	28.8			
EGLINTON AVENUE	45A	44A				0.23	5.22		499	86	3.97	5.51	0.24	8.23	0.00	**13.98**	0.50	250	PVC	42.0	28.1			
EGLINTON AVENUE	44A	43A				0.15	5.37		499	86	3.97	5.51	0.24	8.68	0.00	**14.43**	0.50	250	PVC	42.0	27.6			
EGLINTON AVENUE	43A	42A				0.13	5.5		499	86	3.97	5.51	0.24	9.07	0.00	**14.82**	0.50	300	PVC	68.4	53.6			
EGLINTON AVENUE	42A	41A				0.15	5.65		499	86	3.97	5.51	0.24	9.52	0.00	**15.27**	0.55	300	PVC	71.7	56.4			
EGLINTON AVENUE	41A	40A				0.21	5.86		499	86	3.97	5.51	0.24	10.15	0.00	**15.90**	0.55	300	PVC	71.7	55.8			
EGLINTON AVENUE	40A	90				0.06	5.92		499	86	3.97	5.51	0.24	10.33	0.00	**16.08**	0.50	300	PVC	68.4	52.3			
FERNBROOK HOMES	SITE	90		240		2.03	2.03		240		4.12	2.75	0.00	0.53		**3.27**	0.50	250	PVC	42.0	38.8			
WIDDICOMBE HILL	82	83		497		2.17	2.17		497		3.98	5.49	0.00	6.51		**12.00**	0.99	250	VC	59.2	47.2			
WIDDICOMBE HILL	83	84					2.17		497		3.98	5.49	0.00	6.51		**12.00**	0.47	250	VC	40.8	28.8			
WIDDICOMBE HILL	84	85					2.17		497		3.98	5.49	0.00	6.51		**12.00**	0.64	250	VC	47.6	35.6			
WIDDICOMBE HILL	85	86		490		1.21	3.38		987		3.80	10.43	0.00	10.14		**20.57**	0.48	250	VC	41.2	20.6			
WIDDICOMBE HILL	86	87					3.38		987		3.80	10.43	0.00	10.14		**20.57**	0.49	300	VC	67.7	47.1			
WIDDICOMBE HILL	87	88		175		3.5	6.88		1162		3.76	12.13	0.00	20.64		**32.77**	1.07	300	VC	100.0	67.3			
WIDDICOMBE HILL	88	89		491		1.81	8.69		1653		3.65	16.75	0.00	26.07		**42.82**	0.58	300	VC	73.6	30.8			
WIDDICOMBE HILL	89	90					8.69		1653		3.65	16.75	0.00	26.07		**42.82**	0.47	375	VC	120.2	77.4			
EASEMENT	90	91		50		1.00	17.64		2442	86	3.52	23.86	0.24	39.93	0.00	**64.03**	0.31	375	PVC	97.6	33.6			
EASEMENT	91	92		735		1.50	19.14		3177	86	3.42	30.19	0.24	44.43	0.00	**74.86**	0.51	375	PVC	125.2	50.3			
EASEMENT	92	93					19.14		3177	86	3.42	30.19	0.24	44.43	0.00	**74.86**	0.37	375	PVC	106.6	31.8			
EASEMENT	93	94					19.14		3177	86	3.42	30.19	0.24	44.43	0.00	**74.86**	0.74	375	PVC	150.8	76.0			
EASEMENT	94	95					19.14		3177	86	3.42	30.19	0.24	44.43	0.00	**74.86**	0.33	375	PVC	101.4	26.5			
EASEMENT	95	168					19.14		3177	86	3.42	30.19	0.24	44.43	0.00	**74.86**	0.47	375	PVC	120.2	45.3			
MARTIN GROVE	167	168		1714		30.20	30.20		1714		3.64	17.32	0.00	90.60		**107.92**	0.27	450	CONC	148.1	40.2			
EGLINTON	168	169		585		14.90	64.24		5476	86	3.21	48.80	0.24	165.49	0.00	**214.53**	0.78	450	CONC	251.8	37.3			
EGLINTON	169	170					64.24		5476	86	3.21	48.80	0.24	165.49	0.00	**214.53**	0.76	450	CONC	248.5	34.0			
EGLINTON	170	171					64.24		5476	86	3.21	48.80	0.24	165.49	0.00	**214.53**	0.89	450	CONC	269.0	54.4			
EGLINTON	171	172					64.24		5476	86	3.21	48.80	0.24	165.49	0.00	**214.53**	0.82	450	CONC	258.2	43.6			
EGLINTON	172	173					64.24		5476	86	3.21	48.80	0.24	165.49	0.00	**214.53**	1.10	450	CONC	299.0	84.5			
EGLINTON	173	174					64.24		5476	86	3.21	48.80	0.24	165.49	0.00	**214.53**	1.06	450	CONC	293.5	79.0			
EGLINTON	174	175					64.24		5476	86	3.21	48.80	0.24	165.49	0.00	**214.53**	0.47	450	CONC	195.5	-19.1			
EGLINTON	175	999 (Trunk)					64.24		5476	86	3.21	48.80	0.24	165.49	0.00	**214.53**	0.50	450	CONC	201.6	-12.9			

CITY OF TORONTO

EXTREME WET WEATHER SANITARY SEWER DESIGN
250 WINCOTT DRIVE
POST-DEVELOPMENT CONDITION

A = area (ha)
p = person/A site
P = population = pA site
M = 1 + 14 / (4 + P/1000)

P FLOW = MqP / 86400 = population flow l/s
Q TOTAL = P FLOW + I l/s

q = 250 l/person/d **(ICI)**
q = 240 l/person/d **(RES)**

I = 0.26 L/s/ha **(SITE)**
I = 3 L/s/ha **(EXTERNAL)**
q = 240 l/person/d **(PROP NEW)**

Design Sheet No
Assess. Sheet No
Subdiv. File No

Designed by: M.M. **Chk'd. by:** A.J.M. **Date:** 08-Oct-20

STREET	MANHOLE FROM	MANHOLE TO	INCREMENT Comm. GFA (ha)	Res. Pop	Comm. Pop	A SITE (ha)	A GROSS ha	GW L/s	CUMULATIVE POP Residential	Commerical	M Harmon Factor	RES. FLOW l/s	COMM. FLOW l/s	I l/s	GW L/s	Q TOTAL l/s	S%	D mm	TYPE OF PIPE	Q FULL l/s	Q Capacity l/s	ACTUAL DEPTH,dm	ACTUAL VELOCITY m/s	M.H. INVERT DROP
EGLINTON AVENUE	EXT-1	55A				0.45	0.45		11		4.41	0.13		1.35			1.00	250	PVC	59.5	59.5			
PROPOSED DEVELOPMENT	**SITE**	**55A**	**1.10**	**1139**	**121**	**3.05**	**3.05**	**0.63**	**1139**	**121**	**3.76**	**11.91**	**0.34**	**0.79**	**0.63**	**13.66**	**2.00**	**250**	**PVC**	**84.1**	**70.4**			
EGLINTON AVENUE	55A	54A				0.13	3.63		1150	121	3.76	12.01	**0.34**	2.53	0.63	**15.51**	1.00	250	PVC	59.5	44.0			
EGLINTON AVENUE	54A	53A					3.63		1150	121	3.76	12.01	**0.34**	2.53	0.63	**15.51**	1.02	250	PVC	60.1	44.5			
EGLINTON AVENUE	53A	52A					3.63		1150	121	3.76	12.01	**0.34**	2.53	0.63	**15.51**	0.54	250	PVC	43.7	28.2			
4650 EGLINTON (SHANNEX)	SITE	52A		304	86	0.85	0.85		304	86	4.08	3.44	**0.24**	0.22		**3.90**	1.60	250	PVC	75.2	71.3			
EGLINTON AVENUE	52A	51A					4.48		1454	207	3.69	14.90	**0.58**	2.75	0.63	**18.86**	0.47	250	PVC	40.8	21.9			
NATIONAL HOMES	SITE	51A		184		1.86	1.86		184		4.16	2.13	**0.00**	0.48		**2.61**	1.44	250	PVC	71.4	68.8			
EGLINTON AVENUE	51A	50A					6.34		1638	207	3.65	16.61	**0.58**	3.24	0.63	**21.06**	0.60	250	PVC	46.1	25.0			
EGLINTON AVENUE	50A	49A					6.34		1638	207	3.65	16.61	**0.58**	3.24	0.63	**21.06**	0.56	250	PVC	44.5	23.4			
EGLINTON AVENUE	49A	48A				0.13	6.47		1638	207	3.65	16.61	**0.58**	3.63	0.63	**21.45**	0.47	250	PVC	40.8	19.3			
EGLINTON AVENUE	48A	47A					6.47		1638	207	3.65	16.61	**0.58**	3.63	0.63	**21.45**	0.92	250	PVC	57.0	35.6			
WOOD LOT	47A	46A				0.94	7.41		1638	207	3.65	16.61	**0.58**	6.45	0.63	**24.27**	0.50	250	PVC	42.0	17.8			
WOOD LOT	46A	45A				0.63	8.04		1638	207	3.65	16.61	**0.58**	8.34	0.63	**26.16**	0.50	250	PVC	42.0	15.9			
EGLINTON AVENUE	45A	44A				0.23	8.27		1638	207	3.65	16.61	**0.58**	9.03	0.63	**26.85**	0.50	250	PVC	42.0	15.2			
EGLINTON AVENUE	44A	43A				0.15	8.42		1638	207	3.65	16.61	**0.58**	9.48	0.63	**27.30**	0.50	250	PVC	42.0	14.8			
EGLINTON AVENUE	43A	42A				0.13	8.55		1638	207	3.65	16.61	**0.58**	9.87	0.63	**27.69**	0.50	300	PVC	68.4	40.7			
EGLINTON AVENUE	42A	41A				0.15	8.7		1638	207	3.65	16.61	**0.58**	10.32	0.63	**28.14**	0.55	300	PVC	71.7	43.6			
EGLINTON AVENUE	41A	40A				0.21	8.91		1638	207	3.65	16.61	**0.58**	10.95	0.63	**28.77**	0.55	300	PVC	71.7	42.9			
EGLINTON AVENUE	40A	90				0.06	8.97		1638	207	3.65	16.61	**0.58**	11.13	0.63	**28.95**	0.50	300	PVC	68.4	39.4			
FERNBROOK HOMES	SITE	90		240		2.03	2.03		240		4.12	2.75	**0.00**	0.53		**3.27**	0.50	250	PVC	42.0	38.8			
WIDDICOMBE HILL	82	83		497		2.17	2.17		497		3.98	5.49	**0.00**	6.51		**12.00**	0.99	250	VC	59.2	47.2			
WIDDICOMBE HILL	83	84					2.17		497		3.98	5.49	**0.00**	6.51		**12.00**	0.47	250	VC	40.8	28.8			
WIDDICOMBE HILL	84	85					2.17		497		3.98	5.49	**0.00**	6.51		**12.00**	0.64	250	VC	47.6	35.6			
WIDDICOMBE HILL	85	86		490		1.21	3.38		987		3.80	10.43	**0.00**	10.14		**20.57**	0.48	250	VC	41.2	20.6			
WIDDICOMBE HILL	86	87					3.38		987		3.80	10.43	**0.00**	10.14		**20.57**	0.49	300	VC	67.7	47.1			
WIDDICOMBE HILL	87	88		175		3.5	6.88		1162		3.76	12.13	**0.00**	20.64		**32.77**	1.07	300	VC	100.0	67.3			
WIDDICOMBE HILL	88	89		491		1.81	8.69		1653		3.65	16.75	**0.00**	26.07		**42.82**	0.58	300	VC	73.6	30.8			
WIDDICOMBE HILL	89	90					8.69		1653		3.65	16.75	**0.00**	26.07		**42.82**	0.47	375	VC	120.2	77.4			
EASEMENT	90	91		50		1.00	20.69		3581	207	3.38	33.58	**0.58**	46.29	0.63	**81.07**	0.31	375	PVC	97.6	16.5			
EASEMENT	91	92		735		1.50	22.19		4316	207	3.30	39.61	**0.58**	50.79	0.63	**91.60**	0.51	375	PVC	125.2	33.6			
EASEMENT	92	93					22.19		4316	207	3.30	39.61	**0.58**	50.79	0.63	**91.60**	0.37	375	PVC	106.6	15.1			
EASEMENT	93	94					22.19		4316	207	3.30	39.61	**0.58**	50.79	0.63	**91.60**	0.74	375	PVC	150.8	59.2			
EASEMENT	94	95					22.19		4316	207	3.30	39.61	**0.58**	50.79	0.63	**91.60**	0.33	375	PVC	101.4	9.8			
EASEMENT	95	168					22.19		4316	207	3.30	39.61	**0.58**	50.79	0.63	**91.60**	0.47	375	PVC	120.2	28.6			
MARTIN GROVE	167	168		1714		30.20	30.20		1714		3.64	17.32	**0.00**	90.60		**107.92**	0.27	450	CONC	148.1	40.2			
EGLINTON	168	169		585		14.90	67.29		6615	207	3.13	57.52	**0.58**	168.80	0.63	**227.52**	0.78	450	CONC	251.8	24.3			
EGLINTON	169	170					67.29		6615	207	3.13	57.52	**0.58**	168.80	0.63	**227.52**	0.76	450	CONC	248.5	21.0			
EGLINTON	170	171					67.29		6615	207	3.13	57.52	**0.58**	168.80	0.63	**227.52**	0.89	450	CONC	269.0	41.4			
EGLINTON	171	172					67.29		6615	207	3.13	57.52	**0.58**	168.80	0.63	**227.52**	0.82	450	CONC	258.2	30.7			
EGLINTON	172	173					67.29		6615	207	3.13	57.52	**0.58**	168.80	0.63	**227.52**	1.10	450	CONC	299.0	71.5			
EGLINTON	173	174					67.29		6615	207	3.13	57.52	**0.58**	168.80	0.63	**227.52**	1.06	450	CONC	293.5	66.0			
EGLINTON	174	175					67.29		6615	207	3.13	57.52	**0.58**	168.80	0.63	**227.52**	0.47	450	CONC	195.5	-32.1			
EGLINTON	175	999 (Trunk)					67.29		6615	207	3.13	57.52	**0.58**	168.80	0.63	**227.52**	0.50	450	CONC	201.6	-25.9			

CITY OF TORONTO
EXTREME WET WEATHER CONDITIONS
SANITARY HGL ANALYSIS

CONSULTANT:

WSP CANADA GROUP LIMITED

*** DESIGN FLOWS AS PER CITY OF TORONTO**

DESIGN CRITERIA FOR SEWERS AND WATERMAINS

DATE: 2020-10-08

DESIGNED BY: MM

DRAINAGE AREA PLAN NO.:

Manning's n= 0.013

CHECKED BY: AJM

	FROM MH	TO MH	US INVERT (m)	DS INVERT (m)	US OBVERT (m)	DS OBVERT (m)	GROUND ELEV. @ US MH (m)	LENGTH (m)	SLOPE (%)	DIAMETER (mm)	PIPE CAPACITY (L/s)	PEAK FLOW (L/s)	HGL SLOPE (%)	US HGL (m)	DS HGL (m)	SURCHARGE ABOVE OBV @ US MH (m)	DISTANCE BELOW SURFACE @ US MH (m)
EGLINTON AVENUE	EXT-1	55A	158.97	158.42	159.22	158.67	161.61	55.0	1.00	250	59.5	0.0	0.000	158.67	158.67	-0.55	2.94
PROPOSED DEVELOPMENT	SITE	55A	158.82	158.42	159.07	158.67	162.32	20.0	2.00	250	84.1	13.7	0.053	158.68	158.67	-0.39	3.64
EGLINTON AVENUE	55A	54A	158.39	157.74	158.64	157.99	161.81	65.0	1.00	250	59.5	15.5	0.068	158.03	157.99	-0.61	3.78
EGLINTON AVENUE	54A	53A	157.71	156.96	157.96	157.21	162.23	73.0	1.02	250	60.1	15.5	0.068	157.26	157.21	-0.70	4.97
EGLINTON AVENUE	53A	52A	156.93	156.51	157.18	156.76	162.23	78.0	0.54	250	43.7	15.5	0.068	156.81	156.76	-0.37	5.42
4650 EGLINTON (SHANNEX)	SITE	52A	156.91	156.51	157.33	156.76	162.21	20.0	1.60	250	75.2	3.9	0.004	156.76	156.76	-0.57	5.45
EGLINTON AVENUE	52A	51A	156.49	156.02	156.74	156.27	161.67	99.6	0.47	250	40.8	18.9	0.101	156.37	156.27	-0.37	5.30
NATIONAL HOMES	SITE	51A	156.42	156.02	156.67	156.27	161.96	20.0	1.44	250	71.4	2.6	0.002	156.27	156.27	-0.40	5.69
EGLINTON AVENUE	51A	50A	155.99	155.39	156.24	155.64	161.34	100.7	0.60	250	46.1	21.1	0.125	155.77	155.64	-0.47	5.57
EGLINTON AVENUE	50A	49A	155.34	154.80	155.59	155.05	160.85	96.8	0.56	250	44.5	21.1	0.125	155.17	155.05	-0.42	5.68
EGLINTON AVENUE	49A	48A	154.77	154.56	155.02	154.81	160.06	44.4	0.47	250	40.8	21.4	0.130	154.87	154.81	-0.15	5.19
EGLINTON AVENUE	48A	47A	154.55	154.45	154.80	154.70	159.97	10.6	0.92	250	57.0	21.4	0.130	154.71	154.70	-0.09	5.26
WOOD LOT	47A	46A	154.44	153.99	154.69	154.24	159.73	96.1	0.50	250	42.0	24.3	0.167	154.40	154.24	-0.29	5.33
WOOD LOT	46A	45A	153.97	153.43	154.22	153.68	159.21	90.0	0.50	250	42.0	26.2	0.193	153.85	153.68	-0.37	5.36
EGLINTON AVENUE	45A	44A	153.41	153.18	153.66	153.43	158.85	46.5	0.50	250	42.0	26.8	0.204	153.52	153.43	-0.14	5.33
EGLINTON AVENUE	44A	43A	153.16	152.63	153.41	152.88	158.54	107.0	0.50	250	42.0	27.3	0.211	153.11	152.88	-0.30	5.43
EGLINTON AVENUE	43A	42A	152.61	152.10	152.91	152.40	158.42	102.9	0.50	300	68.4	27.7	0.082	152.48	152.40	-0.43	5.94
EGLINTON AVENUE	42A	41A	152.08	151.48	152.38	151.78	157.79	110.0	0.55	300	71.7	28.1	0.085	151.87	151.78	-0.51	5.92
EGLINTON AVENUE	41A	40A	151.46	151.21	151.76	151.51	157.46	46.3	0.55	300	71.7	28.8	0.088	151.55	151.51	-0.21	5.91
EGLINTON AVENUE	40A	90	151.19	151.11	151.49	151.41	156.22	16.4	0.50	300	68.4	28.9	0.090	151.42	151.41	-0.07	4.80
FERNBROOK HOMES	SITE	90	151.28	151.11	151.53	151.36	155.38	20.0	0.50	250	42.0	3.3	0.003	151.36	151.36	-0.17	4.02
WIDDICOMBE HILL	82	83	154.79	154.19	155.04	154.44	157.66	61.0	0.99	250	59.2	12.0	0.041	154.46	154.44	-0.58	3.20
WIDDICOMBE HILL	83	84	154.15	153.79	154.40	154.04	157.29	76.2	0.47	250	40.8	12.0	0.041	154.08	154.04	-0.33	3.21
WIDDICOMBE HILL	84	85	153.75	153.29	154.00	153.54	156.94	72.6	0.64	250	47.6	12.0	0.041	153.57	153.54	-0.43	3.38
WIDDICOMBE HILL	85	86	153.23	152.86	153.48	153.11	156.58	76.2	0.48	250	41.2	20.6	0.120	153.21	153.11	-0.28	3.38
WIDDICOMBE HILL	86	87	152.85	152.41	153.15	152.71	156.22	91.5	0.49	300	67.7	20.6	0.045	152.75	152.71	-0.40	3.47
WIDDICOMBE HILL	87	88	152.40	151.75	152.70	152.05	155.86	61.9	1.07	300	100.0	32.8	0.115	152.12	152.05	-0.59	3.74
WIDDICOMBE HILL	88	89	151.74	151.31	152.04	151.61	155.50	74.7	0.58	300	73.6	42.8	0.196	151.75	151.61	-0.28	3.74
WIDDICOMBE HILL	89	90	151.27	151.08	151.64	151.46	155.43	65.9	0.47	375	120.2	42.8	0.060	151.49	151.46	-0.15	3.94
EASEMENT	90	91	150.99	150.65	151.37	151.03	155.29	72.3	0.31	375	97.6	81.1	0.214	151.18	151.03	-0.18	4.11

SANITARY HGL ANALYSIS

CONSULTANT:

WSP CANADA GROUP LIMITED

* DESIGN FLOWS AS PER CITY OF TORONTO

DESIGN CRITERIA FOR SEWERS AND WATERMAINS

DRAINAGE AREA PLAN NO.:

Manning's n= 0.013

DATE: 2020-10-08

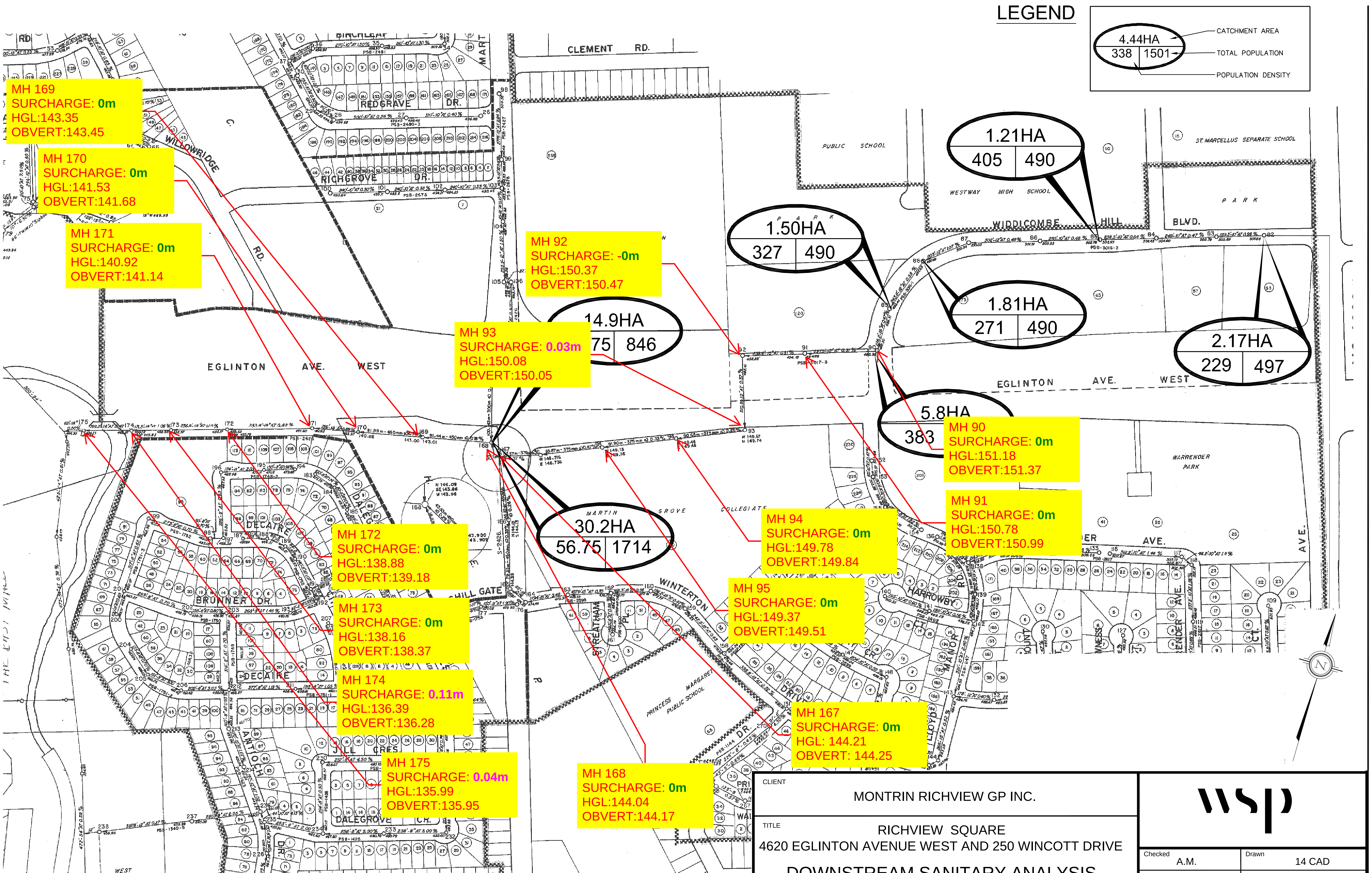
DESIGNED BY: MM

CHECKED BY: AJM

	FROM MH	TO MH	US INVERT (m)	DS INVERT (m)	US OBVERT (m)	DS OBVERT (m)	GROUND ELEV. @ US MH (m)	LENGTH (m)	SLOPE (%)	DIAMETER (mm)	PIPE CAPACITY (L/s)	PEAK FLOW (L/s)	HGL SLOPE (%)	US HGL (m)	DS HGL (m)	SURCHARGE ABOVE OBV @ US MH (m)	DISTANCE BELOW SURFACE @ US MH (m)
EASEMENT	91	92	150.62	150.21	150.99	150.59	153.74	71.3	0.51	375	125.2	91.6	0.273	150.78	150.59	-0.21	2.96
EASEMENT	92	93	150.09	149.74	150.47	150.12	153.22	94.5	0.37	375	106.6	91.6	0.273	150.37	150.12	-0.09	2.84
EASEMENT	93	94	149.67	149.46	150.05	149.84	152.80	90.7	0.74	375	150.8	91.6	0.273	150.08	149.84	0.04	2.71
EASEMENT	94	95	149.46	149.16	149.84	149.54	152.59	91.9	0.33	375	101.4	91.6	0.273	149.79	149.54	-0.05	2.80
EASEMENT	95	168	149.13	148.82	149.51	149.20	152.26	65.9	0.47	375	120.2	91.6	0.273	149.37	149.20	-0.13	2.88
MARTIN GROVE	167	168	143.80	143.72	144.25	144.17	147.00	25.0	0.27	450	148.1	107.9	0.143	144.21	144.17	-0.04	2.79
EGLINTON	168	169	143.72	143.01	144.17	143.46	146.92	91.4	0.78	450	251.8	227.5	0.637	144.04	143.46	-0.13	2.88
EGLINTON	169	170	143.00	142.38	143.45	142.83	146.20	82.0	0.76	450	248.5	227.5	0.637	143.35	142.83	-0.10	2.85
EGLINTON	170	171	141.23	140.70	141.68	141.15	144.43	59.5	0.89	450	269.0	227.5	0.637	141.53	141.15	-0.15	2.90
EGLINTON	171	172	140.69	139.78	141.14	140.23	143.89	107.6	0.82	450	258.2	227.5	0.637	140.92	140.23	-0.22	2.97
EGLINTON	172	173	138.73	137.94	139.18	138.39	141.93	78.0	1.10	450	299.0	227.5	0.637	138.88	138.39	-0.30	3.05
EGLINTON	173	174	137.92	137.37	138.37	137.82	141.12	52.4	1.06	450	293.5	227.5	0.637	138.16	137.82	-0.22	2.97
EGLINTON	174	175	135.83	135.55	136.28	136.00	139.03	61.0	0.47	450	195.5	227.5	0.637	136.39	136.00	0.11	2.64
EGLINTON	175	999 (Trunk)	135.50	135.42	135.95	135.87	138.70	18.9	0.50	450	201.6	227.5	0.637	135.99	135.87	0.04	2.71

NOTES:

(1) For areas where no existing ground elevations are available, ground elevation is conservatively assumed to be minimum cover of 2.75m above the US obvert



CLIENT

MONTRIN RICHVIEW GP INC.

TITLE

RICHVIEW SQUARE
4620 EGLINTON AVENUE WEST AND 250 WINCOTT DRIVE

DOWNSTREAM SANITARY ANALYSIS

wsp

Checked	A.M.	Drawn	14 CAD
Date	SEPT. 2019	Proj. No.	15M-00048-03
Scale	NTS	Figure No.	2.2

APPENDIX

E SANITARY FLOW CALCULATIONS

SANITARY FLOW GENERATION

Project: **250 Wincott Drive**
Job No.: **10-15074**

Proposed Sanitary Flows

Unit Type	Unit Count/ GFA (m^2)	Occupancy Rate (ppl/100m2)	Equivalent Population	Per Capita Flow (L/cap/day)	Average Daily Flow (L/s)	Peaking Factor	Peak Flow (L/s)
1 Bedroom	278	1.4	389				
2 Bedroom	208	2.1	437				
3 Bedroom	101	3.1	313				
Sub-total Residential	587		1139	240	3.16	3.76	11.91
Commercial GFA Prop	11038	1.1	121	250	0.35	1.00	0.35
Groundwater Discharge	---	---	---	---	0.63	---	0.63
TOTAL			**1261**		**4.15**		**12.89**

Notes:
1. Occupancy rates, per capita flows and peaking factor are as per the City of Toronto Sewer and Watermain Design Manual.
2. Infiltration flows are assumed to be insignificant and are already accounted for in the existing sewer.
3. Unit Counts and Floor Areas are per drawing A100 by CORE Architects dated October 9, 2020.