MATTAMY (MILTON WEST) LTD.

FRAMGARD NORTH AND SOUTH BLOCKS

FUNCTIONAL SERVICING REPORT

JANUARY 19, 2024

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PROJECT NO.: 231-00962-00
DATE: JANUARY 19, 2024

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1 INTRODUCTION

1.1 INTRODUCTION

WSP Canada Inc. (WSP) has been retained by Mattamy (Milton West) Ltd. to prepare a Functional Servicing Report in support of the Zoning By-law Amendment Application for the proposed development of Framgard North and South Blocks located at the intersection of Regional Road 25 and Etheridge Avenue in the Town of Milton. This report provides the conceptual framework for water distribution, sanitary sewage and storm drainage for the proposed development blocks. A Stormwater Management Report outlining the proposed quality and quantity controls for stormwater within these development blocks has been prepared by WSP under separate cover.

The Site will be serviced by proposed local municipal sewers and watermains within the adjacent municipal and regional right-of-way. Service connections will be constructed and extended into the proposed Site. Coordination with the building and mechanical consultants will be required to determine the service connections to the building during detailed design.

In addition, WSP used the latest architectural plan prepared by Core Architects Inc. dated January 15, 2024, topographic survey for the Framgard North Block, dated April 23, 2018, and topographical survey for the Framgard South Block, dated February 5, 2018 and December 4, 2023, all prepared by Rady-Pentek & Edward Surveying Ltd.

The following information was used to evaluate the servicing options for the Site:

- As-Built Submission Drawings for Mattamy Framgard Phase 1, by DSEL – David Schaeffer Engineering Ltd. dated April 2014;
- As-Constructed Submission Drawings for Mattamy Framgard Phase 3, by DSEL – David Schaeffer Engineering Ltd. dated July 2017;
- Issued for Construction Drawings for West Country Milton Properties Ltd. Phase 1, by TMIG – The Municipal Infrastructure Group dated September 2016;
- Water and Wastewater Functional Servicing Report for the Framgard Development by DSEL – David Schaeffer Engineering Ltd. dated September 2014;
- Boyne Survey Block 2 Final Subwatershed Impact Study by MTE Consultants Inc. dated August 25, 2016; and,
- Preliminary Water Balance Assessment under separate cover prepared by McClymont and Rak, dated July 2023,
- Preliminary Hydrogeological Assessment under separate cover by MCR Engineers Inc. dated January 15, 2024.

1.2 SITE DESCRIPTION

The Site is comprised of two development blocks, namely the North Block and the South Block. The north and south development blocks are located at the southwest and northwest corner of Etheridge Avenue and Regional Road 25 (Ontario Street) in the Town of Milton, respectively. The nearest major intersection is Britannia Road and Regional Road 25.

The North Block is a 2.4 ha parcel of undeveloped land bounded by Regional Road 25 to the east, Etheridge Avenue to the south, tributary SWS-2-A of the Natural Heritage System (NHS) to the west and tributary SWS-2-A-1 to the north. A stormwater management block is located to the north of tributary SWS-2-A-1; part of the Gulfbeck Development Subdivision to the west. Thus, the North Block also includes a 0.60 ha existing stormwater pond dedication area. In the centre of the North, there is a 0.36 ha holdout land consisting of a single-family home fronting Regional Road 25. The South Block is a 2.4 ha vacant greenfield parcel bounded by Regional Road 25 to the east, Britannia Road to the south, tributary SWS-2-A of the Natural Heritage System (NHS) to the west and Etheridge Avenue to the north.

Both blocks fall within the Phase III West Tertiary Plan of the Boyne Survey Secondary Plan Area. There is an existing watercourse (drainage course); tributary SWS-2-A, that borders the west property limits of both blocks. The blocks are located within the Subwatershed Impact Study (SIS) – Block 2 Boundary of the Sixteen Mile Creek Watershed, which is under the jurisdiction of the Halton Region Conservation Authority (HRCA).

1.3 PROPOSED DEVELOPMENT

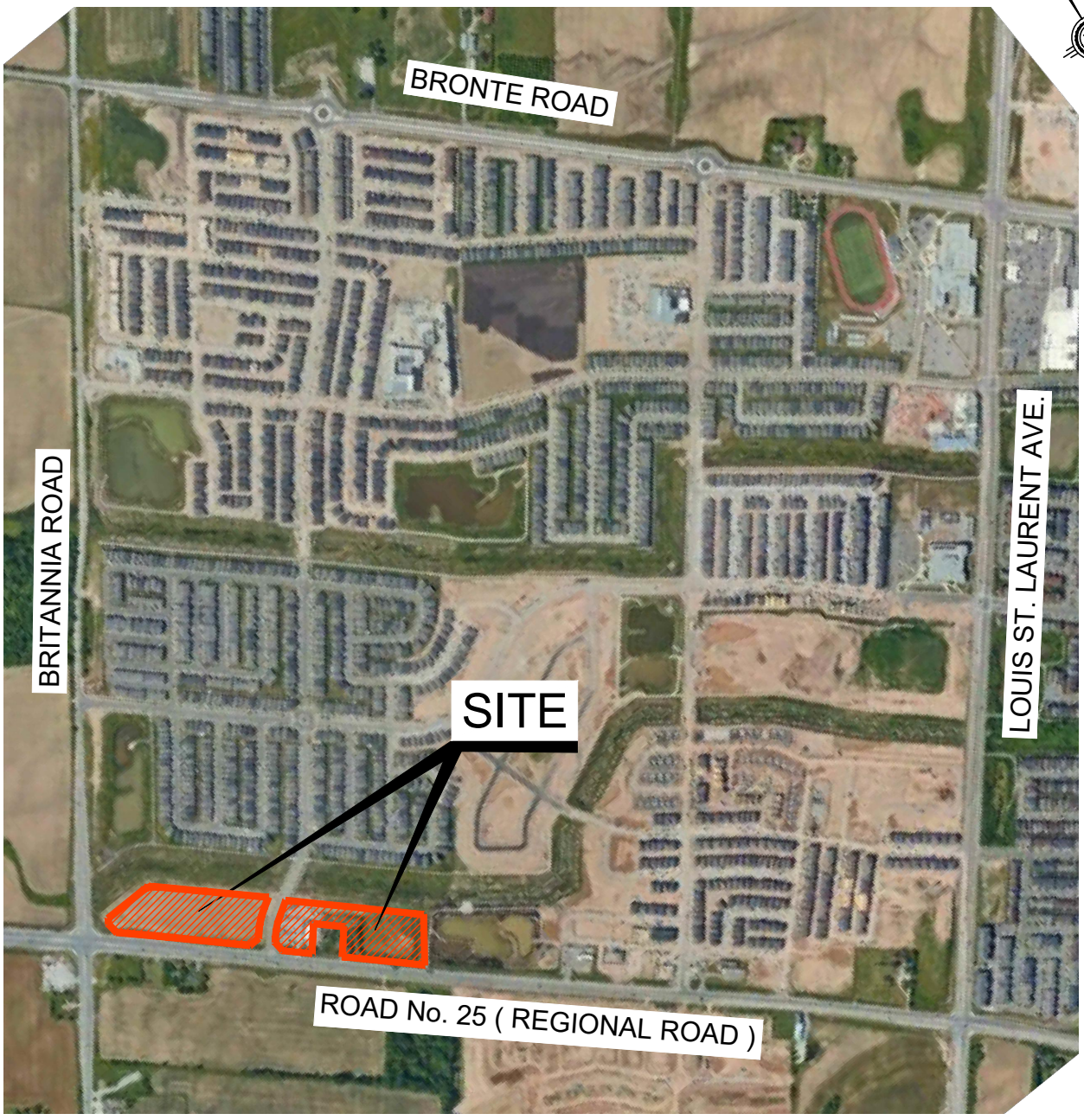
The proposed development will be built in seven phases, with one phase for each building. The existing site area of the North Block is 2.4 ha, however, the lands adjacent to Regional Road 25 will be dedicated to the Region for future road widening purposes, resulting in a proposed site area of 2.35 ha. The North Block consists of three (3) proposed buildings; Buildings 5, 6 and 7. Building 5 is located adjacent to Etheridge Avenue and will contain fifteen (15) floors of residential units along with 490.3 m^2 of retail space at ground level. Buildings 6 and 7 are located north of the holdout, fronting Regional Road 25 and will contain twelve (12) and fourteen (14) floors of residential units respectively. Site access for Building 5 is provided via a driveway entrance off Etheridge Avenue while site access for Buildings 6 and 7 is provided by a driveway entrance off Regional Road 25. Parking for the buildings within the North Block will be provided by an at-grade parking lot and a parking garage with two (2) levels of underground parking covering the majority of the North Block.

Under the ultimate condition, the holdout property will be developed to consist of a 12-level residential building and 2- level underground parking. Whether the holdout property is owned by Mattamy or sold to developers, the holdout property will remain self-contained and have its own servicing connections.

The existing and proposed site area of the South Block is 2.4 ha. The proposed development consists of four (4) buildings, Buildings 1-4. Building 4 is located at the intersection of Regional Road 25 and Britannia Road and will contain thirteen (13) floors of residential units. Buildings 2 and 3 are located north of Building 4 and will contain twelve (12) and ten (10) levels of residential units respectively.

Building 1 will front Etheridge Avenue and will consist of fifteen (15) floors and 437.3 m^2 of ground floor retail space. At-grade parking is provided and an underground parking garage, consisting of two (2) levels will cover the majority of the South Block. Access to the Site will be provided by two driveway entrances: one from Regional Road 25 and another from Etheridge Avenue.

Please refer to **Figure 1** for the Location Map, **Figure 2** for the Pre-Development Plan and **Figure 3** for an illustration of the Proposed Development Plan.



CLIENT

MATTAMY (MILTON WEST) LIMITED

TITLE

FRAMGARD NORTH AND SOUTH BLOCKS

LOCATION PLAN

Checked W.C.	Drawn 10/12 Cad
Date JAN 2024	Proj. No. 231-00962-00
Scale NTS	Figure No. 1

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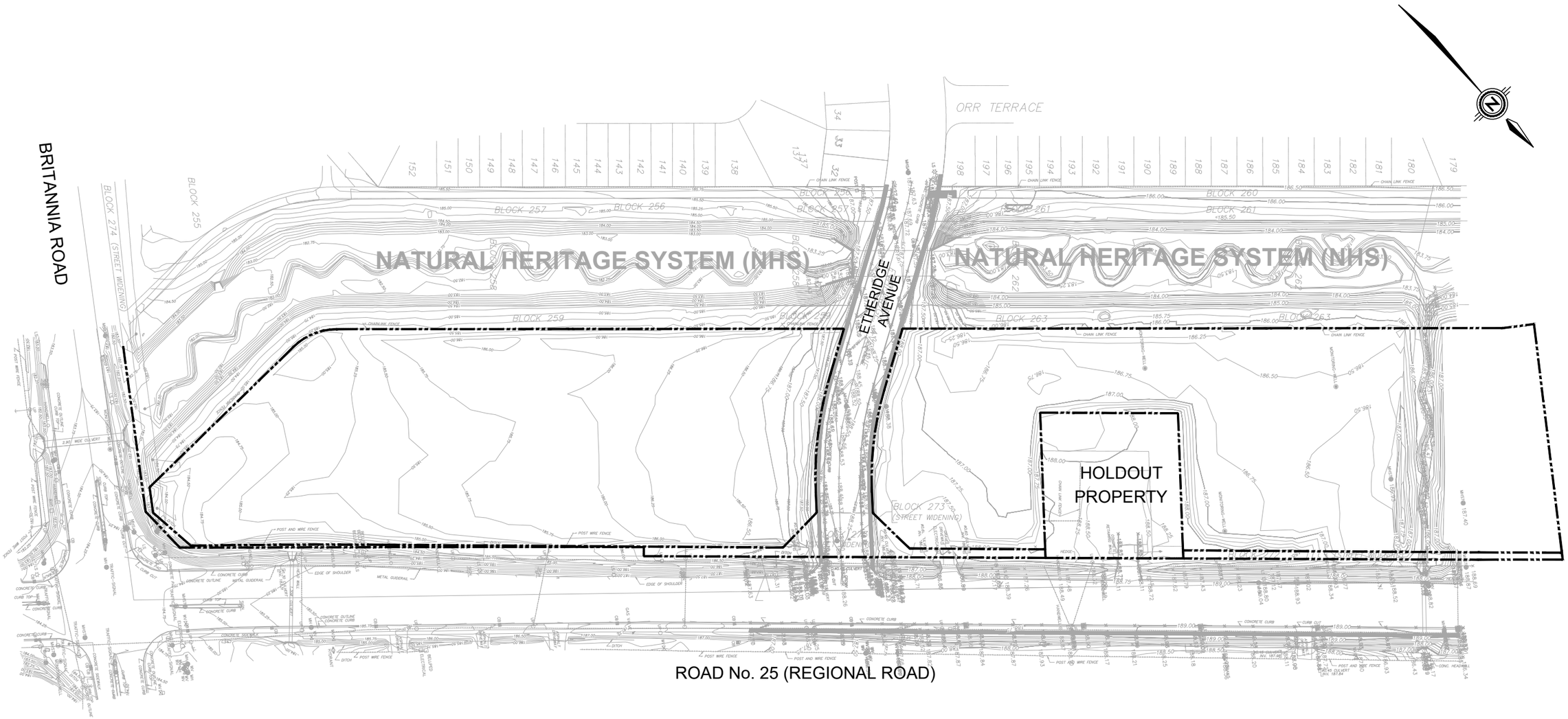

LEGEND

LIMIT OF PROPERTY

CLIENT: MATTAMY (MILTON WEST) LIMITED

TITLE: FRAMGARD NORTH AND SOUTH BLOCKS

PRE- DEVELOPMENT PLAN

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Date: JAN 2024	Proj. No.: 231-00962
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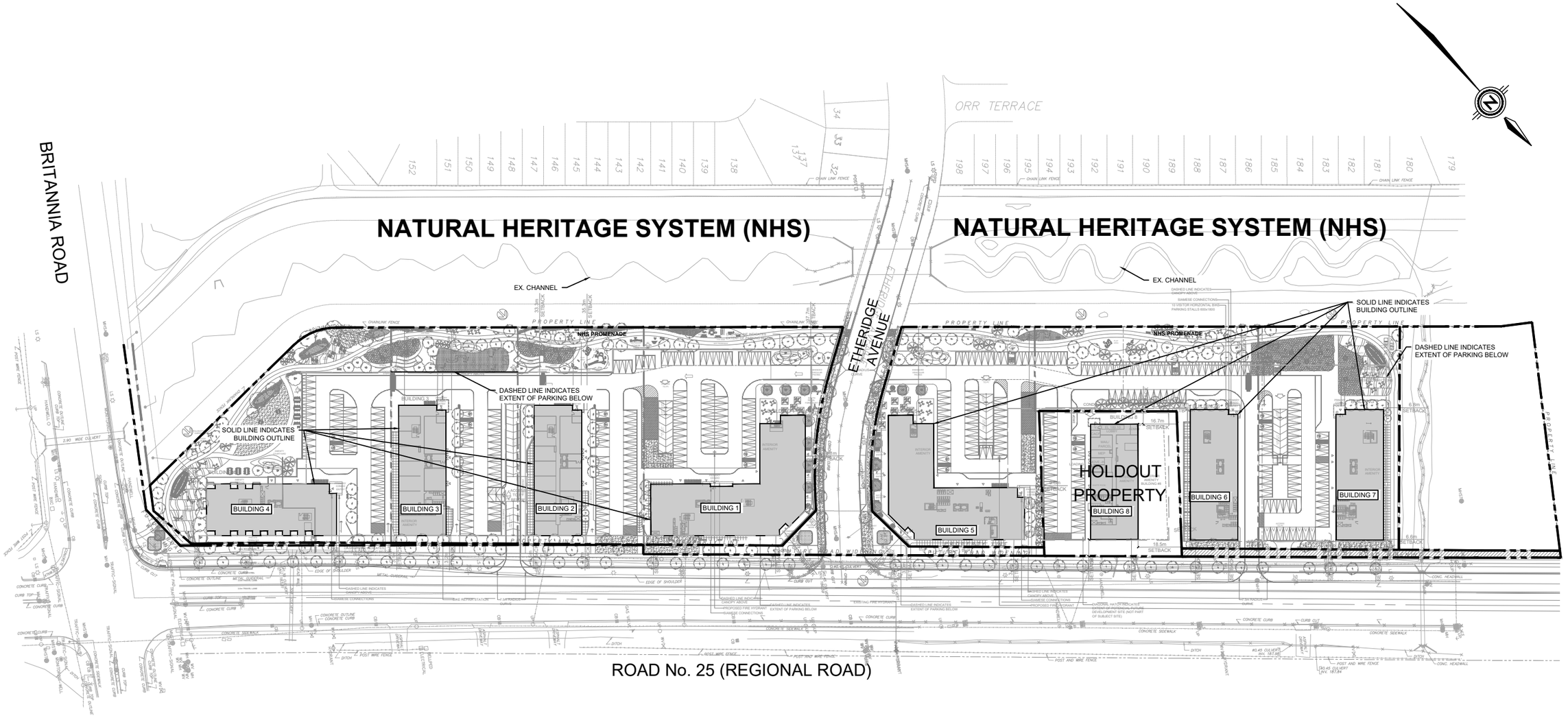

LEGEND

LIMIT OF PROPERTY

CLIENT	MATTAMY (MILTON WEST) LIMITED
TITLE	FRAMGARD NORTH AND SOUTH BLOCKS
	PROPOSED DEVELOPMENT PLAN

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Date JAN 2024	Proj. No. 231-00962
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2 WATER SUPPLY

2.1 EXISTING CONDITIONS

Based on the As-Built Submission Drawings for Mattamy Framgard Phase 1, there is an existing 750mm diameter watermain on Britannia Road, 900mm diameter watermain on the west side of Regional Road 25 adjacent to the site, a 300mm diameter watermain on the east side of Regional Road 25 and a 300mm diameter watermain on Etheridge Avenue. Refer to **Figure 4** for the location of existing watermains and appurtenances in the area.

2.2 DOMESTIC WATER DEMANDS

The following table shows the water demand calculations prepared for the interim and ultimate buildout of the proposed development using the Halton Region Water and Wastewater Linear Design Manual dated October 2019:

Table 1: Domestic Water Demand – Interim Condition (without the holdout property been developed)

Site	**North Block**	**South Block**	**Total**
Water Demand Rate	275 L/cap/day		
Equivalent Population Density	Light Commercial Areas: 90 persons/ha Residential (Apartments over 6 stories high): 285 persons/ha Residential: 1.583 persons/unit		
Commercial Gross Floor Area (GFA)	437.3 m^2	482.7 m^2	920.0 m^2
Building Gross Floor Area (GFA)	44,523.2 m^2	56,079.9 m^2	100,603.1 m^2
Land Area (ha)	2.39	1.75	4.14
Equivalent Population	1,006 ppl	1,256 ppl	2,262 ppl
Average Residential Demand	3.20 L/s	4.00 L/s	7.20 L/s
Average Light Commercial Demand	0.1 L/s	0.1 L/s	0.2 L/s
Max. Day Peaking Factor	2.25		
Max. Day Demand	7.24 L/s	9.02 L/s	16.26 L/s

Max. Hourly Peaking Factor	4.00		
Peak Hour Demand	12.86 L/s	16.04L/s	28.90 L/s

Table 2: Domestic Water Demand – Ultimate Condition

Site	**North Block**	**South Block**	**Holdout Property (Building 8)**	**Total**
Water Demand Rate	275 L/cap/day			
Equivalent Population Density	Light Commercial Areas: 90 persons/ha Residential (Apartments over 6 stories high): 285 persons/ha Residential: 1.583 persons/unit			
Commercial Gross Floor Area (GFA)	437.3m^2	482.7 m^2	0 m^2	920.0 m^2
Building Gross Floor Area (GFA)	44,523.2 m^2	56,079.9 m^2	10,614.0 m^2	111,217.0 m^2
Land Area (ha)	2.39	1.75	0.36	4.50
Equivalent Population	1,006 ppl	1,256 ppl	228 ppl	2,490 ppl
Average Residential Demand	3.20 L/s	4.00 L/s	0.73 L/s	7.93 L/s
Average Light Commercial Demand	0.1 L/s	0.1 L/s	0.0 L/s	0.2 L/s
Max. Day Peaking Factor	2.25			
Max. Day Demand	7.24 L/s	9.02 L/s	1.63 L/s	17.89 L/s
Max. Hourly Peaking Factor	4			
Peak Hour Demand	12.86 L/s	16.04 L/s	2.90 L/s	**31.81 L/s**

Since the Site is presently vacant, the average water demand under existing conditions is 0.00 L/s. The total estimated average day water demand for the proposed development during the ultimate condition is 7.95 L/s and the maximum daily and peak hour demand is 17.89 L/s and 31.81 L/s respectively. Therefore, the average day water demand will increase due to the proposed development.

A detailed fire flow calculation has been prepared using the recommendations of the Water Supply for Public Fire Protection, 2020 – Fire Underwriters Survey (FUS). The fire flow demand is governed by Building 1 within the South Block and Building 5 within the North Block and was calculated to be 13,000 L/min (equal to 217 L/s or 3,430 US GPM). The fire flow calculations have been prepared with the assumption that the buildings will be classified as ordinary construction and will be equipped without automatic sprinkler system. For detailed calculations, refer to **Appendix A**.

To estimate the water demand of the development, two (2) scenarios were compared: peak hour demand, and fire flow plus maximum day demand. The fire flow plus maximum day demand scenario generates a demand of 234.88 L/s which is greater than the peak hour demand of 31.81 L/s.

A Water Usage and Sanitary Discharge Report has been prepared by WSP per Region requirements and is included in **Appendix B**. It should be noted that the Water Usage and Sanitary Report references the Ontario Building Code (OBC) Table 8.2.1.3 for calculation of the water usage and sanitary discharge from the buildings as it is expected to be a more accurate assessment of the servicing requirements according to the proposed residential use. As such, there is a discrepancy between the results determined using the Region of Halton design criteria and OBC design criteria.

2.3 PROPOSED WATER SERVICES

New domestic and fire water services to the proposed development will be provided in compliance with the Region's standards. New water service connections will be provided for the proposed development in the form of 'h-style' combined domestic and fire services from the existing 300 mm watermain on Etheridge Avenue and existing 300 mm watermain on the east side of Regional Road 25. The fire service on the 'h-style' connection will be 200 mm diameter and the domestic service will be 150 mm diameter.

The connections are proposed to include valve and boxes at the property line. In addition, a water meter, backflow preventer and a double detector check valve will be installed in the mechanical room within the building in accordance with the Region standards. The mechanical room will need to be accessible by the Region and provide remote read-out locations for the Region's use in reading the meters. The on-site watermains within the proposed building will be designed by the site mechanical consultant. Refer to **Figure 4** for proposed water servicing layout.

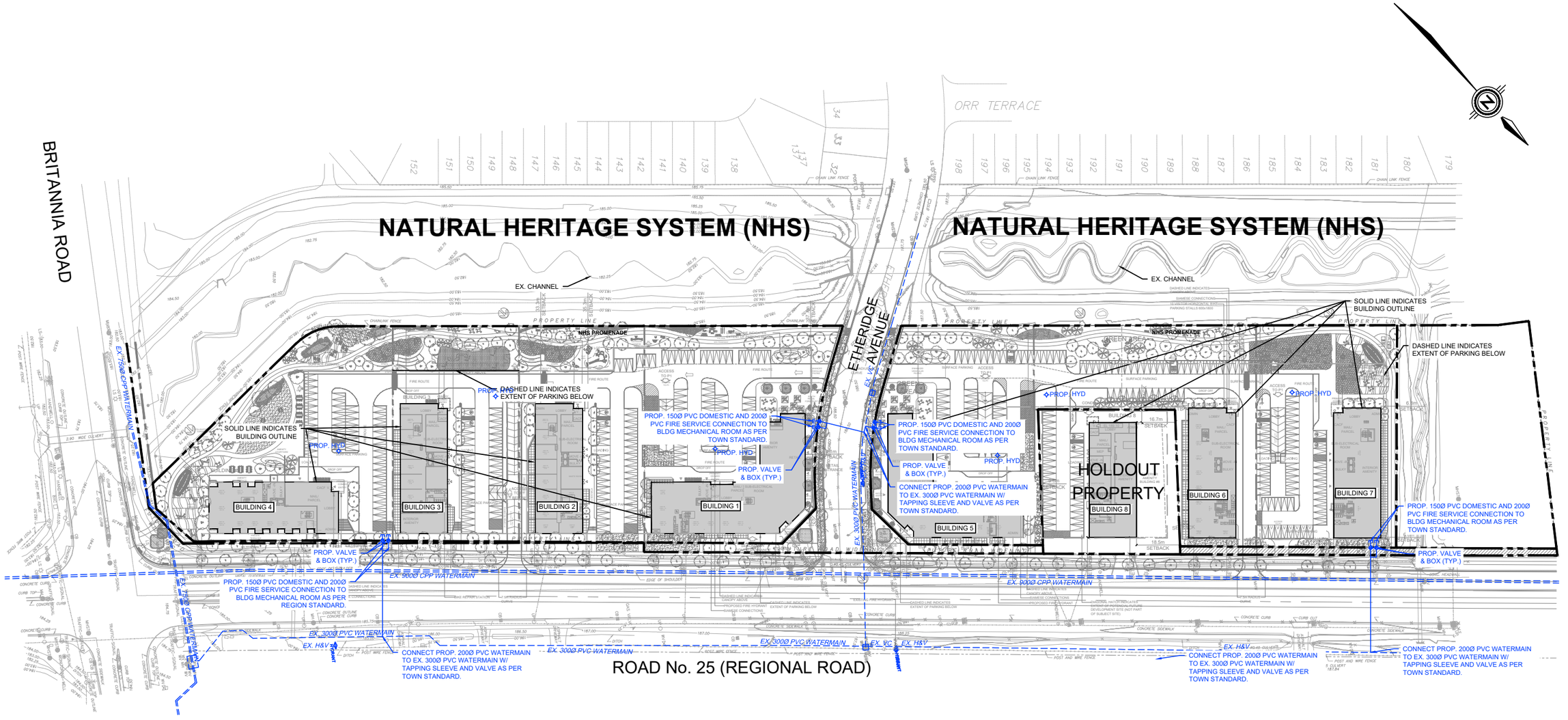
2.4 HYDRANT FLOW TEST

There are five (5) hydrants located adjacent to the Site, on Etheridge Avenue and Regional Road 25. Pressure and flow tests were conducted by WSP Canada Inc. on April 6, 2023 to confirm that the existing system has adequate flow available. The results indicate that at 20 psi, a fire flow of 11,600 GPM (732 L/s) is available from the hydrant on Regional Road 25, which is connected to the existing 300 mm watermain on Regional Road 25. The available fire flow exceeds the proposed demand and WSP therefore concludes that the watermain will provide sufficient fire flow for the proposed development. The results of the hydrant flow test can be found in **Appendix A**.

2.5 WATERMAIN APPURTENANCES

Building code requirements stipulate that each building be serviced by a fire hydrant which is located no more than 45 m away from the building's Siamese connections. There are five (5) existing fire hydrants adjacent to the Site on Etheridge Avenue and Regional Road 25. The location of the siamese connections will be coordinated with the mechanical consultant during detailed design and will comply with the code. Additional hydrant locations are to be proposed internal to the Site. Proposed hydrant locations will be confirmed by the mechanical consultant.

There are proposed underground parking structures below the entire footprint of the proposed buildings, for both blocks. The on-site watermains within the proposed parking structure will be designed by the mechanical consultant. In accordance with Region standards, a water meter and a backflow preventer valve will be installed on the domestic line within the mechanical room. A detector assembly will be installed on the fire service line in compliance with the OBC. The meter room will need to be accessible to the Region and provide remote read-out locations for the Region's use in reading the meters. Details of the room's layout will be provided by the mechanical engineer.



LEGEND

- LIMIT OF PROPERTY
- EX. WATERMAIN
- PROP. W/M CONNECTION
- PROP. VALVE & CHAMBER
- PROP. VALVE & BOX
- EX. HYDRANT
- PROP. HYDRANT

CLIENT: MATTAMY (MILTON WEST) LIMITED

TITLE: FRAMGARD NORTH AND SOUTH BLOCKS

WATER SERVICING PLAN

Checked: W.C.	Drawn: 10/12 Cad
Date: JAN 2024	Proj. No.: 231-00962
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3 SANITARY DRAINAGE

3.1 EXISTING SEWER SYSTEM

According to the As-Built Submission Drawings for Mattamy Framgard Phase 1, there is a 200mm diameter sanitary sewer on Etheridge Avenue which flows east and connects to the 1350mm sanitary trunk sewer on Regional Road 25. From there, the 1350mm diameter sanitary trunk sewer on Regional Road 25 flows southwest towards the intersection of Regional Road 25 and Britannia Road. On Britannia Road, there is a 675mm diameter sanitary sewer which flows northeast and also connects to the 1350mm sanitary trunk sewer on Regional Road 25. Additionally, on Britannia Road, there is a 1200mm diameter sanitary trunk sewer that flows east past the Regional Road 25 and Britannia Road intersection. Refer to **Figure 5** for the location of existing sanitary servicing in the area.

3.2 PRE- AND POST-DEVELOPMENT FLOWS

As mentioned in the previous sections, the Site is currently vacant and therefore no sewage flow is expected from the Site. In order to calculate the peak sanitary flows to the sanitary sewer system under ultimate condition, the following design criteria, based on the Halton Region Water and Wastewater Linear Design Manual dated October 2019:

Table 3: Sanitary Flows – Interim Condition (without the holdout property been developed)

Site	North Block	South Block	Total
Average Sanitary Flow Rate	Residential: 275 L/cap/day Commercial: 0.02475 L/ha/day		
Equivalent Population Density	Light Commercial Areas: 90 persons/ha Residential (Apartments over 6 stories high): 285 persons/ha Residential: 1.583 persons/unit		
Commercial Gross Floor Area (GFA)	437.3 m^2	482.7 m^2	920.0 m^2
Building Gross Floor Area (GFA)	44,523.2 m^2	56,079.9 m^2	100,603.1 m^2
Land Area (ha)	2.39	1.75	4.14
Equivalent Population	1,006 ppl	1,256 ppl	2,262 ppl
Average Residential Sanitary Flow	3.20 L/s	4.0 L/s	7.20 L/s

Average Light Commercial Sanitary Flow	0.1 L/s	0.1 L/s	0.2 L/s
Peak Sanitary Flow	13.04 L/s	16.31 L/s	29.35 L/s
Infiltration	0.50 L/s	0.68 L/s	1.18 L/s
Total Sanitary Flow (L/s)	13.56 L/s	17.01 L/s	30.56 L/s
Net Increase in Flow to Sanitary Sewer	**30.56 L/s**		

Table 4: Sanitary Flows – Ultimate Condition

Site	North Block	South Block	Holdout Property (Building 8)	Total
Average Sanitary Flow Rate	Residential: 275 L/cap/day Commercial: 0.02475 L/ha/day			
Equivalent Population Density	Light Commercial Areas: 90 persons/ha Residential (Apartments over 6 stories high): 285 persons/ha Residential: 1.583 persons/unit			
Commercial Gross Floor Area (GFA)	437.3 m^2	482.7 m^2	0 m^2	927.5m^2
Building Gross Floor Area (GFA)	44,523.2 m^2	56,079.9 m^2	10,614.0 m^2	100,597.1m^2
Land Area (ha)	2.39	1.75	0.36	4.5
Equivalent Population	1,006 ppl	1,256 ppl	228 ppl	2,490 ppl
Average Residential Sanitary Flow	3.20 L/s	4.0 L/s	0.73 L/s	7.93 L/s
Average Light Commercial Sanitary Flow	0.1 L/s	0.1 L/s	0.0 L/s	0.2 L/s
Peak Sanitary Flow	13.04 L/s	16.31 L/s	2.99 L/s	32.37 L/s
Infiltration	0.50 L/s	0.68 L/s	0.11 L/s	1.29 L/s

Total Sanitary Flow (L/s)	13.56 L/s	17.01 L/s	3.10 L/s	33.66 L/s
Net Increase in Flow to Sanitary Sewer	**33.66 L/s**			

The ultimate development will consist of two (2) mixed-use and six (6) residential buildings. Theoretical, estimated peak sanitary flows for the pre- and post-development are 0 L/s and 33.66 L/s respectively. Consequently, the approximate increase in peak sanitary design flow resulting from this development is 33.66 L/s. An estimate of the post-development sanitary sewage flows has been calculated and is included in **Appendix C**.

As per the Water and Wastewater Functional Servicing Report for the Framgard Development prepared by DSEL, dated September 2014, sanitary flows from the North Block were considered in the design of the 200 mm sanitary sewer on Etheridge Avenue, which flows east to the existing 1350 mm sanitary trunk within Regional Road 25. A capacity analysis was completed for the existing 200 mm sanitary sewers on Etheridge Avenue, and it was determined that the existing sanitary sewers have sufficient capacity to accommodate the flows from Buildings 1 and 5 of the proposed development. Refer to **Appendix D** for sanitary design sheets and drainage areas for the Framgard Subdivision. All flows from the proposed development are ultimately conveyed to the existing 1350 mm diameter trunk sewer on Regional Road 25. It is expected that the existing trunk sewer has available capacity to allow for the increase in flow of 33.66 L/s, to be confirmed by the Region.

A Water Usage and Sanitary Discharge Report has been prepared by WSP per Region requirements and is included in **Appendix B**. It should be noted that the Water Usage and Sanitary Report references the Ontario Building Code (OBC) Table 8.2.1.3 for calculation of the water usage and sanitary discharge from the buildings as it is expected to be a more accurate assessment of the servicing requirements according to the proposed residential use. As such, there is a discrepancy between the results determined using the Region of Halton design criteria and OBC design criteria.

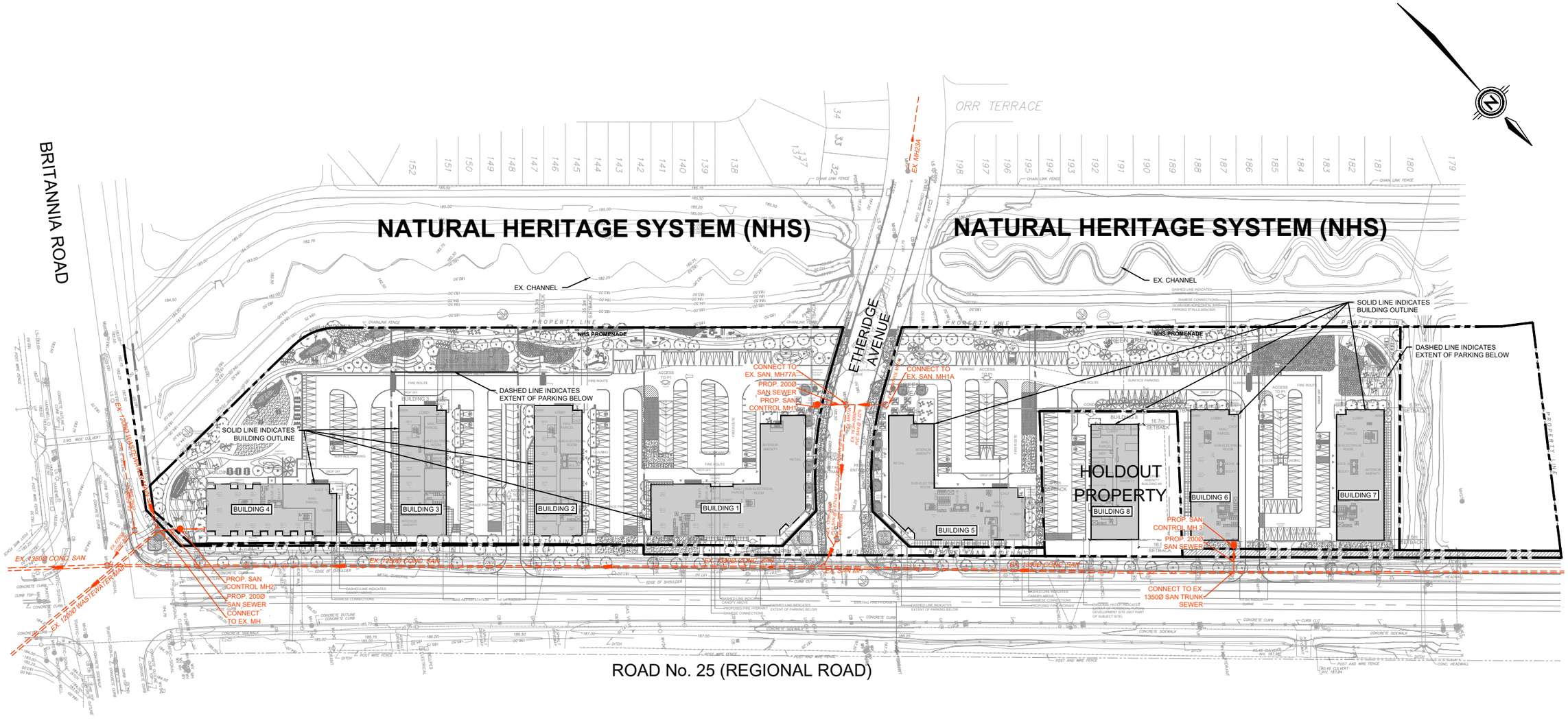
3.3 PROPOSED SANITARY SERVICES

Under ultimate condition, it is proposed to service the proposed development with four (5) 200 mm diameter PVC sanitary services. The sanitary service for Building 5 will connect to existing control MH1A which connects to the existing 200 mm diameter sanitary sewer along Etheridge Avenue, 2 legs upstream of the 1350 mm diameter trunk sanitary sewer on Regional Road 25. Similarly, a sanitary service for Building 1 will connect to the existing 200 mm diameter sanitary sewer along Etheridge Avenue.

Buildings 2, 3 and 4 and Buil of the South Block will connect to the existing 1350 mm diameter sanitary trunk sewer along Regional Road 25. A separate sanitary service connection will be provided directly to the 1350 mm diameter sanitary trunk sewer for Buildings 5 and 6 of the North Block.

Proposed sanitary sewers within the proposed buildings will be designed by the site mechanical consultant to meet Ontario Plumbing Code Standards. For each sanitary service, a sanitary control

manhole will be provided on private property close to the property line and will be accessible by the Region. The proposed sanitary servicing plan is shown on **Figure 5.**



LEGEND

- LIMIT OF PROPERTY
- EX. SANITARY SEWER
- PROP. SAN CONNECTION

CLIENT
MATTAMY (MILTON WEST) LIMITED

TITLE
FRAMGARD NORTH AND SOUTH BLOCKS

SANITARY SERVICING PLAN

Checked W.C.	Drawn 10/12 Cad
Date JAN 2024	Proj. No. 231-00962
Scale 1:1750	Figure No. 5

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PLOTDATE: Jan 19, 2024 - 1:11pm, CALZ077846

4 STORMWATER MANAGEMENT

4.1 STORMWATER MANAGEMENT REPORT

A Stormwater Management Report for this development has been prepared under a separate cover. The Report is in compliance with the Town of Milton Design Criteria for Stormwater Management and Storm Drainage and identifies the Stormwater quantity and quality controls under which this Site will operate.

4.2 EXISTING CONDITIONS

As per the As-Built Submission Drawings for Mattamy Framgard Phase 1, there are existing 300 mm – 450 mm storm sewers along the east side of Regional Road 25 that drains south. On the west side of Regional Road 25, adjacent to the site, there is an existing roadside ditch, draining south. On Britannia Road, there is an existing 300 mm storm sewer, draining across the existing culvert on Britannia Road.

There is an existing storm control manhole and storm outfall to Stormwater Management Pond I (SWM Pond I) within the North Block which were installed in the design and construction of the Gulfbeck Subdivision. Refer to **Appendix E** for the Stormwater Management Pond drawing by TMIG.

Under existing conditions, the North Block generally drains by sheet flow to the tributary SWS-2-A channel to the west, to the SWS-2A-1 tributary to the north and to the existing roadside ditch within the Regional Road 25 right-of-way to the east. The South Block generally drains to the SWS-2- A tributary to the west and the existing roadside ditch within the Regional Road 25 right-of-way to the east. Whether draining to SWS-2- A or the Regional Road 25 right-of-way, all runoff eventually discharges to the tributary SWS-2- A channel.

4.3 MINOR STORM SYSTEM

The proposed development incorporates hardscape and landscaped areas which will result in a higher average imperviousness in comparison to the existing condition. The onsite storm drainage system will be designed to capture and convey the runoff from site up to the 100-year storm event and the regional storm event, whichever is greater. This will ensure runoff from the controlled areas of the Site will be attenuated to the allowable release rates to either SWM Pond I located on the north side of the development, or the SWS-2-A channel located along the west side of the development.

For the North Block, flows were considered in the design of the SWM Pond I as part of the Gulfbeck Subdivision to provide necessary erosion control, water quality treatment and water quantity attenuation before it is ultimately discharge into the SWS-2-A channel. Runoff from Phases 5-7 and as well as the holdout property will be collected and directed to a storm sewer system built under the NHS Promenade, and eventually be discharged to the existing 825 mm outlet pipe connecting the site to the SWM Pond. For this storm sewer system in the North Block, as per Town requirements, a control manhole is proposed to be placed immediately inside the property line and a storm service

connection will direct flows to the existing manhole which connecting to the Pond. Outflow from the storm sewer system will be controlled to match the design release.

For the South Block, storm flows will be captured by proposed area drains at surface parking lot above the underground garages and the NHS Promenade and directed to two (2) stormwater cisterns and controlled to an allowable release rate. Cistern A will be constructed on the P1 and P2 level of Building 1 during Phase 1, to provide storage to both Phases 1 and 2. Similarly, Cistern B will be constructed on the P1 and P2 level of Building 3 during Phase 3, to provide storage to both Phases 3 and 4. Both cisterns will have a footprint of 280 m^2, a height of 5.5 m, and will be equipped with a pump system. For all cisterns in the South Block, as per Town requirements, a control manhole is proposed to be placed immediately inside the property line and a storm service connection will direct flows to tributary SWS-2-A of the NHS. The control manhole and cistern will be accessible at grade outside on top of the underground parking structure. An emergency overflow will be provided at the top of the cistern with discharge to grade to ensure flows will not back up into the building during major storm events.

Quality control for at-grade areas of the South Block will be provided by two (2) Jellyfish Units located upstream of the cisterns. Runoff from the roof areas is considered to be clean and will bypass the filter units. Infiltration trenches are proposed downstream of the two cisterns address the water balance criteria for the South Block. Similarly, a single infiltration trench is provided for the North Block to address its water balance criteria. Quality control for North Block will be provided by an OGS Unit located upstream of the infiltration trench. Considering the existing SWM Pond has been designed to provide water quality treatments for its receiving flows, an OGS unit is proposed to provide pre-treatment prior to entering the proposed infiltration trench to improve the effectiveness of the facility.

Storm flows from both Blocks will be collected and directed to the proposed infiltration trench located within NHS Promenade along the western limits of the Site, to satisfy the water balance requirements set out in the Preliminary Water Balance Assessment prepared by McClymont and Rak, dated July 2023. The infiltration trenches will consist of 0.60 m clearstone with a perforated pipe running on top of the clearstone. The new on-site storm sewers, which will be located within the parking garage, will be designed by a mechanical engineer to meet the standards of the Ontario Building Code.

A summary of the proposed stormwater management facilities including the stormwater storage cisterns and infiltration trench can be found in the following tables:

Table 5: Summary of Stormwater Management Facilities – South Block

	Cistern Footprint (m^2)	Cistern Height (m)	Infiltration Trench Footprint (m^2)	Infiltration Trench Height (m)	Maximum Pump Rate (L/s)
Phase 1	280	5.5	150	0.6	83.3
Phase 3	280	5.5	150	0.6	84.8

Table 6: Summary of Stormwater Management Facilities - North Block

	Infiltration Trench Footprint (m^2)	Infiltration Trench Height (m)
Phase 7	300	0.6

The proposed Storm Servicing is shown in **Figure 6**. For detailed storage and storm flow calculations, refer to the separate Stormwater Management Report prepared by WSP.

4.4 MAJOR STORM SYSTEM

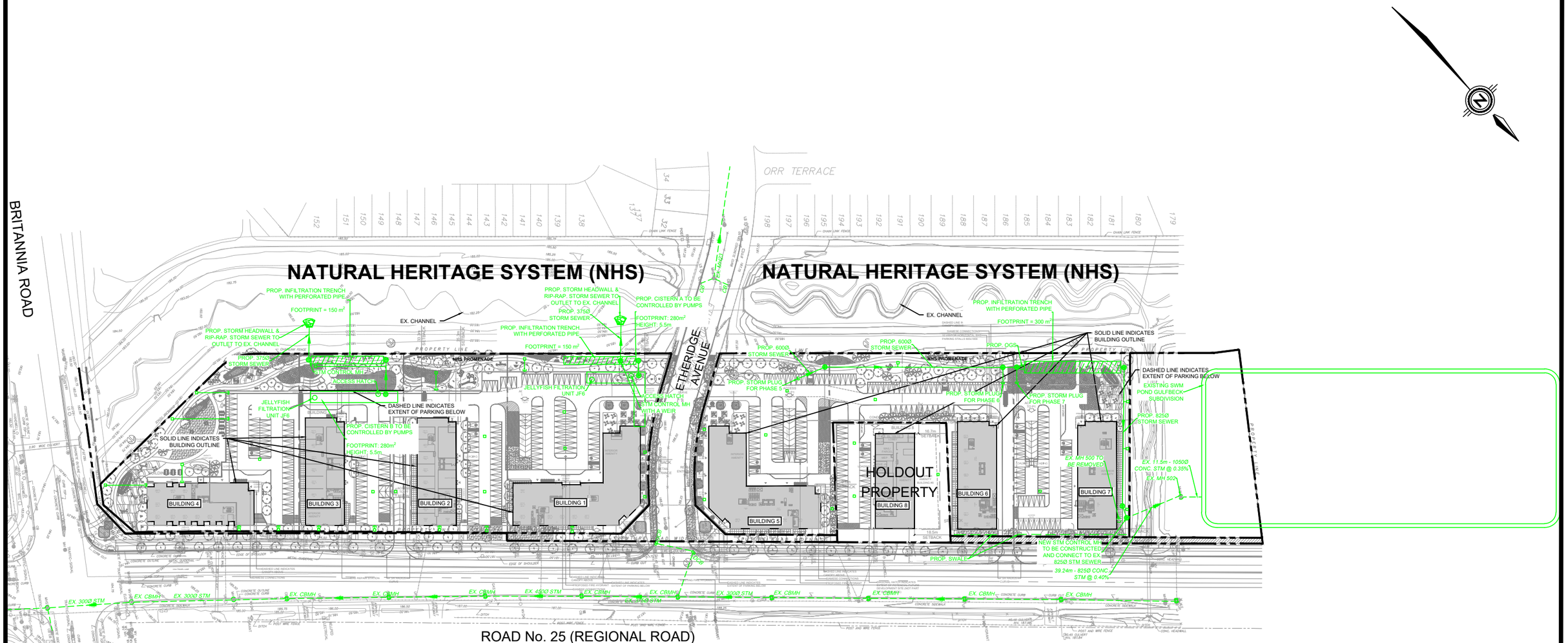
The major storm system is a conveyance system for flows in excess of the minor system flows. The proposed storm sewer system is designed to capture and convey the 100-year storm event or the Regional storm event, whichever is greater to the respective SWM facilities for both blocks.

Stormwater runoff for South Block from events up to and including the 100-year storm event will be contained on-site and directed to the NHS. Stormwater runoff for North Block from events up to and including the 100-year storm event will be contained on-site and directed to the existing SWM Pond I.

For storms greater than the 100-year storm event or Regional storm event, flows will be directed to the Regional Road 25, the SWS-2-A channel and the SWS-2A-1 channel. Please refer to preliminary grading drawings SG1 and SG2 in **Appendix F** for further details.

4.5 GROUNDWATER DISCHARGE

A preliminary hydrogeological investigation prepared by McClymont & Rak Engineers Inc., dated January 15, 2024, indicates the quality of the groundwater is within the acceptable Town of Milton standards for discharge to the storm sewer with no additional treatment and as such, groundwater flows can be discharged to the SWM Pond and the NHS. This flow has been accounted in the stormwater management strategy. Please refer to the Preliminary Geohydrology Assessment prepared and the Stormwater Management Report for further details.



LEGEND

- LIMIT OF PROPERTY
- EX. STORM SEWER
- PROP. STORM CONNECTION
- PROP. AREA DRAIN/CATCHBASIN
- PROP. STM MANHOLE

CLIENT
MATTAMY (MILTON WEST) LIMITED

TITLE
FRAMGARD NORTH AND SOUTH BLOCKS

STORM SERVICING PLAN

wsp

Checked W.C.	Drawn 10/12 Cad
Date JAN 2024	Proj. No. 231-00962
Scale 1:2000	Figure No. 6

FILENAME: C:\Users\calz077846\DC\ACCDocs\WSP Canada projects (AMER)\LDO\Files\231-00962-00 Framgard North and South Blocks\Mun\Figures\231-00962_Fig_2-6.dwg
PLOTDATE: Jan 19, 2024 - 2:01pm, CALZ077846

5 GRADING

5.1 SITE GRADING

Under existing conditions, the South Block of the proposed development generally slopes from north to south, with elevations of approximately 188.00 masl near Etheridge to 183.50 masl near Britannia Road. The North Block is generally flat and mostly drains west towards the NHS.

The grading design of the proposed development will direct minor storm drainage (up to and including the 100-year storm event) to the on-site collection points where possible so that this drainage is self-contained. An overland flow route for the major storm drainage will be provided to direct drainage away from proposed and existing structures on-site and surrounding the Site to the proposed stormwater management pond. Site grading will also take into consideration into the following:

- Existing grades along all boundaries are to be matched so that there will be no impact to adjacent properties;
- Existing drainage patterns on adjacent properties shall not be altered and stormwater runoff from the subject development shall not be directed to drain onto adjacent properties. Minimize disruption to existing municipal rights-of-way containing existing utilities and services;
- Promote drainage into the minor storm sewer system;
- There may be runoff from rainstorms that exceeds the capacity of the Town's storm service connections. Therefore, the owner shall be responsible to provide flood protection or a safe overland flow route for the proposed development without causing damage to the proposed and adjacent public and private properties;
- Building floor level will be set to avoid building / property damage during all design storms; and,
- Entrance ramps into loading areas will be protected from major storm flows.

Refer to preliminary grading drawings SG1, SG2, and CS1 in **Appendix F** for further detail.

During construction, Erosion and Sediment Control measures will be provided to prevent sediment runoff to the municipal storm system. Fencing and hoarding will be erected surrounding the perimeter of the Site, and mud mats will be required at Site access points. In addition, municipal catchbasins on the adjacent rights-of-way will be protected with geotextile fabric. Please refer to the Erosion and Sediment Control Plan for more information.

5.2 ROAD GRADING

As discussed in Section 1.3, it is expected that Regional Road 25 will be widened in the future. A portion of the lands adjacent to Regional Road 25 will be dedicated to the Region for future road widening purposes. It is proposed to raise the Site above existing grade to ensure positive drainage after the re-development and urbanization of Regional Road 25. For the proposed development, uncontrolled flows to the roadside ditch have been minimized and will not exceed the existing flow rate.

6 CONCLUSIONS

6.1 WATER

The proposed water servicing for the Site will include new water service connections consisting of 'h-style' combined domestic and fire service from the existing 300 mm diameter watermain on Etheridge Avenue and 300 mm diameter watermain on Regional Road 25. The fire service on the 'h-style' connection will be 200 mm diameter and the domestic service will be 150 mm diameter. A domestic and fire flow calculation for the proposed development have been completed. A Hydrant Flow Test has been conducted and it has been determined that the watermain will provide sufficient fire flow for the proposed development.

6.2 SANITARY

The proposed sanitary servicing for the Buildings 2, 3 and 4 of the South Block and Buildings 6 and 7 of the North Block will connect directly to the proposed sanitary trunk sewer on Regional Road 25. Buildings 1 and 5 will connect to the existing 200 mm diameter sanitary sewer on Etheridge Avenue, which ultimately flows to the trunk sewer on Regional Road 25. The proposed development will result in an increase of sanitary flow of 33.66 L/s when compared to the pre-development conditions. It is expected that the sanitary trunk sewer has available capacity to accommodate the proposed development, to be confirmed with the Region.

6.3 STORM

For the North Block, minor storm drainage will be collected by the site drainage system and directed to the existing SWM Pond I. Major flows will be conveyed by the overland flow route to the NHS along the west boundary of the Site, with the exception of Building 7 which will be directed to the existing Pond to the north.

For the South Block, minor storm drainage will be collected and directed to two cisterns in the underground parking garage, fitted with pump systems to control discharge to the allowable release rate. The cisterns will discharge to tributary SWS-2-A of the NHS via storm service connections. The Site will be graded to direct runoff in major storm events away from the proposed building toward the NHS, with the exception of Building 4 which will be directed to Britannia Road to the east. For details concerning stormwater management, refer to the Stormwater Management Report under a separate cover.

APPENDIX

A WATER DEMAND, FIRE FLOW CALCULATIONS, AND HYDRANT FLOW TEST RESULTS

APPENDIX A
DOMESTIC WATER DEMANDS

Project: Framgard North and South Blocks
Job No.: 231-00962
Date: 2024-01-19

South Block

Building	Unit Type	Land Area (ha)	Total Units	Light Commercial Floor Area (GFA) (ha)	Equivalent Population Density (Persons/ha)	Equivalent Population Density (Persons/unit)	Population by Land Area (ppl)	Population by Units (ppl)	Average Residential Demand Rate L/cap/d	Average Residential Demand (L/s)	Average Light Commerical Demand Rate L/ha/d	Average Light Commerical Demand (L/s)	Total Average Demand (L/s)	Max Daily Peaking Factor	Max Day Demand (L/s)	Peak Hour Peaking Factor	Peak Hour Demand (L/s)
Building 1	Residential Areas (15 stories)	0.69	231	0.04	285	1.583	196	366	275	1.16	24750	0.01	1.18	2.25	2.65	4.00	4.71
Building 2	Residential Areas (12 stories)	0.50	189	0.00	285	1.583	142	300	275	0.95	24750	0.00	0.95	2.25	2.15	4.00	3.82
Building 3	Residential Areas (10 stories)	0.50	155	0.00	285	1.583	143	246	275	0.78	24750	0.00	0.78	2.25	1.76	4.00	3.13
Building 4	Residential Areas (13 stories)	0.70	217	0.00	285	1.583	200	344	275	1.09	24750	0.00	1.09	2.25	2.46	4.00	4.38
Total		2.39	792	0.04			681	**1256**		**4.00**		**0.01**	**4.01**		**9.02**		**16.04**

North Block

Building	Unit Type	Land Area (ha)	Total Units (ppl)	Light Commercial Floor Area (GFA) (ha)	Equivalent Population Density (Persons/ha)	Equivalent Population Density (Persons/unit)	Population by Land Area (ppl)	Population by Units (ppl)	Average Residential Demand Rate L/cap/d	Average Residential Demand (L/s)	Average Light Commerical Demand Rate L/ha/d	Average Light Commerical Demand (L/s)	Total Average Demand (L/s)	Max Daily Peaking Factor	Max Day Demand (L/s)	Peak Hour Peaking Factor	Peak Hour Demand (L/s)
Building 5	Residential Areas (15 stories)	0.63	238	0.05	285	1.583	178	377	275	1.20	24750	0.01	1.21	2.25	2.73	4.00	4.86
Building 6	Residential Areas (12 stories)	0.54	188	0.00	285	1.583	155	298	275	0.95	24750	0.00	0.95	2.25	2.13	4.00	3.79
Building 7	Residential Areas (14 stories)	0.58	209	0.00	285	1.583	165	331	275	1.05	24750	0.00	1.05	2.25	2.37	4.00	4.21
Total		1.75	635	0.05		1.583	499	**1006**		**3.20**		**0.01**	**3.22**		**7.24**		**12.86**

Holdout Property

Building	Unit Type	Land Area (ha)	Total Units (ppl)	Light Commercial Floor Area (GFA) (ha)	Equivalent Population Density (Persons/ha)	Equivalent Population Density (Persons/unit)	Population by Land Area (ppl)	Population by Units (ppl)	Average Residential Demand Rate L/cap/d	Average Residential Demand (L/s)	Average Light Commerical Demand Rate L/ha/d	Average Light Commerical Demand (L/s)	Total Average Demand (L/s)	Max Daily Peaking Factor	Max Day Demand (L/s)	Peak Hour Peaking Factor	Peak Hour Demand (L/s)
Building 8	Residential Areas (11 stories)	0.36	144	0	285	1.583	104	**228**	275	**0.73**	24750	**0.00**	**0.73**	2.25	**1.63**	4.00	**2.90**

Summary (North and South Block)	Average Day Demand (L/s)	Max Day Demand (L/s)	Peak Hour Demand	Land Area (ha)	Total Population
Total	7.20	16.26	28.90	4.14	2262

Summary (All Blocks)	Average Day Demand	Max Day Demand (L/s)	Peak Hour Demand (L/s)	Land Area (ha)	Total Population
Total	7.93	17.89	**31.81**	4.50	2490

Proposed Fire Water Demands **217.00** (3,430 US GPM)

Total Domestic + Fire Water Demand **234.89**

Notes:
1. Site statistics are based on the site plan information provided by Core Architects, dated January 19, 2024.
2. Equivalent population density, average day demand rates and peaking factors are based on the Halton Region "Water and Wastewater Linear Design Manual" Section 2.3 and Section 2.4, Pages 4 and 5.
3. New water service connections are proposed to be provided from the existing 300 mm watermain on Etheridge Avenue and the existing 300 mm watermain on the east side of Regional Road 25, thus Region criteria Section 2.3.2 Table 2-1 Equivalent Population Density and Water Service Demand was used for population calculations.

APPENDIX A

FIRE FLOW CALCULATIONS

Project: **Framgard North and South Blocks (Bldg 1)** => 15 Storeys
Job No.: **231-00962**

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 2020 by Fire Underwriter Survey, p 20.

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

where

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

A. **Determine Type of Construction**
=> Ordinary Construction
Therefore C = 1

B. **Determine Ground Floor Area**
=> Fire-resistive building with vertical openings and exterior vertical communications properly protected
Therefore A = Largest Floor + 25% of 2 immediately adjoining floors
A = 1907.3 + 0.25*(1126 + 1126)
A = 2,470 m2

C. **Determine the Fire Flow**
F = 220 x 1 x √2470
F = 11,000 Lpm

D. **Determine Increase or Decrease for Occupancy**
=> Apartments are considered "Combustible"
Therefore 0% reduction
0% reduction of 11000 Lpm = - Lpm
11000 - 0 = 11,000 Lpm

E. **Determine Decrease for Automatic Sprinkler Protection**
=>No Automatic Sprinkler Protection (Per NFPA 13 Standards)
Therefore 0% reduction
0% reduction of 11000 Lpm = - Lpm

F. **Determine the Total Increase For Exposures**

Face	Distance (m)	Charge
West Side	100	0%
East Side	100	0%
North Side	34	5%
South Side	27	10%
	Total	15% of 11,000 = 1,650 Lpm

G. **Req'd Fire Flow = D - F + G**
F = 12,650 Lpm
F = 13,000 Lpm (2,000 Lpm < F < 45,000 Lpm; OK)
F = 3,430 US GPM
F = 217 LPS

APPENDIX A

FIRE FLOW CALCULATIONS

Project: **Framgard North and South Blocks (Bldg 2)** => 12 Storeys
Job No.: **231-00962**

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 2020 by Fire Underwriter Survey, p 20.

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

where

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

A. **Determine Type of Construction**
=> Ordinary Construction
Therefore C = 1

B. **Determine Ground Floor Area**
=> Fire-resistive building with vertical openings and exterior vertical communications properly protected
Therefore A = Largest Floor + 25% of 2 immediately adjoining floors
A = 1123.8 + 0.25*(1116.7 + 1116.7)
A = 1,682 m2

C. **Determine the Fire Flow**
F = 220 x 1 x √1682
F = 9,000 Lpm

D. **Determine Increase or Decrease for Occupancy**
=> Apartments are considered "Combustible"
Therefore 0% reduction
0% reduction of 9000 Lpm = - Lpm
9000 - 0 = 9,000 Lpm

E. **Determine Decrease for Automatic Sprinkler Protection**
=>No Automatic Sprinkler Protection (Per NFPA 13 Standards)
Therefore 0% reduction
0% reduction of 9000 Lpm = - Lpm

F. **Determine the Total Increase For Exposures**

Face	Distance (m)	Charge
West Side	92	0%
East Side	67	0%
North Side	27	10%
South Side	35	5%
	Total	15% of 9,000 = 1,350 Lpm

G. **Req'd Fire Flow = D - F + G**
F = 10,350 Lpm
F = 10,000 Lpm (2,000 Lpm < F < 45,000 Lpm; OK)
F = 2,639 US GPM
F = 167 LPS

APPENDIX A

FIRE FLOW CALCULATIONS

Project: **Framgard North and South Blocks (Bldg 3)** => 10 Storeys
Job No.: **231-00962**

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 2020 by Fire Underwriter Survey, p 20.

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

where

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

A. **Determine Type of Construction**
=> Ordinary Construction
Therefore C = 1

B. **Determine Ground Floor Area**
=> Fire-resistive building with vertical openings and exterior vertical communications properly protected
Therefore A = Largest Floor + 25% of 2 immediately adjoining floors
A = 1123.8 + 0.25*(1116.7 + 1116.7)
A = 1,682 m2

C. **Determine the Fire Flow**
F = 220 x 1 x √1682
F = 9,000 Lpm

D. **Determine Increase or Decrease for Occupancy**
=> Apartments are considered "Combustible"
Therefore 0% reduction
0% reduction of 9000 Lpm = - Lpm
9000 - 0 = 9,000 Lpm

E. **Determine Decrease for Automatic Sprinkler Protection**
=>No Automatic Sprinkler Protection (Per NFPA 13 Standards)
Therefore 0% reduction
0% reduction of 9000 Lpm = - Lpm

F. **Determine the Total Increase For Exposures**

Face	Distance (m)	Charge
West Side	92	0%
East Side	67	0%
North Side	35	5%
South Side	24	10%
	Total	15% of 9,000 = 1,350 Lpm

G. **Req'd Fire Flow = D - F + G**
F = 10,350 Lpm
F = 10,000 Lpm (2,000 Lpm < F < 45,000 Lpm; OK)
F = 2,639 US GPM
F = 167 LPS

APPENDIX A

FIRE FLOW CALCULATIONS

Project: **Framgard North and South Blocks (Bldg 4)** => 13 Storeys
Job No.: **231-00962**

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 2020 by Fire Underwriter Survey, p 20.

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

where

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

A. **Determine Type of Construction**
=> Ordinary Construction
Therefore C = 1

B. **Determine Ground Floor Area**
=> Fire-resistive building with vertical openings and exterior vertical communications properly protected
Therefore A = Largest Floor + 25% of 2 immediately adjoining floors
A = 1130.7 + 0.25*(1136.7 + 1136.7)
A = 1,699 m2

C. **Determine the Fire Flow**
F = 220 x 1 x √1699
F = 9,000 Lpm

D. **Determine Increase or Decrease for Occupancy**
=> Apartments are considered "Combustible"
Therefore 0% reduction
0% reduction of 9000 Lpm = - Lpm
9000 - 0 = 9,000 Lpm

E. **Determine Decrease for Automatic Sprinkler Protection**
=>No Automatic Sprinkler Protection (Per NFPA 13 Standards)
Therefore 0% reduction
0% reduction of 9000 Lpm = - Lpm

F. **Determine the Total Increase For Exposures**

Face	Distance (m)	Charge
West Side	100	0%
East Side	100	0%
North Side	24	10%
South Side	100	0%
	Total	10%

of 9,000 = 900 Lpm

G. **Req'd Fire Flow = D - F + G**
F = 9,900 Lpm
F = 10,000 Lpm (2,000 Lpm < F < 45,000 Lpm; OK)
F = 2,639 US GPM
F = 167 LPS

APPENDIX A

FIRE FLOW CALCULATIONS

Project: **Framgard North and South Blocks (Bldg 5)** => 15 Storeys
Job No.: **231-00962**

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 2020 by Fire Underwriter Survey, p 20.

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

where

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

A. **Determine Type of Construction**
=> Ordinary Construction
Therefore C = 1

B. **Determine Ground Floor Area**
=> Fire-resistive building with vertical openings and exterior vertical communications properly protected
Therefore A = Largest Floor + 25% of 2 immediately adjoining floors
A = 1766.9 + 0.25*(1250 + 1092.8)
A = 2,353 m2

C. **Determine the Fire Flow**
F = 220 x 1 x √2353
F = 11,000 Lpm

D. **Determine Increase or Decrease for Occupancy**
=> Apartments are considered "Combustible"
Therefore 0% reduction
0% reduction of 11000 Lpm = - Lpm
11000 - 0 = 11,000 Lpm

E. **Determine Decrease for Automatic Sprinkler Protection**
=>No Automatic Sprinkler Protection (Per NFPA 13 Standards)
Therefore 0% reduction
0% reduction of 11000 Lpm = - Lpm

F. **Determine the Total Increase For Exposures**

Face	Distance (m)	Charge
West Side	100	0%
East Side	100	0%
North Side	29	10%
South Side	34	5%
	Total	15% of 11,000 = 1,650 Lpm

G. **Req'd Fire Flow = D - F + G**
F = 12,650 Lpm
F = 13,000 Lpm (2,000 Lpm < F < 45,000 Lpm; OK)
F = 3,430 US GPM
F = 217 LPS

APPENDIX A

FIRE FLOW CALCULATIONS

Project: **Framgard North and South Blocks (Bldg 6)** => 12 Storeys
Job No.: **231-00962**

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 2020 by Fire Underwriter Survey, p 20.

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

where

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

A. **Determine Type of Construction**
=> Ordinary Construction
Therefore C = 1

B. **Determine Ground Floor Area**
=> Fire-resistive building with vertical openings and exterior vertical communications properly protected
Therefore A = Largest Floor + 25% of 2 immediately adjoining floors
A = 1123.6 + 0.25*(1116.7 + 1116.7)
A = 1,682 m2

C. **Determine the Fire Flow**
F = 220 x 1 x √1682
F = 9,000 Lpm

D. **Determine Increase or Decrease for Occupancy**
=> Apartments are considered "Combustible"
Therefore 0% reduction
0% reduction of 9000 Lpm = - Lpm
9000 - 0 = 9,000 Lpm

E. **Determine Decrease for Automatic Sprinkler Protection**
=>No Automatic Sprinkler Protection (Per NFPA 13 Standards)
Therefore 0% reduction
0% reduction of 9000 Lpm = - Lpm

F. **Determine the Total Increase For Exposures**

Face	Distance (m)	Charge
West Side	97	0%
East Side	100	0%
North Side	43	5%
South Side	20	15%
	Total	20% of 9,000 = 1,800 Lpm

G. **Req'd Fire Flow = D - F + G**
F = 10,800 Lpm
F = 11,000 Lpm (2,000 Lpm < F < 45,000 Lpm; OK)
F = 2,902 US GPM
F = 183 LPS

APPENDIX A

FIRE FLOW CALCULATIONS

Project: **Framgard North and South Blocks (Bldg 7)** => 14 Storeys
Job No.: **231-00962**

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 2020 by Fire Underwriter Survey, p 20.

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

where

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

A. **Determine Type of Construction**
=> Ordinary Construction
Therefore C = 1

B. **Determine Ground Floor Area**
=> Fire-resistive building with vertical openings and exterior vertical communications properly protected
Therefore A = Largest Floor + 25% of 2 immediately adjoining floors
A = 1123.6 + 0.25*(1116.7 + 1116.7)
A = 1,682 m2

C. **Determine the Fire Flow**
F = 220 x 1 x √1682
F = 9,000 Lpm

D. **Determine Increase or Decrease for Occupancy**
=> Apartments are considered "Combustible"
Therefore 0% reduction
0% reduction of 9000 Lpm = - Lpm
9000 - 0 = 9,000 Lpm

E. **Determine Decrease for Automatic Sprinkler Protection**
=>No Automatic Sprinkler Protection (Per NFPA 13 Standards)
Therefore 0% reduction
0% reduction of 9000 Lpm = - Lpm

F. **Determine the Total Increase For Exposures**

Face	Distance (m)	Charge				
West Side	97	0%				
East Side	100	0%				
North Side	43	5%				
South Side	100	0%				
	Total	5%	of	9,000	=	450 Lpm

G. **Req'd Fire Flow = D - F + G**
F = 9,450 Lpm
F = 9,000 Lpm (2,000 Lpm < F < 45,000 Lpm; OK)
F = 2,375 US GPM
F = 150 LPS

APPENDIX A

FIRE FLOW CALCULATIONS

Project: **Framgard North and South Blocks (Bldg 8)** => 11 Storeys
Job No.: **231-00962**

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 2020 by Fire Underwriter Survey, p 20.

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

where

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

A. **Determine Type of Construction**
=> Ordinary Construction
Therefore C = 1

B. **Determine Ground Floor Area**
=> Fire-resistive building with vertical openings and exterior vertical communications properly protected
Therefore A = Largest Floor + 25% of 2 immediately adjoining floors
A = 1101.7 + 0.25*(985.7 + 985.7)
A = 1,595 m2

C. **Determine the Fire Flow**
F = 220 x 1 x √1595
F = 9,000 Lpm

D. **Determine Increase or Decrease for Occupancy**
=> Apartments are considered "Combustible"
Therefore 0% reduction
0% reduction of 9000 Lpm = - Lpm
9000 - 0 = 9,000 Lpm

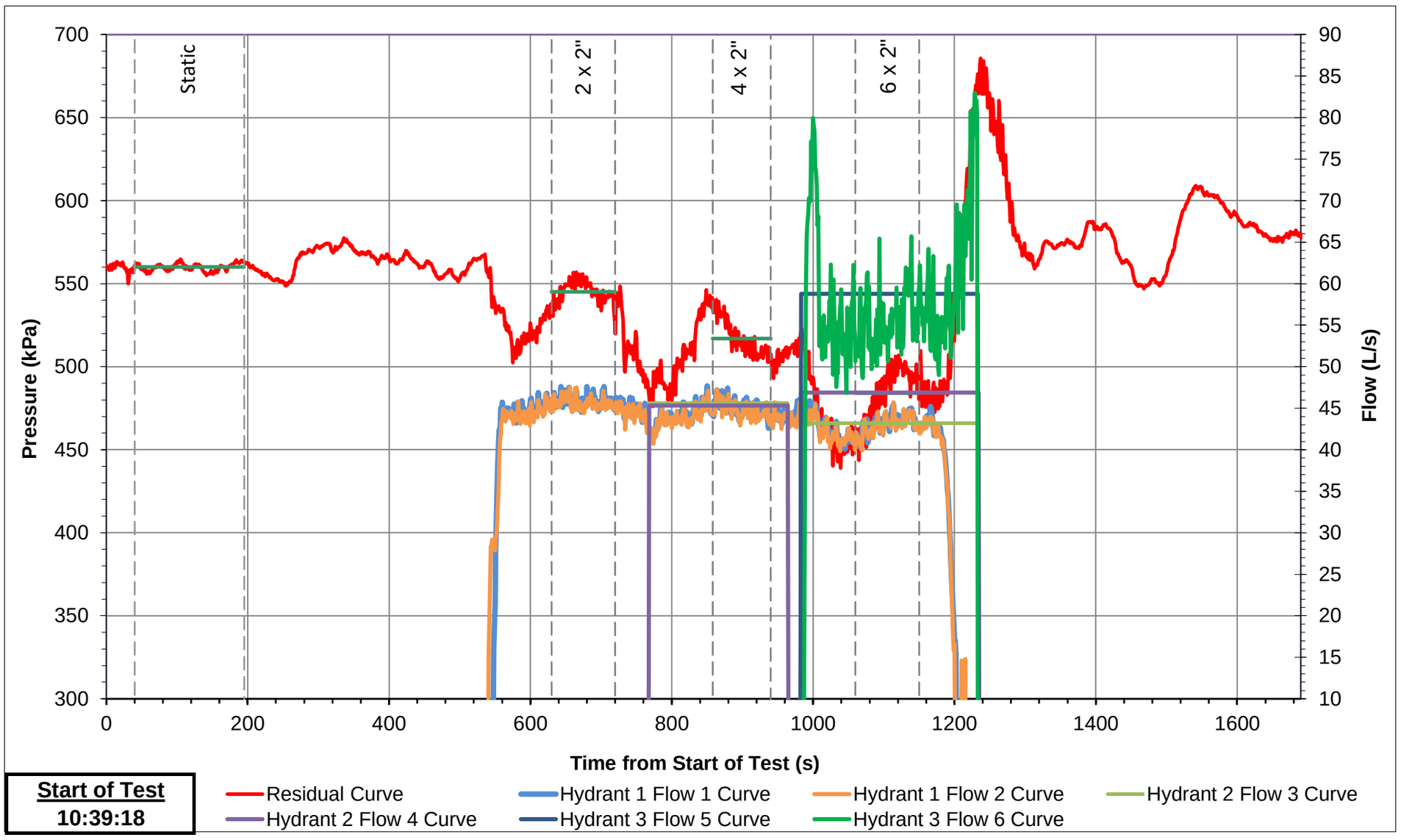
E. **Determine Decrease for Automatic Sprinkler Protection**
=>No Automatic Sprinkler Protection (Per NFPA 13 Standards)
Therefore 0% reduction
0% reduction of 9000 Lpm = - Lpm

F. **Determine the Total Increase For Exposures**

Face	Distance (m)	Charge
West Side	100	0%
East Side	100	0%
North Side	20	15%
South Side	29	10%
	Total	25% of 9,000 = 2,250 Lpm

G. **Req'd Fire Flow = D - F + G**
F = 11,250 Lpm
F = 11,000 Lpm (2,000 Lpm < F < 45,000 Lpm; OK)
F = 2,902 US GPM
F = 183 LPS

6100 Regional Rd 25



Subject Watermain Details

Diameter:	300 mm	**Material:**	PVC
Area:	0.071 m2		

Subject Hydrant & Valve Details

Residual Hydrant:	
Flow Hydrant 1:	
Flow Hydrant 2:	
Flow Hydrant 3:	

TABLE A: TESTED PRESSURES AND FLOWS

Point	Time		Residual 1		Hydrant 1		Hydrant 2		Hydrant 3				Total Flow		Velocity
	Start	Finish	(kPa)	(psi)	(L/s)	(GPM)	(L/s)	(GPM)	(L/s)	(GPM)			(L/s)	(GPM)	(m/s)
Static	40	195	560	81.2	0.0	0	0.0	0	0.0	0			0.0	0	0.0
2 x 2"	630	720	545	79.0	91.6	1452	0.0	0	0.0	0			91.6	1452	1.3
4 x 2"	858	940	517	75.0	89.9	1425	90.9	1441	0.0	0			180.8	2866	2.6
6 x 2"	1060	1150	484	70.2	86.1	1365	90.1	1428	114.3	1812			290.5	4605	4.1

6100 Regional Rd 25

HYDRANT FLOW TEST RESULTS

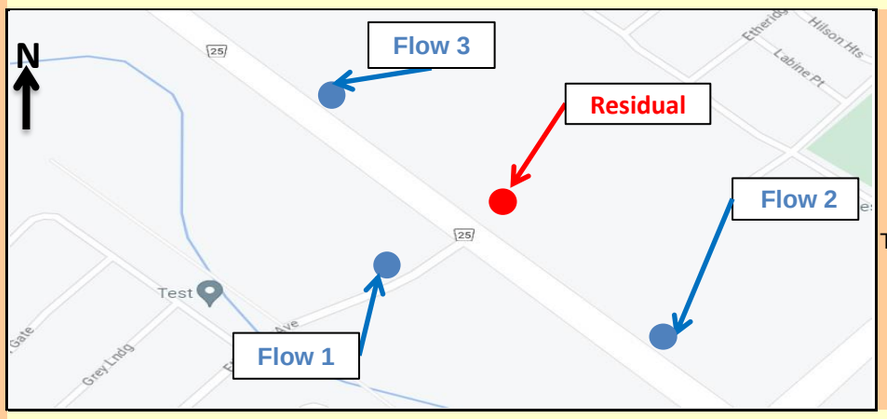
Date: 06-Apr-23 Time: 10:39 (hh/mm)

Municipality: City of Milton

Operator:

Tested By: Sen, Isaac, Steven

Test No: 1



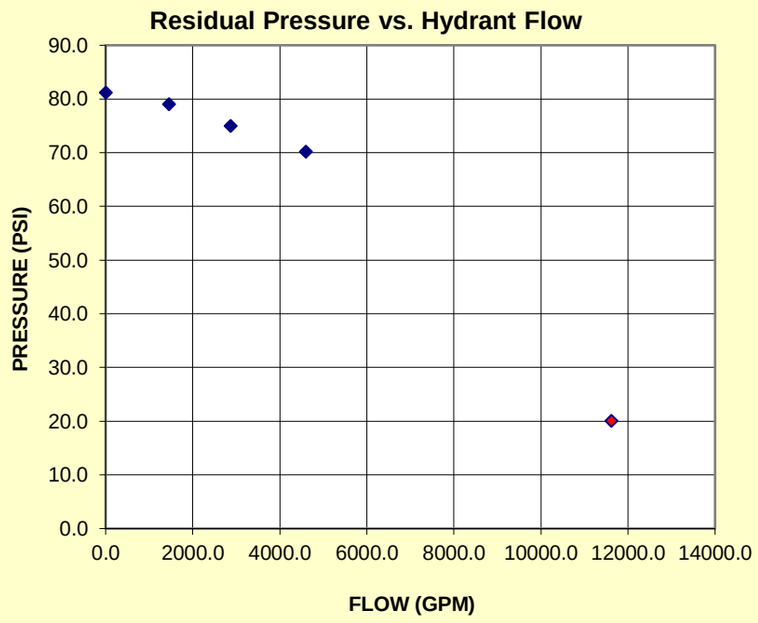
Conditions before Test (STATIC)

Residual Hydrant:	81.2 psi	560 kPa
Hydrant that will Flow:	81.2 psi	560 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)	10% Pressure Drop Achieved?
Port Size (in)	Nozzle Pressure (psi)	(USGPM)	(L/s)	Monitoring Hydrant	Flow Hydrant (Corrected) *				
STATIC	n/a	0	0	81.2	81.2				
Single Hydrant									
Hydrant 1	18.8	1452.0	91.6	79.0	79.0	20	8704	549	NO
Dual Hydrant									
Hydrant 1	18.1	1425.0	89.9	75	75.0	20	9852	622	NO
Hydrant 2	21.3	1441.0	90.9						
Triple Hydrant									
Hydrant 1 & 2	17.4	2793.0	176.2	70.2	70.2	20	11624	733	YES
Hydrant 3	33.7	1812.0	114.3						

* 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)
81.2	560	11600	732

* 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:	48500 L

Rounded up to closest 100L

APPENDIX

B WATER USAGE AND SANITARY DISCHARGE REPORT

The Regional Municipality of Halton
1151 Bronte Road
Oakville ON L6M 3L1

Dear Sir/Madam:

Re: Water Usage and Sanitary Discharge Report for Framgard North and South Blocks

---

Background

Mattamy (Milton West) Ltd. proposes to construct six (6) residential and two (2) mixed-use buildings with a total gross floor area of 111,217 m^2 at the northwest corner of Regional Road 5 and Britannia Road intersection in the Town of Milton. The site is currently vacant.

The site has an area of 4.8 ha. The property will be developed in eight (8) phases.

Table 8.2.1.3 of the Ontario Building Code has been used to calculate water usage and sanitary discharge for occupant loadings. The proposed residential and mixed-use development does not require water in the process and cooling water will not be required.

Water Usage

- Occupant Load
  - Residential
    275 L/d/person x 2,490 persons
    = 684.8 m^3/d
  - Commercial
    5 L/d/1.0m^2 of floor area x 920m^2
    = 4.6 m^3/d
- Process Water 0 m^3/d
- Cooling Water 0 m^3/d

Total water usage = 684.8 m^3/d + 4.6 m^3/d + 0 m^3/d +0 m^3/d
= 689.4 m^3/d

Sanitary Discharge

- Occupant Load
  - Residential
    275 L/d/person x 2,490 persons
    = 684.8 m^3/d
  - Commercial
    5 L/d/1.0m^2 of floor area x 920m^2
    = 4.6 m^3/d
- Process Water 0 m^3/d
- Cooling Water 0 m^3/d

Total sanitary discharge = 684.8 m^3/d + 4.6 m^3/d + 0 m^3/d +0 m^3/d
= 689.4 m^3/d

Yours truly,

Wendy Cheung, P.Eng., PMP
Senior Project Engineer
Land Development Ontario

APPENDIX

C SANITARY DEMAND CALCULATIONS

APPENDIX C
SANITARY FLOW GENERATION

Project: Framgard North and South Block

Job No.: 231-00962

Proposed Flow

North Block

Building	Unit Type	Land Area (ha)	Total Units (ppl)	Light Commercial Floor Area (GFA)[1] (ha)	Equivalent Population Density (285 Person/ Land ha)	Equivalent Population by Units (1.583 Persons/unit)	Equivalent Total Population (ppl)	Average Day Demand Rate L/cap/d	Average Residential Sanitary Flow (275 L/cap/d)[2] (L/s)	Average Commercial Sanitary Flow (24.75 m3/ha/d)[2] (L/s)	Peaking Factor (Harmon)	Peak Sanitary Flow (L/s)	Infiltration (0.286 L/ha/s) (L/s)	Total Sanitary Flow (L/s)
Building 5	Retail + Residential Areas (15 stories)	0.63	238	0.05	178	377	377	275	1.20	0.01	4.03	4.9	0.2	**5.09**
Building 6	Residential Areas (12 stories)	0.54	188	0.00	155	298	298	275	0.95	0.00	4.08	3.9	0.2	**4.03**
Building 7	Residential Areas (14 stories)	0.58	209	0.00	165	331	331	275	1.05	0.00	4.06	4.3	0.2	**4.44**
Total		1.75	635		499	1006	1006		**3.20**	**0.01**		**13.04**	**0.50**	**13.56**

South Block

Building	Unit Type	Land Area (ha)	Total Units (ppl)	Light Commercial Floor Area (GFA)[1] (ha)	Equivalent Population by Land Area (285 Person/ Land ha)	Equivalent Population by Units (1.583 Persons/unit)	Equivalent Total Population (ppl)	Average Day Demand Rate L/cap/d	Average Residential Sanitary Flow (275 L/cap/d)[2] (L/s)	Average Commercial Sanitary Flow (24.75 m3/ha/d)[2] (L/s)	Peaking Factor (Harmon)	Peak Sanitary Flow (L/s)	Infiltration (0.286 L/ha/s) (L/s)	Total Sanitary Flow (L/s)
Building 1	Retail + Residential Areas (15 stories)	0.69	231	0.04	196	366	366	275	1.16	0.01	4.04	4.8	0.2	**4.97**
Building 2	Residential Areas (12 stories)	0.50	189	0	142	300	300	275	0.95	0.00	4.08	3.9	0.1	**4.04**
Building 3	Residential Areas (10 stories)	0.50	155	0.00	143	246	246	275	0.78	0.00	4.11	3.2	0.1	**3.36**
Building 4	Residential Areas (13 stories)	0.70	217	0.00	200	344	344	275	1.09	0.00	4.05	4.4	0.2	**4.64**
Total		2.39	792		681	1256	1256		**4.00**	**0.01**		**16.31**	**0.68**	**17.01**

Holdout Property

Building	Unit Type	Land Area (ha)	Total Units (ppl)	Light Commercial Floor Area (GFA)[1] (ha)	Equivalent Population by Land Area (285 Person/ Land ha)	Equivalent Population by Units (1.583 Persons/unit)	Equivalent Total Population (ppl)	Average Day Demand Rate L/cap/d	Average Residential Sanitary Flow (275 L/cap/d)[2] (L/s)	Average Commercial Sanitary Flow (24.75 m3/ha/d)[2] (L/s)	Peaking Factor (Harmon)	Peak Sanitary Flow (L/s)	Infiltration (0.286 L/ha/s) (L/s)	Total Sanitary Flow (L/s)
Building 8	Retail + Residential Areas (11 stories)	0.37	144	0.00	105	228	228	275	**0.73**	**0.00**	4.13	**2.99**	**0.11**	**3.10**

Summary (North Block and South Block)	AverageSanitary Flow (L/s)	Peak Sanitary Flow (L/s)	Infiltration (L/s)	Total Sanitary Flow (L/s)	Total Population (ppl)
Total	7.20	29.35	1.18	**30.56**	**2262**

Summary (All Blocks)	AverageSanitary Flow (L/s)	Peak Sanitary Flow (L/s)	Infiltration (L/s)	Total Sanitary Flow (L/s)	Total Population (ppl)
Total	7.95	32.37	1.29	**33.66**	**2490**

Pipe Capacity Check

	Nominal Pipe Size (mm)	Pipe Area (m^2)	Slope (%)	Full Flow Capacity (L/s)	Full Flow Velocity (m/s)	% Full
San Plug 3 (Buildng 6 and 7)	200	0.03	1.00%	32.80	1.04	25.8%

	Nominal Pipe Size (mm)	Pipe Area (m^2)	Slope (%)	Full Flow Capacity (L/s)	Full Flow Velocity (m/s)	% Full
Ex. SANMH1A (Buildngs 5)	200	0.03	1.00%	32.80	1.04	15.5%

	Nominal Pipe Size (mm)	Pipe Area (m^2)	Slope (%)	Full Flow Capacity (L/s)	Full Flow Velocity (m/s)	% Full
San Plug 1 (Buildng 1)	200	0.03	1.00%	32.80	1.04	15.1%

	Nominal Pipe Size (mm)	Pipe Area (m^2)	Slope (%)	Full Flow Capacity (L/s)	Full Flow Velocity (m/s)	% Full
San Plug 2 (Buildng 2-4)	200	0.03	1.00%	32.80	1.04	36.7%

Notes:

1. Site statistics are based on the site plan information provided by Core Architects, dated January 19, 2024

2. Equivalent population density, average day flow rates, peaking factors and infiltration rates are based on the Halton Region "Water and Wastewater Linear Design Manual" Section 3.2, Pages 19-21.

3. New water service connections are proposed to be provided from the existing 300 mm watermain on Etheridge Avenue and the existing 300 mm watermain on the east side of Regional Road 25, thus Region criteria Section 2.3.2 Table 2-1 Equivalent Population Density and Water Service Demand was used for population calculations.

POPULATION DENSITIES:

RESIDENTIAL (APARTMENT): 285 PERSONS/HA

LIGHT COMMERCIAL: 90 PERSONS/HA

INFILTRATION RATE = 0.286L /s /ha

MANNING'S n = 0.013

REGION OF HALTON
SANITARY SEWER DESIGN

LOCATION			SECTION						CUMULATIVE			M	COMMERCIAL/INSTITUTIONAL		POP.	INFIL.	CUM.		ELEVATIONS			LENGTH		PIPE	TYPE				FULL	
	MANHOLE		UNITS				POP.	AREA	POP.	AREA			AREA	FLOW	FLOW		FLOW	Actual VEL.	M.H.	M.H.	M.H.	OF		SIZE	OF	SLOPE		CAP.	VEL.	Qact / Qfull
STREET			SINGLE	SEMI	TOWN	APT													FROM	TO	TO	SEWER			PIPE	m	%			
	FROM	TO						ha		ha			ha	m^3/s	m^3/s	m^3/s	m^3/s	m/s	INVERT	SURFACE	INVERT	m		mm				m^3/s	m/s	
North Block	North Block	*EX. CTL MH1A*					165	0.63	165	0.63	4.18	4.00	#REF!	#REF!	4.277	0.166	4.443													
Etheridge Avenue	*EX. CTL MH1A*	*EX. SAN MH77A*					0	0.00	165	0.63	4.18	4.00	#REF!	#REF!	4.277	0.166	4.443					16.3		200	PVC		1.22%	36.23	1.15	12.26%
South Block	South Block	*EX. SAN MH77A*					196	0.69	196	0.69	4.15	4.00	#REF!	#REF!	4.757	0.197	4.966													
Etheridge Avenue	*EX. SAN MH77A*	*EX. SAN MH78A*					0	0.00	361	1	4.04	4.00	#REF!	#REF!	9.034	0.363	9.410							200	PVC		0.38%	20.22	0.64	46.54%
	EX. SAN MH78A	*Trunk Sewer*					0	0.00	361	1	4.04	4.00	#REF!	#REF!	9.034	0.363	9.410							200	PVC		0.67%	26.85	0.85	35.05%

APPENDIX

D FRAMGARD SUBDIVISION SANITARY DESIGN SHEET AND DRAINAGE PLAN

DAVID SCHAEFFER ENGINEERING LTD.
600 ALDEN ROAD, SUITE 500
MARKHAM, ONTARIO
L3R 0E7
TEL: (905) 475-3080
FAX: (905) 475-3081

THE REGIONAL MUNICIPALITY OF HALTON

SANITARY SEWER DESIGN

AS-CONSTRUCTED

n (PVC): 0.013
n (Conc): 0.013

Single Family: 55 pph
Semi-detached: 100 pph
Townhouse: 135 pph
Commercial: 90 pph
Park: 40 pph

Infil.Flow (INF): 0.286 L/s/ha

SHEET No.: 1 OF 3
LOCATION: Framgard - Phase 1
PROJECT No.: 11-553
REVISED DATE: June, 2016
DESIGNED BY: P.P.
CHECKED BY: K.M.
REVISED BY: K.A.
CHECKED BY: D.C.

STREET	MANHOLE		LENGTH	TRIBUTARY AREA HECTARE							POPULATION TRIBUTARY						AVG. m^3/s	AVG. m^3/s	PEAKING	MAX m^3/s	INF. m^3/s	MAX FLOW	SEWER					PIPE		REMARKS
				INCREMENT						TOTAL	INCREMENT					TOTAL							SIZE	SLOPE	Q m^3/s	VEL (m/s)				
	FROM	TO	(m)	SINGLE F.	SEMI.	TOWNHOUSE	COMM.	PARK	INFILT		SINGLE F.	SEMI.	TOWNHOUSE	COMM.	PARK		INC.	TOTAL	FACTOR			EXP.				FULL	ACT.	TYPE	CLASS	
CONNAUGHT TERRACE																														
Contribution From Phase 2 CONNAUGHT TERRACE, Pipe 30A - Plug										2.88						162														
	Plug	**33A**	**34.18**							**2.88**						**162**	**0.0000**	**0.0005**	**4.18**	**0.0022**	**0.0008**	**0.0030**	**200**	**0.48**	**0.023**	**0.72**	**0.50**	**PVC**	**SDR-35**	**As-constructed**
To ETHERIDGE AVENUE, Pipe 33A - 34A										2.88						162														
ORR TERRACE																														
Contribution From Phase 2 ORR TERRACE, Pipe 23A - Plug										1.06						60														
	Plug	**24A**	**40.00**							**1.06**						**60**	**0.0000**	**0.0002**	**4.30**	**0.0008**	**0.0003**	**0.0011**	**200**	**0.50**	**0.023**	**0.74**	**0.38**	**PVC**	**SDR-35**	**As-constructed**
To ETHERIDGE AVENUE, Pipe 24A - 25A										1.06						60														
ETHERIDGE AVENUE																														
Contribution From FUTURE PHASE MAJOR NODE	**CTRL 1A**	**77A**	**16.34**			**2.09**				**2.09**			**283**			**283**	**0.0009**	**0.0009**	**4.09**	**0.0037**	**0.0006**	**0.0043**	**200**	**1.22**	**0.036**	**1.15**	**0.77**	**PVC**	**SDR-35**	**As-constructed**
	77A	**78A**	**57.83**						**0.17**	**2.26**						**283**	**0.0000**	**0.0009**	**4.09**	**0.0037**	**0.0006**	**0.0043**	**200**	**0.38**	**0.020**	**0.64**	**0.51**	**PVC**	**SDR-35**	**As-constructed**
	78A	***Ex MH***	**13.34**						**0.03**	**2.29**						**283**	**0.0000**	**0.0009**	**4.09**	**0.0037**	**0.0007**	**0.0043**	**200**	**0.67**	**0.027**	**0.85**	**0.62**	**PVC**	**SDR-35**	**As-constructed**
To REGIONAL ROAD 25 Existing Sanitary Trunk										2.29						283														
	21A	24A	29.00	0.18					0.22	0.40	10					10	0.0000	0.0000	4.41	0.0001	0.0001	0.0003	200	3.00	0.057	1.81	0.02	PVC	SDR-35	
Contribution From ORR TERRACE, Pipe Plug - 24A										1.06						60														
	24A	**25A**	**99.50**	**0.79**						**2.25**	**44**					**114**	**0.0001**	**0.0004**	**4.23**	**0.0015**	**0.0006**	**0.0022**	**200**	**0.53**	**0.024**	**0.76**	**0.46**	**PVC**	**SDR-35**	**As-constructed**
	25A	**35A**	**99.47**	**0.50**						**2.75**	**28**					**142**	**0.0001**	**0.0005**	**4.20**	**0.0019**	**0.0008**	**0.0027**	**200**	**1.12**	**0.035**	**1.10**	**0.65**	**PVC**	**SDR-35**	**As-constructed**
To FARMSTEAD DRIVE, Pipe 35A - 39A										2.75						142														
Contribution From CONNAUGHT TERRACE, Pipe Plug - 33A										2.88						162														
									0.13	3.01						162														
	33A	**34A**	**68.79**	**0.53**					**0.05**	**3.59**	**30**					**192**	**0.0001**	**0.0006**	**4.15**	**0.0025**	**0.0010**	**0.0036**	**200**	**0.51**	**0.023**	**0.75**	**0.54**	**PVC**	**SDR-35**	**As-constructed**
	34A	**35A**	**150.73**	**0.93**						**4.52**	**52**					**244**	**0.0002**	**0.0008**	**4.12**	**0.0032**	**0.0013**	**0.0045**	**200**	**0.77**	**0.029**	**0.92**	**0.66**	**PVC**	**SDR-35**	**As-constructed**
To FARMSTEAD DRIVE, Pipe 35A - 39A										4.52						244														
ENGLISH MILL COURT																														
	37A	**38A**	**93.68**	**0.67**						**0.67**	**37**					**37**	**0.0001**	**0.0001**	**4.34**	**0.0005**	**0.0002**	**0.0007**	**200**	**0.96**	**0.032**	**1.02**	**0.01**	**PVC**	**SDR-35**	**As-constructed**
	38A	**39A**	**87.67**	**0.44**						**1.11**	**25**					**62**	**0.0001**	**0.0002**	**4.29**	**0.0008**	**0.0003**	**0.0012**	**200**	**1.23**	**0.036**	**1.16**	**0.49**	**PVC**	**SDR-35**	**As-constructed**
To FARMSTEAD DRIVE, Pipe 39A - 42A										1.11						62														
	36A	**43A**	**126.23**	**0.67**						**0.67**	**37**					**37**	**0.0001**	**0.0001**	**4.34**	**0.0005**	**0.0002**	**0.0007**	**200**	**0.97**	**0.032**	**1.03**	**0.36**	**PVC**	**SDR-35**	**As-constructed**
	43A	**44A**	**10.46**	**0.12**						**0.79**	**7**					**44**	**0.0000**	**0.0001**	**4.33**	**0.0006**	**0.0002**	**0.0008**	**200**	**0.49**	**0.023**	**0.73**	**0.34**	**PVC**	**SDR-35**	**As-constructed**
	44A	**45A**	**143.05**	**1.04**						**1.83**	**58**					**102**	**0.0002**	**0.0003**	**4.24**	**0.0014**	**0.0005**	**0.0019**	**200**	**0.52**	**0.024**	**0.75**	**0.44**	**PVC**	**SDR-35**	**As-constructed**
	45A	**70A**	**45.18**	**0.12**						**1.95**	**7**					**109**	**0.0000**	**0.0003**	**4.23**	**0.0015**	**0.0006**	**0.0020**	**200**	**1.06**	**0.034**	**1.07**	**0.58**	**PVC**	**SDR-35**	**As-constructed**
To FARMSTEAD DRIVE, Pipe 70A - 71A										1.95						109														
EMMETT LANDING																														
	40A	**41A**	**79.17**	**0.61**						**0.61**	**34**					**34**	**0.0001**	**0.0001**	**4.35**	**0.0005**	**0.0002**	**0.0006**	**200**	**0.97**	**0.032**	**1.03**	**0.36**	**PVC**	**SDR-35**	**As-constructed**
	41A	**42A**	**93.18**	**0.44**						**1.05**	**25**					**59**	**0.0001**	**0.0002**	**4.30**	**0.0008**	**0.0003**	**0.0011**	**200**	**1.19**	**0.036**	**1.14**	**0.48**	**PVC**	**SDR-35**	**As-constructed**
To FARMSTEAD DRIVE, Pipe 42A - 70A										1.05						59														

Bolded text denotes Phase 1 as-built information provided by Niran Construction Ltd.
Bolded Italic text denotes Phase 1 as-built information provided by Kapp Contracting Inc.

DAVID SCHAEFFER ENGINEERING LTD.
600 ALDEN ROAD, SUITE 500
MARKHAM, ONTARIO
L3R 0E7
TEL: (905) 475-3080
FAX: (905) 475-3081

THE REGIONAL MUNICIPALITY OF HALTON

SANITARY SEWER DESIGN

AS-CONSTRUCTED

n (PVC): 0.013
n (Conc): 0.013

Single Family:	55	pph
Semi-detached:	100	pph
Townhouse:	135	pph
Commercial:	90	pph
School	40	pph
Infil.Flow (INF):	0.286	L/s/ha

SHEET No.: 2 OF 3
LOCATION: Framgard - Phase 1
PROJECT No.: 11-553
REVISED DATE: June, 2016
DESIGNED BY: P.P.
CHECKED BY: K.M.
REVISED BY: K.A.
CHECKED BY: D.C.

STREET	MANHOLE		LENGTH	TRIBUTARY AREA HECTARE							POPULATION TRIBUTARY						AVG. m^3/s	AVG. m^3/s	PEAKING	MAX m^3/s	INF. m^3/s	MAX FLOW	SEWER					PIPE		REMARKS
				INCREMENT						TOTAL	INCREMENT					TOTAL							SIZE	SLOPE	Q m^3/s	VEL (m/s)				
	FROM	TO	(m)	SINGLE F.	SEMI.	TOWNHOUSE	COMM.	PARK	INFILT		SINGLE F.	SEMI.	TOWNHOUSE	COMM.	PARK		INC.	TOTAL	FACTOR			EXP.				FULL	ACT.	TYPE	CLASS	
CASSON POINT																														
	64A	**65A**	**88.89**			**0.36**				**0.36**			**49**			**49**	**0.0002**	**0.0002**	**4.32**	**0.0007**	**0.0001**	**0.0008**	**200**	**1.55**	**0.041**	**1.30**	**0.45**	**PVC**	**SDR-35**	**As-constructed**
To GOODING CRESCENT, Pipe 65A - 66A										0.36						49														
	64A	**47A**	**60.26**			**0.24**				**0.24**			**33**			**33**	**0.0001**	**0.0001**	**4.35**	**0.0005**	**0.0001**	**0.0005**	**200**	**1.06**	**0.034**	**1.07**	**0.37**	**PVC**	**SDR-35**	**As-constructed**
To CLITHEROW STREET, Pipe 47A - 50A										0.24						33														
LEBLANC COURT																														
	57A	**67A**	**90.14**			**0.49**				**0.49**			**67**			**67**	**0.0002**	**0.0002**	**4.29**	**0.0009**	**0.0001**	**0.0011**	**200**	**1.53**	**0.041**	**1.29**	**0.55**	**PVC**	**SDR-35**	**As-constructed**
To EVES GATE, Pipe 67A - 70A										0.49						67														
	55A	**56A**	**99.68**			**0.46**				**0.46**			**63**			**63**	**0.0002**	**0.0002**	**4.29**	**0.0009**	**0.0001**	**0.0010**	**200**	**1.19**	**0.036**	**1.14**	**0.48**	**PVC**	**SDR-35**	**As-constructed**
To EVES GATE, Pipe 56A - 67A										0.46						63														
CLITHEROW STREET																														
	46A	**47A**	**150.11**	**0.69**						**0.69**	**38**					**38**	**0.0001**	**0.0001**	**4.34**	**0.0005**	**0.0002**	**0.0007**	**200**	**1.01**	**0.033**	**1.05**	**0.36**	**PVC**	**SDR-35**	**As-constructed**
Contribution From CASSON POINT, Pipe 64A - 47A										**0.24**						**33**														
	47A	**50A**	**44.56**	**0.23**						**1.16**	**13**					**84**	**0.0000**	**0.0003**	**4.26**	**0.0011**	**0.0003**	**0.0015**	**200**	**0.40**	**0.021**	**0.66**	**0.38**	**PVC**	**SDR-35**	**As-constructed**
To EVES GATE, Pipe 50A - 54A										1.16						84														
	48A	**49A**	**95.25**	**0.67**						**0.67**	**37**					**37**	**0.0001**	**0.0001**	**4.34**	**0.0005**	**0.0002**	**0.0007**	**200**	**1.02**	**0.033**	**1.05**	**0.36**	**PVC**	**SDR-35**	**As-constructed**
	49A	**50A**	**8.50**						**0.01**	**0.68**						**37**	**0.0000**	**0.0001**	**4.34**	**0.0005**	**0.0002**	**0.0007**	**200**	**1.06**	**0.034**	**1.07**	**0.37**	**PVC**	**SDR-35**	**As-constructed**
To EVES GATE, Pipe 50A - 54A										0.68						37														
	51A	**52A**	**38.73**			**0.19**				**0.19**			**26**			**26**	**0.0001**	**0.0001**	**4.36**	**0.0004**	**0.0001**	**0.0004**	**200**	**1.01**	**0.033**	**1.05**	**0.23**	**PVC**	**SDR-35**	
	52A	**53A**	**13.52**			**0.06**				**0.25**			**9**			**35**	**0.0000**	**0.0001**	**4.34**	**0.0005**	**0.0001**	**0.0006**	**200**	**0.89**	**0.031**	**0.98**	**0.34**	**PVC**	**SDR-35**	**As-constructed**
	53A	**54A**	**95.49**			**0.42**				**0.67**			**57**			**92**	**0.0002**	**0.0003**	**4.25**	**0.0012**	**0.0002**	**0.0014**	**200**	**0.92**	**0.031**	**1.00**	**0.51**	**PVC**	**SDR-35**	**As-constructed**
To EVES GATE, Pipe 54A - 56A										0.67						92														
REIS PLACE																														
	61A	**62A**	**123.92**			**0.73**				**0.73**			**99**			**99**	**0.0003**	**0.0003**	**4.24**	**0.0013**	**0.0002**	**0.0015**	**200**	**1.00**	**0.033**	**1.04**	**0.01**	**PVC**	**SDR-35**	**As-constructed**
	62A	**63A**	**12.56**						**0.01**	**0.74**						**99**	**0.0000**	**0.0003**	**4.24**	**0.0013**	**0.0002**	**0.0015**	**200**	**1.11**	**0.035**	**1.10**	**0.52**	**PVC**	**SDR-35**	**As-constructed**
To GOODING CRESCENT, Pipe 63A - 65A										0.74						99														
GOODING CRESCENT																														
	58A	**59A**	**129.75**			**0.89**				**0.89**			**121**			**121**	**0.0004**	**0.0004**	**4.22**	**0.0016**	**0.0003**	**0.0019**	**200**	**0.96**	**0.032**	**1.02**	**0.55**	**PVC**	**SDR-35**	**As-constructed**
	59A	**60A**	**11.96**			**0.17**				**1.06**			**23**			**144**	**0.0001**	**0.0005**	**4.20**	**0.0019**	**0.0003**	**0.0022**	**200**	**0.50**	**0.023**	**0.74**	**0.47**	**PVC**	**SDR-35**	**As-constructed**
	60A	**63A**	**60.91**			**0.24**				**1.30**			**33**			**177**	**0.0001**	**0.0006**	**4.17**	**0.0023**	**0.0004**	**0.0027**	**200**	**0.49**	**0.023**	**0.73**	**0.49**	**PVC**	**SDR-35**	**As-constructed**
Contribution From REIS PLACE, Pipe 62A - 63A										0.74						99														
	63A	**65A**	**39.61**			**0.17**				**2.21**			**23**			**299**	**0.0001**	**0.0010**	**4.08**	**0.0039**	**0.0006**	**0.0045**	**200**	**0.43**	**0.022**	**0.68**	**0.54**	**PVC**	**SDR-35**	**As-constructed**
Contribution From CASSON POINT, Pipe 64A - 65A										0.36						49														
	65A	**66A**	**31.48**			**0.13**				**2.70**			**18**			**366**	**0.0001**	**0.0012**	**4.04**	**0.0047**	**0.0008**	**0.0055**	**200**	**0.57**	**0.025**	**0.79**	**0.63**	**PVC**	**SDR-35**	**As-constructed**
	66A	**67A**	**11.50**						**0.01**	**2.71**						**366**	**0.0000**	**0.0012**	**4.04**	**0.0047**	**0.0008**	**0.0055**	**200**	**0.50**	**0.023**	**0.74**	**0.61**	**PVC**	**SDR-35**	**As-constructed**
To EVES GATE, Pipe 67A - 69A										2.71						366														

Bolded text denotes Phase 1 as-built information provided by Niran Construction Ltd.
Bolded Italic text denotes Phase 1 as-built information provided by Kapp Contracting Inc.

DAVID SCHAEFFER ENGINEERING LTD.
600 ALDEN ROAD, SUITE 500
MARKHAM, ONTARIO
L3R 0E7
TEL: (905) 475-3080
FAX: (905) 475-3081

THE REGIONAL MUNICIPALITY OF HALTON

SANITARY SEWER DESIGN

AS-CONSTRUCTED

n (PVC): 0.013
n (Conc): 0.013

Single Family: 55 pph
Semi-detached: 100 pph
Townhouse: 135 pph
Commercial: 90 pph
School 40 pph

Infil.Flow (INF): 0.286 L/s/ha

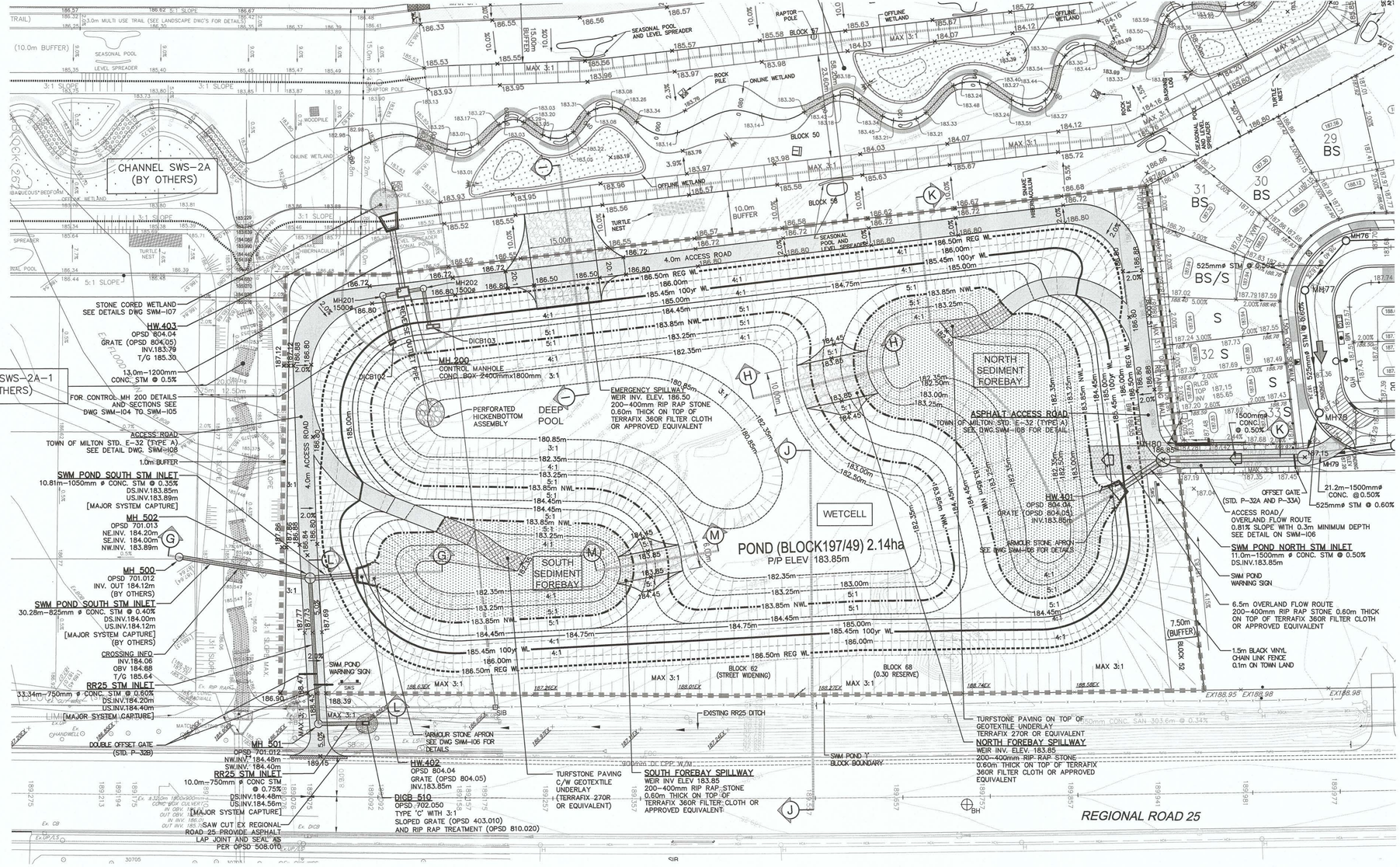
SHEET No.: 3 OF 3
LOCATION: Framgard - Phase 1
PROJECT No.: 11-553
REVISED DATE: June, 2016
DESIGNED BY: P.P.
CHECKED BY: K.M.
REVISED BY: K.A.
CHECKED BY: D.C.

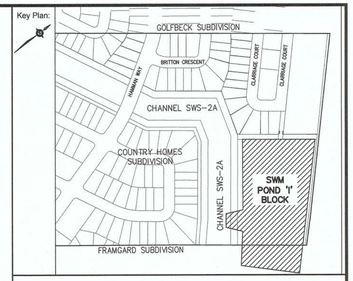
STREET	MANHOLE		LENGTH	TRIBUTARY AREA HECTARE							POPULATION TRIBUTARY						AVG. m^3/s INC.	AVG. m^3/s TOTAL	PEAKING FACTOR	MAX m^3/s	INF. m^3/s	MAX FLOW EXP.	SEWER					PIPE		REMARKS
				INCREMENT						TOTAL	INCREMENT					TOTAL							SIZE	SLOPE	Q m^3/s	VEL (m/s)			
	FROM	TO	(m)	SINGLE F.	SEMI.	TOWNHOUSE	COMM.	PARK	INFILT		SINGLE F.	SEMI.	TOWNHOUSE	COMM.	PARK											FULL	ACT.	TYPE	CLASS	
EVES GATE																														
Contribution From CLITHEROW STREET, Pipe 47A - 50A										1.16						84														
Contribution From CLITHEROW STREET, Pipe 49A - 50A										0.68						37														
	50A	**54A**	**64.48**			**0.17**				**2.01**			**23**			**144**	**0.0001**	**0.0005**	**4.20**	**0.0019**	**0.0006**	**0.0025**	**200**	**0.50**	**0.023**	**0.74**	**0.48**	**PVC**	**SDR-35**	**As-constructed**
Contribution From CLITHEROW STREET, Pipe 53A - 54A										0.67						92														
	54A	**56A**	**42.87**			**0.12**				**2.80**			**17**			**253**	**0.0001**	**0.0008**	**4.11**	**0.0033**	**0.0008**	**0.0041**	**200**	**0.54**	**0.024**	**0.77**	**0.56**	**PVC**	**SDR-35**	**As-constructed**
Contribution From LEBLANC COURT, Pipe 55A - 56A										0.46						63														
	56A	**67A**	**42.96**			**0.09**				**3.35**			**13**			**329**	**0.0000**	**0.0010**	**4.06**	**0.0043**	**0.0010**	**0.0052**	**200**	**0.54**	**0.024**	**0.77**	**0.61**	**PVC**	**SDR-35**	**As-constructed**
Contribution From LEBLANC COURT, Pipe 57A - 67A										0.49						67														
Contribution From GOODING CRESCENT, Pipe 66A - 67A										2.71						366														
	67A	**70A**	**65.09**						**0.23**	**6.78**						**762**	**0.0000**	**0.0024**	**3.87**	**0.0094**	**0.0019**	**0.0113**	**200**	**0.55**	**0.024**	**0.77**	**0.75**	**PVC**	**SDR-35**	**As-constructed**
To FARMSTEAD DRIVE, Pipe 70A - 71A										6.78						762														
FARMSTEAD DRIVE																														
LOCAL																														
	710A	**720A**	**76.41**			**0.42**				**0.42**			**57**			**57**	**0.0002**	**0.0002**	**4.30**	**0.0008**	**0.0001**	**0.0009**	**200**	**1.02**	**0.033**	**1.05**	**0.45**	**PVC**	**SDR-35**	**As-constructed**
	720A	**72A**	**2.88**							**0.42**						**57**	**0.0000**	**0.0002**	**4.30**	**0.0008**	**0.0001**	**0.0009**	**200**	**1.04**	**0.033**	**1.06**	**0.45**	**PVC**	**SDR-35**	**As-constructed**
To Future Sanitary Pipe (B.O.)										0.42						57														
Contribution From Phase 2 FARMSTEAD DRIVE, Pipe 20A - Plug										38.70						3056														
	Plug	**35A**	**26.31**							**38.70**						**3056**	**0.0000**	**0.0097**	**3.44**	**0.0335**	**0.0111**	**0.0445**	**375**	**0.30**	**0.096**	**0.87**	**0.84**	**PVC**	**SDR-35**	**As-constructed**
Contribution From ETHERIDGE AVENUE, Pipe 34A - 35A										4.52						244														
Contribution From ETHERIDGE AVENUE, Pipe 25A - 35A										2.75						142														
	35A	**39A**	**71.39**	**0.47**						**46.44**	**26**					**3468**	**0.0001**	**0.0110**	**3.39**	**0.0374**	**0.0133**	**0.0507**	**375**	**0.34**	**0.102**	**0.93**	**0.91**	**PVC**	**SDR-35**	**As-constructed**
Contribution From ENGLISH MILL COURT, Pipe 38A - 39A										1.11						62														
	39A	**42A**	**71.20**	**0.51**						**48.06**	**29**					**3559**	**0.0001**	**0.0113**	**3.38**	**0.0383**	**0.0137**	**0.0520**	**375**	**0.29**	**0.094**	**0.85**	**0.86**	**PVC**	**SDR-35**	**As-constructed**
Contribution From EMMETT LANDING, Pipe 41A- 42A										1.05						59														
	42A	**70A**	**75.61**	**0.48**						**49.59**	**27**					**3645**	**0.0001**	**0.0116**	**3.37**	**0.0391**	**0.0142**	**0.0533**	**375**	**0.30**	**0.096**	**0.87**	**0.88**	**PVC**	**SDR-35**	**As-constructed**
Contribution From ENGLISH MILL COURT, Pipe 45A - 70A										1.95						109														
Contribution From EVES GATE, Pipe 69A - 70A										6.78						762														
	70A	**71A**	**23.32**							**58.32**						**4516**	**0.0000**	**0.0144**	**3.29**	**0.0473**	**0.0167**	**0.0640**	**450**	**0.34**	**0.166**	**1.05**	**0.96**	**CONC**	**100-D**	**As-constructed**
	71A	**72A**	**75.25**							**58.32**						**4516**	**0.0000**	**0.0144**	**3.29**	**0.0473**	**0.0167**	**0.0640**	**450**	**0.25**	**0.143**	**0.90**	**0.86**	**CONC**	**100-D**	**As-constructed**
Contribution From FARMSTEAD DRIVE, Pipe 720A - 72A										0.42						57														
Future Sanitary Pipe (B.O.)	72A	Fut. MH (B.O.)	30.50						0.12	58.86						4573	0.0000	0.0146	3.28	0.0477	0.0168	0.0646	450	2.70	0.468	2.95	2.06	CONC	100-D	Not As-constructed
To BRITANNIA ROAD WEST (B.O.)										58.86						4573														
BRITANNIA ROAD WEST INTERIM TRUNK																														
Contribution From FARMSTEAD DRIVE, Pipe 720A - 72A										0.42						57														
Contribution From FARMSTEAD DRIVE, Pipe 71A - 72A										58.32						4516														
	72A	***73A***	***22.50***						***0.12***	***58.86***						***4573***	***0.0000***	***0.0146***	***3.28***	***0.0477***	***0.0168***	***0.0646***	***450***	***0.44***	***0.189***	***1.19***	***1.06***	***CONC***	***100-D***	***As-constructed***
	73A	***74A***	***122.50***							***58.86***						***4573***	***0.0000***	***0.0146***	***3.28***	***0.0477***	***0.0168***	***0.0646***	***450***	***0.25***	***0.143***	***0.90***	***0.86***	***CONC***	***100-D***	***As-constructed***
	74A	***740A***	***122.00***							***58.86***						***4573***	***0.0000***	***0.0146***	***3.28***	***0.0477***	***0.0168***	***0.0646***	***450***	***0.22***	***0.134***	***0.84***	***0.82***	***CONC***	***100-D***	***As-constructed***
Sanitary Pipe (B.O.)	***740A***	***75A (B.O.)***	***26.00***							***58.86***						***4573***	***0.0000***	***0.0146***	***3.28***	***0.0477***	***0.0168***	***0.0646***	***675***	***0.69***	***0.698***	***1.95***	***1.19***	***CONC***	***100-D***	***As-constructed***
To BRITANNIA ROAD WEST (B.O.)										***58.86***						***4573***														

Bolded text denotes Phase 1 as-built information provided by Niran Construction Ltd.
Bolded Italic text denotes Phase 1 as-built information provided by Kapp Contracting Inc.

APPENDIX

E STORMWATER MANAGEMENT POND AND STORM SERVICING DRAWINGS





LEGEND

- PROPOSED SANITARY MANHOLE
- PROPOSED STORM MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED DOUBLE CATCHBASIN
- PROPOSED VALVE & CHAMBER
- PROPOSED HYDRANT & VALVE
- EXISTING SANITARY MANHOLE
- EXISTING STORM MANHOLE
- EX.CB. EXISTING CATCHBASIN
- EX.V&C EXISTING VALVE & CHAMBER
- EX.H&V EXISTING HYDRANT & VALVE
- 34 PROPOSED LOT NUMBERS
- BS LOT DRAINAGE TYPE
- +205.36 PROPOSED ELEVATIONS
- 208.65 EXISTING ELEVATIONS
- EXISTING CONTOURS
- (203.48) GRADE AT FRONT AND REAR OF STRUCTURE
- T/B TOP OF BANK
- OVERLAND FLOW ROUTE
- LIMIT OF SUBDIVISION
- WARNING SIGN
- OFFSET GATE

BENCHMARKS:
ELEVATIONS ARE GEODETIC AND ARE REFERRED TO MTO VERTICAL BENCH MARK NUMBER 008198282155 HAVING AN ORTHOMETRIC ELEVATION OF 185.351 METRES. ELEVATIONS ARE REFERENCED TO THE CANADIAN GEODETIC VERTICAL DATUM OF 1928, 1978 ADJUSTMENT (CGVD-1928:1978).

LOCAL BENCHMARK
CONCRETE CULVERT UNDER BRITANNIA RD W, 1.4 KM WEST OF HWY 25, 75.4 M WEST OF FIRST LINE RD, 6.3 M NORTH OF CENTRELINE OF BRITTANIA RD W (HALTON REG RD 6). TABLET IS SET VERTICALLY IN TOP OF NORTH END OF CULVERT, 33 CM SOUTH OF NORTH END OF CULVERT, 32 CM WEST OF EAST FACE OF CULVERT.

No.	By	Date	Description	Approval
4				
3	L.R.	MAR 2017	ISSUED FOR MYLARS	
2	DNS	SEPT 2016	ISSUED FOR CONSTRUCTION	
1	DNS	JUNE 2016	1ST SUBMISSION	

TOWN OF MILTON
ENGINEERING SERVICES DEPARTMENT

DIRECTOR OF ENGINEERING SERVICES

Professional Stamp:
LICENSED PROFESSIONAL ENGINEER
L. N. RUSSELL
100032788
Feb. 28/17
PROVINCE OF ONTARIO

Regional:
DESIGN OF WASTEWATER AND WATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON STANDARDS AND SPECIFICATIONS AND LOCATION APPROVAL FROM AREA MUNICIPALITY.
Signed:
Planning and Public Works, Halton Region
Date:

TMIG
The Municipal Infrastructure Group Ltd
8800 Dufferin Street, Suite 200 Vaughan, ON L4K 0C5
p: 905.738.5700 f: 905.738.0065

WEST COUNTRY MILTON PROPERTIES LTD. Phase 1

SWM POND 'I' PLAN VIEW

SCALE: 1:500 (10 5 0 10)		PROJECT No.	13138
DATE: MARCH 2015			
DESIGNED BY: E.T.	DRAWN BY: CAD	DRAWING No.	SWM-I01
CHECKED BY: L.R.	CHECKED BY: E.B.		
PROJECT No./24T No.:	24T-14008/M Z-1/14		(Page 39 of 58)

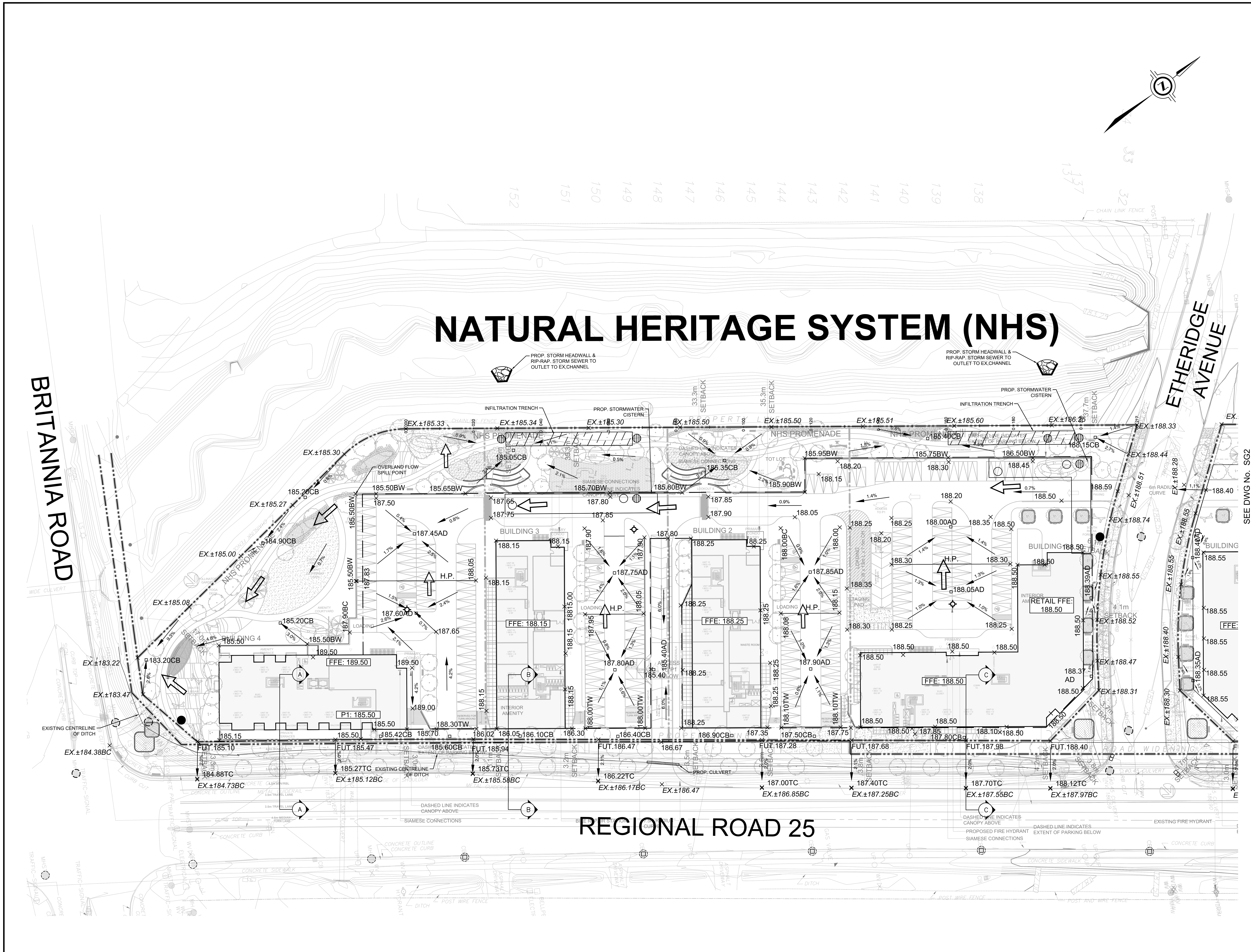
DESCRIPTION	REQUIRED STORAGE	PROVIDED STORAGE	TARGET RELEASE RATE	PROVIDED RELEASE RATE
PERMANENT POOL EL. 182.35 – EL. 183.85	5,917 m^3	9,768 m^3	N/A	N/A
EXTENDED DETENTION EL. 183.85 – EL. 184.75	9,102 m^3	9,734 m^3	0.020 m^3/s	0.020 m^3/s
25 YEAR EL. 183.85 – EL. 185.10	13,653 m^3	14,196 m^3	0.685 m^3/s	0.668 m^3/s
100 YEAR EL. 183.85 – EL. 185.45	18,772 m^3	18,916 m^3	1.712 m^3/s	1.705 m^3/s
REGIONAL EL. 183.85 – EL. 186.50	32,994 m^3	34,644 m^3	2.396 m^3/s	2.289 m^3/s

SPECIFICATION FOR 200-400mm RIP RAP STONE:
NOMINAL DIAMETER: 275mm
NONE GREATER THAN: 400mm
20% TO 50%: 300mm
50% TO 80%: 275mm
100% GREATER THAN 200mm

REFER TO:
SWM-I01 – PLAN VIEW OF SWM POND AND SECTION LOCATION
SWM-I02 AND SWM-I03 – CROSS SECTION DETAILS
SWM-I04 AND SWM-I05 – CONTROL MANHOLE DETAILS
SWM-I06 – DETAILS
SWM-I07 – OUTLET DESIGN
SWM-I08 – STANDARD DRAWINGS

APPENDIX

F GRADING PLANS AND CROSS-SECTIONS



KEY PLAN NTS

- EX. ELEVATION
- PROP. ELEVATION
- OVERLAND FLOW
- DIRECTION OF FLOW
- SANITARY MANHOLE
- STORM MANHOLE
- STORM ACCESS HATCH / OGS UNIT
- CATCHBASIN / AREA DRAIN
- DCB DOUBLE CATCHBASIN
- V&B VALVE AND BOX
- H&V HYDRANT AND VALVE
- LIMIT OF PROPERTY

ALL DIMENSIONS AND ELEVATIONS ARE IN METRES UNLESS OTHERWISE NOTED.
DRAWINGS ARE NOT DIGITALLY CORRECT. LAYOUT TO BE COMPLETED BY OFFSETS.

BENCHMARKS
REFER TO SURVEY COMPLETED BY RADY-PENTEK & EDWARD SURVEYING LTD. ON APRIL 23, 2018 AND FEBRUARY 9, 2018 FOR DETAILS.

No	Date	By	
1	2024-01-19	WC	ISSUED FOR ZBA

				Date
Design	L.Z.	Ch'kd	W.C.	
Drawn	CAD 10/12	Ch'kd	W.C.	JANUARY 2024
Scale	1:500			References

PRELIMINARY

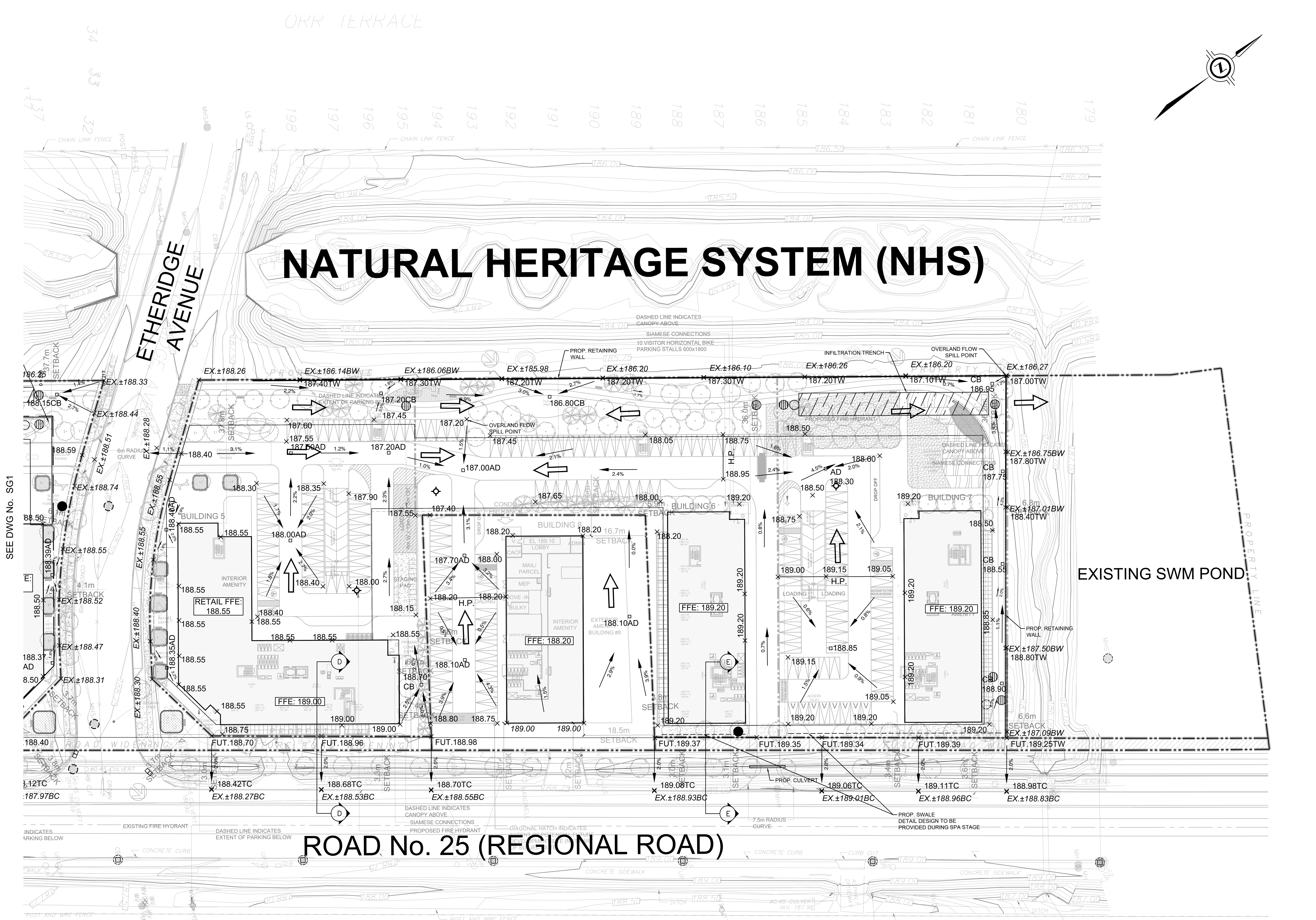
CONSULTANT
wsp

MUNICIPALITY
TOWN OF MILTON

TITLE
FRAMGARD NORTH AND SOUTH BLOCKS
TOWN OF MILTON

SITE GRADING PLAN

Municipal Drawing No	Regional Drawing No
WSP File No 231-00962	Drawing No SG1



KEY PLAN NTS

×210.09	EX. ELEVATION
+174.50	PROP. ELEVATION
⇨	OVERLAND FLOW
→	DIRECTION OF FLOW
●	SANITARY MANHOLE
●	STORM MANHOLE
○	STORM ACCESS HATCH / OGS UNIT
□	CATCHBASIN / AREA DRAIN
DCB	DOUBLE CATCHBASIN
V&B	VALVE AND BOX
H&V	HYDRANT AND VALVE
— · —	LIMIT OF PROPERTY

ALL DIMENSIONS AND ELEVATIONS ARE IN METRES UNLESS OTHERWISE NOTED.
DRAWINGS ARE NOT DIGITALLY CORRECT.
LAYOUT TO BE COMPLETED BY OFFSETS.

BENCHMARKS
REFER TO SURVEY COMPLETED BY RADY-PENTEK & EDWARD SURVEYING LTD. ON APRIL 23, 2018 AND FEBRUARY 9, 2018 FOR DETAILS.

No	Date	By	
1	2024-01-19	WC	ISSUED FOR ZBA

Design	W.Z.	Ch'kd	W.C.	Date JANUARY 2024
Drawn	CAD 10/12	Ch'kd	W.C.	
Scale 1:500				References

PRELIMINARY

CONSULTANT
WSP

MUNICIPALITY
TOWN OF MILTON

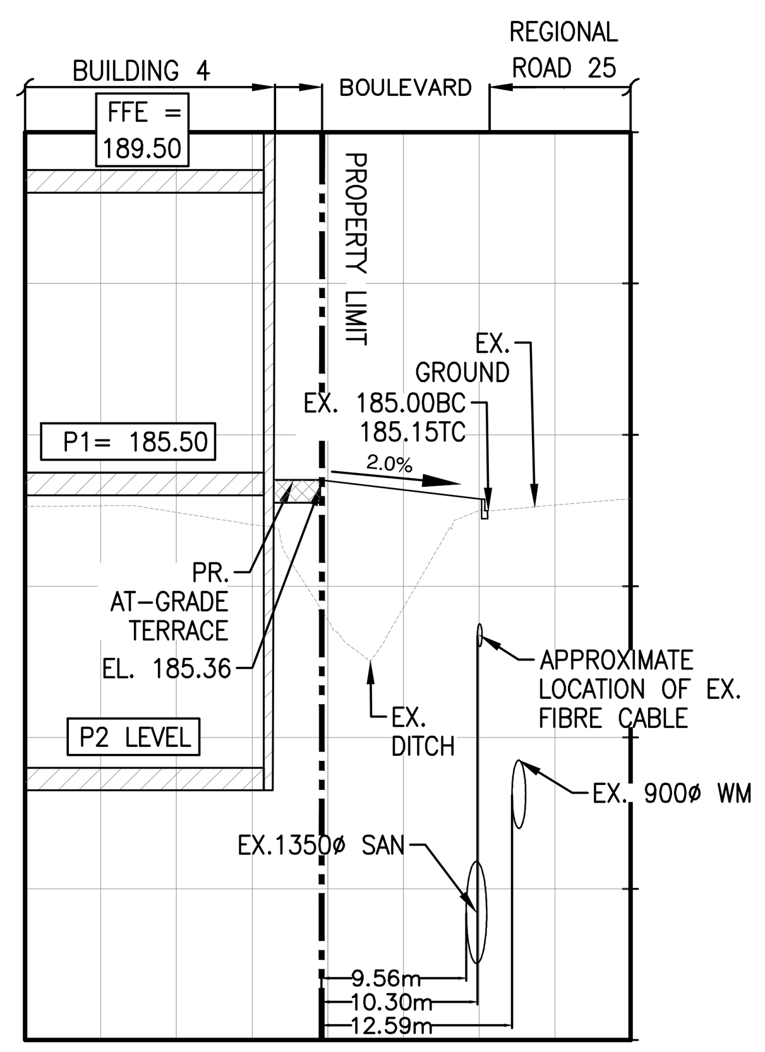
TITLE
FRAMGARD NORTH AND SOUTH BLOCKS
TOWN OF MILTON

SITE GRADING PLAN

Municipal Drawing No	Regional Drawing No
WSP File No 231-00962	Drawing No SG2

KEY PLAN NTS

ULTIMATE GRADING SECTIONS FOR SOUTH AND NORTH BLOCKS



SECTION A–A

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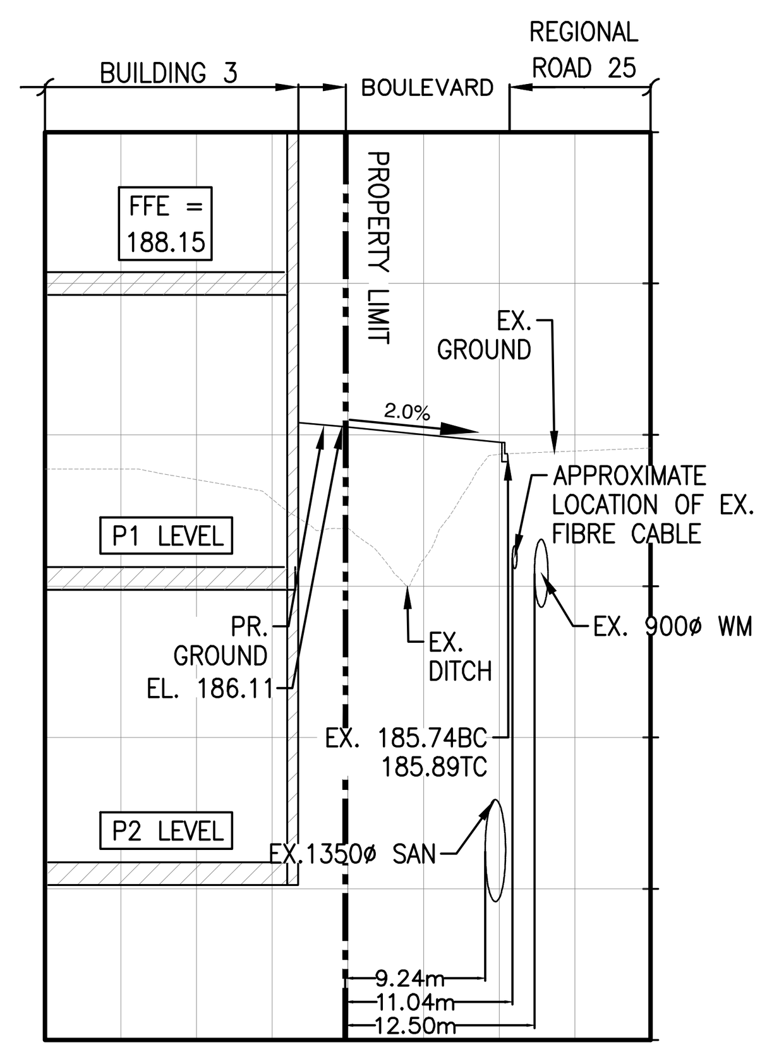
VERT 1:100



SECTION B–B

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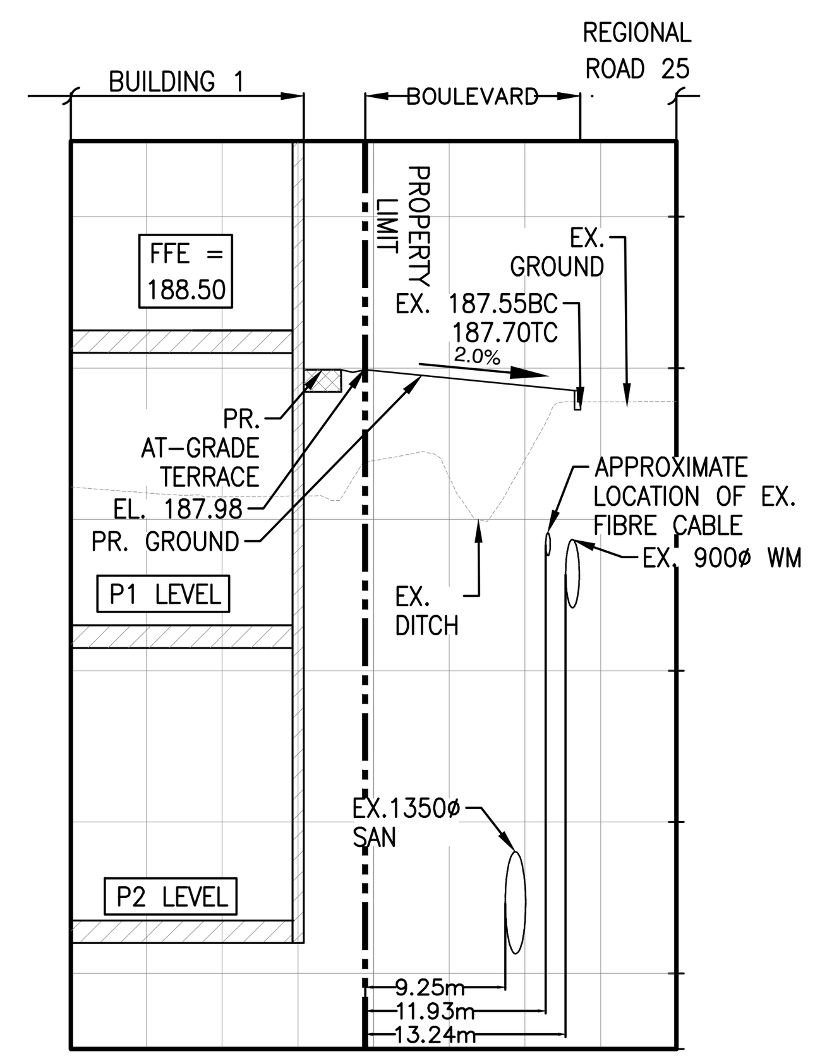

SECTION C–C

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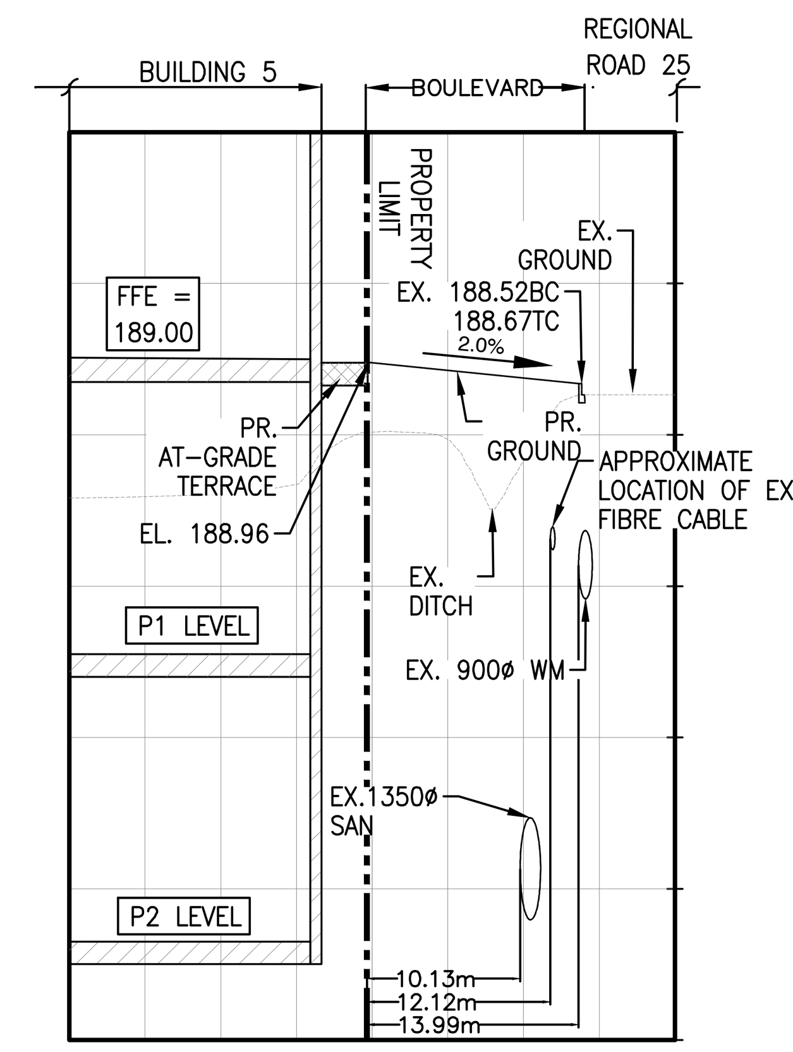
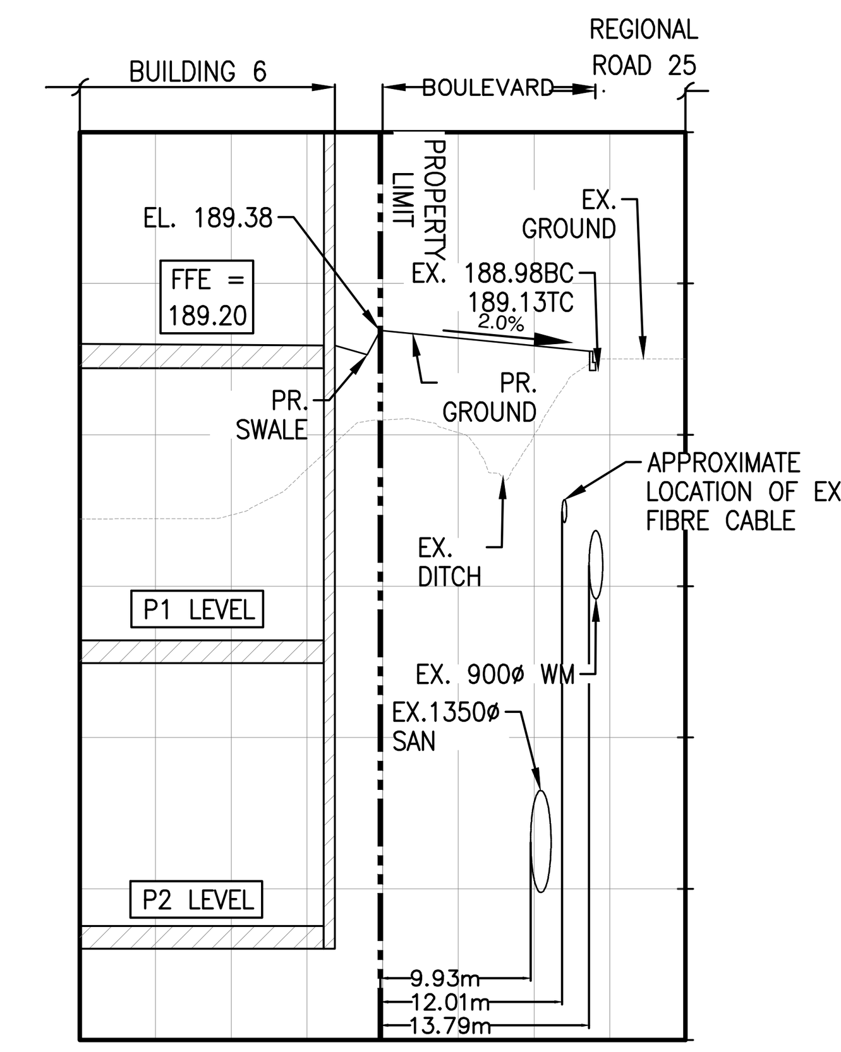
VERT 1:100



SECTION D–D

HORIZ 1:500
VERT 1:100



SECTION E–E

HORIZ 1:500
VERT 1:100

ALL DIMENSIONS AND ELEVATIONS ARE IN METRES UNLESS OTHERWISE NOTED.
DRAWINGS ARE NOT DIGITALLY CORRECT. LAYOUT TO BE COMPLETED BY OFFSETS.

BENCHMARKS
REFER TO SURVEY COMPLETED BY RADY-PENTEK & EDWARD SURVEYING LTD. ON APRIL 23, 2018 AND FEBRUARY 9, 2018 FOR DETAILS.

No	Date	By	
1	2024-01-19	WC	ISSUED FOR ZBA

Design	W.Z.	Ch'kd	W.C.	Date
Drawn	CAD 10/12	Ch'kd	W.C.	JANUARY 2024

Scale 1:500

References

PRELIMINARY

CONSULTANT
WSP

MUNICIPALITY

TOWN OF MILTON

TITLE
FRAMGARD NORTH AND SOUTH BLOCKS
TOWN OF MILTON

ROAD CROSS SECTION

Municipal Drawing No

Regional Drawing No

WSP File No 231-00962

Drawing No CS1