

FUNCTIONAL SERVICING REPORT

Water, Sanitary, and Stormwater Management

PROPOSED MIXED-USE CONDOMINIUM TOWERS DISTRIKT MIDTOWN

157-165 CROSS AVENUE
TOWN OF OAKVILLE

OUR FILE: 1827

PREPARED FOR DISTRIKT DEVELOPMENTS INC.

FEBRUARY 28, 2024

REVISION HISTORY

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1.0 INTRODUCTION

1.1 Scope of Functional Servicing Report

This report has been prepared in support of the Rezoning (ZBA) and Official Plan Amendment (OPA), to permit the construction of a two-tower mixed-use condominium located at 157-165 Cross Avenue in the Town of Oakville (a copy of the Preliminary Site Plan and site statistics are included in Appendix 'A'). This report discusses how the proposed site can be serviced by the existing and future infrastructure for water, wastewater, storm drainage/stormwater management, site grading, and erosion and sediment control. This report also briefly discusses the proposed local roads required as part of the Midtown Oakville EA. This report may be updated and refined as the project moves through the planning process to support the subdivision design.

We are aware that the Town of Oakville is currently undertaking an Official Plan review for the Midtown area. In order to prepare the servicing design, we have followed the ongoing progression of the OPA review and where appropriate have reached out to Town and Regional staff to prepare this report based on the most up to date information available.

Information provided in this report is based on our general knowledge of the area as well as information/drawings obtained from the Town of Oakville and the Region of Halton. Additionally, the following documents have been reviewed in support of this application:

- Water and Wastewater Area Servicing Plan for Midtown Oakville, Final Report, Blue Plan Engineering, September 28, 2017 (ASP)
- Stormwater Management Report, Oakville Part III Midtown EA, Town of Oakville, Cole Engineering, June 2014 (Midtown EA)
- Addendum to the Water and Wastewater Area Servicing Plan (ASP) for Midtown Oakville, Blue Pan Engineering, December 2020 (ASP Addendum)

For the purposes of this report, north is defined as running perpendicular to Cross Avenue.

1.2 Site Location and Description

The subject lands consist of 157/165 Cross Avenue in the Town of Oakville, having an area of approximately 0.96 ha. The site currently consists of two commercial/retail building and associated parking. It is bounded to the north by 166 South Service Road E, 177 Cross Avenue to the east, Cross Avenue to the south, and 117-125 Cross Avenue (Trafalgar Village Mall) to the west. A copy of the topographic survey is provided in Appendix 'A' for reference.

There is an existing 4.6 m wide easement described as Part 9 Plan 20R-5913 subject to a right-of-way as in instrument no. 534539 that runs north-south along the western property line of the site. The easement contains a 150 mm diameter sanitary lateral and cast-iron water service (sizing to be confirmed) that connect into Cross Ave.

There is also an existing 10.0 m wide easement described as Part 9 Plan 20R-22099 subject to a right-of-way as in instrument no. 589005 that runs north-south in the middle of the site. The easement was created as a servicing easement by Distrikt Developments Inc. for 166 South Service Road to the north to allow a storm service connection through the site and connect to Cross Ave.

Further discussion on the use of the existing easements can be found in Section 1.4 Easements.

1.3 Proposed Development

The development proposal is for two mixed use condominium towers consisting of 1198 residential units and approximately 2739 m² of retail and 1127 m² of office space. The building is to be constructed over seven levels of underground parking which extend essentially to the property line. A copy of the architect's site statistics is included in Appendix 'A' for detail.

There is a new north-south road (identified herein as Street 'A'), a new east-west road (identified herein as Street 'B'), and a Cross Avenue Right-Of-Way (ROW) widening that will decrease the total developable area to 0.60 ha. Driveway access is provided from the proposed Street 'A' at the northeast corner of the property and from the proposed Street 'B' at the northwest corner of the property.

The existing 4.6 m wide servicing easement will be removed along with the existing services that are located within the easement (per Halton Region Standards).

1.4 Easements

The two existing easements on the site which provide storm, water and sanitary servicing for 166 South Service Road will be removed and replaced with a new proposed easement over the blocks that contain Street 'A' and Street 'B' on the site of 157/165 Cross Ave. The easement over Street 'A' and Street 'B' will be in favour of both Town and Region. A draft reference plan can be prepared if the draft plan of subdivision application timing does not align with the rezoning and site plan applications.

2.0 MUNICIPAL ROAD NETWORK

The Midtown Oakville Class EA (approved 2014) and the Liveable Oakville Plan OPA 14 (adopted 2017) identify the local road network for the Midtown growth area. Growth Area Schedule L3

(refer to Appendix 'B') of the Liveable Oakville Plan illustrates the approximate alignments and road allowance widths of various future roads in the Midtown Oakville transportation network.

We understand based on discussions with Town staff that the exact locations of the future roads are flexible and can be fixed through the planning process; however, the proposed locations must meet the intent of both the Midtown EA and OPA 14 and be justified from a traffic and engineering perspective.

This development is impacted by a new 19.0 m north-south road to the east of the property (Street 'A'), and a new 24.0 m east-south road local road to the north of the property (Street 'B').

2.1 Street 'A' (19.0 m Local Road)

The location of the future north-south local road depicted on Schedule L3 has been refined in the context of providing adequate interim vehicular access to the site. The centreline of the proposed road has been set parallel to the existing property line and with sufficient offset to permit the interim construction of a typical 19.0 m (Town std. 7-23) boulevard (4.55 m to back of curb) and 8.5 m pavement (measured face of curb to face of curb). A 0.15 m buffer is included from the back of curb on the east side of the interim road to the existing property line to allow for construction tolerance and the potential for interim fencing. A temporary working easement will be required over the lands to the east to permit construction staging and daylighting to existing grade, although the impact of this work is minimal. The remaining future road allowance will be built out by others as part of the future development of adjacent lands.

A preliminary road profile has been established that connects the existing South Service Road through to existing Cross Avenue. The proposed Street 'A' profile is compatible with the preliminary design profile of the relocated South Service Road provided in Appendix 'K' of the Midtown EA. Refer to the Preliminary Plan and Profile drawings provided in Appendix 'G' for detail.

Some future municipal services are proposed within Street 'A' and are discussed sections 3.2.1.1 and 5.2.1.

2.2 Street 'B' (24.0 m Local Road)

The Midtown Oakville EA identifies a 24.0 m wide local road along the north boundary of the subject property, connecting to Street 'A'.

The preliminary location of Street 'B' as set out by the EA includes mostly boulevard and sidewalk over the subject lands. The proposed alignment of Street 'B' is shifted parallel to the northern boundary but entirely over the site. The alignment of Street 'B' has been reviewed by the traffic consultant more carefully in the context of neighbouring developments (specifically

Figure 15.369.1 of Special Provision 369, Zoning Bylaw 2014-014, 177–185 Cross Avenue and 580 Argus Road) and there does not appear to be an impact on the development potential as a result of shifting Street 'B' south. The connection to Argus Road was also evaluated.

2.3 Conceptual Municipal Road Network Stormwater Management

Stormwater management (quantity and quality) controls for both the 19.0 m and 24.0 m local roads (Streets 'A' and 'B') will be provided within Street 'A' via an oversized pipe and orifice control. The Town of Oakville requirement for Stormwater management are set out in the Midtown Oakville EA Study (June 2014).

The applicable criteria are as follows:

1. Stormwater Quantity Control (Peak Flow Control)

Utilize the Midtown Oakville EA Study hydrology model to demonstrate that the target flows are met for each subwatershed. Per the midtown EA, the proposed road is to drain to Sixteen Mile Creek (Figure DAP-2). As there are no existing flood concerns for Sixteen Mile Creek in the study area, peak runoff rates from the development are to be controlled to existing rates. In addition to meeting the flows, a minimum storage requirement is 68.2 m³/ha.

2. Stormwater Runoff Volume Reduction (Water Balance)

Retain stormwater onsite to achieve an equivalent annual volume of infiltration as per-development conditions, as per Section 3.2 of the MOE Stormwater Management Planning and Design Manual (March 2003); or,

Provide retention of 25 mm over the entire area of the proposed development in accordance with the Town's Stormwater Master Plan.

3. Stormwater Quality Control

Achieve Enhanced Level 1 Protection, as per the Ministry of Environment's Stormwater Management Planning and Design Manual (March 2003).

The stormwater management criteria must meet the objectives of the Midtown EA (Appendix J-Stormwater Management Report) as well as any updated Town of Oakville Stormwater Management Requirements.

2.3.1 Stormwater Quantity Control (Peak Flow Control)

Using the minimum storage unit rate of 68.2 m³/ha for Sixteen Mile Creek, approximately 27.3 m³ of storage is required for the sections of Street 'A' and Street 'B' which immediately abut the subject lands. It is anticipated that as other sites develop along these roads, additional controls will be required; however, this should be reviewed and refined as part of the Town's Midtown Study.

Approximately 92.2 m of 750 mm diameter storm sewer is provided within Street 'A' to manage both 5-year conveyance and volumetric control. An orifice control plate sized to discharge the 5-year event while flowing full (to provide the required quantity control) is proposed at the downstream end of Street 'A' adjacent to the subject land.

2.3.2 Stormwater Runoff Volume Reduction (Water Balance)

The Town requires 25 mm water balance (retention) for new development based on their updated guidelines. However, it is not practicable to provide infiltration or reuse within the corridor for several reasons. It is preferable to avoid saturation of the road base, minimum setbacks from watermains must be respected (MECP F-6-1), and a minimum separation of 5 m between infiltration (drywells) facilities and buildings must be provided to meet Ontario Building Code criteria. Given that buildings are proposed with minimal setback in this high-density area, there is insufficient space within the road corridor to accommodate infiltration facilities. It is recommended that the Town review water balance requirements for all municipal roads as part of their ongoing Midtown study.

2.3.3 Stormwater Quality Control

Catch basins on the proposed municipal roads are to be fitted with CB Shields. This provides (conservatively) 50% removal of long term TSS. As part of a treatment train approach, the CB Shields are combined with a downstream Stormceptor EFO6 providing 60% removal of long term TSS. Our design is based on information obtained from the NJDEP Stormwater BMP Manual wherein it provides a simplified equation for the TSS removal rate for two BMP's in a series:

$$\begin{aligned} R &= A + B - [(A \times B) / 100] \\ &= 50\% + 60\% - [(50\% \times 60\%) / 100] \\ &= 110\% - 30\% \\ &= 80\% \end{aligned}$$

Where:

R = Total TSS Removal Rate

A = TSS Removal Rate of the First or Upstream BMP

B = TSS Removal Rate of the Second or Downstream BMP

The treatment train provides 80% long term TSS removal, meeting the requirements of MECP Enhanced treatment.

3.0 MUNICIPAL WATER

The subject property will be serviced for water through the local water infrastructure on the adjacent roads. The ASP prepared by GM BluePlan in 2020 notes there is sufficient water supply for the 2031 growth scenario, therefore, no major infrastructure is required to support development in this timeframe.

A review of the area's water servicing is being undertaken by Urbantech and their report will be provided under separate cover.

3.1 Existing Municipal Water

3.1.1 Existing Linear Infrastructure

There is an existing 300 mm diameter PVC watermain along the north side of Cross Avenue within Pressure Zone 2. There is also a 900 mm diameter CPP (Concrete Pressure Pipe) trunk watermain along the south side of Cross Avenue.

Record drawings (see Appendix 'F') indicate that there is a water service connection that runs through a servicing easement at the southeast corner of the site which connects to the 300 mm diameter PVC watermain.

A fire hydrant is available on Cross Avenue southwest of the site's frontage. A flow test will be arranged to confirm the capacity of the existing system and this report will be updated with the results when they are made available.

3.1.2 Existing Water Demands

Using the development area and Region of Halton design criteria (90 persons per ha for commercial), the existing domestic water usage is estimated and summarized below (see Appendix 'C' for supporting calculations).

Table 1: Existing Water Demands (L/min)

Average Daily Demand	5
Minimum Hourly Demand	5
Maximum Hourly Demand	11
Maximum Daily Demand	11

3.2 Proposed Municipal Water

All proposed services must be in accordance with the Ontario Building Code, Town of Oakville, and Region of Halton standards and requirements. A copy of the Interim and Ultimate Preliminary Servicing Plans (S1 and S2) are included in Appendix 'G' and should be read in conjunction with this report.

3.2.1 Proposed Linear Infrastructure

3.2.1.1 Proposed Municipal Infrastructure

A 300 mm diameter municipal watermain is proposed along the west side of Street 'A' (refer to S1 and S2 provided in Appendix 'G' for detail). The watermain will connect to the 500 mm diameter CPP watermain on South Service Road (with Pressure Zone 2), at the north end, and run south connecting into the existing 300 mm diameter waterman on Cross Ave (tapping sleeves to a valve chamber) to form a 'loop system'.

The proposed 300 mm diameter watermain serves to provide fire protection and additional domestic water services, as required, for the proposed development as well as any potential development of the adjacent lands. Approval of the watermain will be sought as part of the detailed engineering submissions and development agreements required to support the creation of Street 'A'.

3.2.1.2 Proposed Services Connections

In both interim and ultimate conditions, a 200 mm diameter fire service, 150 mm diameter domestic (residential) service, and 100 mm diameter domestic (retail) service are proposed but must be confirmed by a mechanical consultant at the detailed design stage.

A municipal fire hydrant is proposed at the midpoint of the site's eastern property line. There is also an existing municipal fire hydrant within 45 m of the southwest corner of the site. The proposed location of the fire department connection (siamese connection) for the buildings will need to be located within 45 m of a municipal fire hydrant. Fire hydrant spacing is subject to

detailed engineering design at the subdivision stage but will meet Region of Halton spacing criteria.

3.2.2 Proposed Water Demands

Using the unit count and type together with Table A-4 of the Region of Halton's 2022 Development Charges Background Study population density guidelines for residential dwellings (1.356 persons/unit for less than two bedrooms, and 1.831 persons/unit for two or more bedroom units) the residential population is estimated to be 1837 persons. The commercial population is estimated using Page A-21 of the Region of Halton 2022 DC Study population density for commercial developments (403 ft²/employee) resulting in a commercial population of 104 persons. The domestic water usage is estimated and summarized below (see Appendix 'C' for supporting calculations). The fire flow is estimated for demand purposes only using the Fire Underwriter's Survey methodology and should be confirmed by a sprinkler consultant at the building permit stage.

Table 2: Estimated Water Demands (L/min)

Average Daily Demand	371
Minimum Hourly Demand	371
Maximum Hourly Demand	1,448
Maximum Daily Demand	834
Estimated Fire Demand (FUS 1999)	6,000
Maximum Daily Plus Fire Demand	6,834

4.0 MUNICIPAL WASTEWATER

The subject property will be serviced for wastewater through the local wastewater infrastructure on Cross Avenue. The ASP notes capacity concerns for the 2031 growth scenario, and potentially some required downstream infrastructure upgrades. It is anticipated that the servicing capacity issues will be addressed in the new ASP. The planned downstream sewer upgrades would have to be constructed and in operation prior to the proposed development proceeding to the Building Permit Phase for the above ground works.

In support of this application, Urbantech has completed a Downstream Sanitary Sewer Capacity Assessment (see Appendix 'I') to identify the downstream constraints and potential solutions. That study is intended to be read in conjunction with the design presented in this report and aid in discussions with Region staff on how to move forward on the downstream upgrades. Further discussions are required with respect to design, timing, and funding of these works.

4.1 Existing Municipal Wastewater

4.1.1 Existing Linear Infrastructure

The existing building on the site is serviced by the existing 300 mm diameter PVC sanitary sewer located on Cross Avenue. The sewer drains in an easterly direction to the 525 mm diameter concrete sanitary sewer that's crosses under the Oakville GO station.

There is an existing 150 mm diameter sanitary lateral that is located within a servicing easement and services the site to north at 166 South Service Road. This servicing easement will be removed along with the sanitary lateral per Halton Region Standards.

4.1.2 Existing Wastewater Demands

Using the development area and Region of Halton design criteria for commercial lands (90 persons per hectare), the estimated existing sanitary discharge is determined with 26 persons and 275 m³/cap. day (see Appendix 'D' for supporting calculations).

Table 3: Estimated Existing Wastewater Flow (L/s)

Average Daily Dry Weather Flow	0.1
Modified Harmon Peaking Factor	-
Infiltration Allowance (0.29 L/s-ha)	0.1
Peak Flow	0.2

4.2 Proposed Municipal Wastewater

All proposed services must be in accordance with the Ontario Building Code, Town of Oakville and Region of Halton standards and requirements. A copy of the Interim and Ultimate Servicing Plans (S1 and S2) are included in Appendix 'G' and should be read in conjunction with this report.

4.2.1 Proposed Linear Infrastructure

4.2.1.1 Proposed Municipal Infrastructure

A 300 mm diameter municipal sanitary sewer is proposed near the centreline of Street 'A' (refer to S1 and S2 provided in Appendix 'G' for detail). The municipal sanitary sewer will start at the north end of Street 'A' and convey flows south, connecting into the existing 300 mm diameter sanitary sewer on Cross Ave.

The proposed 300 mm diameter sanitary sewer will service the developments towers and additional domestic sanitary laterals, as required, for the proposed development as well as any potential development of the adjacent lands. Approval of the sanitary sewer will be sought as part of the detailed engineering submission and development agreements required to support the creating of Street 'A'.

The capacity of the proposed sanitary sewer has been analyzed for the proposed sanitary flows from the development and adjacent lands, using a Sanitary Sewer Design Sheet and the Region of Halton Development Charges Background Study. The sanitary sewer was analyzed to the manhole where the proposed sewer connects into the existing sewer on Cross Ave. Refer to Figure 2 and the associated design sheet in Appendix 'D' for detail.

Our analysis indicates that the proposed municipal sanitary sewer is flowing approximately 45% full at the downstream end for the proposed Distrikt developments. Therefore, there is adequate capacity in the sewer to service the development.

Urbantech's analysis of the system (provided under separate cover) indicates that there is sufficient downstream capacity to service the site once the Region of Halton completes their upgrades. See Appendix 'I' for more details on Urbantech's analysis.

4.2.1.2 Proposed Service Connections

In both interim and ultimate conditions, two new 300 mm diameter PVC sanitary laterals, one for each tower are proposed to service the development. The laterals will be connected from 1200 mm x 1200 mm cast-in-place property line inspection manholes to the proposed 300 mm diameter municipal sanitary sewer in Street 'A'.

4.2.2 Proposed Wastewater Demands

Using the unit count and type together with Table A-4 of the Region of Halton's 2022 Development Charges Background Study population density guidelines for residential dwellings (1.356 persons/unit for less than two bedrooms and 1.831 persons/unit for two or more bedroom units) the residential population is estimated to be 1,837. The commercial population is estimated using page A-21 of the Region of Halton 2022 DC Study population density for commercial developments (403 ft²/employee) resulting in a commercial population of 104. The estimated wastewater flows are summarized in the table below (see Appendix 'D' for supporting calculations).

Table 4: Estimated Proposed Wastewater Flow (L/s)

Average Daily Dry Weather Flow	6.0
Modified Harmon Peaking Factor	3.61
Infiltration Allowance (0.286 L/s-ha)	0.17
Peak Flow	21.6

5.0 STORM DRAINAGE AND STORMWATER MANAGEMENT

5.1 Existing Storm Drainage

The site generally sheet flows in a southerly direction towards Cross Avenue. As mentioned earlier, the site is currently occupied by two commercial/retail buildings and paved parking lot, all of which will be removed as part of the development. There is no external drainage through the site under existing conditions. The existing parking lot drains using a series of catchbasins, it is unclear where the flow into the catchbasins is conveyed.

The drainage from the subject site is tributary to Sixteen Mile Creek and must continue in a southerly direction to avoid changing the receiving watershed.

There is an existing 1050 mm diameter storm sewer along the south side of Cross Avenue, however, the site does not appear to have any existing storm connections.

5.2 Proposed Storm Drainage

5.2.1 Proposed Municipal Storm Sewer

A municipal storm sewer is proposed along Street 'A' that abuts the site and will convey drainage from the future municipal road allowance and provide the minimum required storage for sections of Street 'A' and Street 'B'. The storm sewer will consist of 600 mm dia. concrete pipe down to STM MH 4, where the diameter will increase to 750 mm dia. concrete pipe. A 250 mm diameter orifice will be placed at the downstream end of STM MH4 to control the flow to the 5-year storm event. From STM MH 4 the diameter is reduced to 600 mm and connects to the existing 1050 mm diameter storm sewer in Cross Avenue which flows west and discharges in Sixteen Mile Creek. Refer to the Plan and Profile drawings (P1) included in Appendix 'G' for detail. There is some opportunity to size the storm sewer to accommodate additional lands, but this discussion should be undertaken with the Town in conjunction with the planning submissions for the lands to the south (i.e., the extension to Cross Avenue).

5.2.2 Proposed Storm Sewer Service Connection

A 450 mm diameter storm connection along with property line inspection manhole will connect to the proposed 600 mm diameter municipal storm sewer in Street 'A.

5.3 Stormwater Management

The Town of Oakville requirements for stormwater management are set out in the Midtown Oakville EA Study (June 2014).

The applicable criteria are as follows:

1. Stormwater Quantity Control (Peak Flow Control)

Utilize the Midtown Oakville EA Study hydrology model to demonstrate that the target flows are met for each subwatershed. Per the Midtown EA, the proposed development is to drain to Sixteen Mile Creek (Figure DAP-2). As there are no existing flood concerns for Sixteen Mile Creek in the study area, peak runoff rates from the development are to be controlled to existing rates. In addition to meeting the flows, a minimum storage requirement is 68.2 m³/ha.

2. Stormwater Runoff Volume Reduction (Water Balance)

Retain stormwater onsite to achieve an equivalent annual volume of infiltration as per-development conditions, as per Section 3.2 of the MOE Stormwater Management Planning and Design Manual (March 2003); or,

Provide retention of 25 mm over the entire area of the proposed development in accordance with the Town's Stormwater Master Plan.

3. Stormwater Quality Control

Achieve Enhanced Level 1 Protection, as per the Ministry of Environment's Stormwater Management Planning and Design Manual (March 2003).

5.3.1 Stormwater Quantity Control (Peak Flow Control)

Pre-development flow rates are calculated using the Town of Oakville IDF curves, a runoff coefficient of C=0.88 (assuming C=0.25 for pervious area and C=0.90 for impervious area), and a development area of 0.96 ha. Post-development flow rates are calculated using the same IDF data, runoff coefficient of C=0.9 and the same area. In the determination of the post-development runoff coefficient, we have not accounted for any landscaping in the interior courtyard, or rooftop amenity space to remain conservative, although this will be refined as detailed design progresses.

A conservative value of post-development runoff coefficient ensures adequate sizing of the stormwater management tank during the preliminary design stage.

Although we acknowledge the Town does not permit uncontrolled discharge of groundwater to the Town's storm sewer, we propose to over control the site's storm runoff such that the total combined storm and groundwater discharge is less than or equal to the allowable storm discharge rate. The groundwater flow from the site will by-pass the stormwater tank and be directed to the property line storm manhole (treated if required) and flow uncontrolled to the storm sewer in Street 'A'. The long-term sub-drain flow (groundwater flow) of 72,000 L/day (0.83 L/s) was determined in the Hydrogeological Investigation prepared by B.I.G Consulting Inc. (BIGC-ENV-623A) dated October 2023 and is discussed in further detail in Section 6.0.

To control stormwater runoff from the site, an underground stormwater tank system is proposed. The proposed stormwater management tank system will pump stormwater to the proposed storm lateral connecting into the storm sewer in Street 'A'. The maximum release rate is the 5-year pre-development peak flow, however, in coordination discussions with mechanical consultants the preferred pump release rate is 63 L/s (1000 gpm) which is significantly less than the maximum allowable 5-year flow. Therefore, the required storage volumes are based on the preferred pump release rate.

The table below summarizes the required storage volumes when the post-development flows are controlled to the preferred pump release rate of 63 L/s.

Table 5: Stormwater Flows

Return	Pre-Dev Total (L/s)	Post-Dev Controlled (L/s)	Post-Dev Uncontrolled (L/s)	Ground-water Flow (L/s)	Total Post-Dev Site Flow (L/s)	Max. Allowable Release Rate from Site (L/s)	Storage Required (m ³)
2-yr	128	63	18	0.83	82	130	33.8
5-yr	178	63	25	0.83	88	130	69.1
10-yr	210	63	29	0.83	92	130	93.0
25-yr	278	63	38	0.83	101	130	145.0
50-yr	324	63	44	0.83	107	130	175.1
100-yr	358	63	48	0.83	111	130	201.3

Using the pre-development site area, the minimum storage requirement per the Midtown Oakville EA is 88.0 m³. Controlling the post-development flows to the preferred pump release rate, the storage requirements yield a higher storage requirement and therefore governs.

The runoff coefficient and associated tank sizing may be refined as detailed design progresses.

Runoff from the site will be collected through the roof drains, trench drains, and surface area drains. Plumbing interior to the building and underground parking structure (designed by the mechanical engineer) will direct runoff to the stormwater tank located on P1 to P3 and must be sized to capture the 100-year event. An emergency overland flow route is provided through the site to Cross Ave. An emergency overflow from the tank must be designed in coordination with the mechanical consultant at the detailed design stage but will likely discharge to grade in the general vicinity of the tank.

5.3.2 Stormwater Runoff Volume Reduction

A retention of 5 mm is required as per the Midtown EA hydrology study. However, in discussions with the Town, staff have recommended utilizing a retention of 25 mm (refer to correspondence in Appendix 'G'). Accordingly, we have estimated a 25 mm retention volume of 151.1 m³ which must be re-used.

The stormwater management tank has been sized to store this volume in addition to the volume required for peak flow control. There are limited opportunities for infiltration, so the re-use water will be used for onsite irrigation or other acceptable best efforts. Additional details will be provided through detailed design.

5.3.3 Stormwater Quality Control

The Town of Oakville requires that the development meet MECP Enhanced protection (80% long-term removal of TSS). A Stormceptor Jellyfish (or approved equivalent) is proposed to treat TSS loaded areas from the vehicular and at-grade pedestrian areas only. Clean roof drainage is to bypass the filtration system. The Jellyfish is to be located upstream of the stormwater management tank and is provided with an outlet pipe and an overflow weir, both directed to the tank. An adequately maintained filtration system provides 80% long-term removal of TSS. Sizing of the Jellyfish will be undertaken as the detailed design progresses but will be provided prior to final approval.

6.0 GROUNDWATER

A Hydrogeological Investigation was performed by B.I.G. Consulting Inc. (dated October 2023) in which the long-term peak groundwater flow rate into the parking garage sub drains after initial dewatering stages was estimated to be 72,000 L/day (0.83 L/s). These flows may be treated and discharged uncontrolled using the proposed stormwater lateral.

In the event the Town does not support over-controlling the storm discharge, the proposed building may be designed and supported by “tanked” water-proofed continuous raft foundation without permanent dewatering.

Refer for Hydrogeological Investigation prepared by B.I.G. Consulting (BIGC-ENV-623A) dated October 2023 for details.

7.0 SITE GRADING

The proposed grading must ensure that drainage from the 100-year event is collected by the buildings mechanical system and conveyed to the stormwater management tank. All building air intake and exhaust shafts must be protected from overland flow by being set a minimum of 0.2 m above the spill elevation.

The proposed property line elevations adjacent to Street ‘A’ have been set in conjunction with a preliminary road design prepared as part of this submission. When the adjacent lands develop, the full road cross-section can be constructed to its ultimate condition. A temporary working easement is required on the adjacent lands to facilitate the construction of the road.

The proposed property line elevations adjacent to Street ‘B’ have been set in conjunction with a preliminary road design prepared as part of this submission. The property line elevations have been set to maintain positive drainage towards the roadway.

A copy of the Interim and Ultimate Preliminary Grading Plan (G1 and G2) are provided in Appendix ‘G’ and should be read in conjunction with this report.

8.0 EROSION AND SEDIMENT CONTROL

Erosion and sediment controls must be installed prior to the commencement of any construction. The erosion and sediment control devices should follow the Erosion and Sediment Control Guidelines for Urban Construction as set out by the Greater Golden Horseshoe Conservation Authority. Erosion and sediment control measures may be implemented as follows:

- Double wrapped catch basins: The proposed storm sewer catch basins and catch basin manholes located within the subject site and adjacent municipal roads shall be double wrapped in a woven geotextile material. Woven geotextile material is to be replaced periodically when accumulated sediments interfere with drainage. The abutting streets should be monitored and if required, swept to mitigate the accumulation of tracked material on the roads on a routine basis in keeping with good construction housekeeping practices.

- Gravel Access Pad: A gravel access (mud) mat will be installed at the entrance to the construction zone to prevent mud tracking from the site to the municipal roads.
- Silt Fencing: Silt fence will be installed along the property line to intercept sheet flow.

An Erosion and Sediment Control Plan (E1) is provided in Appendix 'G' and should be read in conjunction with this report.

9.0 CONCLUSION

The information presented in this Functional Servicing Report demonstrates that the proposed development can be serviced by the existing and future adjacent infrastructure for water, wastewater, stormwater and can meet the Town of Oakville stormwater management criteria.

The following is a summary of the report findings:

- As part of the Midtown Oakville EA there are road dedications required to service the property: Street 'A' (19.0 m local road) to the east of the site and Street 'B' (24.0 m local road) to the north.
- There is an existing 300 mm diameter municipal water infrastructure adjacent to the site on Cross Ave. The proposed average daily water demand for the site is 371 L/min with an estimated maximum daily plus fire demand of 6,834 L/min.
- There is existing 300 mm diameter municipal wastewater infrastructure servicing the site on Cross Ave. The estimated peak wastewater flow based on Region of Halton criteria is 21.6 L/s for the entire site. Per the Urbantech analysis, there is sufficient downstream capacity to accommodate the development once the Region's capital works project is complete.
- Stormwater quantity controls will be provided by controlling post development peak flows to the preferred pump release rate. Storage will be provided in a stormwater tank located in the underground parking structure. Stormwater will be pumped to the preferred release rate of 63 L/s to a proposed 450 mm diameter storm connection connecting into the proposed municipal storm sewer in Street 'A'. The required storage volume is 201.3 m³.
- Groundwater will be collected, treated if required, and discharged uncontrolled to the municipal storm sewer in Street 'A' using the 450 mm diameter storm sewer connection. The groundwater uncontrolled flow is equivalent to 0.83 L/s. The site's allowable storm discharge rate has been reduced to reflect the addition of groundwater flow.

- The water balance criteria of 25 mm is equivalent to 151.1 m³ of storage. This water will also be stored in the underground stormwater tank and will be re-used for irrigation and other best efforts to be determined at the detailed design stage.
- Water quality criteria is met by means of a stormwater filtration system (Jellyfish unit), placed upstream of the stormwater tank.
- Grading of the site is designed to ensure runoff from the 100-year event is captured, and there is an emergency overland flow route.
- Erosion and sediment controls will be implemented during construction in accordance with the Erosion and Sediment Control Guidelines for Urban Construction as set out by the Greater Golden Horseshoe Conservation Authority.

Based on the above, we support the proposed development from a civil engineering perspective for rezoning and Official Plan Amendment.

PREPARED BY TRAFALGAR ENGINEERING LTD.



Andy Prejs, MSc, EIT
Intermediate Designer



J.T. Nelson, P.Eng.
Principal, Design Services

Digitally signed by
James Tarleton Nelson
-- P.Eng. - PEO
Date: 2024.03.05
16:05:12 -05'00'

APPENDIX 'A'

SHEET LIST

- A000 - PROJECT INFORMATION
- A001 - SHEET LIST, ZONING REQUIREMENTS
- A101 - SITE SURVEY
- A111 - SITE PLAN @ ROOF LEVEL
- A112 - LOADING PLAN
- A113 - WASTE MANAGEMENT PLAN
- A200 - FLOOR PLANS
- A201 - LEVEL P7 PLAN
- A202 - LEVEL P6 PLAN
- A203 - LEVEL P5 PLAN
- A204 - LEVEL P4 PLAN
- A205 - LEVEL P3 PLAN
- A206 - LEVEL P2 PLAN
- A207 - LEVEL P1 PLAN
- A211 - LEVEL 1 PLAN
- A212 - LEVEL MEZZ PLAN
- A214 - LEVEL 4 PLAN
- A215 - LEVEL 5 PLAN
- A216 - LEVEL 5 PLAN
- A217 - L06, L07 & L08, L09 (A) & L40, L41 (B)
- A218 - L08, L09 & L06, L07 (A) & L40, L41 (B)
- A220 - L10, L11 & L54, L55 (A) & L38, L39 (B)
- A221 - L12, L13 & L52, L53 (TOWER A)
- A222 - LEVEL 14 (TYP TOWER)
- A223 - L44, L45 (TOWER B)
- A224 - L60, L61 (TOWER A)
- A225 - LEVEL MPH
- A226 - LEVEL MPH ROOF
- A227 - ROOF PLAN
- A400 - ELEVATIONS
- A401 - NORTH & SOUTH ELEVATIONS
- A402 - EAST & WEST ELEVATIONS
- A500 - SECTIONS
- A501 - BUILDING SECTIONS
- A700 - RENDERINGS
- A701 - PERSPECTIVES
- A702 - PERSPECTIVES

BUILDING STATISTICS - OVERALL

GCA BY LEVEL (BELOW GRADE)					
LEVELS	AREA PER LEVEL		NO. OF TYP LEVELS	TOTAL AREA	
	(SM)	(SF)		(SM)	(SF)
LEVEL P7	5,688.49 m ²	61,230 SF	1	5,688.49 m ²	61,230 SF
LEVEL P6	5,688.49 m ²	61,230 SF	1	5,688.49 m ²	61,230 SF
LEVEL P5	5,688.49 m ²	61,230 SF	1	5,688.49 m ²	61,230 SF
LEVEL P4	5,688.49 m ²	61,230 SF	1	5,688.49 m ²	61,230 SF
LEVEL P3	5,688.49 m ²	61,230 SF	1	5,688.49 m ²	61,230 SF
LEVEL P2	5,688.49 m ²	61,230 SF	1	5,688.49 m ²	61,230 SF
LEVEL P1	5,688.49 m ²	61,230 SF	1	5,688.49 m ²	61,230 SF
TOTAL	39,819.44 m²	428,613 SF	1	39,819.44 m²	428,613 SF

GCA BY LEVEL (ABOVE GRADE)					
LEVELS	AREA PER LEVEL		NO. OF TYP LEVELS	TOTAL AREA	
	(SM)	(SF)		(SM)	(SF)
LEVEL 01	3,814.26 m ²	41,057 SF	1	3,814.26 m ²	41,057 SF
LEVEL MEZZANINE	4,352.13 m ²	46,846 SF	1	4,352.13 m ²	46,846 SF
LEVEL 02	3,882.64 m ²	41,792 SF	1	3,882.64 m ²	41,792 SF
LEVEL 03	3,046.43 m ²	32,792 SF	1	3,046.43 m ²	32,792 SF
LEVEL 04	1,934.93 m ²	20,827 SF	1	1,934.93 m ²	20,827 SF
LEVEL 05	1,802.04 m ²	19,397 SF	1	1,802.04 m ²	19,397 SF
TYP	1,675.58 m ²	18,036 SF	4	6,702.34 m ²	72,143 SF
TYP	1,685.90 m ²	18,147 SF	4	6,743.60 m ²	72,568 SF
TYP	1,694.57 m ²	18,240 SF	4	6,778.27 m ²	72,961 SF
TYP L12, L13 & L52, L53	849.13 m ²	9,140 SF	4	3,396.50 m ²	36,560 SF
TYP L44, L45	1,700.44 m ²	18,303 SF	61 / 45	54,413.95 m ²	585,707 SF
LEVEL L06	835.13 m ²	8,989 SF	2	1,670.26 m ²	17,978 SF
LEVEL MPH	835.13 m ²	8,989 SF	1	835.13 m ²	8,989 SF
UPPER ROOF	173.20 m ²	1,864 SF	1	173.20 m ²	1,864 SF
TYP L60, L61	830.44 m ²	8,939 SF	2	1,660.88 m ²	17,878 SF
LEVEL MPH	830.44 m ²	8,939 SF	1	830.44 m ²	8,939 SF
UPPER ROOF	165.97 m ²	1,786 SF	1	165.97 m ²	1,786 SF
TOTAL	30,108.37 m²	324,084 SF		102,202.99 m²	1,100,104 SF

BUILDING STATISTICS - TOWER A

GCA BY LEVEL (ABOVE GRADE) TOWER A					
LEVELS	AREA PER LEVEL		NO. OF TYP LEVELS	TOTAL AREA	
	(SM)	(SF)		(SM)	(SF)
LEVEL 01	2,229.53 m ²	23,988 SF	1	2,229.53 m ²	23,988 SF
LEVEL MEZZANINE	1,866.97 m ²	20,096 SF	1	1,866.97 m ²	20,096 SF
LEVEL 02	1,949.72 m ²	20,967 SF	1	1,949.72 m ²	20,967 SF
LEVEL 03	1,443.06 m ²	15,533 SF	1	1,443.06 m ²	15,533 SF
LEVEL 04	971.03 m ²	10,452 SF	1	971.03 m ²	10,452 SF
LEVEL 05	900.66 m ²	9,665 SF	1	900.66 m ²	9,665 SF
TYP L06, L07 & L08, L09	835.13 m ²	8,989 SF	4	3,340.50 m ²	35,957 SF
TYP L08, L09 & L06, L07	840.46 m ²	9,047 SF	4	3,361.84 m ²	36,186 SF
TYP L10, L11 & L54, L55	845.44 m ²	9,100 SF	4	3,381.76 m ²	36,401 SF
TYP L12, L13 & L52, L53	849.13 m ²	9,140 SF	4	3,396.50 m ²	36,560 SF
TYP TOWER L14 TO L37	850.22 m ²	9,152 SF	38	32,308.28 m ²	347,763 SF
TYP L61, L61	830.44 m ²	8,939 SF	2	1,660.88 m ²	17,878 SF
LEVEL MPH	830.44 m ²	8,939 SF	1	830.44 m ²	8,939 SF
UPPER ROOF	165.97 m ²	1,786 SF	1	165.97 m ²	1,786 SF
TOTAL	15,408.18 m²	165,852 SF		57,807.15 m²	622,231 SF

BUILDING STATISTICS - TOWER B

GCA BY LEVEL (ABOVE GRADE) TOWER B					
LEVELS	AREA PER LEVEL		NO. OF TYP LEVELS	TOTAL AREA	
	(SM)	(SF)		(SM)	(SF)
LEVEL 01	1,584.76 m ²	17,058 SF	1	1,584.76 m ²	17,058 SF
LEVEL MEZZANINE	455.13 m ²	4,899 SF	1	455.13 m ²	4,899 SF
LEVEL 02	1,295.28 m ²	13,942 SF	1	1,295.28 m ²	13,942 SF
LEVEL 03	1,603.37 m ²	17,259 SF	1	1,603.37 m ²	17,259 SF
LEVEL 04	963.90 m ²	10,375 SF	1	963.90 m ²	10,375 SF
LEVEL 05	901.30 m ²	9,702 SF	1	901.30 m ²	9,702 SF
TYP L06, L07 & L40, L41	840.46 m ²	9,047 SF	4	3,361.84 m ²	36,186 SF
TYP L08, L09 & L40, L41	845.44 m ²	9,100 SF	4	3,381.76 m ²	36,401 SF
TYP L10, L11 & L38, 39	849.13 m ²	9,140 SF	4	3,396.50 m ²	36,560 SF
TYP TOWER L12 TO L37	850.22 m ²	9,152 SF	38	32,308.28 m ²	347,763 SF
TYP L44, L45	835.13 m ²	8,989 SF	2	1,670.26 m ²	17,978 SF
LEVEL MPH	835.13 m ²	8,989 SF	1	835.13 m ²	8,989 SF
UPPER ROOF	173.20 m ²	1,864 SF	1	173.20 m ²	1,864 SF
TOTAL	12,032.51 m²	129,517 SF		41,728.17 m²	449,158 SF

UNIT SUMMARY 1					
UNIT CATEGORY	SIZE RANGE	MINIMUM (SF)	MAXIMUM (SF)	COUNT	%
2B	616 SF	895 SF	346	29%	
3B	761 SF	999 SF	100	8%	
TOTAL			1198	100%	

UNIT SUMMARY 2					
UNIT TYPE	SIZE RANGE	MINIMUM (SF)	MAXIMUM (SF)	COUNT	%
1B+D	552 SF	595 SF	403	38%	
2B	616 SF	895 SF	346	29%	
3B	761 SF	999 SF	100	8%	
TOTAL			1198	100%	

AREA BY TYPE		
AREA TYPE	(SM)	(SF)
EXTERIOR	1,326.40 m ²	14,277 SF
INDOOR AMENITY	3,645.26 m ²	39,270 SF
OFFICE COMMON AREA - OFFICE	99.50 m ²	1,071 SF
OFFICE LEASABLE	1,027.15 m ²	11,056 SF
OTHER	6,272.29 m ²	67,514 SF
OUTDOOR AMENITY	1,480.77 m ²	15,939 SF
RES. COMMON AREA	7,155.41 m ²	77,020 SF
RES. SERVICE	2,841.02 m ²	30,580 SF
RETAIL COMMON AREA	264.64 m ²	2,850 SF
RETAIL LEASABLE	2,692.80 m ²	28,965 SF
SALEABLE	67,572.32 m ²	727,342 SF

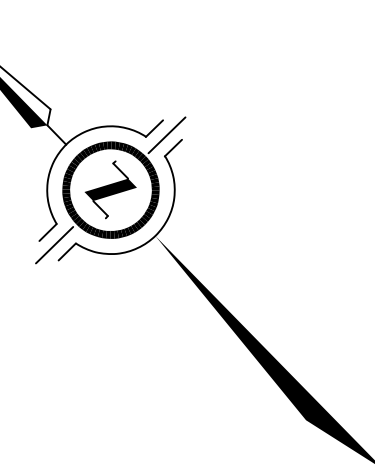
UNIT SUMMARY 1 TOWER A				
UNIT CATEGORY	MINIMUM (SF)	MAXIMUM (SF)	COUNT	%
2B	616 SF	776 SF	168	24%
3B	804 SF	999 SF	62	9%
TOTAL			694	

UNIT SUMMARY 2 TOWER A					
UNIT TYPE	SIZE RANGE	MINIMUM (SF)	MAXIMUM (SF)	COUNT	%
1B+D	552 SF	595 SF	290	39%	
2B	616 SF	776 SF	168	23%	
3B	804 SF	999 SF	62	8%	
TOTAL			694	93%	

UNIT SUMMARY 1 TOWER B				
UNIT CATEGORY	MINIMUM (SF)	MAXIMUM (SF)	COUNT	%
2B	620 SF	895 SF	178	35%
3B	761 SF	892 SF	38	8%
TOTAL			504	

UNIT SUMMARY 2 TOWER B					
UNIT TYPE	SIZE RANGE	MINIMUM (SF)	MAXIMUM (SF)	COUNT	%
1B+D	552 SF	587 SF	163	30%	
2B	620 SF	895 SF	178	33%	
3B	761 SF	892 SF	38	7%	
TOTAL			504	92%	

UNIT SUMMARY (PER LEVEL)				
LEVEL	UNIT CATEGORY	MINIMUM (SF)	MAXIMUM (SF)	COUNT
LEVEL 04	2B	620 SF	895 SF	11
LEVEL 04	3B	761 SF	999 SF	1
LEVEL 05	1B	523 SF	587 SF	24
LEVEL 05	2B	620 SF	895 SF	11
LEVEL 05	3B	761 SF	999 SF	3
LEVEL 06	1B	523 SF	587 SF	24
LEVEL 06	2B	620 SF	895 SF	11
LEVEL 06	3B	761 SF	999 SF	3
LEVEL 07	1B	523 SF	587 SF	24
LEVEL 07	2B	620 SF	895 SF	11
LEVEL 07	3B	761 SF	999 SF	3
LEVEL 08	1B	523 SF	587 SF	24
LEVEL 08	2B	620 SF	895 SF	11
LEVEL 08	3B	761 SF	999 SF	3
LEVEL 09	1B	523 SF	587 SF	24
LEVEL 09	2B	620 SF	895 SF	11
LEVEL 09	3B	761 SF	999 SF	3
LEVEL 10	1B	523 SF	587 SF	24
LEVEL 10	2B	620 SF	895 SF	11
LEVEL 10	3B	761 SF	999 SF	3
LEVEL 11	1B	523 SF	587 SF	24
LEVEL 11	2B	620 SF	895 SF	11
LEVEL 11	3B	761 SF	999 SF	3
LEVEL 12	1B	523 SF	587 SF	24
LEVEL 12	2B	620 SF	895 SF	11
LEVEL 12	3B	761 SF	999 SF	3
LEVEL 13	1B	523 SF	587 SF	24
LEVEL 13	2B	620 SF	895 SF	11
LEVEL 13	3B	761 SF	999 SF	3
LEVEL 14	1B	523 SF	587 SF	24
LEVEL 14	2B	620 SF	895 SF	11
LEVEL 14	3B	761 SF	999 SF	3
LEVEL 15	1B	523 SF	587 SF	24
LEVEL 15	2B	620 SF	895 SF	11
LEVEL 15	3B	761 SF	999 SF	3
LEVEL 16	1B	523 SF	587 SF	24
LEVEL 16	2B	620 SF	895 SF	11
LEVEL 16	3B	761 SF	999 SF	3
LEVEL 17	1B	523 SF	587 SF	24
LEVEL 17	2B	620 SF	895 SF	11
LEVEL 17	3B	761 SF	999 SF	3
LEVEL 18	1B	523 SF	587 SF	24
LEVEL 18	2B	620 SF	895 SF	11
LEVEL 18	3B	761 SF	999 SF	3
LEVEL 19	1B	523 SF	587 SF	24
LEVEL 19	2B	620 SF	895 SF	11
LEVEL 19	3B	761 SF	999 SF	3
LEVEL 20	1B	523 SF	587 SF	24
LEVEL 20	2B	620 SF	895 SF	11
LEVEL 20	3B	761 SF	999 SF	3
LEVEL 21	1B	523 SF	587 SF	24
LEVEL 21	2B	620 SF	895 SF	11
LEVEL 21	3B	761 SF	999 SF	3
LEVEL 22	1B	523 SF	587 SF	24
LEVEL 22	2B	620 SF	895 SF	11
LEVEL 22	3B	761 SF	999 SF	3
LEVEL 23	1B	523 SF	587 SF	24
LEVEL 23	2B	620 SF	895 SF	



NOTES

BEARINGS ARE UTM GRID, DERIVED FROM REAL TIME NETWORK (RTN) OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0).
DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999727.
FOR BEARING COMPARISONS, A ROTATION OF 0°56'20" COUNTER-CLOCKWISE WAS APPLIED TO BEARINGS ON P1 AND P2.

INTEGRATION DATA		
OBSERVED REFERENCE POINTS (ORPs):	UTM ZONE 17, NAD83 (CSRS) (2010.0).	
COORDINATES TO AN URBAN ACCURACY PER SECTION 14 (2) OF O.R.G. 216/10.		
POINT ID	EASTING	NORTHING
ORP (A)	606 320.94	4 812 349.18
ORP (B)	606 411.30	4 812 261.17

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

PART 2 - SURVEY REPORT

DESCRIPTION
PART OF LOT 14, CONCESSION 3, SOUTH OF DUNDAS STREET, FORMERLY IN THE TOWNSHIP OF TRAFALGAR, NOW IN THE TOWN OF OAKVILLE, REGIONAL MUNICIPALITY OF HALTON, DESCRIBED AS PARTS 1, 2, 3, 4, 5 AND 6, PLAN 20R-5913, SAVE AND EXCEPT PARTS 1, 2 AND 3, PLAN 20R-10193, BEING PIN 24816-0047 (LT).

REGISTERED EASEMENTS AND/OR RIGHTS-OF-WAY
SUBJECT TO AN EASEMENT AS IN INSTRUMENT No. 589004.
SUBJECT TO AN EASEMENT AS IN INSTRUMENT No. 582527.

BOUNDARY FEATURES
FENCES FOUND AS SHOWN ON FACE OF PLAN.

ZONING COMPLIANCE
COMPLIANCE WITH ONTARIO BUILDING CODE SETBACK REQUIREMENTS ARE NOT VERIFIED BY THIS SURVEY.

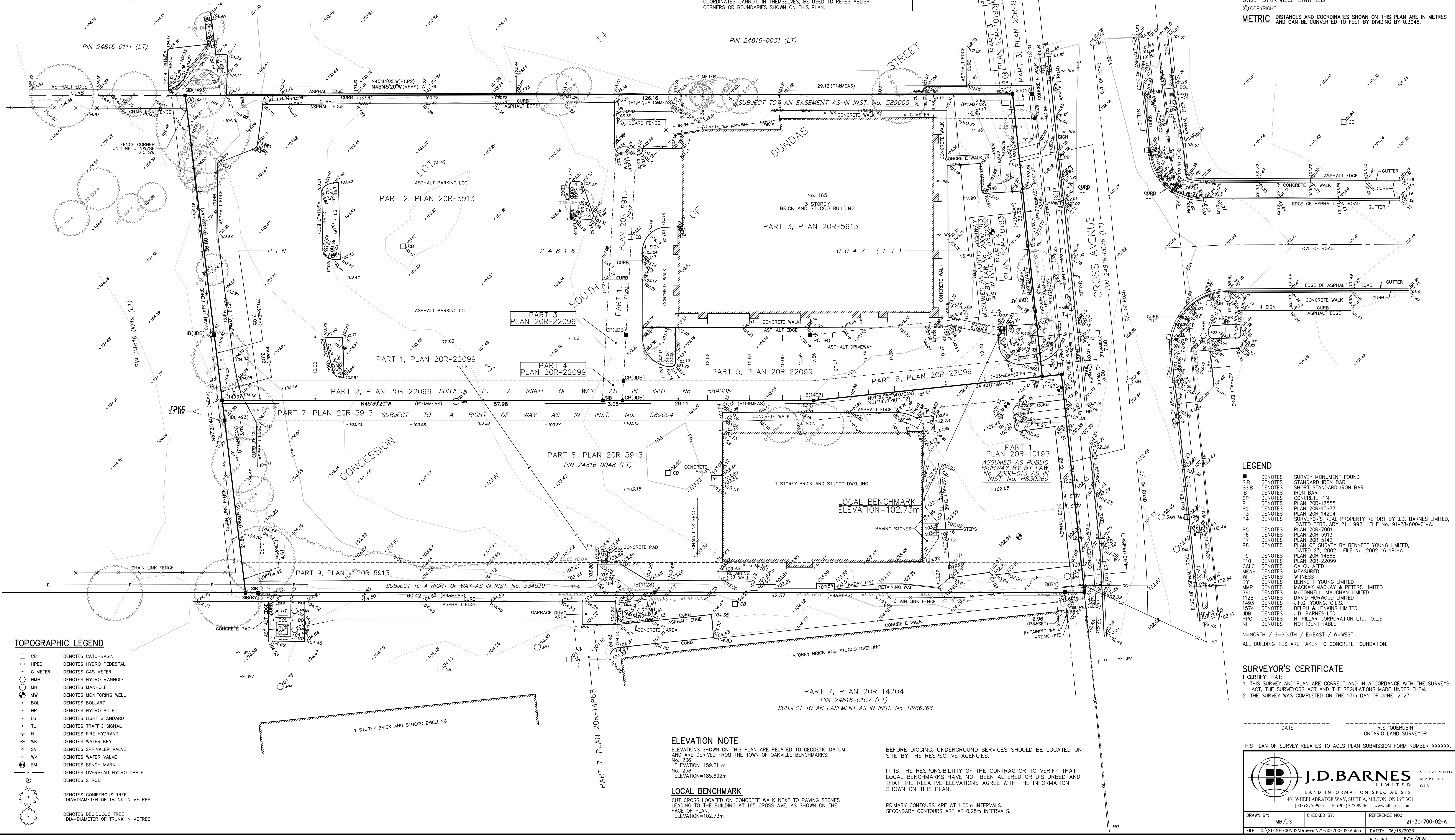
ADDITIONAL REMARKS
PREPARED FOR DISTRICT CAPITAL

SURVEYOR'S REAL PROPERTY REPORT ILLUSTRATING TOPOGRAPHY

PART 1 - PLAN OF SURVEY OF PART OF LOT 14 CONCESSION 3 SOUTH OF DUNDAS STREET (GEOGRAPHIC TOWNSHIP OF TRAFALGAR) TOWN OF OAKVILLE REGIONAL MUNICIPALITY OF HALTON

SCALE 1 : 250

J.D. BARNES LIMITED
© COPYRIGHT
METRIC DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.



TOPOGRAPHIC LEGEND

	DENOTES CATCHBASIN
	DENOTES HYDRO PEDESTAL
	DENOTES GAS METER
	DENOTES HYDRO MANHOLE
	DENOTES MANHOLE
	DENOTES MONITORING WELL
	DENOTES BOLLARD
	DENOTES HYDRO POLE
	DENOTES LIGHT STANDARD
	DENOTES TRAFFIC SIGNAL
	DENOTES FIRE HYDRANT
	DENOTES WATER KEY
	DENOTES SPRINKLER VALVE
	DENOTES WATER VALVE
	DENOTES BENCH MARK
	DENOTES OVERHEAD HYDRO CABLE
	DENOTES SHRUB
	DENOTES CONIFEROUS TREE
	DENOTES DECIDUOUS TREE

ELEVATION NOTE

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE TOWN OF OAKVILLE BENCHMARKS:
No. 236 ELEVATION=159.311m
No. 258 ELEVATION=185.692m

LOCAL BENCHMARK
CUT CROSS LOCATED ON CONCRETE WALK NEXT TO PAVING STONES LEADING TO THE BUILDING AT 165 CROSS AVE., AS SHOWN ON THE FACE OF PLAN.
ELEVATION=102.73m

BEFORE DIGGING, UNDERGROUND SERVICES SHOULD BE LOCATED ON SITE BY THE RESPECTIVE AGENCIES.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT LOCAL BENCHMARKS HAVE NOT BEEN ALTERED OR DISTURBED AND THAT THE RELATIVE ELEVATIONS AGREE WITH THE INFORMATION SHOWN ON THIS PLAN.

PRIMARY CONTOURS ARE AT 1.00m INTERVALS.
SECONDARY CONTOURS ARE AT 0.25m INTERVALS.

LEGEND

	DENOTES SURVEY MONUMENT FOUND
	DENOTES STANDARD IRON BAR
	DENOTES SHORT STANDARD IRON BAR
	DENOTES IRON BAR
	DENOTES CONCRETE PIN
	DENOTES PLAN 20R-17555
	DENOTES PLAN 20R-15677
	DENOTES PLAN 20R-14204
	DENOTES PLAN 20R-5142
	DENOTES PLAN 20R-7001
	DENOTES PLAN 20R-5913
	DENOTES PLAN 20R-5142
	DENOTES PLAN OF SURVEY BY BENNETT YOUNG LIMITED, DATED 23, 2002, FILE NO. 2002 16 1P1-A
	DENOTES PLAN 20R-14868
	DENOTES PLAN 20R-22099
	DENOTES CALCULATED MEASURED
	DENOTES WITNESS
	DENOTES BENNETT YOUNG LIMITED
	DENOTES MACKAY MACKAY & PETERS LIMITED
	DENOTES MCCONNELL MAUGHAN LIMITED
	DENOTES DAVID HORWOOD LIMITED
	DENOTES J.F.G. YOUNG, O.L.S.
	DENOTES DELPH & JENKINS LIMITED
	DENOTES J.D. BARNES LTD.
	DENOTES PILLAR CORPORATION LTD., O.L.S.
	DENOTES NOT IDENTIFIABLE

N=North / S=South / E=East / W=West
ALL BUILDING TIES ARE TAKEN TO CONCRETE FOUNDATION.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:
1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 13th DAY OF JUNE, 2023.

DATE: _____ R.S. QUERUBIN
ONTARIO LAND SURVEYOR

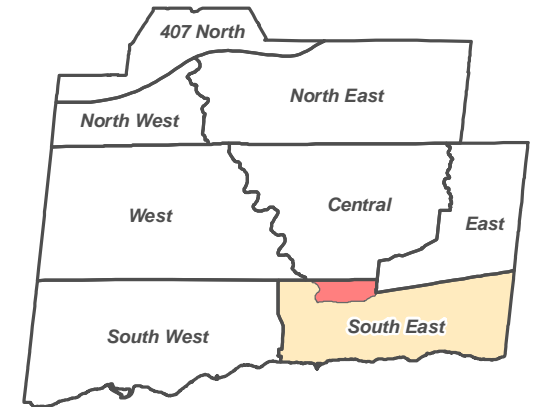
THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER XXXXXX.













J.D. BARNES LIMITED
LAND INFORMATION SPECIALISTS
401 WHEELABORATOR WAY, SUITE A, MILTON, ON L9T 5C1
T: (905) 875-9955 F: (905) 875-9956 www.jdbarnes.com

DRAWN BY: MB/DS CHECKED BY: _____ REFERENCE NO.: 21-30-700-02-A
FILE: G:\21-30-700\02\Drawing\21-30-700-02-A.dgn DATED: 06/16/2023
PLOTTED: 6/16/2023

APPENDIX 'B'

SCHEDULE L3 MIDTOWN OAKVILLE TRANSPORTATION NETWORK



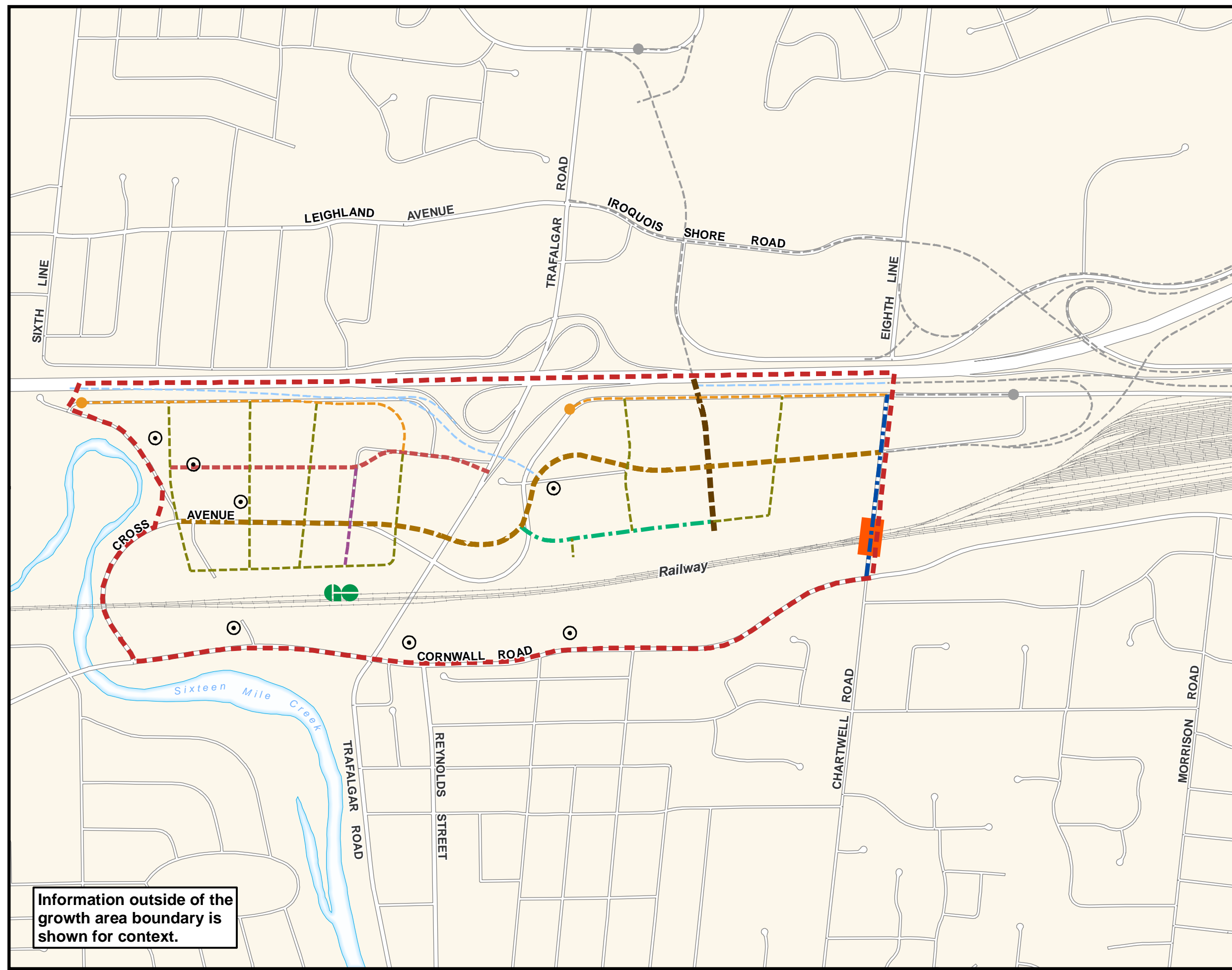
-  Growth Area Boundary
 -  Existing Road Network
 -  Future 32 m Multi-Purpose Arterial Road (North-South Crossing)
 -  Future 28 m Minor Arterial Road (Cross Avenue)
 -  Future 26 m Local Road (Station Road)
 -  Future 24 m Minor Arterial Road (Chartwell Road)
 -  Future 22 m Local Road
 -  Future 20 m Local Road
 -  Future 19 m Local Road
 -  Future 18 m Local Road
 -  Future Ramp
 -  Future Cul-de-sac
 -  Future Railway Grade Separation
 -  Railway
 -  Major Transit Station
- Refer to Part E, Midtown Oakville, for Growth Area Policies
-  Refer to Part E, Midtown Oakville Exceptions

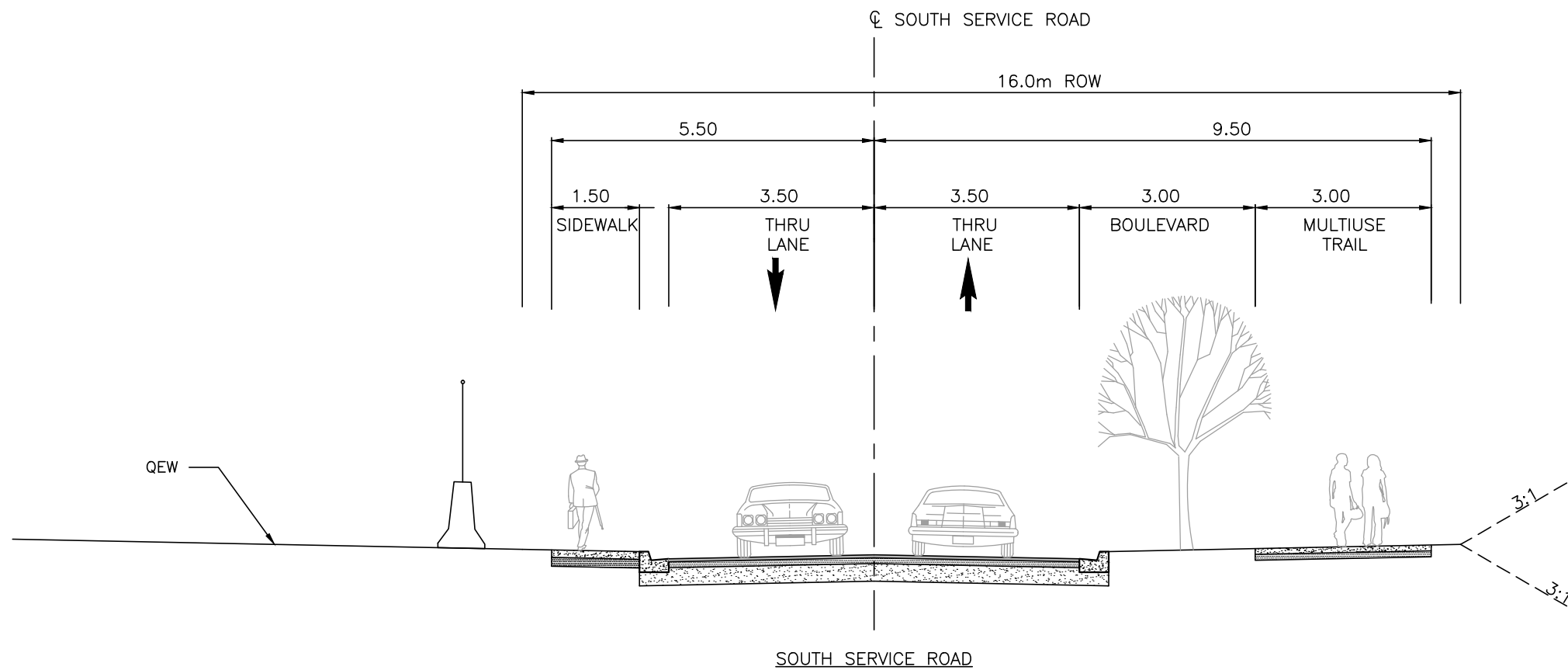
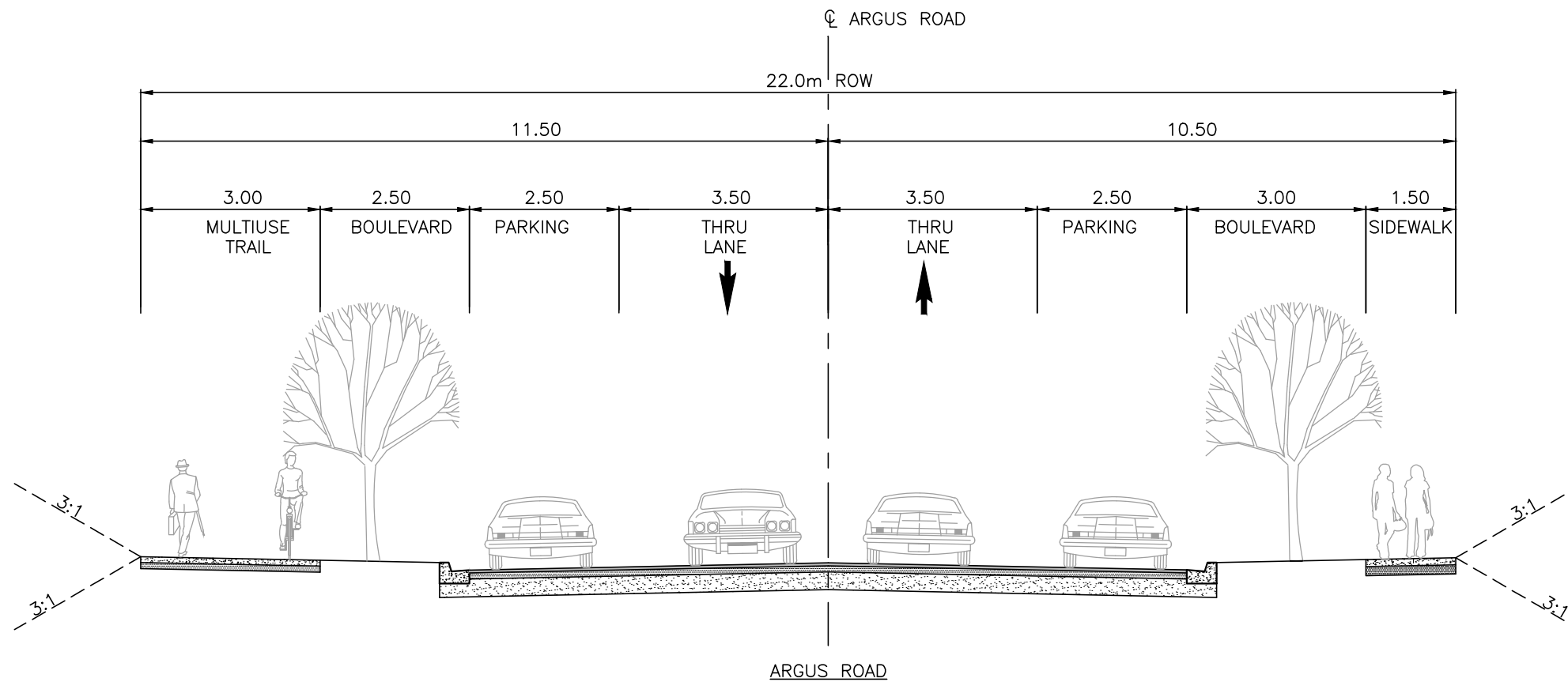


1:9,000

August 31, 2021

Information outside of the growth area boundary is shown for context.





1	JUN 14	ROS	FINAL REPORT	SS	IZ
NO		Date	By	REVISIONS	
Design	ROS	Ch'kd	DS	Date	JUNE 2014
Drawn	IZ	Ch'kd	DS		
Scale	NTS			References	



TITLE
MIDTOWN OAKVILLE EA
TYPICAL SECTIONS

Consultant File NO
TR11-767

Regional Drawing NO

CONTRACT NO

Drawing NO
SHEET 31 OF 36

APPENDIX 'C'

TRAFALGAR ENGINEERING LTD.

ESTIMATED EXISTING WATER DEMAND

Project: 157/165 Cross Avenue
Desc: 1st Submission ZBA/OPA

Project No.: 1827
Prepared By: AJP
Checked By: JN

Land Use / Occupancy Type	Occupancy Data					Peaking Factors			Demand Flow		
	GFA (ha)	Population Density (pers/ha)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Demand (L/min)	Min. Hour	Peak Hour	Max. Daily	Min. Hour Demand (L/min)	Max. Hour Demand (L/min)	Max. Daily Demand (L/min)
Light Commercial Area	0.2900	90.0	26	275	5	1.00	2.25	2.25	5	11	11
TOTAL	0		26		5				5	11	11

Fire Flow

Using Fire Underwriters Survey Methodology:

Average Daily Demand: 5 (L/min)
Minimum Hourly Demand: 5 (L/min)
Maximum Hourly Demand: 11 (L/min)
Maximum Daily Demand: 11 (L/min)
Max. Daily Plus Fire: 0

1. An estimate of the fire flow is given by the formula $F = 220C\sqrt{A}$
 Where:
 F = The required fire flow in litres per minute
 C = Coefficient related to the type of construction
 A = The total floor area in square metres (including all storeys but excluding basements at least 50% below grade)

Type of Construction: Coefficient: 1.00 Total Floor Area: (m²)
 F = **9000 (L/min)** Adequately Protected Vertical Openings:

Area Note: For fire resistive buildings, consider the two largest adjoining floors plus 50% of the remaining floors up to eight, when openings are inadequately protected. For adequately protected vertical openings consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors

2. Adjust the value in No. 1 for occupancy surcharge/reduction
 Occupancy Contents: Factor: -15%
 F = **7650 (L/min)**

3. Adjust the value in No. 2 for sprinkler
- | | | | |
|-----------------------------|----------------------------------|---------------------|----------------------------------|
| NFPA 13 Sprinkler: | <input type="text" value="Yes"/> | Reduction: | <input type="text" value="20%"/> |
| Standard Water Supply: | <input type="text" value="Yes"/> | Reduction: | <input type="text" value="10%"/> |
| Fully Supervised: | <input type="text" value="Yes"/> | Reduction: | <input type="text" value="10%"/> |
| Total Reduction: | | 40% | |
| Sprinkler Reduction: | | 3060 (L/min) | |

4. Adjust the value in No. 2 for exposure
- | | | |
|-------------------------|---------------------------------|---------------------|
| | Separation (m) | Charge |
| North | <input type="text" value="0"/> | 25% |
| East | <input type="text" value="0"/> | 25% |
| South | <input type="text" value="18"/> | 15% |
| West | <input type="text" value="60"/> | 0% |
| Total Charge: | | 65% |
| Exposure Charge: | | 4973 (L/min) |

5. Estimated Fire Flow is value in No. 2 less *Sprinkler Reduction* plus *Exposure Charge*, rounded to the nearest 1000
 F = **10000 (L/min)**

TRAFALGAR ENGINEERING LTD.

ESTIMATED PROPOSED WATER DEMAND

Project: 157/165 Cross Avenue
Desc: 1st Submission ZBA/OPA

Project No.: 1827
Prepared By: AJP
Checked By: JN

Land Use / Occupancy Type	Occupancy Data					Peaking Factors			Demand Flow		
	Unit Count/ GFA (ha)	Population Density (pers/ha)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Demand (L/min)	Min. Hour	Peak Hour	Max. Daily	Min. Hour Demand (L/min)	Max. Hour Demand (L/min)	Max. Daily Demand (L/min)
1 Bedroom	752	1.356	1020	275	195	1.00	4.00	2.25	195	779	438
2 Bedroom	446	1.831	817	275	156	1.00	4.00	2.25	156	624	351
Commercial (Retail/Office)*	3866	0.0270	104	275	20	1.00	2.25	2.25	20	45	45
<i>*Per Cap Demand based on 2022 DC Study population density for commercial developments (403 ft2/employee)</i>											
TOTAL	5064		1941		371				371	1448	834

Fire Flow

Using Fire Underwriters Survey Methodology:

Average Daily Demand: 371 (L/min)
Minimum Hourly Demand: 371 (L/min)
Maximum Hourly Demand: 1448 (L/min)
Maximum Daily Demand: 834 (L/min)
Max. Daily Plus Fire: 6834 (L/min)

1. **An estimate of the fire flow is given by the formula** $F = 220C\sqrt{A}$
 Where:
 F = The required fire flow in litres per minute
 C = Coefficient related to the type of construction
 A = The total floor area in square metres (including all storeys but excluding basements at least 50% below grade)

Type of Construction: **Fire-Resistive** Coefficient: 0.60 Total Floor Area: **2972** (m²)
 F = **7000** (L/min) Adequately Protected Vertical Openings: **Yes**

Area Note: For fire resistive buildings, consider the two largest adjoining floors plus 50% of the remaining floors up to eight, when openings are inadequately protected. For adequately protected vertical openings consider only the area of the largest floor plus 25% of each of the two immediately adjoining floors

2. **Adjust the value in No. 1 for occupancy surcharge/reduction**

Occupancy Contents: **Combustible** Factor: 0%
 F = **7000** (L/min)

3. **Adjust the value in No. 2 for sprinkler**

NFPA 13 Sprinkler:	Yes	Reduction:	20%
Standard Water Supply:	Yes	Reduction:	10%
Fully Supervised:	Yes	Reduction:	10%

Total Reduction: 40%
Sprinkler Reduction: 2800 (L/min)

4. **Adjust the value in No. 2 for exposure**

	Separation (m)	Charge
North	50	0%
East	25	10%
South	50	0%
West	25	10%
Total Charge:	20%	
Exposure Charge:	1400 (L/min)	

5. **Estimated Fire Flow is value in No. 2 less Sprinkler Reduction plus Exposure Charge, rounded to the nearest 1000**

F = **6000** (L/min)

APPENDIX 'D'

TRAFALGAR ENGINEERING LTD.

ESTIMATED EXISTING SANITARY FLOW

Project: 157 Cross Avenue
Desc: 1st Submission ZBA/OPA

Project No.: 1827
Prepared By: AJP
Checked By: JN

Residential

Land Use / Occupancy Type	Unit Count	Population Density (pers/unit)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Dry Weather Flow (L/s)
TOTAL	0		0		0.0

Industrial / Commercial / Institutional

Land Use / Occupancy Type	GFA (ha)	Population Density (pers/ha)	Eq. Population (cap.)	Per Cap. Demand (L/Ha. Day)	Average Daily Dry Weather Flow (L/s)
Light Commercial Area	0.29	90.0	26	275	0.1
TOTAL	0.29		26		0.1

Residential Peaking Factor: 4.50
 ICI Peaking Factor: 4.36
 Include ICI Peaking? **No**
 Tributary Area: 0.29 (ha)
 Infiltration Allowance: 0.286 (L/s ha)
 Foundation Drain Allowance: 0.00 (L/s ha)

Residential Average Flow: 0.1 (L/s)
 ICI Average Flow: 0.1 (L/s)
 Groundwater Discharge: 0.0 (L/s)
Total Average Flow: 0.2 (L/s)

Residential Peak Flow: 0.1 (L/s)
 ICI Peak Flow: 0.1 (L/s)
 Groundwater Discharge: 0.0 (L/s)
Total Peak Flow: 0.2 (L/s)

TRAFALGAR ENGINEERING LTD.

ESTIMATED PROPOSED SANITARY FLOW

Project: 157 Cross Avenue
Desc: 1st Submission ZBA/OPA

Project No.: 1827
Prepared By: AJP
Checked By: JN

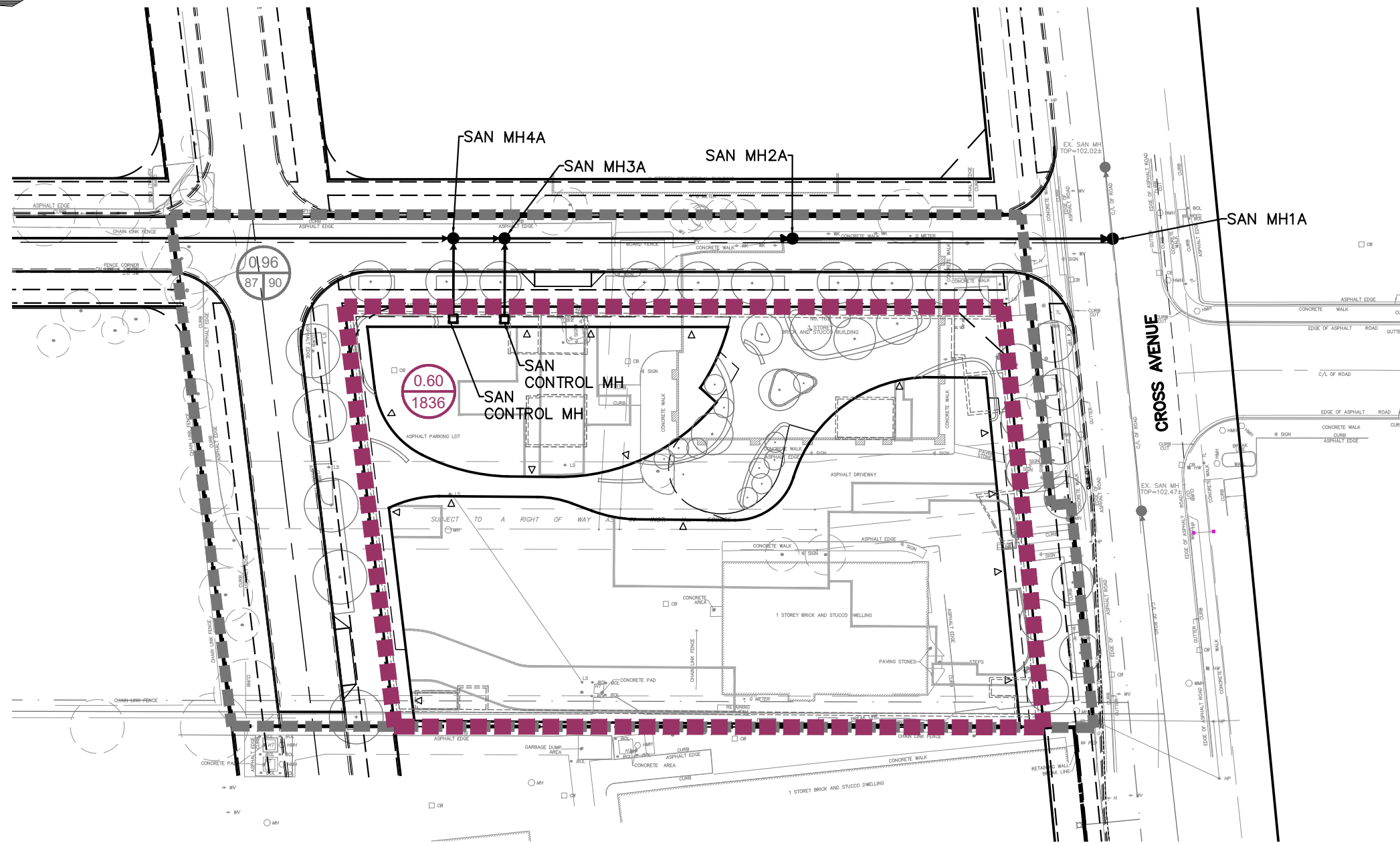
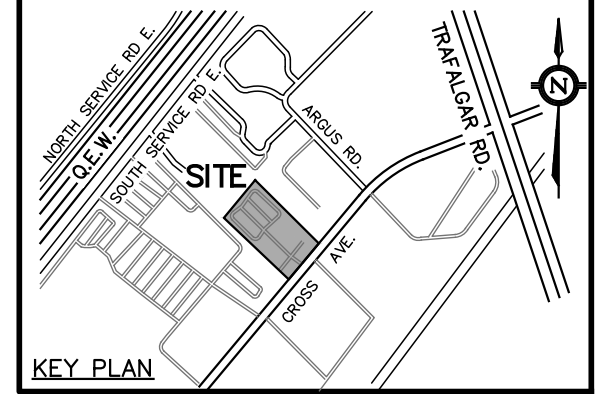
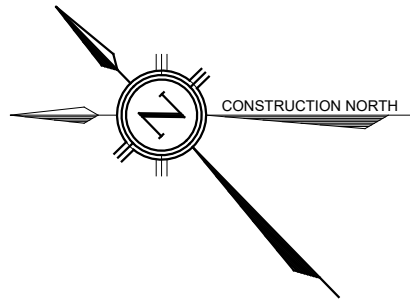
Residential

Land Use / Occupancy Type	Unit Count	Persons/ Unit	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Dry Weather Flow (L/s)
1 Bedroom	752	1.356	1020	275	3.2
2/3 Bedroom	446	1.831	817	275	2.6
TOTAL	1198		1836		5.8





Industrial / Commercial / Institutional

Land Use / Occupancy Type	GFA (m2)	Population Density (pers/m2)	Eq. Population (cap.)	Per Cap. Demand (L/cap. Day)	Average Daily Dry Weather Flow (L/s)
Retail/Office	3866	0.0270	104	275	0.3
TOTAL	3866		104		0.3

Residential Peaking Factor:	3.61
ICI Peaking Factor:	4.24
Include ICI Peaking?	No
Tributary Area:	0.60 (ha)
Infiltration Allowance:	0.286 (L/s ha)
Foundation Drain Allowance:	0.00 (L/s ha)
Residential Average Flow:	6.0 (L/s)
ICI Average Flow:	0.3 (L/s)
Groundwater Discharge:	0.0 (L/s)
Total Average Flow:	6.3 (L/s)
Residential Peak Flow:	21.3 (L/s)
ICI Peak Flow:	0.3 (L/s)
Groundwater Discharge:	0.0 (L/s)
Total Peak Flow:	21.6 (L/s)



LEGEND

-  PRE DEVELOPMENT SANITARY AREA IN HECTARES
-  POST DEVELOPMENT SANITARY AREA IN HECTARES
-  PRE DEVELOPMENT SANITARY DRAINAGE AREA BOUNDARY
-  POST DEVELOPMENT SANITARY DRAINAGE AREA BOUNDARY

PROJECT TITLE	157/165 CROSS AVENUE OAKVILLE, ONTARIO DISTRİKT DEVELOPMENTS		
DRAWING TITLE	SANITARY DRAINAGE PLAN		



DESIGN BY	AJP	SCALE	1:750	DRAWING No.	FIG. 1
DRAWN BY	ZI	DATE	2023/03/28		

SANITARY SEWER DESIGN SHEET
Regional Municipality of Halton

Prepared By: AJP
Checked By: JN
Project No.: 1827

Project Name: 157/165 Cross Ave
Municipal Number:
Date: 2024-02-16
Sheet: 1 of 1

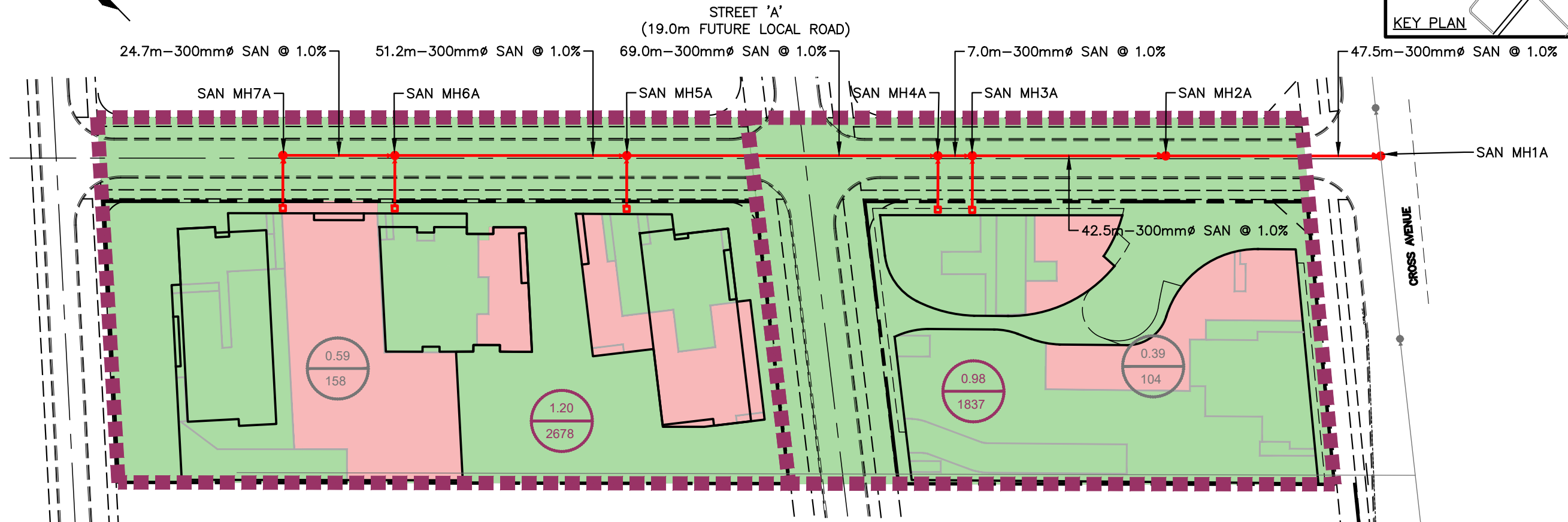
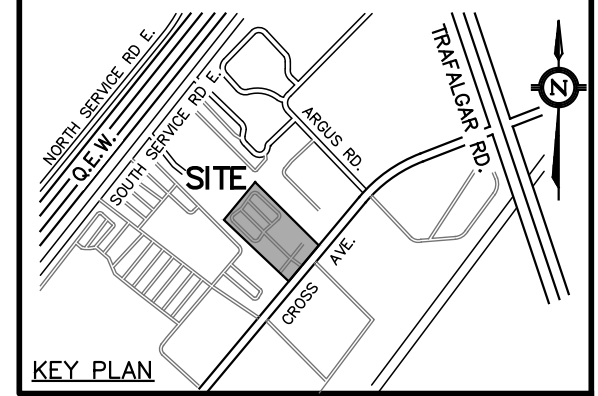
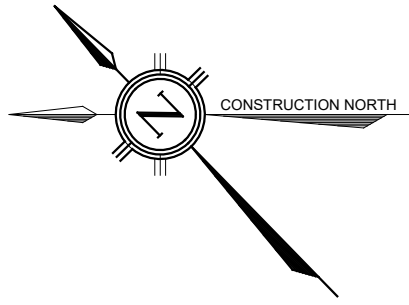
LOCATION	FROM MH	TO MH	TRIBUTARY AND FLOW DATA													PIPE DATA																
			Tributary Area				Population Tributary			Average Demand		Incr. Avg. Q (L/s)	Total Avg. Q (L/s)	Peaking Factor		Peak Q, Q _P (L/s)	Infiltr. (L/s)	Design Flow, Q _D (L/s)	Length, L (m)	Pipe Dia., D (mm)	Slope, s (%)	Manning's Coeff., n	Full Flow Capacity, Q _F (L/s)	Velocity		Flow Depth, d (mm)	d/D	Percent Full (%)	Type	Class		
			Unit Count	Persons/Unit*	Area (m ²)	ICI (pers/m ²)*	Total (ha)	Res (pers.)	ICI (pers.)	Total (pers.)	Res (L/cap. Day)			ICI (L/cap. Day)	K _{avg}									M _{avg}	Full (m/s)						Actual (m/s)	
166 South Service Road**																																
1 Bedroom Units			1115	1.356				1512		1512																						
2/3 Bedroom Units	MH7A	MH6A	637	1.831	5849	0.027	1.17	2678	158	2836	275	275	9.0	9.0	0.9	3.12	28.1	0.3	28.5	24.7	300	1.0	0.013	100.9	1.38	1.20	110	0.36	0.28	PVC	DR-35	
	MH6A	MH5A																	28.5	51.2	300	1.0	0.013	100.9	1.38	1.20	110	0.36	0.28	PVC	DR-35	
	MH5A	MH4A																	28.5	69.0	300	1.0	0.013	100.9	1.38	1.20	110	0.36	0.28	PVC	DR-35	
157/165 Cross Avenue**																																
1 Bedroom Units			752	1.356				3698																								
2/3 Bedroom Units	MH4A	MH3A	446	1.831	3866	0.027	2.15	4515	262	4777	275	275	15.2	15.2	0.9	2.94	44.7	0.6	45.3	7.5	300	1.0	0.013	100.9	1.38	1.38	140	0.46	0.45	PVC	DR-35	
	MH3A	MH2A																	45.3	42.5	300	1.0	0.013	100.9	1.38	1.38	140	0.46	0.45	PVC	DR-35	
	MH2A	MH1A																	45.3	47.5	300	1.0	0.013	100.9	1.38	1.38	140	0.46	0.45	PVC	DR-35	
TRIBUTARY AREA TOTAL			2950		9715		3.32	4515	262	4777																						

Notes:
 1) Pipe diameter is nominal
 2) Capacity and velocity are based on Imperial I.D. (Nom. Dia x 25.4/25)

***Population Densities taken from Region of Halton 2022 Development Charges Background Study**
****Unit counts and Commercial Area are preliminary estimates**

Peaking Factor $M = K_{avg} \times (1 + 14 / (4 + P^{1/2}))$
 Where P is Total population in thousands
 $K_{avg} = (A_R + 0.8 \times A_{ICI}) / (A_{Total})$
 Infiltration = 0.286 L/ha/s

Full Flow Capacity (Manning's Equation), Q_F
 $Q_F = (1/n) \times A \times R^{2/3} \times s^{1/2}$
 $= (1/n) \times 311.7 \times D^{8/3} \times s^{1/2}$



LEGEND

- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY SEWER
- APARTMENT (6 STOREY OR HIGHER)
- LIGHT COMMERCIAL AREA
- DRAINAGE AREA BOUNDARY
- 0.59 — TOTAL SANITARY TRIBUTARY AREA (ha)
- 158 — EQUIVALENT POPULATION
- 0.39 — TOTAL SANITARY TRIBUTARY AREA (ha)
- 104 — EQUIVALENT POPULATION

PROJECT TITLE DISTRIKT DEVELOPMENTS OAKVILLE, ONTARIO	
DRAWING TITLE STREET 'A' SANITARY DRAINAGE PLAN	

#1-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6 www.trafalgareng.com				
DESIGN BY	AJP	SCALE	1:1000	DRAWING No. FIG. 2
DRAWN BY	ZI	DATE	2023/03/28	

FILENAME: P:\1827 Distrikt Midtown 157 Cross\04-CAD\03-Site Plan\1827FIG.dwg
 PLOTDATE: Feb 16, 2024 - 3:27pm

APPENDIX 'E'

TRAFALGAR ENGINEERING LTD.

COMPOSITE RUNOFF COEFFICIENT

Project: Distrikt Midtown 157 Cross
Desc: First Submission OPA/ZBA

Project No.: 1827
Prepared By: AJP
Checked By: JN

Pre-Development Composite Runoff Coefficient

Surface	'A' (m ²)	'C'	'AC'	% Imp	'AI'
Existing building and parking	8562	0.90	7706	100%	8562
Existing landscaping	1071	0.25	268	0%	-
(Less Road Dedications)	-3224	0.73	-2354	74%	-2386
			-		-
			-		-
Totals	6409		5620		6176
		C = 'AC'/'A' = 0.88		%I = 'AI'/'A' = 96%	

External Drainage Area Composite Runoff Coefficient

Surface	'A' (m ²)	'C'	'AC'	% Imp	'AI'
			-		-
			-		-
			-		-
			-		-
Totals	-		-		-
		C = 'AC'/'A' = -		%I = 'AI'/'A' = -	

Post-Development Controlled Area Composite Runoff Coefficient

Surface	'A' (m ²)	'C'	'AC'	% Imp	'AI'
Preliminary Estimate	5544	0.90	4990	100%	5544
			-		-
			-		-
			-		-
			-		-
Totals	5544		4990		5544
		C = 'AC'/'A' = 0.90		%I = 'AI'/'A' = 100%	

Post-Development Uncontrolled Area Composite Runoff Coefficient

Surface	'A' (m ²)	'C'	'AC'	% Imp	'AI'
Preliminary Estimate	863	0.90	777	100%	863
			-		-
			-		-
			-		-
			-		-
Totals	863		777		863
		C = 'AC'/'A' = 0.90		%I = 'AI'/'A' = 100%	

TRAFALGAR ENGINEERING LTD.

RATIONAL METHOD FLOWS

Based on Town of Oakville IDF Data

Project: Distrikt Midtown 157 Cross

Desc: First Submission OPA/ZBA

Project No.: 1827

Prepared By: AJP

Checked By: JN

Pre-Development Parameters

	Site	External	Total
'C'	0.877	0.000	0.877
'A' (ha)	0.641	0.000	0.641
'AC'	0.562	0.000	0.562

Pre-Development Flow

Return	Intensity (mm/hr)	Site Flow (L/s)	External Flow (L/s)	Total Flow (L/s)
2-yr	82.2	128	0	128
5-yr	114.2	178	0	178
10-yr	134.8	210	0	210
25-yr	162.2	278	0	278
50-yr	182.1	324	0	324
100-yr	200.8	358	0	358

Flows have been adjusted using 25-, 50-, and 100-yr factors of 1.1, 1.2, and 1.25 (To a maximum C of 1.0)

Post-Development Parameters

	Controlled	Uncontrolled	External	Total
'C'	0.900	0.900	0.000	0.900
'A' (ha)	0.554	0.086	0.000	0.641
'AC'	0.499	0.078	0.000	0.577

Post-Development Flow

Return	Intensity (mm/hr)	Uncontrolled Peak Inflow (L/s)	Uncontrolled Flow (L/s)	Peak Rooftop Flow (L/s)	External Flow (L/s)	Total Flow (L/s)
2-yr	82.2	114	18	0	0	132
5-yr	114.2	158	25	0	0	183
10-yr	134.8	187	29	0	0	216
25-yr	162.2	247	38	0	0	285
50-yr	182.1	280	44	0	0	324
100-yr	200.8	309	48	0	0	357

Flows have been adjusted using 25-, 50-, and 100-yr factors of 1.1, 1.2, and 1.25 (To a maximum C of 1.0)

Post-to-Pre Comparison*

Return	Pre-Dev Total (L/s)	Post-Dev Total (L/s)	Percent Change
2-yr	128	132	3%
5-yr	178	183	3%
10-yr	210	216	3%
25-yr	278	285	3%
50-yr	324	324	0%
100-yr	358	357	0%

*Storage may be required, refer to Modified Rational Method Storage Calculation and Summary sheets if applicable

TRAFALGAR ENGINEERING LTD.

MODIFIED RATIONAL METHOD STORAGE

Based on Town of Oakville IDF Data

Project: Distrikt Midtown 157 Cross
Desc: First Submission OPA/ZBA

Project No.: 1827
Prepared By: AJP
Checked By: JN

Pre-Development

Catchment Area (ha) 0.6409
 Runoff Coefficient 0.88
 TC (min) 10
 Control Level 5-Yr

Pre-Development Peak Intensity: 114.2 mm/hr
Pre-Development Peak Discharge: 0.178 (cms)

Post-Development Uncontrolled

Catchment Area (ha) 0.0863
 Runoff Coefficient 1.00
 TC (min) 10
 Control Level 100-Yr

Uncontrolled Peak Discharge: 0.048 (cms)

External Drainage

Catchment Area (ha) 0
 Runoff Coefficient 0.00
 TC (min) 10
 Control Level **100-Yr**

External Peak Discharge: 0 (cms)

Post-Development Controlled

Catchment Area (ha) 0.5544
 Runoff Coefficient 1.00 (1.25 Adj. Factor)
 Time of Concentration 10
 Control Level 100-Yr

Post-Development Peak Intensity: 200.8 mm/hr
Post-Development Peak Discharge: 0.309 (cms)

Allowable Release Rate: 0.063 (cms)

Storm Duration T_D (min)	Intensity $i = A \times T_D^{-C}$ (mm/hr)	Inflow Rate $Q_P = CiA/360$ (m ³ /s)	Average Roof Discharge (m ³ /s)	Max. Release Rate $Q_A = Ci_{2YR}A$ (m ³ /s)	Inflow Volume $V_I = 60Q_P T_D$ (m ³)	Outflow Volume $V_O = 30Q_A(T_D + T_C)$ (m ³)	Storage $S = V_I - V_O$ (m ³)
10	200.80	0.309	0.000	0.063	185.5	37.8	147.7
15	158.27	0.244	0.000	0.063	219.4	47.3	172.1
20	131.37	0.202	0.000	0.063	242.8	56.7	186.1
25	112.72	0.174	0.000	0.063	260.4	66.2	194.2
30	98.99	0.152	0.000	0.063	274.4	75.6	198.8
35	88.43	0.136	0.000	0.063	286.0	85.1	200.9
40	80.03	0.123	0.000	0.063	295.8	94.5	201.3
45	73.19	0.113	0.000	0.063	304.3	104.0	200.4
50	67.49	0.104	0.000	0.063	311.8	113.4	198.4
55	62.68	0.097	0.000	0.063	318.5	122.9	195.7
60	58.55	0.090	0.000	0.063	324.6	132.3	192.3
90	42.35	0.065	0.000	0.063	352.2	189.0	163.2
120	33.49	0.052	0.000	0.063	371.3	245.7	125.6
150	27.85	0.043	0.000	0.063	386.0	302.4	83.6
180	23.93	0.037	0.000	0.063	398.0	359.1	38.9
210	21.04	0.032	0.000	0.063	408.2	415.8	0

TRAFALGAR ENGINEERING LTD.

WATER BALANCE AND WATER QUALITY

Project: Distrikt Midtown 157 Cross
Desc: First Submission OPA/ZBA

Project No.: 1827
Prepared By: AJP
Checked By: JN

Water Balance

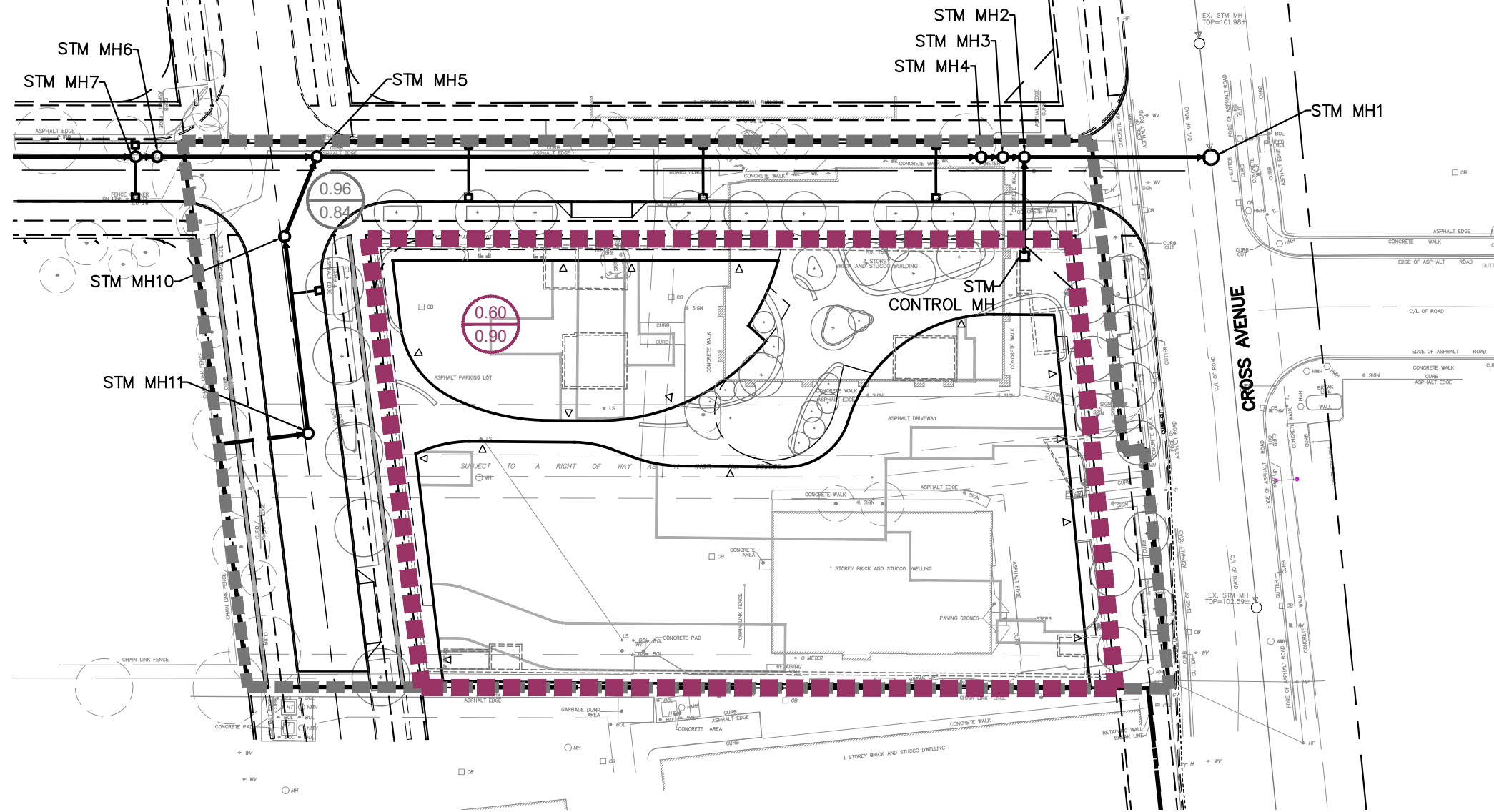
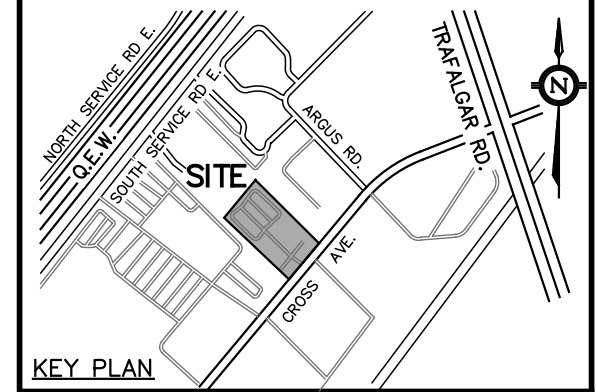
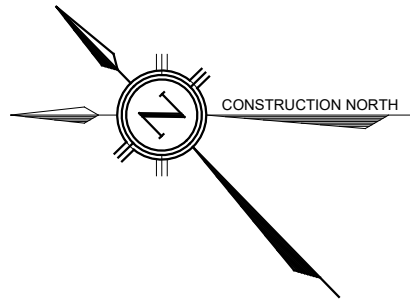
Surface	'A' (m ²)	%Total A	IA (mm)	%Total x IA
Site Area	6044	100%	0.0	0.0

Totals	6044	Total Retention:	0.0 (mm)
		Target Retention:	25.0 (mm)
		Balance:	25.0 (mm)
		Volume Required:	151.1 (m³)




Total Suspended Solids

Surface	'A' (m ²)	Removal Rate, 'R'	A x R
Imbrium Jellyfish	6044	80%	4835


Totals	6044	Effective Removal:	4835
			80%



LEGEND

-  PRE DEVELOPMENT STORM AREA IN HECTARES
PRE DEVELOPMENT STORM RUN-OFF COEFFICIENT
-  POST DEVELOPMENT STORM AREA IN HECTARES
POST DEVELOPMENT STORM RUN-OFF COEFFICIENT
-  PRE & POST DEVELOPMENT STORM DRAINAGE AREA BOUNDARY

PROJECT TITLE	157/165 CROSS AVENUE OAKVILLE, ONTARIO DISTRİKT DEVELOPMENTS		
DRAWING TITLE	STORM DRAINAGE PLAN		

 #1-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6 www.trafalgareng.com		DESIGN BY	AJP	SCALE	1:750	DRAWING No.	FIG. 3
		DRAWN BY	ZI	DATE	2023/03/28		

STORM SEWER DESIGN SHEET

Town of Oakville
5-Year Storm

Project Name : Distrikt Developments
Municipal Number:
Date: 2024-02-16
Sheet: 1 of 1

Prepared By: AJP
Checked By: JN
Project No. : 1827

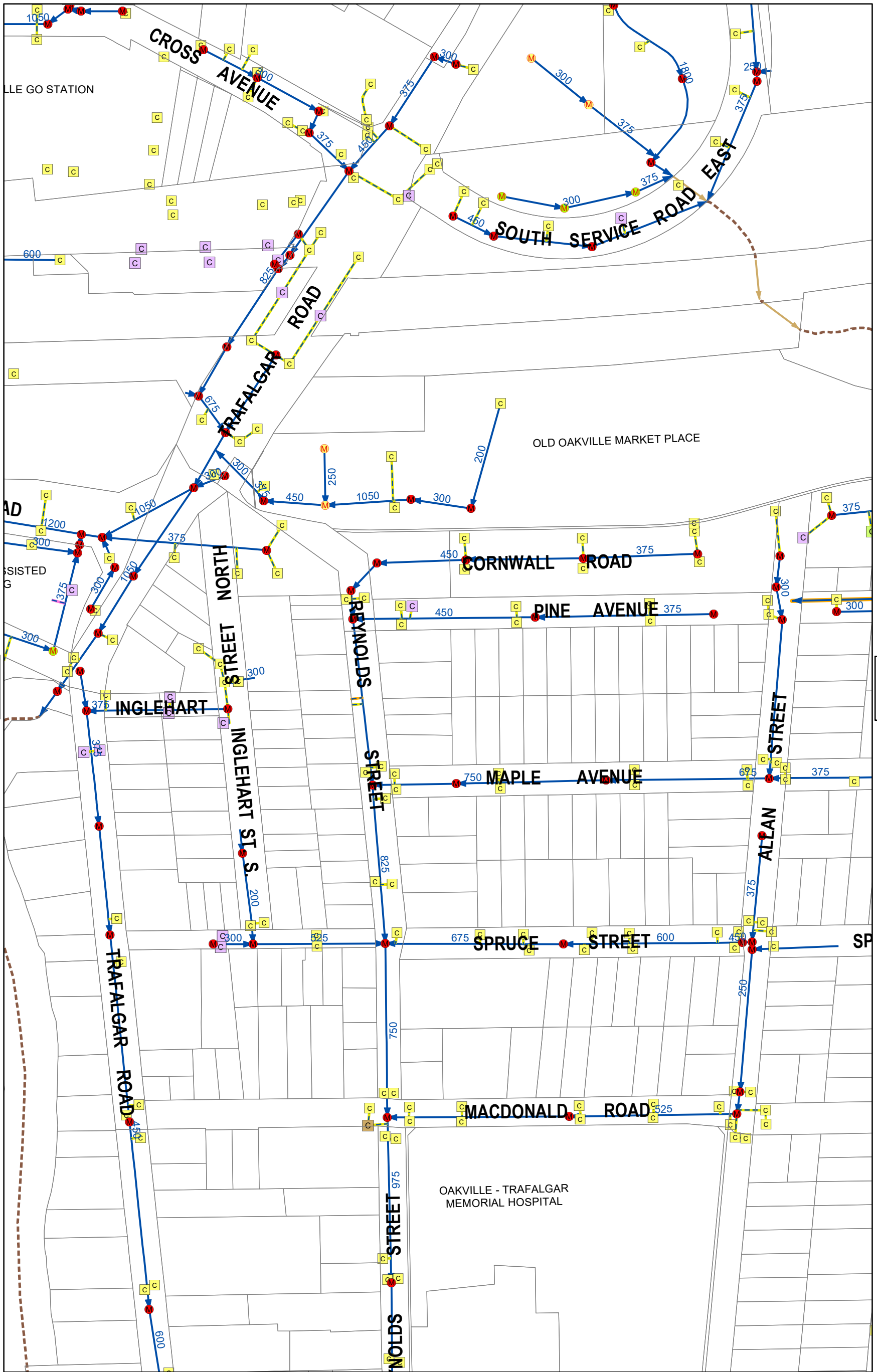
LOCATION	FROM MH	TO MH	DRAINAGE AREA				FLOW			SEWER DESIGN				PIPE HYDRAULICS					
			Area, A (ha)	Runoff Coeff., C	A x C (ha)	Accum. A x C (ha)	Time of Conc., T _c (min)	Intensity, I (mm/h)	Expected Flow, Q (L/s)	Length, L (m)	Gradient, s (%)	Pipe Dia., D (mm)	Manning's Coeff., n	Full Flow Capacity, Q _F (L/s)	Full Flow Velocity, V _F (m/s)	d/D	Actual Velocity, V (m/s)	Time of Flow (min)	Q/Q _F
Street 'A' Storm Sewer																			
Future South Service Road	CB	MH9	0.17	0.90	0.153	0.153	10.00	114.21	49	11.0	1.0	250	0.013	62	1.22	0.66	1.37	0.13	0.78
	MH9	MH8	0.00	0.90	0.000	0.153	10.13	113.4	48	100.0	0.8	600	0.013	573	1.96	0.19	1.25	1.34	0.08
	MH8	MH7	0.00	0.90	0.000	0.153	11.47	106.0	45	29.8	0.8	600	0.013	573	1.96	0.18	1.26	0.39	0.08
	MH7	MH6	0.00	0.90	0.000	0.153	11.86	104.0	44	3.0	1.0	600	0.013	641	2.19	0.17	1.34	0.04	0.07
Street 'A'	MH6	MH5	0.13	0.90	0.117	0.270	11.90	103.8	78	22.2	1.0	600	0.013	641	2.19	0.23	1.54	0.24	0.12
166 SSR Controlled Flow*			0.82	0.90															
Street 'A'			0.27	0.90	0.243	0.743													
Street 'B'	MH5	MH4	0.17	0.90	0.153	0.896	12.14	102.6	255	92.2	0.8	750	0.013	1039	2.28	0.33	1.95	0.79	0.25
	MH4	MH3				0.896			255	3.0	1.0	600	0.013	641	2.19	0.43	2.13	0.02	0.40
	MH3	MH2				0.896			255	3.0	1.0	600	0.013	641	2.19	0.43	2.13	0.02	0.40
157/165 Cross Ave	MH2	MH1	0.54	0.90					318	25.9	2.0	600	0.013	906	3.10	0.40	2.92	0.15	0.35

- Notes:
 1) Pipe diameter is nominal
 2) Capacity and velocity are based on Imperial I.D. (Nom. Dia x 25.4/25)
 3) Time of Flow is based on Actual Velocity

Intensity, I = A / (T_c + B)^C where:
 A= 1170
 B= 5.8
 C= 0.843
 t_c= Time of Concentration in minutes

Expected Flow, Q = 2.778 x C x I x A / 1000
 Full Flow Capacity (Manning's Equation), Q_F
 Q_F= (1/n) x A x R^{2/3} x s^{1/2}
 = (1/n) x 311.7 x D^{8/3} x s^{1/2}

APPENDIX 'F'



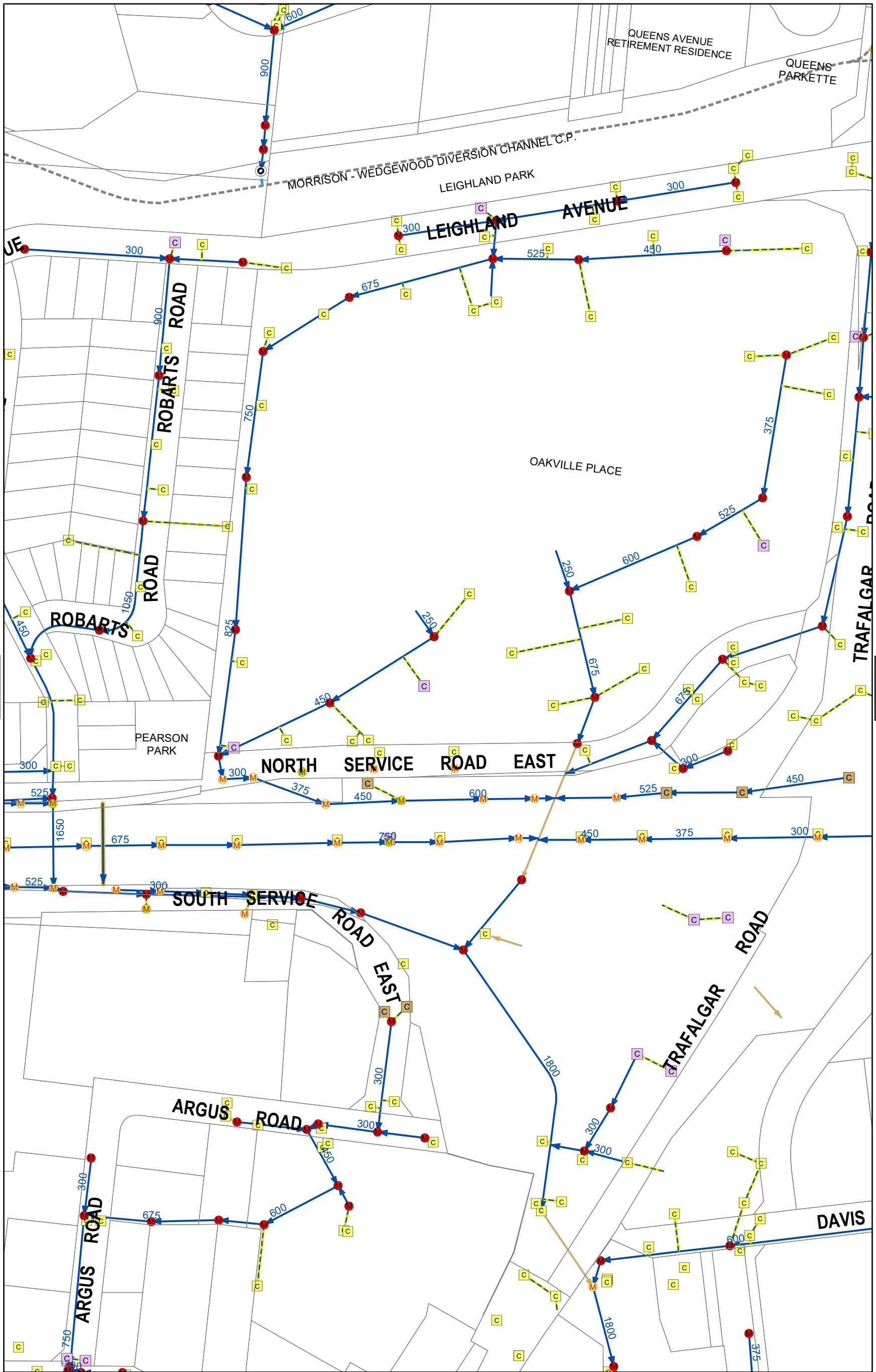
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Town of Oakville
Engineering &
Construction
1225 Trafalgar Road
Oakville, Ontario

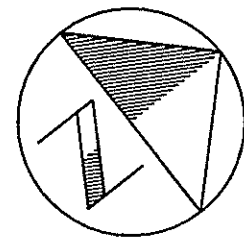
STORM SEWER INFORMATION
MAR, 2020
PAGE 83

- | | | |
|--------------------------|--------------------|-----------------------|
| Storm Sewers | Ditch Inlet | Maintenance Hole |
| Culvert | Double Catch Basin | Catch Basin MH |
| Foundation Drain | Pup Inlet | Double Catch Basin MH |
| Catch Basin Lead | Side Entry CB | Foundation Drain MH |
| Private Drain Connection | Single Catch Basin | Abandoned Pipe |
| Lateral | Connection | Storm Main |
| Channel - ConcreteLined | Inlet | Culvert |
| Channel - Ditch | Outlet | Foundation Drain |
| Channel - GrassLined | | Lateral |
| Natural Channel | | |

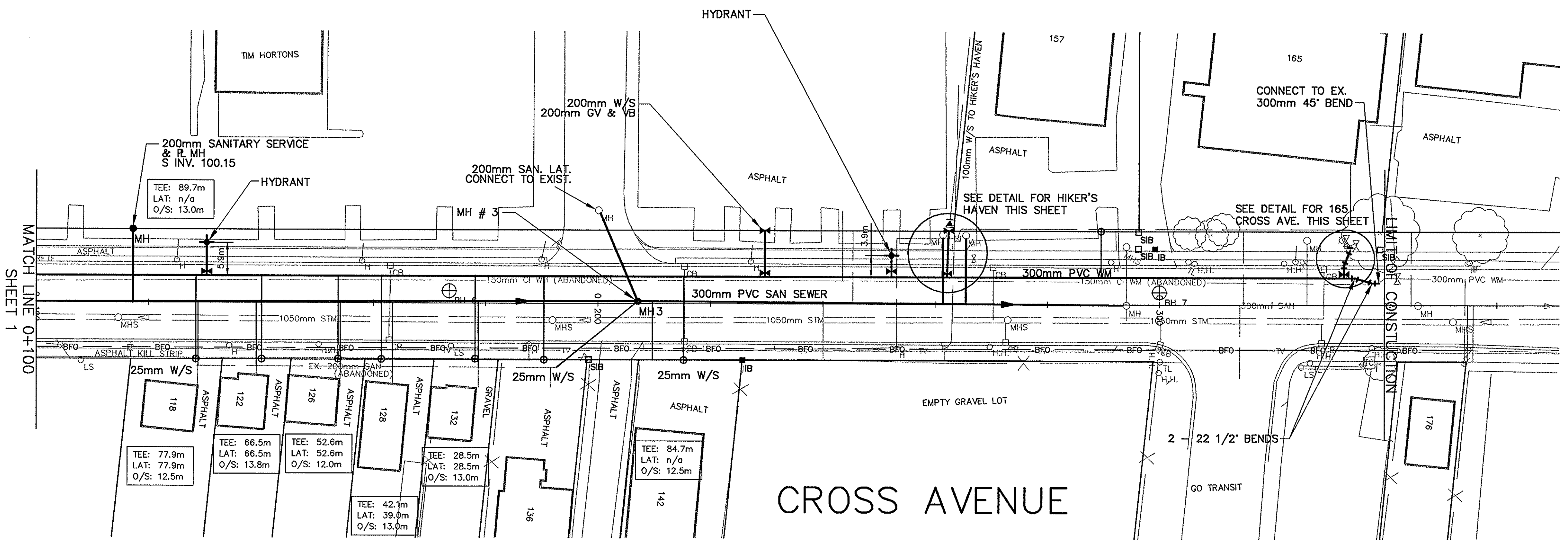
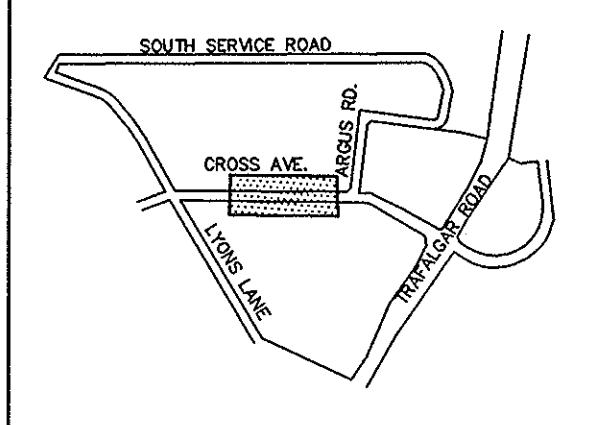


STORM SEWER INFORMATION
MAR, 2020
PAGE 110

- | | | |
|--------------------------|--------------------|-----------------------|
| Storm Sewers | Ditch Inlet | Maintenance Hole |
| Culvert | Double Catch Basin | Catch Basin MH |
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| Channel - Ditch | Outlet | Foundation Drain |
| Channel - GrassLined | | Lateral |
| Natural Channel | | |

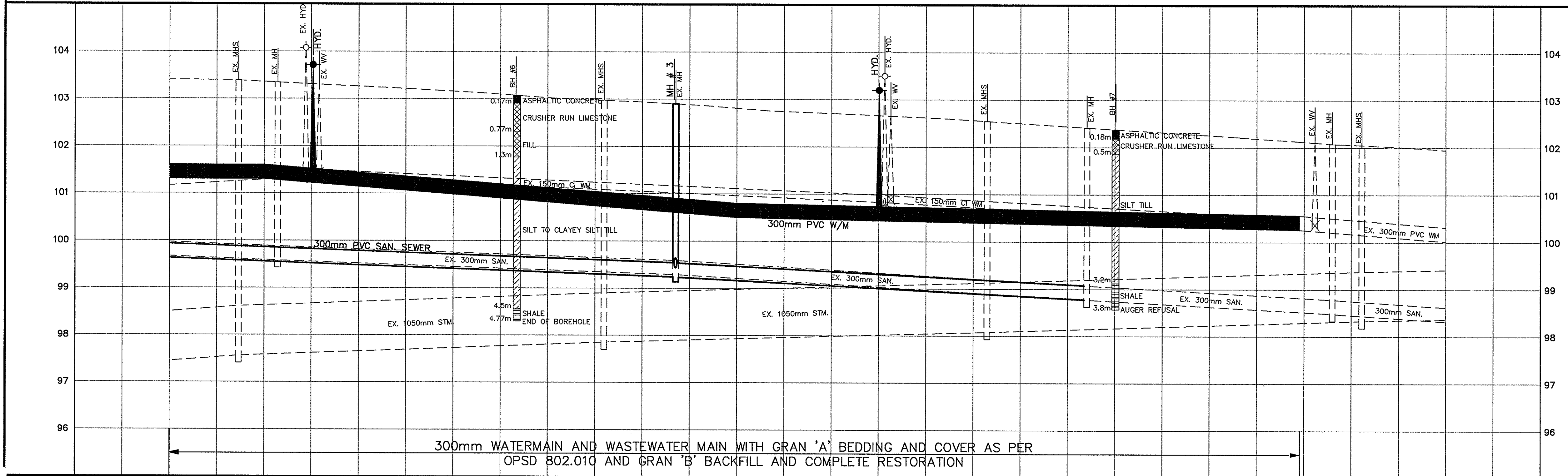
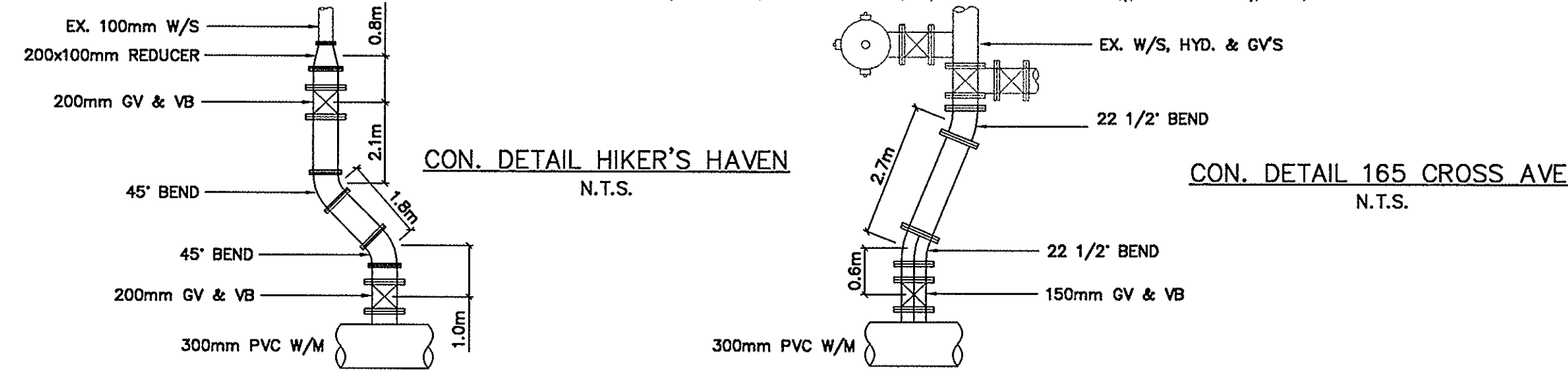


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OMISSIONS OR INACCURACIES, WHETHER
DUE TO THEIR NEGLIGENCE OR OTHERWISE.
ALL INFORMATION SHOULD BE VERIFIED.

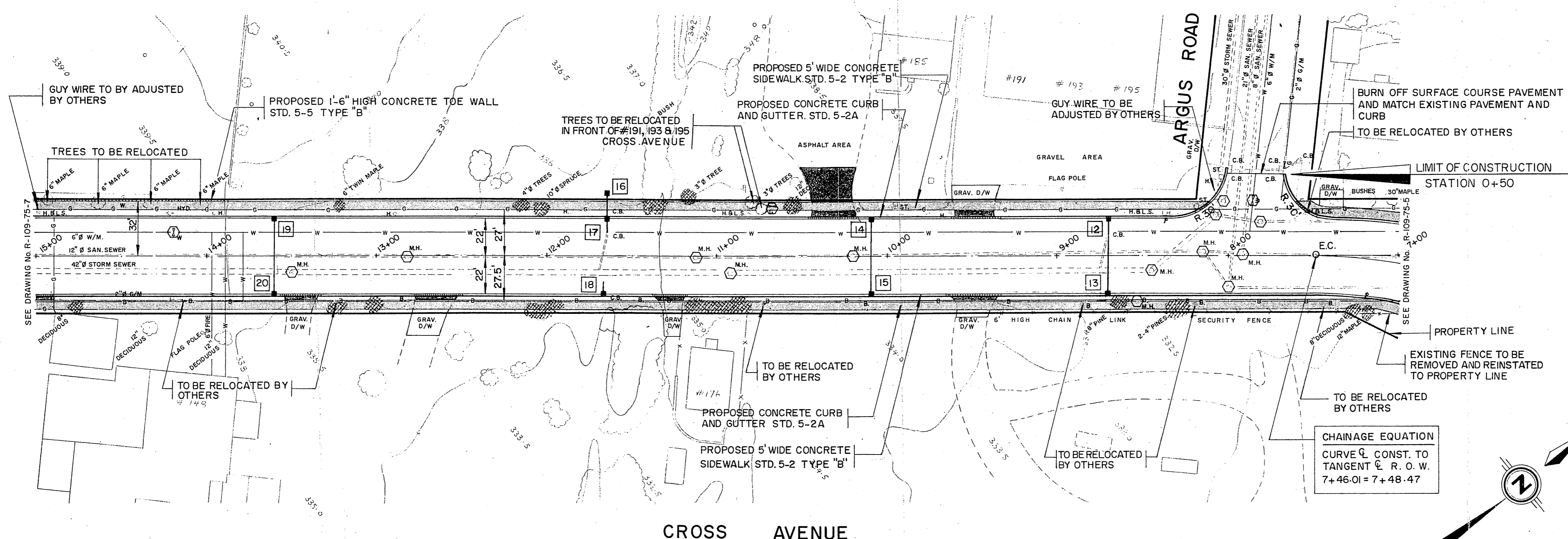


RESTRAINED LENGTHS FOR ALL WATERMAIN							
PIPE SIZE	90° H. BEND	11 1/4° H. BEND	22 1/2° H. BEND	45° H. BEND	SIZE ON SIZE TEE	VALVE, HYD., DEAD END	45° V. OFFSET* / 22 1/2° V. OFFSET*
150mm	3.71m	-	-	-	-	-	-
300mm	-	0.67m	1.37m	2.83m	BR. ONLY	28.92m	11.97m / 1.61m / 5.78m / 0.79m

200x150mm REDUCING TEE: BRANCH ONLY, ASSUMING 3m MIN. ATTACHED RUN LENGTH
 300x150mm REDUCING TEE: BRANCH ONLY, ASSUMING 3m MIN. ATTACHED RUN LENGTH
 300x200mm REDUCING TEE: BRANCH ONLY, ASSUMING 3m MIN. ATTACHED RUN LENGTH
 *FIRST NUMBER REPRESENTS THE DOWN BEND
 SECOND NUMBER REPRESENTS THE UP BEND



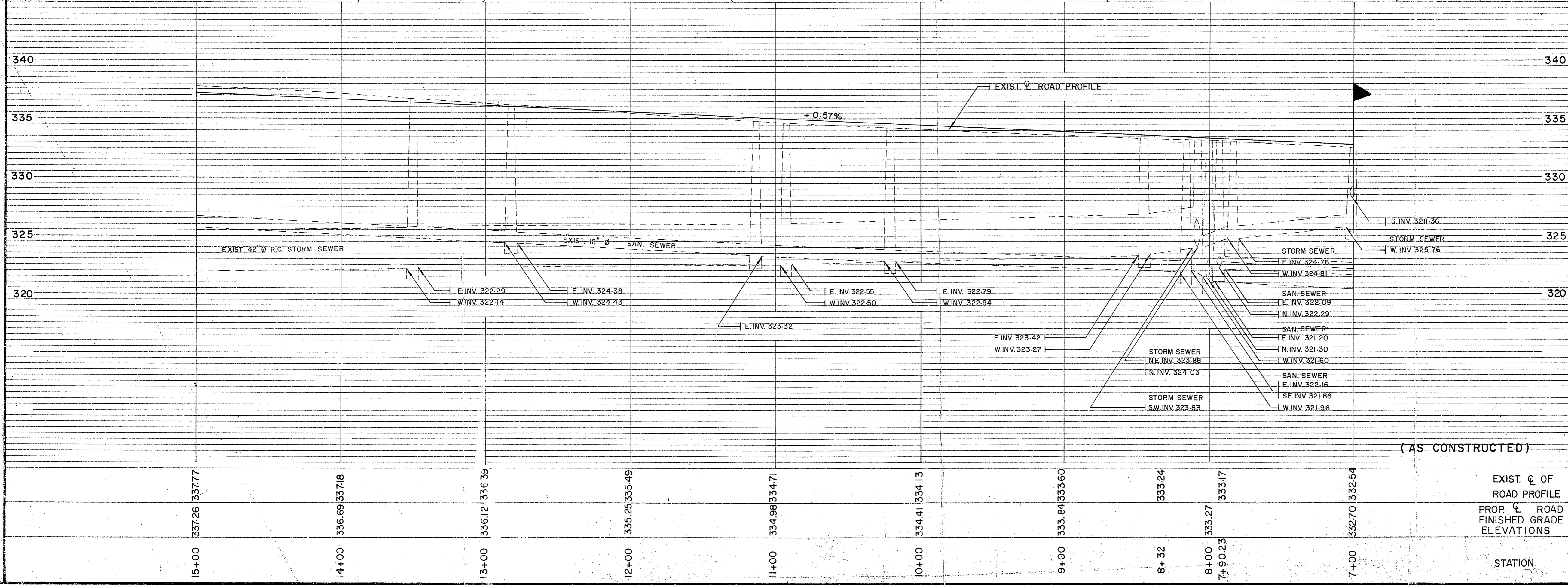
ELEVATIONS	103.40	103.40	103.36	103.31	103.26	103.22	103.16	103.10	103.03	102.98	102.94	102.88	102.81	102.74	102.70	102.66	102.62	102.56	102.50	102.44	102.38	102.32	102.26	102.20	102.14	102.08	102.02	101.96	101.90	101.84	101.78	101.72	101.66	101.60	101.54	101.48	101.42	101.36	101.30	101.24	101.18	101.12	101.06	101.00	100.94	100.88	100.82	100.76	100.70	100.64	100.58	100.52	100.46	100.40	100.34	100.28	100.22	100.16	100.10	100.04	99.98	99.92	99.86	99.80	99.74	99.68	99.62	99.56	99.50	99.44	99.38	99.32	99.26	99.20	99.14	99.08	99.02	98.96	98.90	98.84	98.78	98.72	98.66	98.60	98.54	98.48	98.42	98.36	98.30	98.24	98.18	98.12	98.06	98.00	97.94	97.88	97.82	97.76	97.70	97.64	97.58	97.52	97.46	97.40	97.34	97.28	97.22	97.16	97.10	97.04	96.98	96.92	96.86	96.80	96.74	96.68	96.62	96.56	96.50	96.44	96.38	96.32	96.26	96.20	96.14	96.08	96.02	95.96	95.90	95.84	95.78	95.72	95.66	95.60	95.54	95.48	95.42	95.36	95.30	95.24	95.18	95.12	95.06	95.00	94.94	94.88	94.82	94.76	94.70	94.64	94.58	94.52	94.46	94.40	94.34	94.28	94.22	94.16	94.10	94.04	93.98	93.92	93.86	93.80	93.74	93.68	93.62	93.56	93.50	93.44	93.38	93.32	93.26	93.20	93.14	93.08	93.02	92.96	92.90	92.84	92.78	92.72	92.66	92.60	92.54	92.48	92.42	92.36	92.30	92.24	92.18	92.12	92.06	92.00	91.94	91.88	91.82	91.76	91.70	91.64	91.58	91.52	91.46	91.40	91.34	91.28	91.22	91.16	91.10	91.04	90.98	90.92	90.86	90.80	90.74	90.68	90.62	90.56	90.50	90.44	90.38	90.32	90.26	90.20	90.14	90.08	90.02	89.96	89.90	89.84	89.78	89.72	89.66	89.60	89.54	89.48	89.42	89.36	89.30	89.24	89.18	89.12	89.06	89.00	88.94	88.88	88.82	88.76	88.70	88.64	88.58	88.52	88.46	88.40	88.34	88.28	88.22	88.16	88.10	88.04	87.98	87.92	87.86	87.80	87.74	87.68	87.62	87.56	87.50	87.44	87.38	87.32	87.26	87.20	87.14	87.08	87.02	86.96	86.90	86.84	86.78	86.72	86.66	86.60	86.54	86.48	86.42	86.36	86.30	86.24	86.18	86.12	86.06	86.00	85.94	85.88	85.82	85.76	85.70	85.64	85.58	85.52	85.46	85.40	85.34	85.28	85.22	85.16	85.10	85.04	84.98	84.92	84.86	84.80	84.74	84.68	84.62	84.56	84.50	84.44	84.38	84.32	84.26	84.20	84.14	84.08	84.02	83.96	83.90	83.84	83.78	83.72	83.66	83.60	83.54	83.48	83.42	83.36	83.30	83.24	83.18	83.12	83.06	83.00	82.94	82.88	82.82	82.76	82.70	82.64	82.58	82.52	82.46	82.40	82.34	82.28	82.22	82.16	82.10	82.04	81.98	81.92	81.86	81.80	81.74	81.68	81.62	81.56	81.50	81.44	81.38	81.32	81.26	81.20	81.14	81.08	81.02	80.96	80.90	80.84	80.78	80.72	80.66	80.60	80.54	80.48	80.42	80.36	80.30	80.24	80.18	80.12	80.06	80.00	79.94	79.88	79.82	79.76	79.70	79.64	79.58	79.52	79.46	79.40	79.34	79.28	79.22	79.16	79.10	79.04	78.98	78.92	78.86	78.80	78.74	78.68	78.62	78.56	78.50	78.44	78.38	78.32	78.26	78.20	78.14	78.08	78.02	77.96	77.90	77.84	77.78	77.72	77.66	77.60	77.54	77.48	77.42	77.36	77.30	77.24	77.18	77.12	77.06	77.00	76.94	76.88	76.82	76.76	76.70	76.64	76.58	76.52	76.46	76.40	76.34	76.28	76.22	76.16	76.10	76.04	75.98	75.92	75.86	75.80	75.74	75.68	75.62	75.56	75.50	75.44	75.38	75.32	75.26	75.20	75.14	75.08	75.02	74.96	74.90	74.84	74.78	74.72	74.66	74.60	74.54	74.48	74.42	74.36	74.30	74.24	74.18	74.12	74.06	74.00	73.94	73.88	73.82	73.76	73.70	73.64	73.58	73.52	73.46	73.40	73.34	73.28	73.22	73.16	73.10	73.04	72.98	72.92	72.86	72.80	72.74	72.68	72.62	72.56	72.50	72.44	72.38	72.32	72.26	72.20	72.14	72.08	72.02	71.96	71.90	71.84	71.78	71.72	71.66	71.60	71.54	71.48	71.42	71.36	71.30	71.24	71.18	71.12	71.06	71.00	70.94	70.88	70.82	70.76	70.70	70.64	70.58	70.52	70.46	70.40	70.34	70.28	70.22	70.16	70.10	70.04	69.98	69.92	69.86	69.80	69.74	69.68	69.62	69.56	69.50	69.44	69.38	69.32	69.26	69.20	69.14	69.08	69.02	68.96	68.90	68.84	68.78	68.72	68.66	68.60	68.54	68.48	68.42	68.36	68.30	68.24	68.18	68.12	68.06	68.00	67.94	67.88	67.82	67.76	67.70	67.64	67.58	67.52	67.46	67.40	67.34	67.28	67.22	67.16	67.10	67.04	66.98	66.92	66.86	66.80	66.74	66.68	66.62	66.56	66.50	66.44	66.38	66.32	66.26	66.20	66.14	66.08	66.02	65.96	65.90	65.84	65.78	65.72	65.66	65.60	65.54	65.48	65.42	65.36	65.30	65.24	65.18	65.12	65.06	65.00	64.94	64.88	64.82	64.76	64.70	64.64	64.58	64.52	64.46	64.40	64.34	64.28	64.22	64.16	64.10	64.04	63.98	63.92	63.86	63.80	63.74	63.68	63.62	63.56	63.50	63.44	63.38	63.32	63.26	63.20	63.14	63.08	63.02	62.96	62.90	62.84	62.78	62.72	62.66	62.60	62.54	62.48	62.42	62.36	62.30	62.24	62.18	62.12	62.06	62.00	61.94	61.88	61.82	61.76	61.70	61.64	61.58	61.52	61.46	61.40	61.34	61.28	61.22	61.16	61.10	61.04	60.98	60.92	60.86	60.80	60.74	60.68	60.62	60.56	60.50	60.44	60.38	60.32	60.26	60.20	60.14	60.08	60.02	59.96	59.90	59.84	59.78	59.72	59.66	59.60	59.54	59.48	59.42	59.36	59.30	59.24	59.18	59.12	59.06	59.00	58.94	58.88	58.82	58.76	58.70	58.64	58.58	58.52	58.46	58.40	58.34	58.28	58.22	58.16	58.10	58.04	57.98	57.92	57.86	57.80	57.74	57.68	57.62	57.56	57.50	57.44	57.38	57.32	57.26	57.20	57.14	57.08	57.02	56.96	56.90	56.84	56.78	56.72	56.66	56.60	56.54	56.48	56.42	56.36	56.30	56.24	56.18	56.12	56.06	56.00	55.94	55.88	55.82	55.76	55.70	55.64	55.58	55.52	55.46	55.40	55.34	55.28	55.22	55.16	55.10	55.04	54.98	54.92	54.86	54.80	54.74	54.68	54.62	54.56	54.50	54.44	54.38	54.32	54.26	54.20	54.14	54.08	54.02	53.96	53.90	53.84	53.78	53.72	53.66	53.60	53.54	53.48	53.42	53.36	53.30	53.24	53.18	53.12	53.06	53.00	52.94	52.88	52.82	52.76	52.70	52.64	52.58	52.52	52.46	52.40	52.34	52.28	52.22	52.16	52.10	52.04	51.98	51.92	51.86	51.80	51.74	51.68	51.62	51.56	51.50	51.44	51.38	51.32	51.26	51.20	51.14	51.08	51.02	50.96	50.90	50.84	50.78	50.72	50.66	50.60	50.54	50.48	50.42	50.36	50.30	50.24	50.18	50.12	50.06	50.00	49.94	49.88	49.82	49.76	49.70	49.64	49.58	49.52	49.46	49.40	49.34	49.28	49.22	49.16	49.10	49.04	48.98	48.92	48.86	48.80	48.74	48.68	48.62	48.56	48.50	48.44	48.38	48.32	48.26	48.20	48.14	48.08	48.02	47.96	47.90	47.84	47.78	47.72	47.66	47.60	47.54	47.48	47.42	47.36	47.30	47.24	47.18	47.12	47.06	47.00	46.94	46.88	46.82	46.76	46.70	46.64	46.58	46.52	46.46	46.40	46.34	46.28	46.22	46.16	46.10	46.04	45.98	45.92	45.86	45.80	45.74	45.68	45.62	45.56	45.50	45.44	45.38	45.32	45.26	45.20	45.14	45.08	45.02	44.96	44.90	44.84	44.78	44.72	44.66	44.60	44.54	44.48	44.42	44.36	44.30	44.24	44.18	44.12	44.06	44.00	43.94	43.88	43.82	43.76	43.70	43.64	43.58	43.52	43.46	43.40	43.34	43.28	43.22	43.16	43.10	43.04	42.98	42.92	42.86	42.80	42.74	
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CATCHBASIN DATA - SYMBOL <input type="checkbox"/>					
NUMBER	STATION	OFFSET FROM ϕ	STRUCTURE	COVER	COMMENTS
12	8+71	IN CURB	2-1B	2-5B	
13	8+71	IN CURB	2-1B	2-5B	
14	10+10	IN CURB	2-1B	2-5B	
15	10+10	IN CURB	2-1B	2-5B	
16	11+65	36' RIGHT	2-1B	2-5	ϕ DITCH
17	11+65	IN CURB	2-1B	2-5B	
18	11+67	IN CURB	2-1B	2-5B	
19	13+60	IN CURB	2-1B	2-5B	
20	13+60	IN CURB	2-1B	2-5B	

- LEGEND**
- PROPOSED GRAVEL FOR DRIVEWAYS AND PARKING AREAS.
 - PROPOSED PAVEMENT FOR DRIVEWAYS, BOULEVARDS AND PARKING AREAS.
 - CONCRETE CURB ... WITH DROP CURB.
 - PROPOSED CONCRETE SIDEWALK.

- NOTES:**
- 1) ALL C.B. LEADS TO BE 12" ϕ E.S. CONCRETE PIPE AT 1% SLOPE UNLESS OTHERWISE SHOWN.
 - 2) C.B.M. - S.W. CORNER CONCRETE PAD AT FRONT ENTRANCE TO DUNCAN'S INDUSTRIAL HARDWARE - ELEV. 337.04.
 - 3) CATCHBASIN OFFSETS ARE TO TOP OF BACK OF GRATE.
 - 4) ADJUST EXISTING M.H. FRAME AND COVERS AND WATER VALVES TO SUIT FINISHED GRADE - SYMBOL



GENERAL NOTES

- ALL DRIVEWAYS GRAVEL UNLESS OTHERWISE NOTED.
- ALL SERVICE LOCATIONS ARE APPROXIMATE AND MUST BE LOCATED ACCURATELY IN THE FIELD.
- GAS AS SHOWN
- WATER AS SHOWN
- BELL U/G AS SHOWN

LEGEND

- DENOTES BENCH MARK ELEVATION
- STORM SEWER & MANHOLE
- SANITARY SEWER & MANHOLE
- WATERMAIN & VALVE
- GASMAIN & VALVE
- BELL TELEPHONE BURIED CABLE
- HYDRO POLE & GUY ANCHOR
- HYDRANT

TOWN OF OAKVILLE
DEPARTMENT OF PUBLIC WORKS

PROPOSED RECONSTRUCTION ON
CROSS AVENUE
FROM STATION 7+00 TO STATION 15+00

FLD. BK. No. J.A. - 1

DATE: JULY 1975

DRAWN BY: D.A.

FILE NO: R-109-75

CONTRACTOR:

SCALE: HOR: 1" = 40' VERT: 1" = 5'

DESIGN BY: R.G.H.

SURVEY BY: J.A./T.Q.

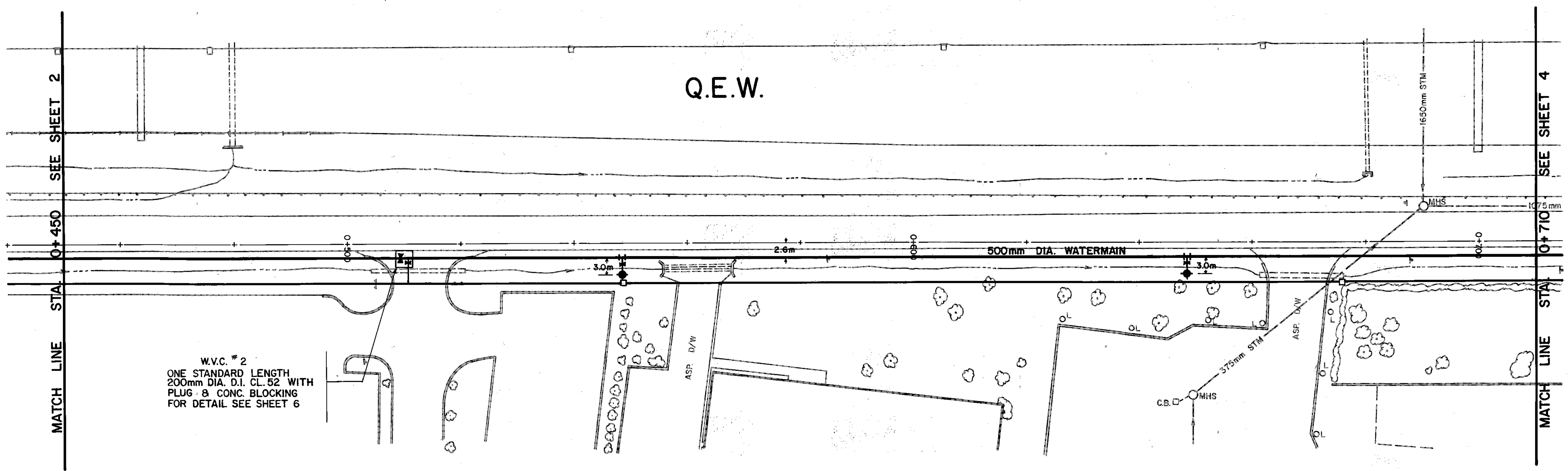
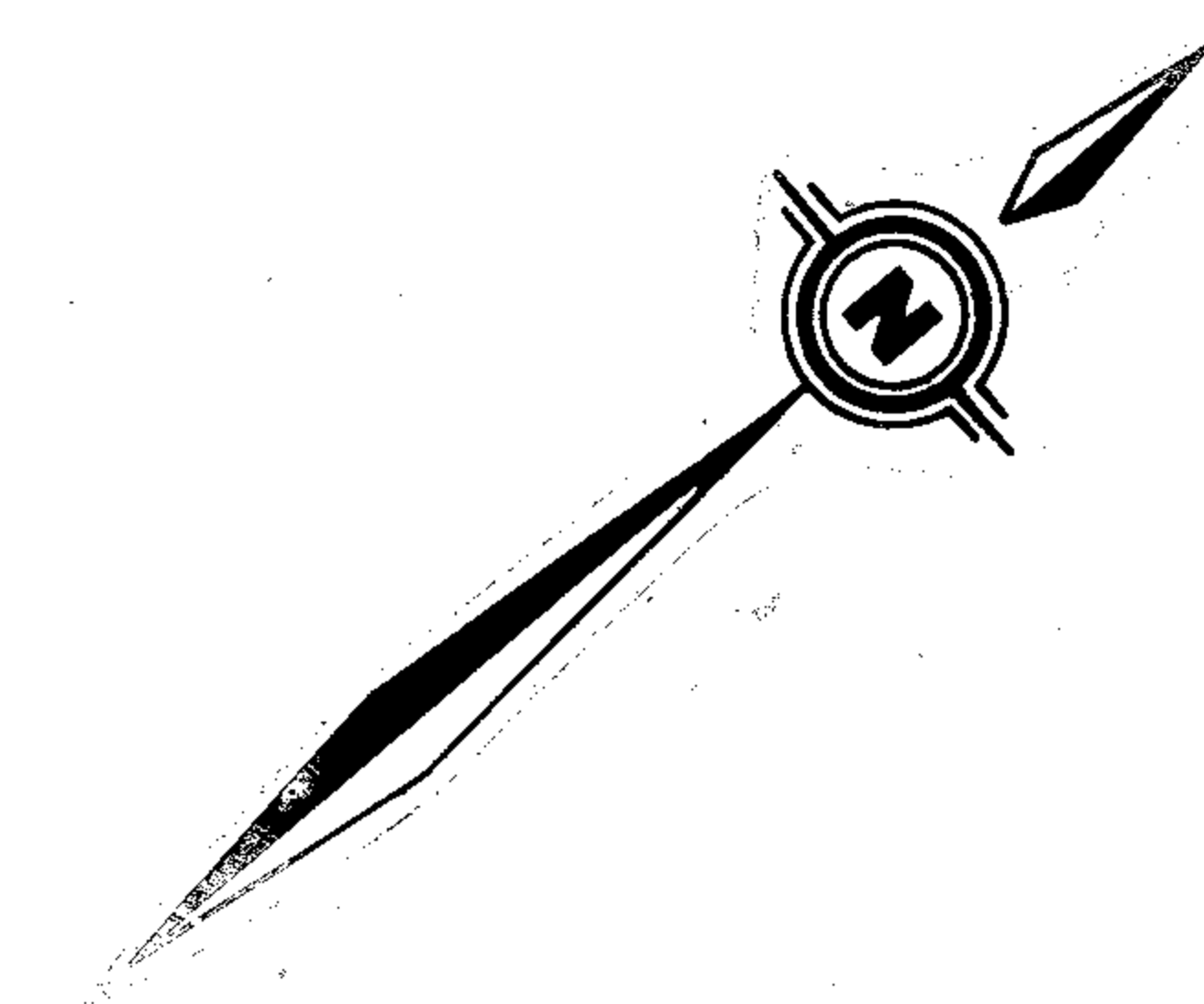
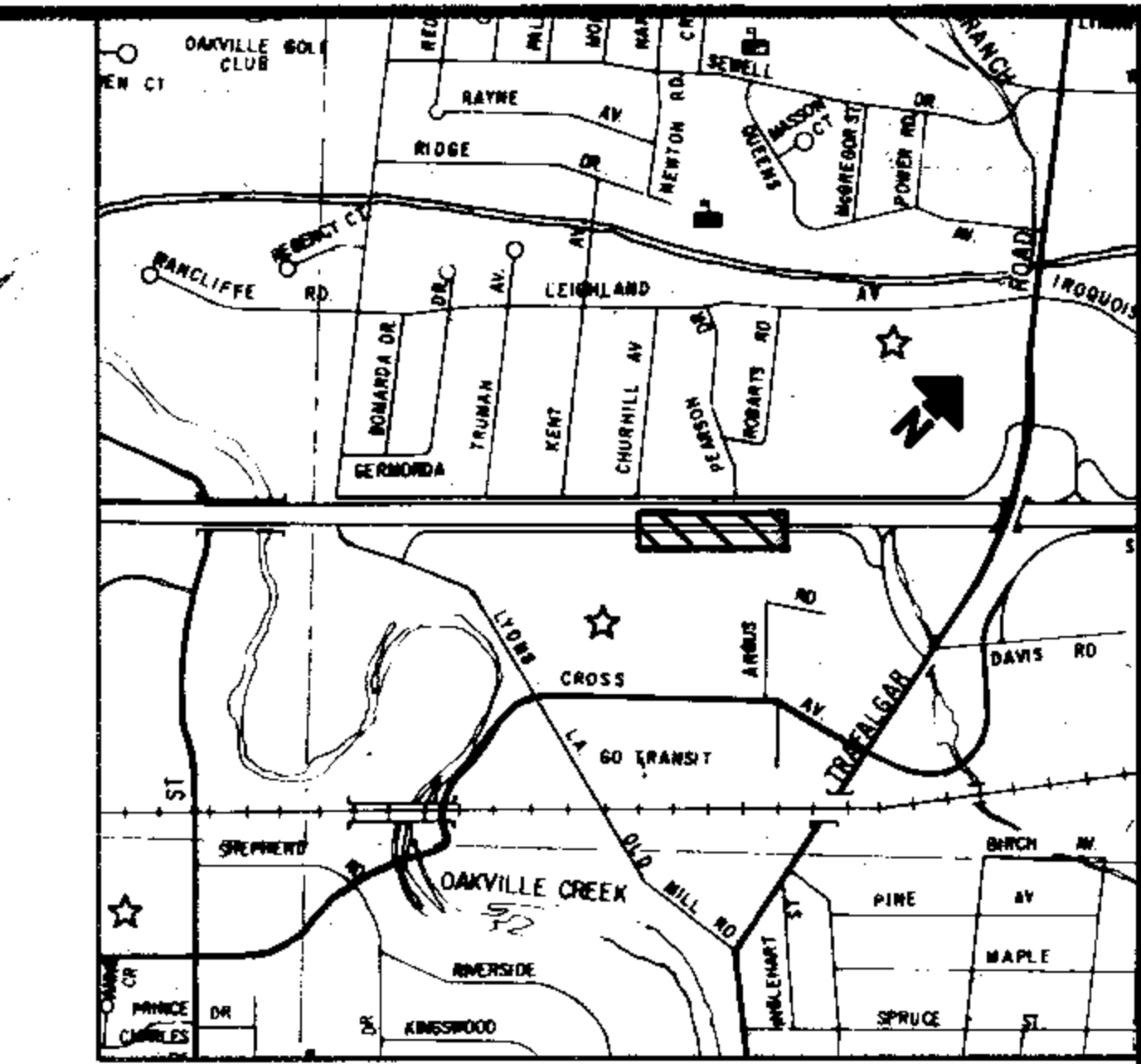
INSPECTOR:

PLAN NO: R-109-75-6

SHEET 6 OF 17

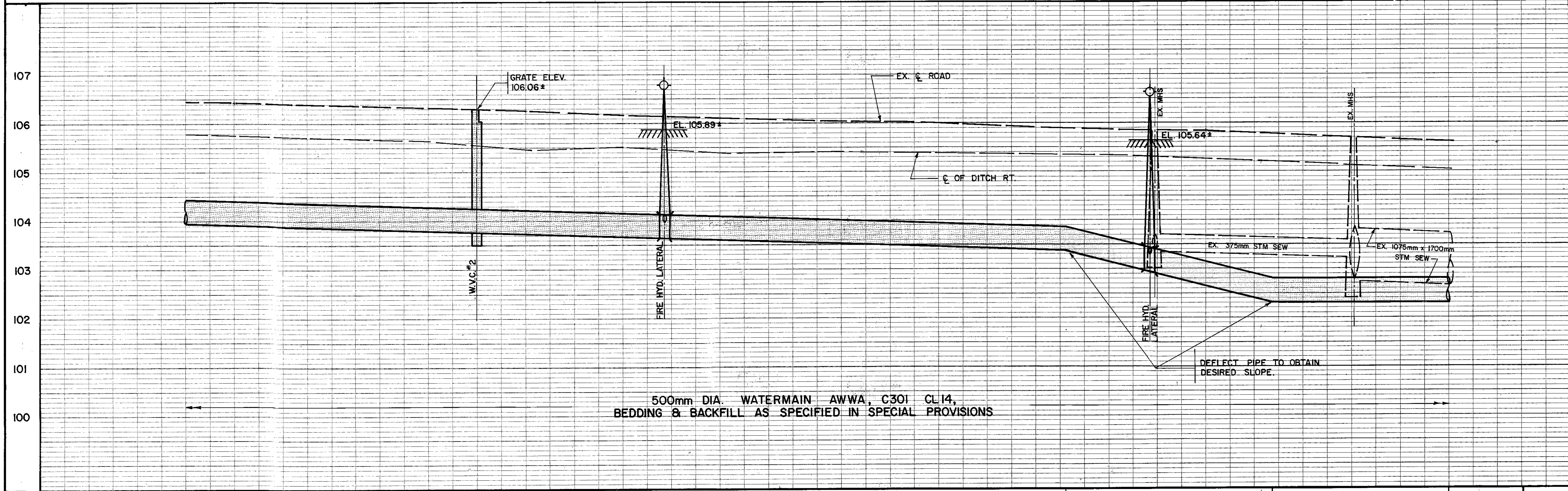
DATE	REVISIONS	BY
SEPT. 26, 1975	RELOCATE TREES IN FRONT #191, 193 & 195 CROSS AVENUE.	R. G. H.
OCT. 23, 1975	REVISED SIDEWALK LOCATION ON SOUTH SIDE OF CROSS AVENUE.	R. G. H.

CROSS AVE



SOUTH SERVICE ROAD

WATERMAIN DATA				
ITEM	STATION	CONSTR. OFFSET	INVERT ELEV.	REMARKS
W.V.C. #2	0+510.522	2.6m RT	103.763	FOR DETAIL SEE SHEET 6
FIRE HYD. & SEC. G.V.	0+548.334	2.6m RT	103.640	BRANCH TANGENT TOP
FIRE HYD. & SEC. G.V.	0+648.333	2.6m RT	102.944	BRANCH TANGENT TOP



REVISIONS			
No	Date	By	AS CONSTRUCTED
1	22/02/82	M.P.S.	AS CONSTRUCTED

APPROVALS			
Design	Checked	Date	REFERENCES
G.E.R.	Checked	NOV. 1980	
Drawn	Checked		
M.P.S.	Checked		

Municipal		FIELD NOTES
Regional	<i>[Signature]</i> 81-01-26	
DIRECTOR OF PUBLIC WORKS		
MANAGER OF DESIGN	<i>[Signature]</i> 81-01-23	

STATION	CHAINAGE	WATERMAIN INVERTS
0+450	183.100 m @ -0.34%	
0+460		
0+480		
0+500		
0+508.342		
0+512.536		
0+520		
0+540		
0+560	120.732 m @ -0.33%	
0+580		
0+600		
0+620		
0+633.267		
0+640		
0+660	43.944 m @ -2.43%	
0+677.198		
0+680		
0+700	164.188 m @ 0.00%	
0+710		

MUNICIPALITY

Halton

THE REGIONAL MUNICIPALITY OF

PUBLIC WORKS DEPARTMENT

TITLE

500mm DIA. WATERMAIN
SOUTH SERVICE ROAD
TOWN OF OAKVILLE
STA. 0+450 TO STA. 0+710

MUNICIPAL DRAWING NO

REGIONAL DRAWING NO

0-4220

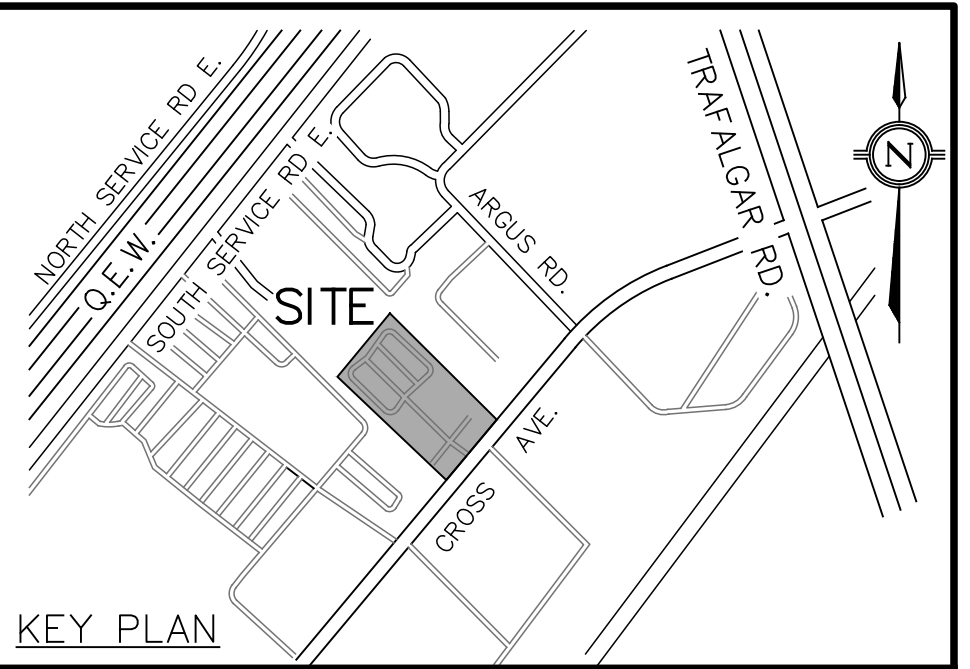
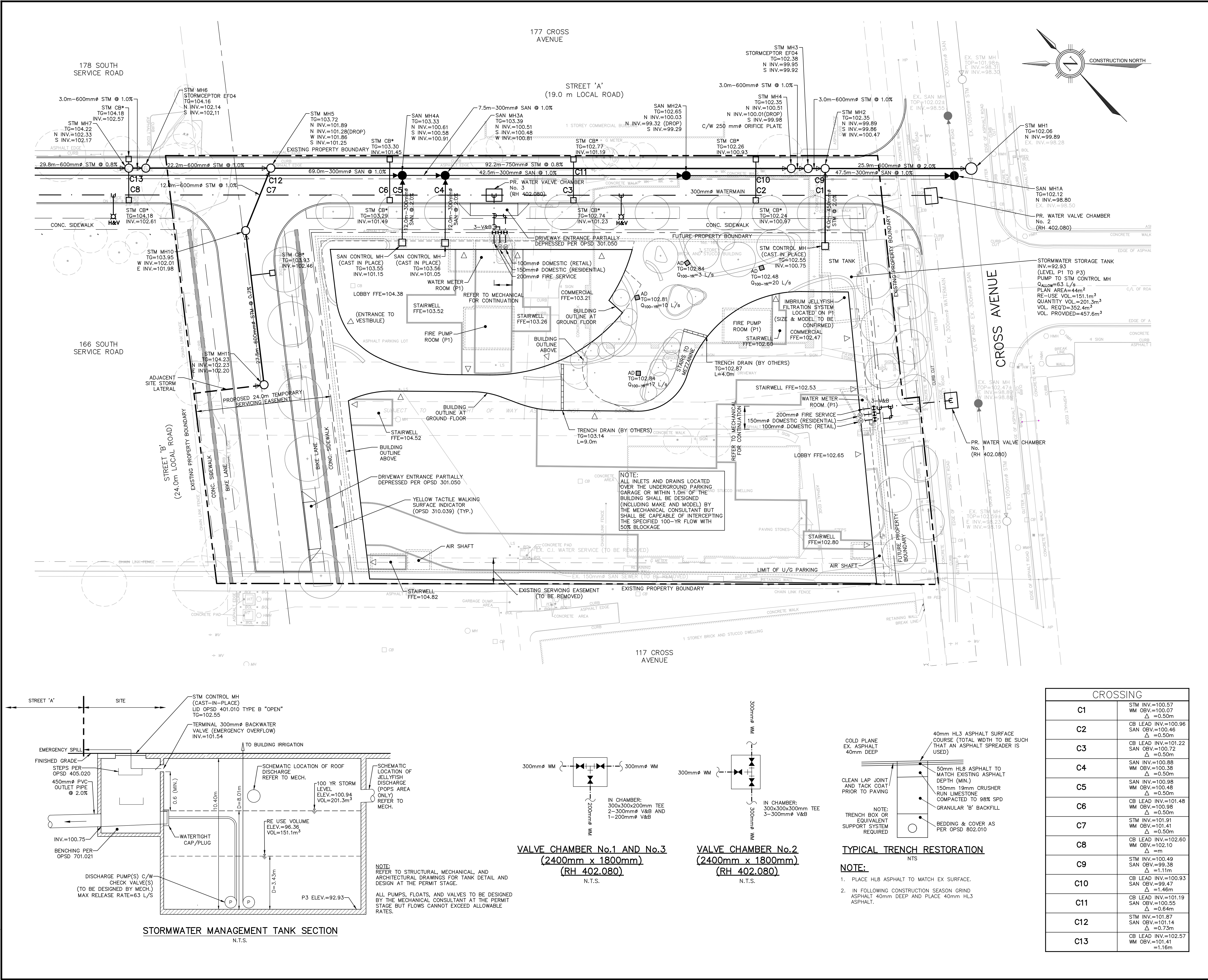
CONTRACT NO

W-570-81

SHEET 3 OF 6

0-4220

APPENDIX 'G'



- LEGEND
- PROPOSED STORM MANHOLE
 - PROPOSED STORM CATCHBASIN
 - ◻ PROPOSED SANITARY MANHOLE
 - ⊕ PROPOSED FIRE HYDRANT
 - ⊕ PROPOSED VALVE & BOX
 - PROPOSED STORM SEWER
 - PROPOSED SANITARY SEWER
 - PROPOSED WATERMAIN
 - - - PROPERTY BOUNDARY
 - - - EXISTING STORM SEWER
 - - - EXISTING SANITARY SEWER
 - - - EXISTING WATERMAIN
 - EXISTING STORM MANHOLE
 - EXISTING SANITARY MANHOLE
 - ◻ PROPOSED AREA DRAIN (300mm x 300mm)
 - ◻ CATCHBASIN WITH CB SHIELD
 - ⊕ PROPOSED WATER METER

NO.	DATE	A/J/P/ZI	ISSUED FOR ZBA/OBA
1	2024/02/28	AJP/ZI	ISSUED FOR ZBA/OBA
NO.			REVISIONS
CAD FILE: 1827GS.dwg			PLOT SCALE: 1:1 PLOT DATE: Feb 28, 2024

BENCHMARK
ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE TOWN OF OAKVILLE BENCHMARKS: No. 236 ELEVATION=159.311m No. 258 ELEVATION=165.692m

LOCAL BENCHMARK
CUT CROSS LOCATED ON CONCRETE WALK NEXT TO PAVING STONES LEADING TO THE BUILDING AT 165 CROSS AVE, AS SHOWN ON THE FACE OF PLAN. ELEVATION=102.73m

NOTE
THE SURVEY WAS COMPLETED ON THE 13TH DAY OF JUNE, 2023 BY J.D. BARNES LIMITED, ONTARIO LAND SURVEYORS, REFERENCE No.: 21-30-700-02-A.

DESIGNED BY:

APPROVED BY:

CONSULTANT: **TRAFALGAR ENGINEERING**
81-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
www.trafalgareng.com

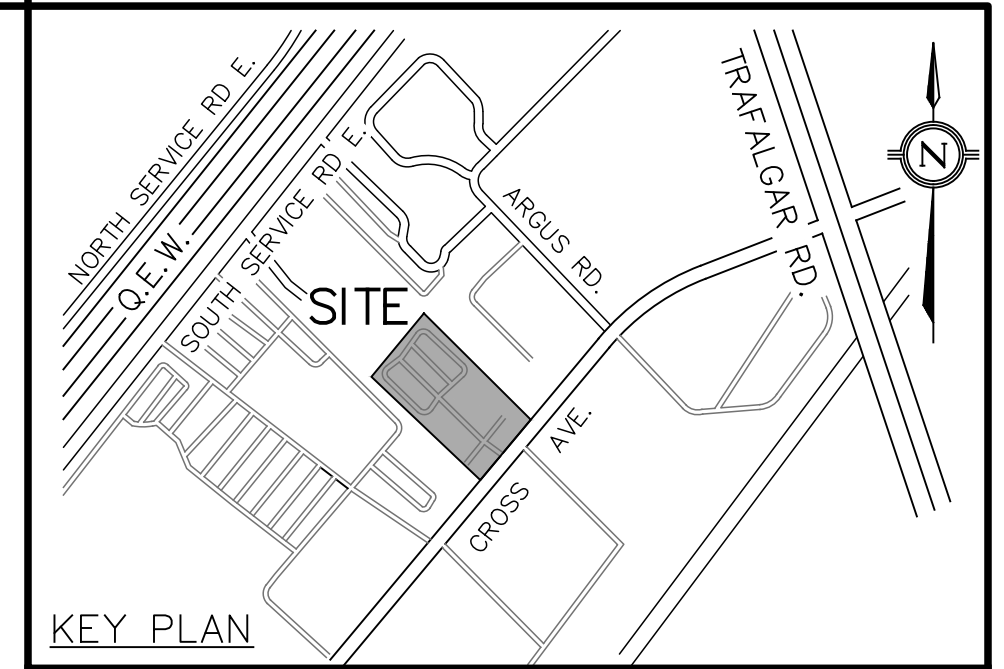
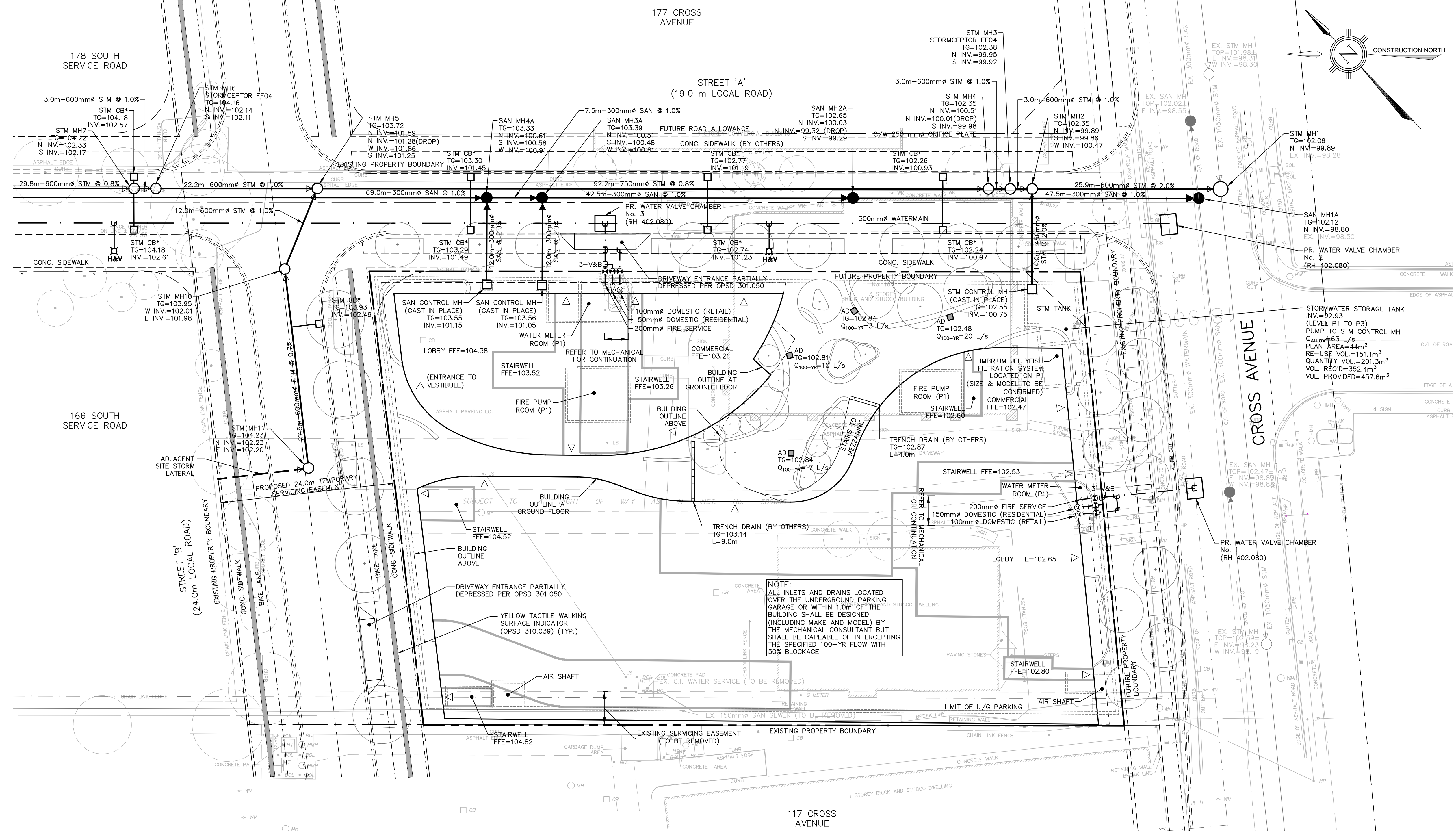
PROJECT TITLE: **DISTRIKT MIDTOWN TOWN OF OAKVILLE**

LOCATION: **157/165 CROSS AVENUE OAKVILLE, ONTARIO**

DRAWING TITLE: **PRELIMINARY SITE SERVICING PLAN (INTERIM)**

SCALE	1:300	DESIGN BY	AJP	PROJECT No.	1827
DRAWN BY	GL	CHECKED BY	JN	PLAN No.	S1
DATE	2023/09/20	SHEET	1 OF 1		

FILENAME: P:\1827 Distrikt Midtown 157 Cross\04-CAD\03-Site Plan\1827GS.dwg
 PLOTTED: Feb 28, 2024 10:31am



- LEGEND**
- PROPOSED STORM MANHOLE
 - PROPOSED STORM CATCHBASIN
 - PROPOSED SANITARY MANHOLE
 - ⊗ PROPOSED FIRE HYDRANT
 - ⊕ PROPOSED VALVE & BOX
 - PROPOSED STORM SEWER
 - PROPOSED SANITARY SEWER
 - PROPOSED WATERMAIN
 - PROPOSED PROPERTY BOUNDARY
 - EXISTING STORM SEWER
 - EXISTING SANITARY SEWER
 - EXISTING WATERMAIN
 - EXISTING STORM MANHOLE
 - EXISTING SANITARY MANHOLE
 - PROPOSED AREA DRAIN (300mm x 300mm)
 - ⊕ CATCHBASIN WITH CB SHIELD
 - ⊕ PROPOSED WATER METER

NO.	DATE	A/J/P/ZI	ISSUED FOR ZBA/OBA
1	2024/02/28	AJP/ZI	ISSUED FOR ZBA/OBA

CAD FILE: 1827GS.dwg | PLOT SCALE: 1:1 | PLOT DATE: Feb 28, 2024

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NOTE
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DESIGNED BY:

APPROVED BY:

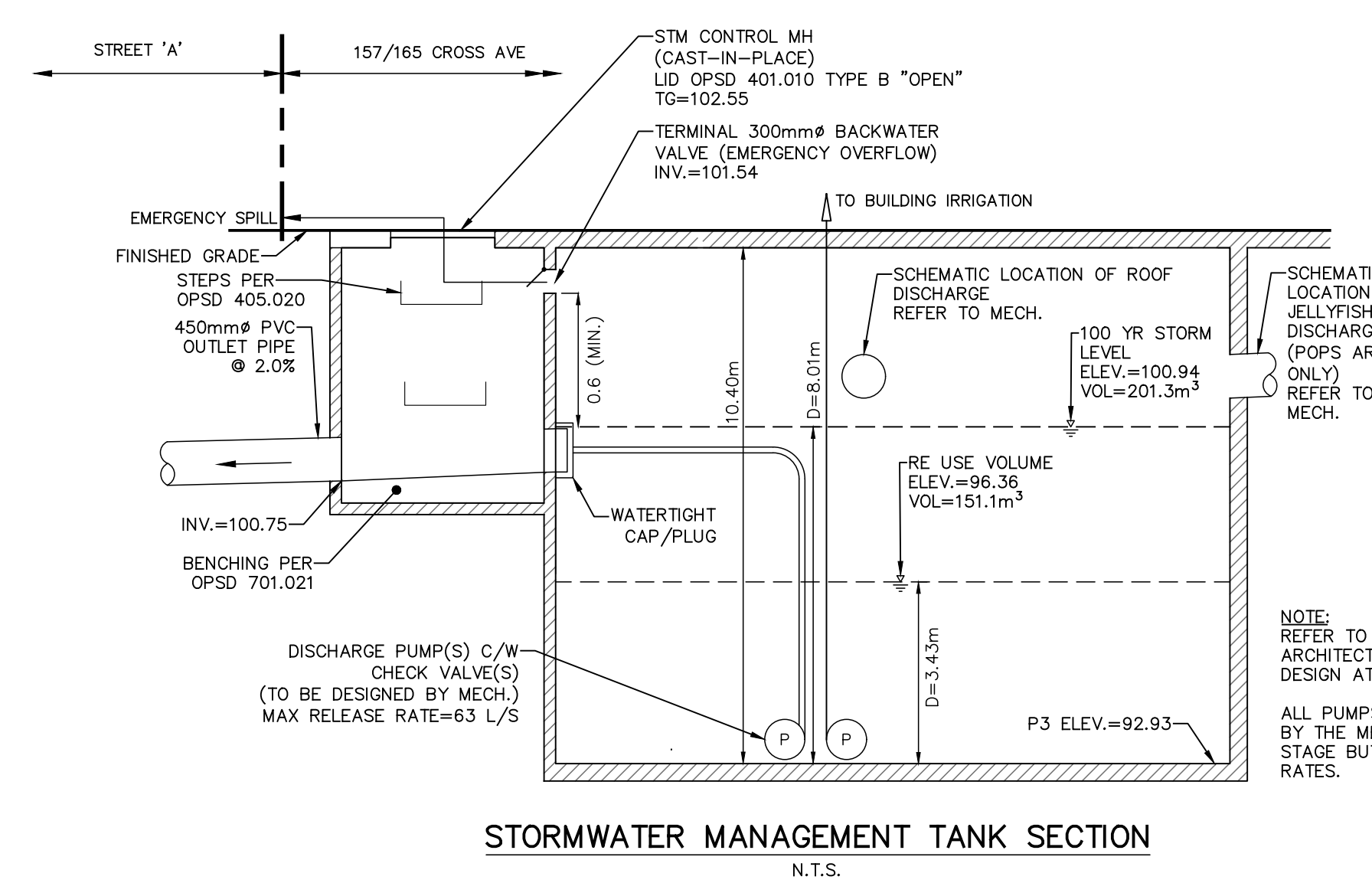
CONSULTANT: **TRAFALGAR ENGINEERING**
81-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
www.trafalgareng.com

PROJECT TITLE: **DISTRIKT MIDTOWN TOWN OF OAKVILLE**

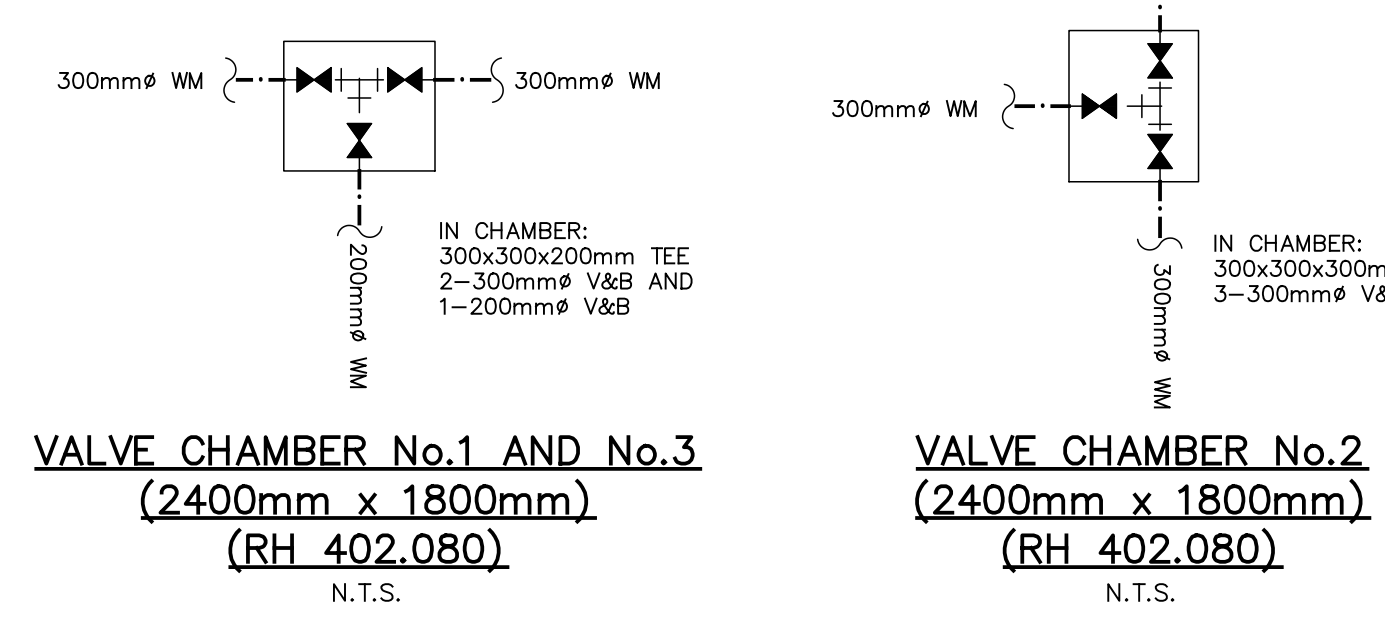
LOCATION: **157/165 CROSS AVENUE OAKVILLE, ONTARIO**

DRAWING TITLE: **PRELIMINARY SITE SERVICING PLAN (ULTIMATE)**

SCALE: 1:300	DESIGN BY: JN	PROJECT No.: 1827
DRAWN BY: GL	CHECKED BY: JN	PLAN No. S2
DATE: 2023/09/20	SHEET 1 OF 1	

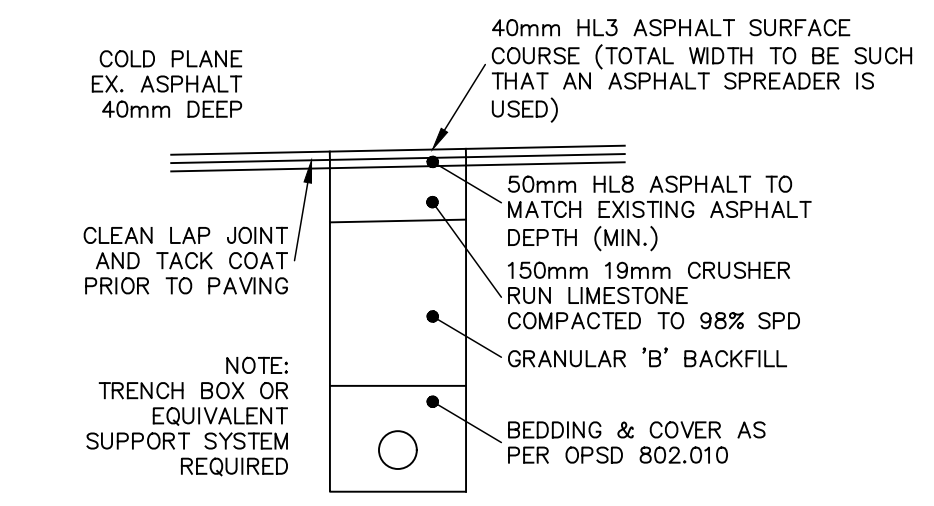


STORMWATER MANAGEMENT TANK SECTION
N.T.S.



VALVE CHAMBER No.1 AND No.3 (2400mm x 1800mm) (RH 402.080) N.T.S.

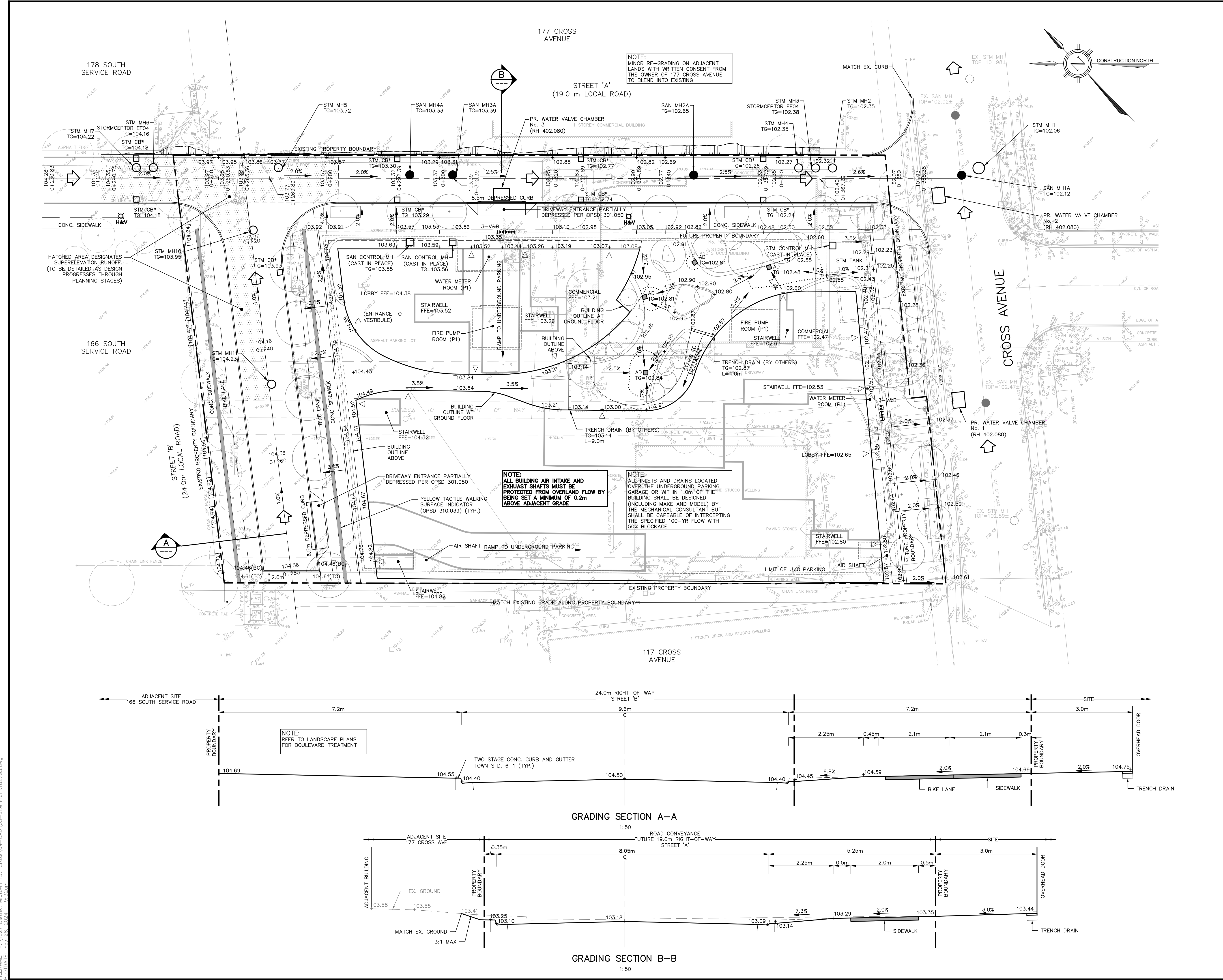
VALVE CHAMBER No.2 (2400mm x 1800mm) (RH 402.080) N.T.S.



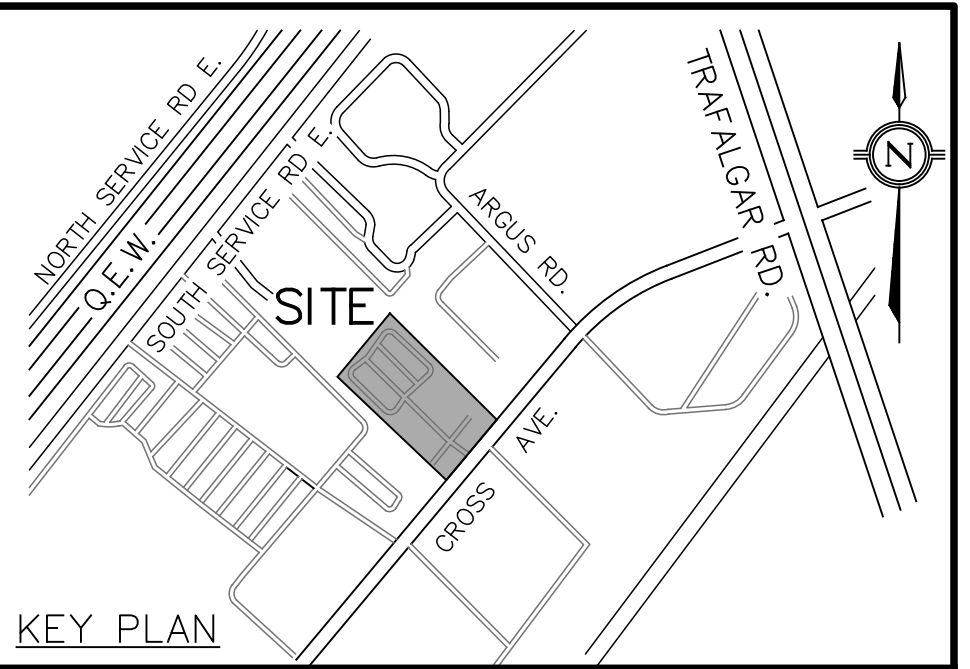
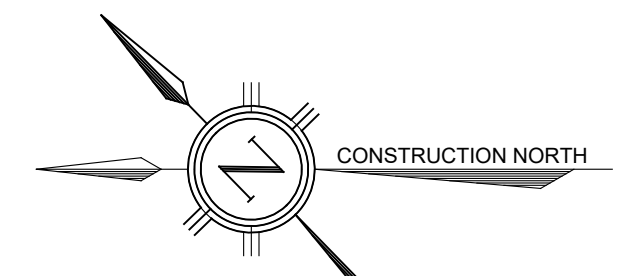
TYPICAL TRENCH RESTORATION
NTS

NOTE:
1. PLACE HLB ASPHALT TO MATCH EX SURFACE.
2. IN FOLLOWING CONSTRUCTION SEASON GRIND ASPHALT 40mm DEEP AND PLACE 40mm HLB ASPHALT.

FILENAME: P:\1827 Distrikt Midtown 157 Cross\04-CAD\03-Site Plan\1827GS.dwg
DATE: Feb 28, 2024 9:32am



NOTE:
MINOR RE-GRADING ON ADJACENT
LANDS WITH WRITTEN CONSENT FROM
THE OWNER OF 177 CROSS AVENUE
TO BLEND INTO EXISTING



- LEGEND**
- ▣ PROPOSED AREA DRAIN (300mm x 300mm)
 - PROPOSED STORM MANHOLE
 - PROPOSED SANITARY MANHOLE
 - ▣ PROPOSED STORM CATCHBASIN
 - CB* CATCHBASIN WITH CB SHIELD
 - ⊕ PROPOSED FIRE HYDRANT
 - ⊕ PROPOSED VALVE & BOX
 - PROPERTY BOUNDARY
 - 103.75 EXISTING ELEVATION
 - +104.57 EXISTING ELEVATION TO REMAIN
 - 2% PROPOSED DRAINAGE DIRECTION/SLOPE
 - PROPOSED SWALE DRAINAGE DIRECTION/SLOPE
 - ⇨ PROPOSED OVERLAND FLOW DIRECTION
 - ||| PROPOSED SLOPE (MAX 3:1)

NO.	DATE	AJ/P/ZI	ISSUED FOR ZBA/OBA
1	2024/02/28	AJ/P/ZI	ISSUED FOR ZBA/OBA
NO.	DATE	BY/DRAWN	REVISIONS

CAD FILE: 1827GS.dwg | PLOT SCALE: 1:1 | PLOT DATE: Feb 28, 2024

BENCHMARK
ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE TOWN OF OAKVILLE BENCHMARKS: No. 236 ELEVATION=159.311m, No. 258 ELEVATION=185.692m

LOCAL BENCHMARK
CUT CROSS LOCATED ON CONCRETE WALK NEXT TO PAVING STONES LEADING TO THE BUILDING AT 165 CROSS AVE, AS SHOWN ON THE FACE OF PLAN. ELEVATION=102.73m

NOTE
THE SURVEY WAS COMPLETED ON THE 13TH DAY OF JUNE, 2023 BY J.D. BARNES LIMITED, ONTARIO LAND SURVEYORS, REFERENCE No.: 21-30-700-02-A.

DESIGNED BY

APPROVED BY

CONSULTANT

81-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
www.trafalgareng.com

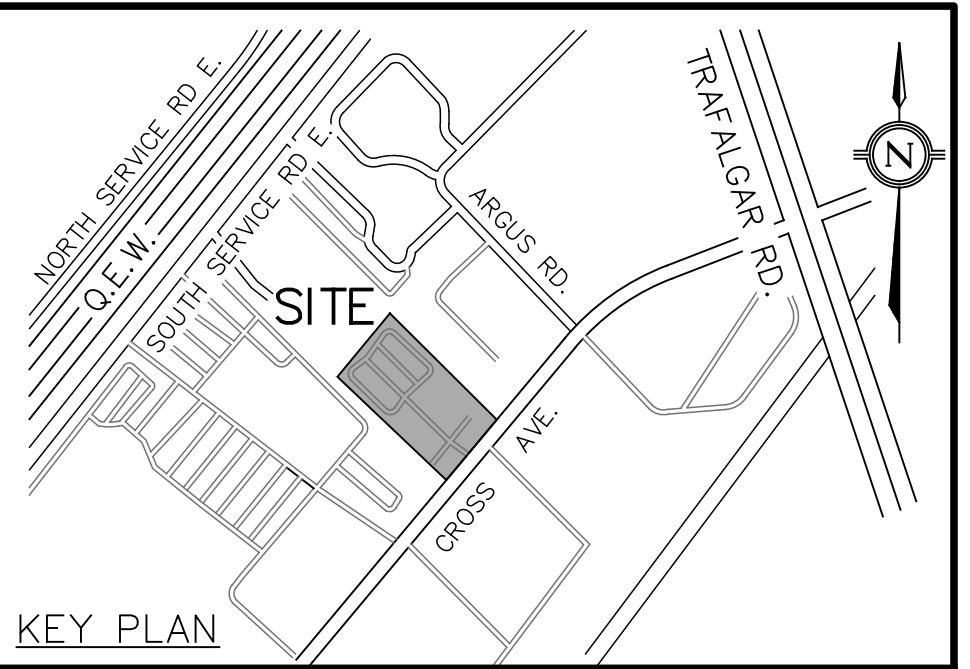
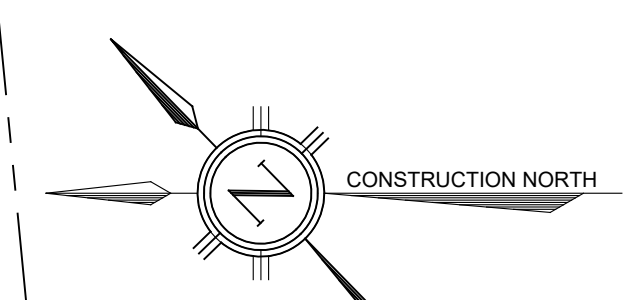
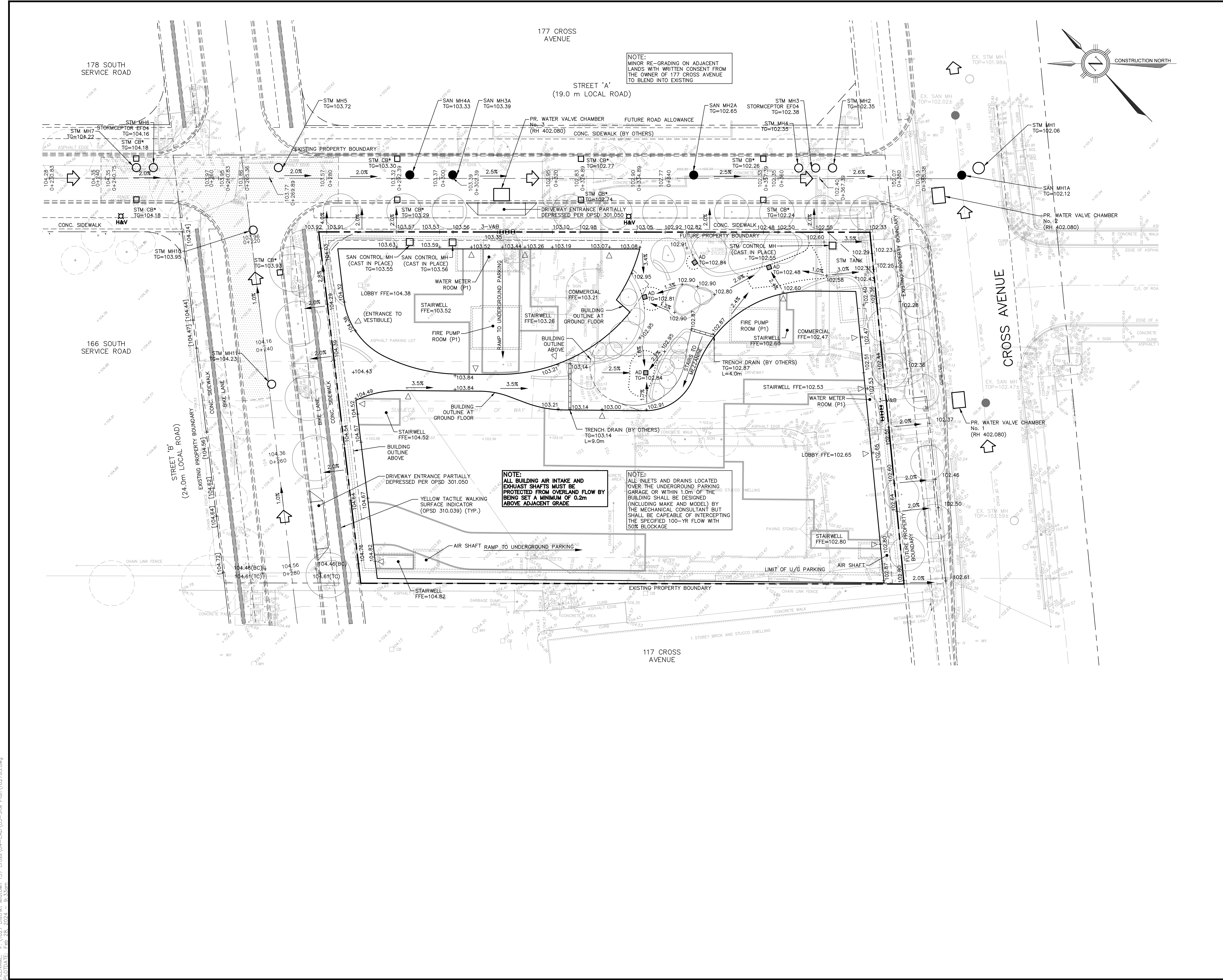
PROJECT TITLE
**DISTRIKT MIDTOWN
TOWN OF OAKVILLE**

LOCATION
**157/165 CROSS AVENUE
OAKVILLE, ONTARIO**

DRAWING TITLE
**PRELIMINARY
GRADING PLAN
(INTERIM)**

SCALE	1:300	DESIGN BY	AJ/P	PROJECT No.	1827
DRAWN BY	ZI	CHECKED BY	JN	PLAN No.	G1
DATE	2023/09/20	SHEET	1 OF 1		

FILENAME: P:\1827 Distrikt Midtown 157 Cross\04-CAD\03-Site Plan\1827GS.dwg
PLOT DATE: Feb 28, 2024 - 9:32am



- LEGEND**
- PROPOSED AREA DRAIN (300mm x 300mm)
 - PROPOSED STORM MANHOLE
 - PROPOSED SANITARY MANHOLE
 - ▣ PROPOSED STORM CATCHBASIN
 - CB* CATCHBASIN WITH CB SHIELD
 - ⊕ PROPOSED FIRE HYDRANT
 - ⊗ PROPOSED VALVE & BOX
 - PROPERTY BOUNDARY
 - 103.75 EXISTING ELEVATION
 - +104.57 EXISTING ELEVATION TO REMAIN
 - +104.57 PROPOSED FINISHED ELEVATION
 - +104.57 ADJACENT DEVELOPMENT FINISHED ELEVATION
 - 2% PROPOSED DRAINAGE DIRECTION/SLOPE
 - PROPOSED SWALE DRAINAGE DIRECTION/SLOPE
 - ⇨ PROPOSED OVERLAND FLOW DIRECTION
 - ||| PROPOSED SLOPE (MAX 3:1)

NO.	DATE	A/J/P/ZI	ISSUED FOR ZBA/OBA
1	2024/02/28	A/J/P/ZI	ISSUED FOR ZBA/OBA

CAD FILE: 1827GS.dwg | PLOT SCALE: 1:1 | PLOT DATE: Feb 28, 2024

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LOCAL BENCHMARK
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NOTE
THE SURVEY WAS COMPLETED ON THE 13TH DAY OF JUNE, 2023 BY J.D. BARNES LIMITED, ONTARIO LAND SURVEYORS, REFERENCE No.: 21-30-700-02-A.

DESIGNED BY

APPROVED BY

CONSULTANT

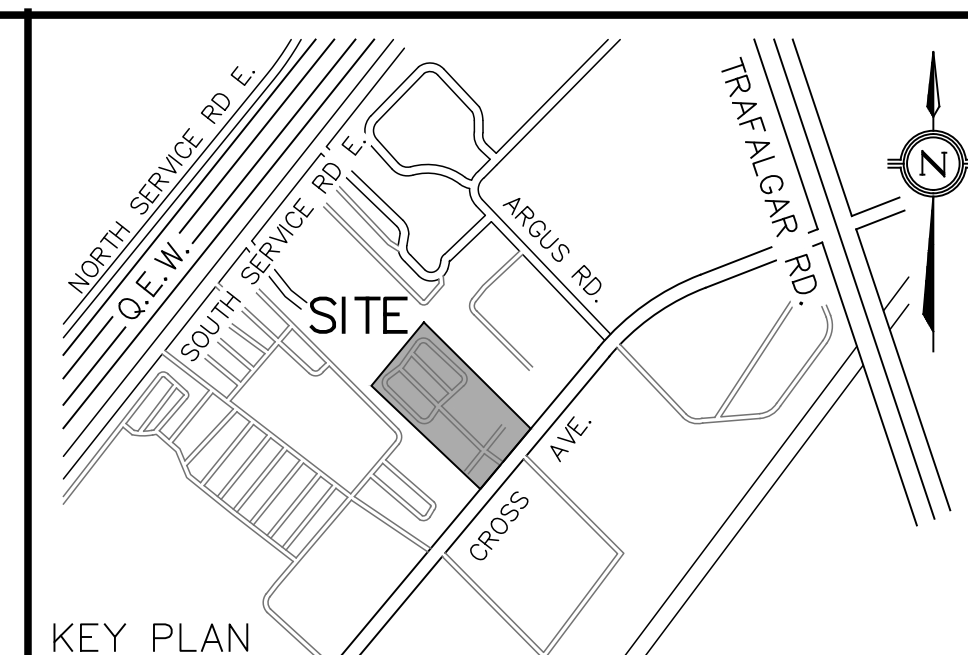
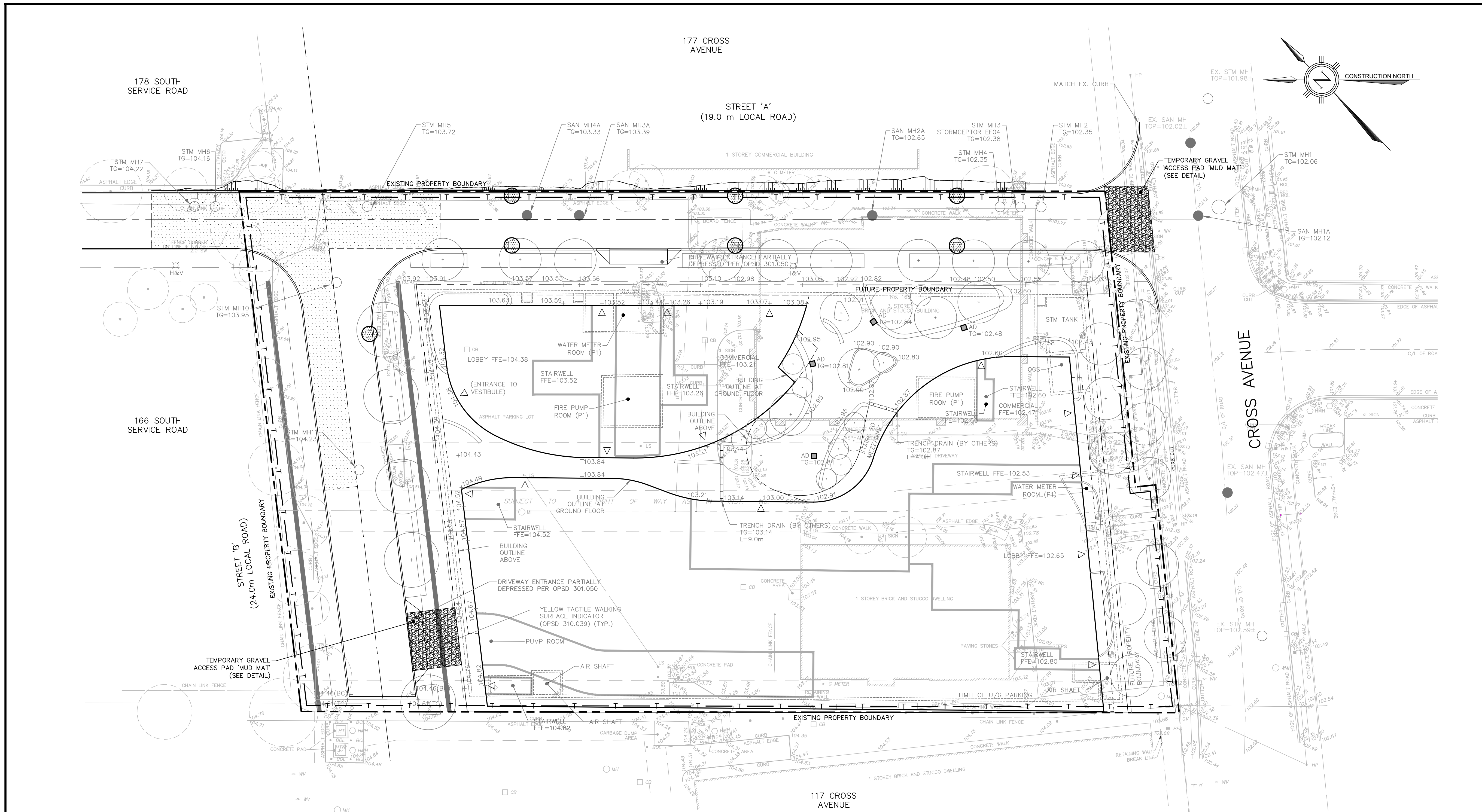
81-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
www.trafalgareng.com

PROJECT TITLE
**DISTRIKT MIDTOWN
TOWN OF OAKVILLE**

LOCATION
**157/165 CROSS AVENUE
OAKVILLE, ONTARIO**

DRAWING TITLE
**PRELIMINARY
GRADING PLAN
(ULTIMATE)**

SCALE	1:300	DESIGN BY	AJP	PROJECT No.	1827
DRAWN BY	ZI	CHECKED BY	JN	PLAN No.	G2
DATE	2023/09/20	SHEET	1 OF 1		



LEGEND

- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- ⊙ PROPOSED FIRE HYDRANT
- ⊕ PROPOSED VALVE & BOX
- PROPERTY BOUNDARY
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- +104.57 PROPOSED FINISHED ELEVATION
- 2% PROPOSED DRAINAGE DIRECTION/SLOPE
- PROPOSED SWALE DRAINAGE DIRECTION/SLOPE
- ||| PROPOSED SLOPE

EROSION AND SEDIMENT CONTROL LEGEND

- SEDIMENT CONTROL CB IN PAVED AREAS
- ▨ SEDIMENT CONTROL CB IN LANDSCAPED AREA
- ▨ SEDIMENT CONTROL TRENCH DRAIN
- T SEDIMENT CONTROL FENCE
- ▨ MUD MAT

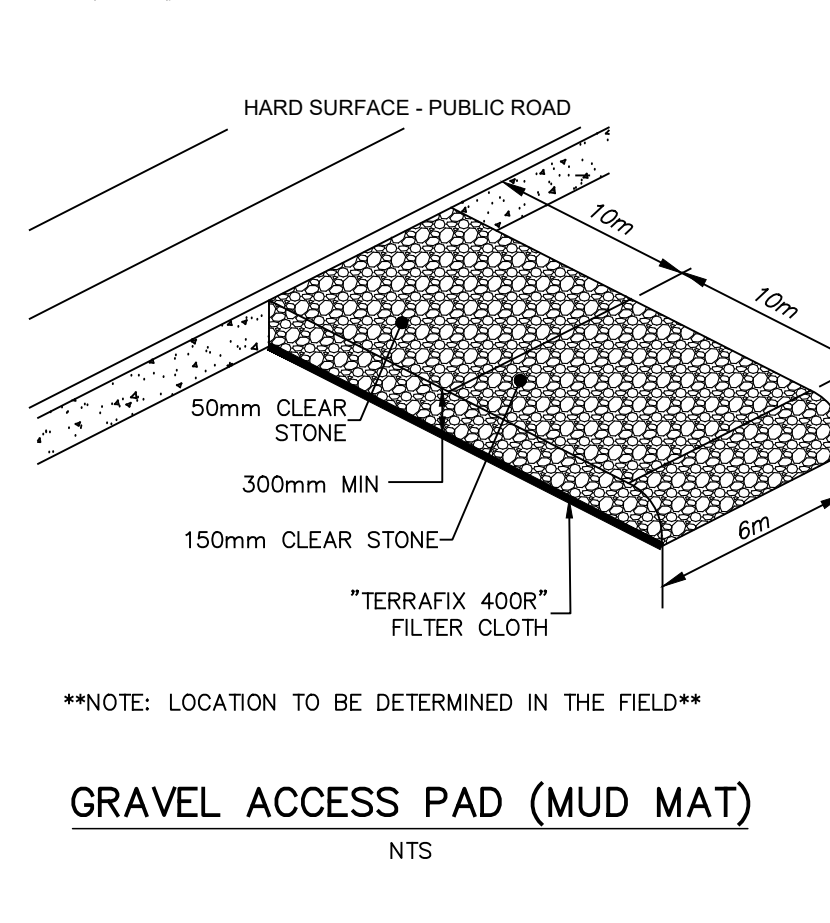
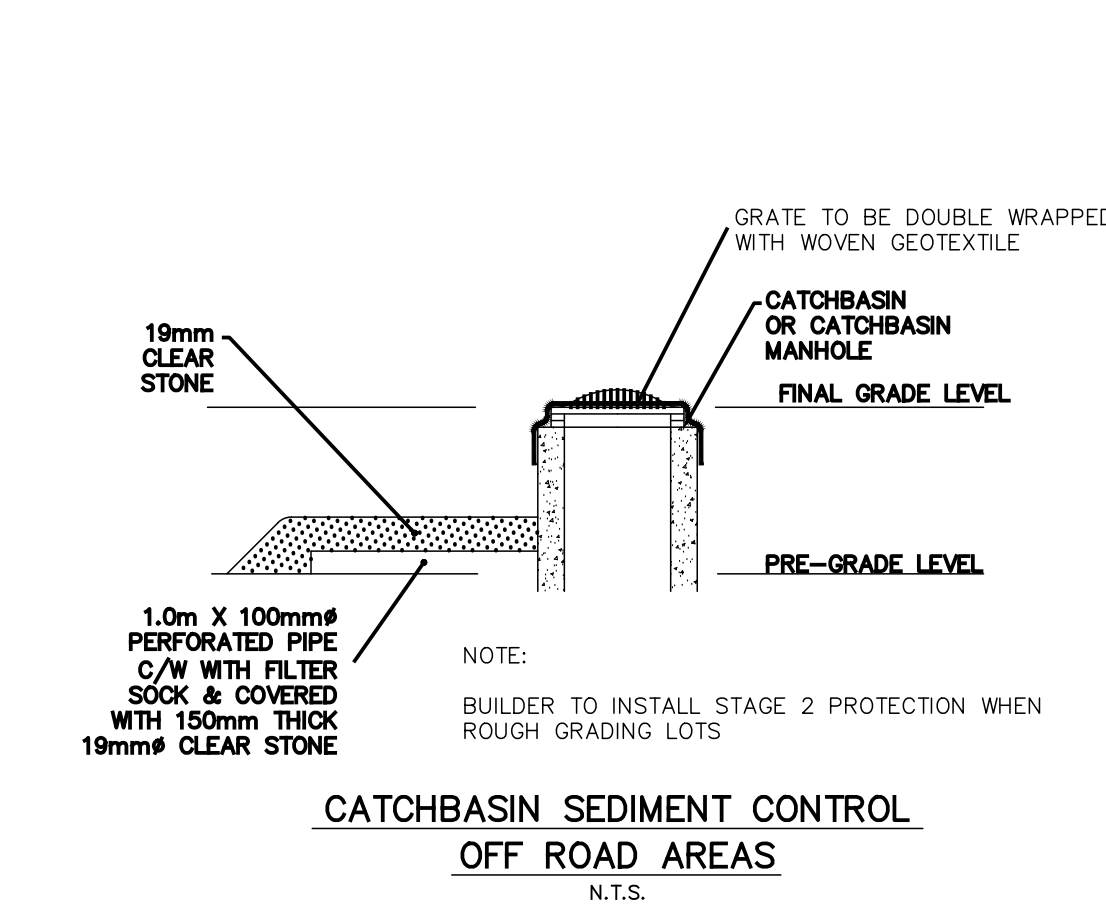
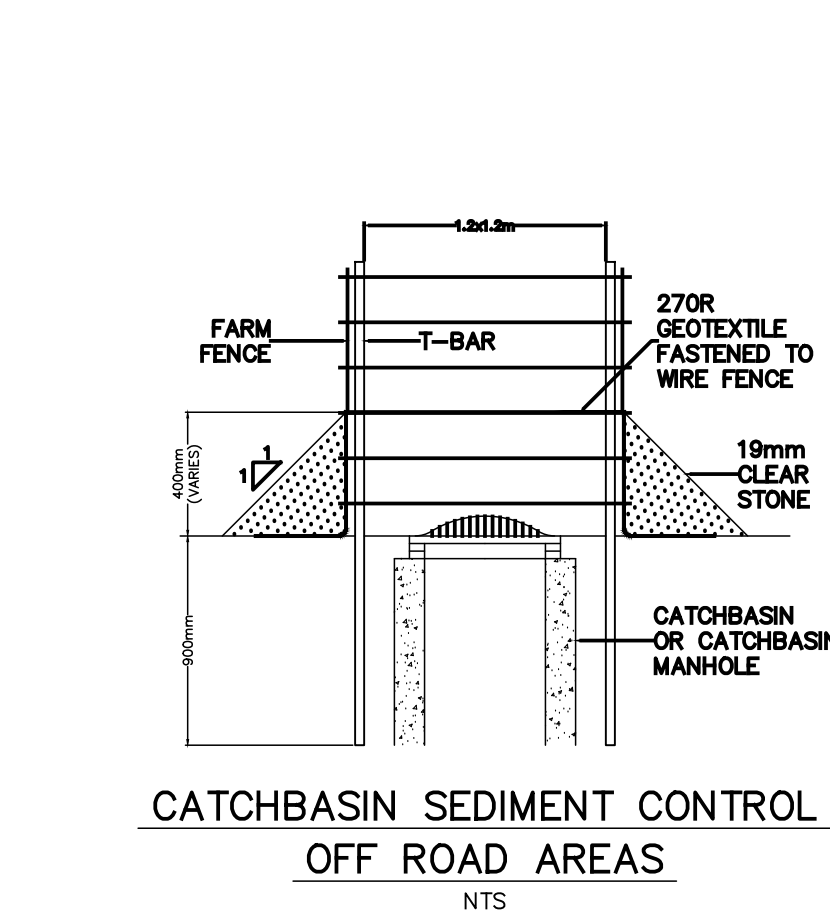
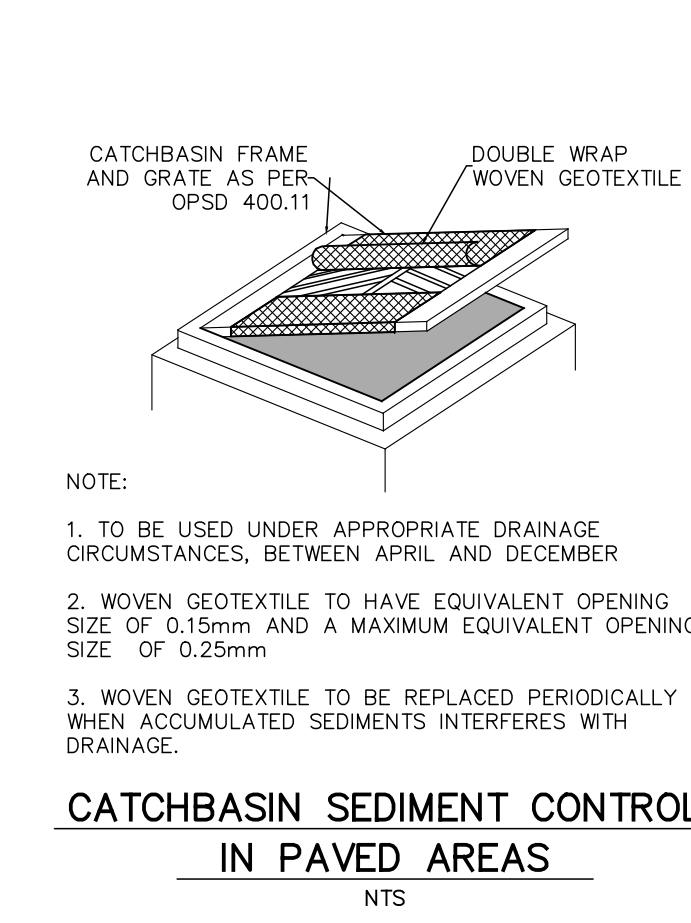
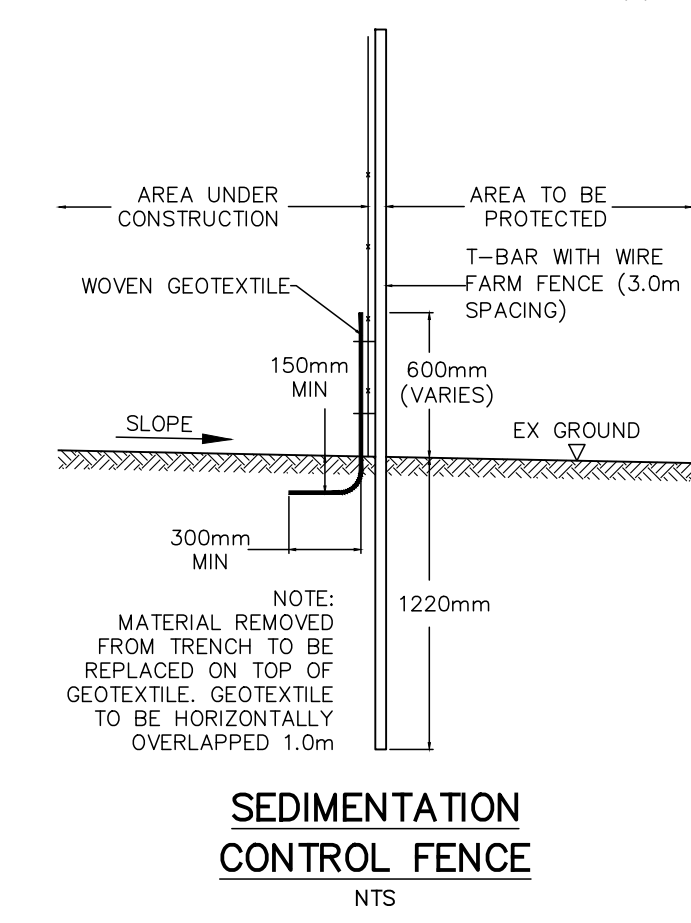
NO.	DATE	BY/DRAWN	REVISIONS
1	2024/02/28	AJP/ZI	ISSUED FOR ZBA/OPA

CAD FILE: 1827GS.dwg | PLOT SCALE: 1:1 | PLOT DATE: Feb 28, 2024

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NOTE
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DESIGNED BY:

APPROVED BY: _____

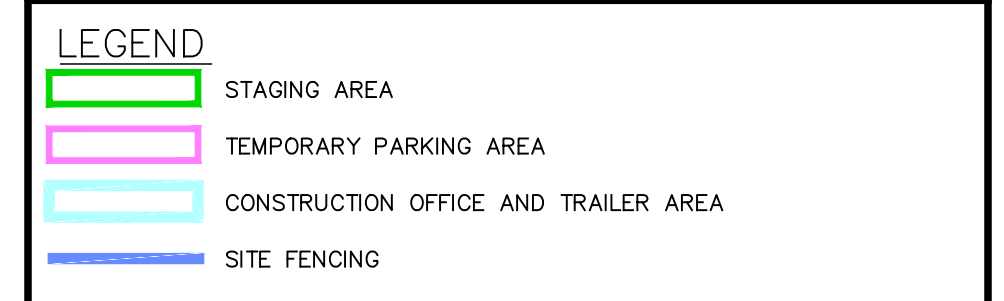
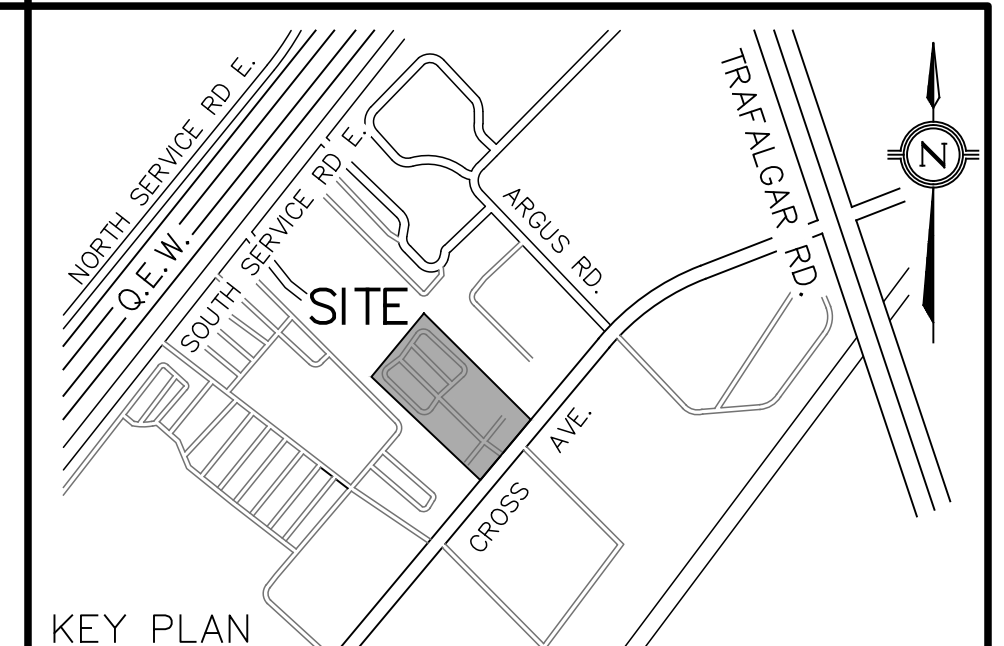
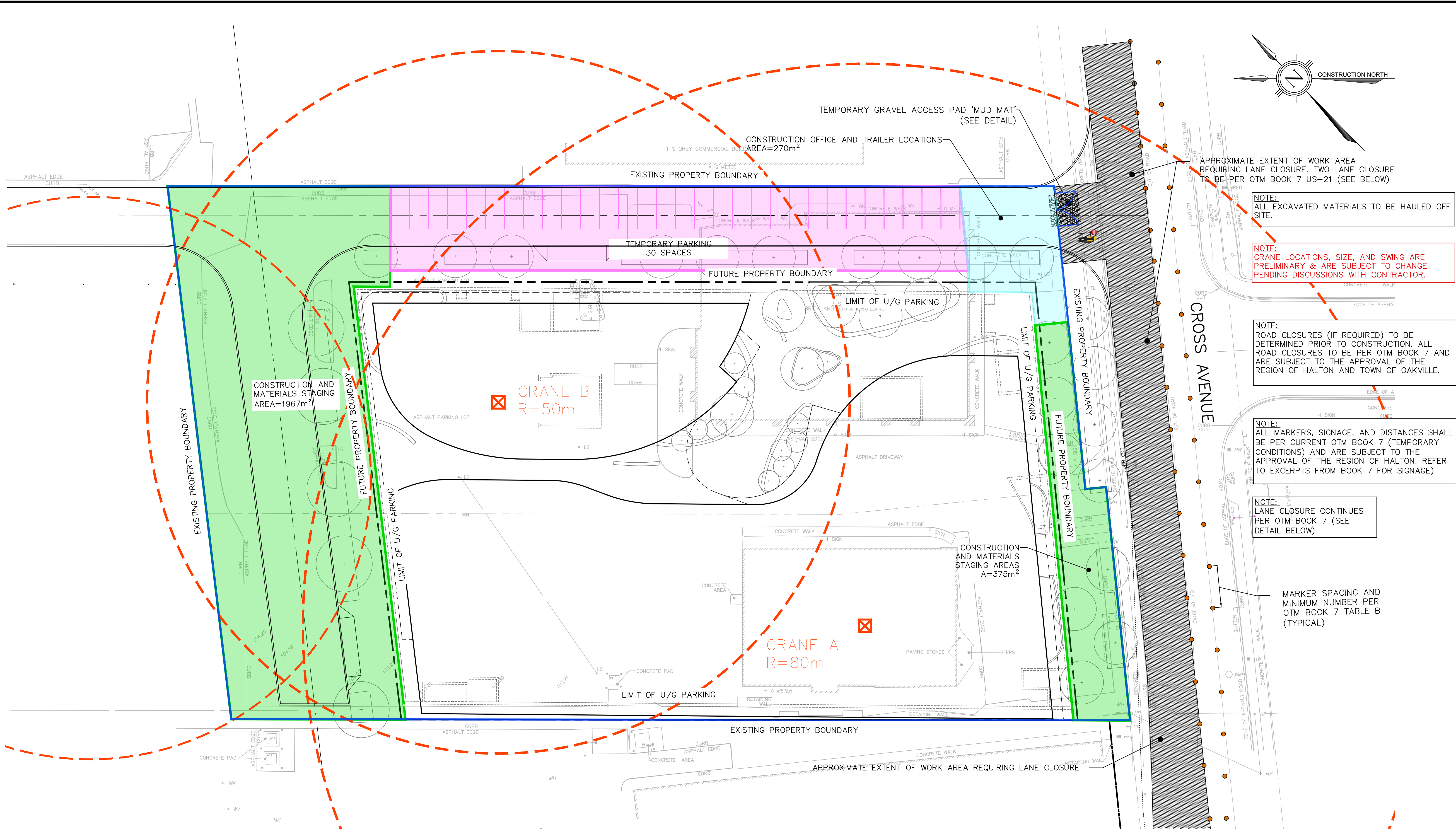
CONSULTANT: **TRAFALGAR ENGINEERING**
81-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
www.trafalgareng.com

PROJECT TITLE: **DISTRIKT MIDTOWN TOWN OF OAKVILLE**

LOCATION: **157/165 CROSS AVENUE OAKVILLE, ONTARIO**

DRAWING TITLE: **EROSION AND SEDIMENT CONTROL PLAN**

SCALE	1:300	DESIGN BY	JN	PROJECT No.	1827
DRAWN BY	GL	CHECKED BY	JN	PLAN No.	E1
DATE	2022/04/29	SHEET	1 OF 1		



NO.	DATE	BY/DRAWN	REVISIONS
1	2024/02/28	AJP/ZI	ISSUED FOR ZBA/OBA

CAD FILE: 1827GS.dwg | PLOT SCALE: 1:1 | PLOT DATE: Feb 28, 2024

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NOTE
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DESIGNED BY: [Signature]

APPROVED BY:

CONSULTANT

TRAFALGAR ENGINEERING
81-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
www.trafalgareng.com

PROJECT TITLE

DISTRIKT MIDTOWN TOWN OF OAKVILLE

LOCATION

157/165 CROSS AVENUE OAKVILLE, ONTARIO

DRAWING TITLE

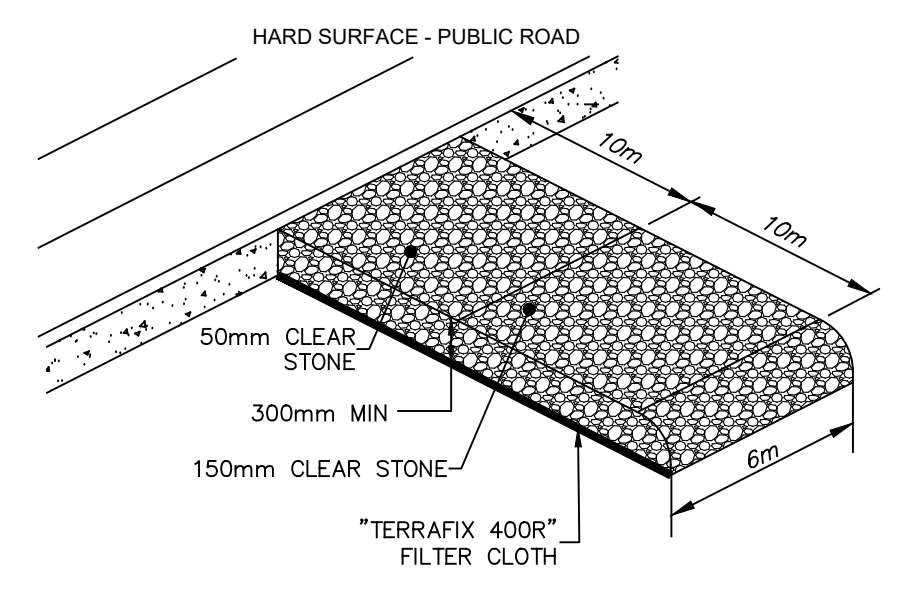
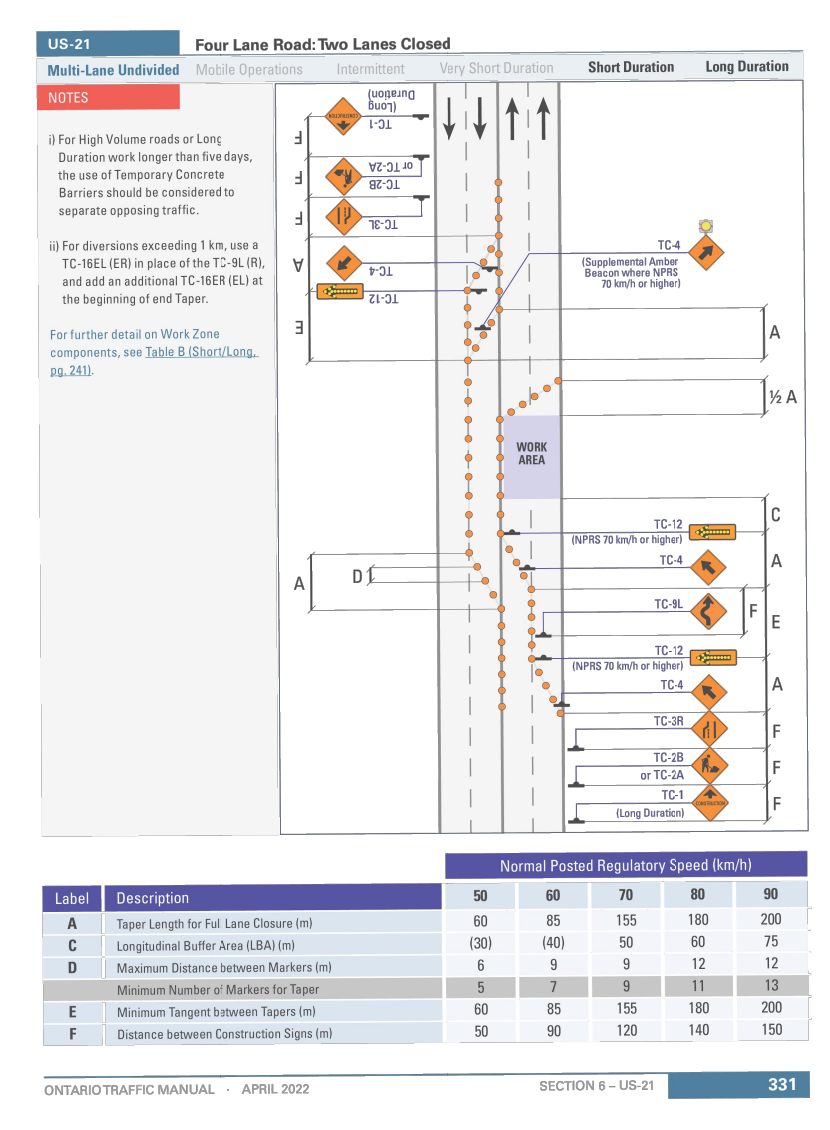
PRELIMINARY CONSTRUCTION & TRAFFIC MANAGEMENT PLAN

SCALE	1:300	DESIGN BY	JN	PROJECT No.	1827
DRAWN BY	GL	CHECKED BY	JN	PLAN No.	CTMP
DATE	2023/09/20	SHEET	1 OF 1		

Table B Work Zone Component Dimensions (Short and Long Direction Work (Non-forestry))

Label	Description	Normal Posted Regulatory Speed Limit ¹				
		50 km/h or lower	60 km/h	70 km/h	80 km/h	90 km/h
TCP	Taper Length for TCP Presence (m)	15	20	25	30	30
A ¹	Taper Length for Full Lane Closure (m)	60	85	155	180	200
B ¹	Shoulder Taper (m) ²	20	30	55	60	70
C ¹	Longitudinal Buffer Area (LBA) (m) ³	300	140	50	60	75
D	Maximum Distance between Markers (m) ⁴	6	9	9	12	12
E ¹	Minimum Number of Markers for Taper	at least 5 markers	at least 9 markers	at least 11 markers	at least 13 markers	
F ¹	Minimum Tangent between Tapers (m)	60	85	155	180	200
F ¹	Distance between Construction Signs (m) ⁴	50	90	120	140	150
G	Stationing Work Lateral Intrusion Detachment Gap (LIDG) (m)	-	-	35	45	50
G	Stationing Work Lateral Intrusion Detachment Gap (LIDG) (m)	350	140	50	60	65
H ¹	Sight Distance (m)	150	150	200	250	250

1. Data is based on good visibility and should be increased if visibility is poor.
2. The regulatory maximum must occur on a highway applicable under normal conditions. That is, when no construction zone or work activity is present. Guidelines provided in OTM Book 7 are based on normal posted regulatory speeds, and not on temporarily reduced construction zone regulatory or advisory speeds.
3. Shoulder taper is used for mobile work, which includes shoulder work and roadway edge work.
4. LBA and LEDG are not required, but are strongly recommended, at speeds of 60 km/h or lower. However, they should always be used for closed times on multi-lane roads if space permits.
5. Markers are channelling devices. Application guidelines are shown in Table C. Cones with reflective collars may be used for daytime or nighttime operations on non-highways.
6. Distance between Construction Signs (F) also refers to the required distance for the placement of a Warning Sign ahead of the nearest advance warning sign (Table C.1.1.1) for the individual signs. For more details on the positioning and installation of signs, refer to Section 4.2.1.1.



NOTE: LOCATION TO BE DETERMINED IN THE FIELD

TABLE B FROM OBC BOOK 7
N.T.S.

EXCERPT FROM OBC BOOK 7
N.T.S.

GRADING NOTES

1. SEDIMENT CONTROL MEASURES INCLUDING SILT FENCE AND MUD PAD ETC. SHALL BE INSTALLED PRIOR TO START OF CONSTRUCTION, CHECKED AND REPAIRED ON A REGULAR BASIS, AND LEFT IN PLACE UNTIL PAVING AND LANDSCAPING IS COMPLETED. SEDIMENT CONTROL WHEN REMOVED SHALL BE DISPOSED OFF-SITE.
2. ALL TOPSOIL SHALL BE STRIPPED PRIOR TO GRADING.
3. ALL FILL PLACEMENT SHALL BE DONE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEERS RECOMMENDATIONS.
4. RETAINING WALLS WITH A HEIGHT GREATER THAN 0.6m ARE TO BE DESIGNED AND STAMPED BY A PROFESSIONAL ENGINEER.
5. ALL DISTURBED AREAS TO BE RESTORED WITH 200mm TOPSOIL AND SOD.
6. ALL DISTURBED AREAS WITH IN PUBLIC R.O.W TO BE REINSTATED TO THE SATISFACTION OF THE ENGINEERING & CONSTRUCTION DEPARTMENT. EXISTING BLVD. AREAS TO BE REINSTATED WITH 200mm TOPSOIL AND SOD.
7. REFER TO GEOTECHNICAL REPORT FOR PAVEMENT STRUCTURE

PAVEMENT STRUCTURE (ABOVE PARKING GARAGE ROOF)

- HL-3 40mm
- HL-8 40mm
- GRANULAR 'A' 75mm (MINIMUM)

PAVEMENT STRUCTURE (ON GRADE AND PRIVATE DRIVEWAY)

- HL-3 40mm
- HL-8 60mm
- 19mmCRCL (OR GRANULAR 'A') 150mm
- GRANULAR 'B' (TYPE 1) 300mm

GENERAL NOTES

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS OF THE REGIONAL MUNICIPALITY OF HALTON (INCLUDING REGION OF HALTON'S CONTRACTOR INFORMATION PACKAGE), TOWN OF OAKVILLE AND THE ONTARIO BUILDING CODE (PART 7), ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS (OPSS & OPSD) SHALL BE USED IN ABSENCE OF LOCAL STANDARDS.
2. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL, MECHANICAL AND LANDSCAPE DRAWINGS.
3. ALL INFORMATION SHOWN REGARDING THE LOCATION AND SIZE OF EXISTING UTILITIES AND/OR SERVICES HAS NOT BEEN VERIFIED. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATION OF UTILITIES PRIOR TO CONSTRUCTION AND PROTECTING AND MAINTAINING DURING CONSTRUCTION.
4. THE CONTRACTOR SHALL CHECK AND VERIFY ALL GIVEN GRADES AND ELEVATIONS PRIOR TO CONSTRUCTION AND REPORT ALL DISCREPANCIES TO THE ENGINEER.
5. ALL GRADING CHANGES SHALL BE APPROVED BY THE ENGINEER AND TOWN OF OAKVILLE PRIOR TO IMPLEMENTATION.
6. THE CONTRACTOR SHALL CLEAN ALL MUD TRACKED ON TO ADJACENT ROADWAYS.

SERVICING NOTES

1. ALL UTILITIES SHALL BE BACKFILLED WITH GRANULAR BACKFILL COMPACTED TO 98% S.P.M.D.D. NATIVE BACKFILL MAY BE USED WITH THE PERMISSION OF THE GEOTECHNICAL CONSULTANT. BEDDING AND COVER MATERIAL SHALL BE PER THE GEOTECHNICAL CONSULTANT'S RECOMMENDATIONS.
2. BACKFILLING AND RESTORATION WITHIN THE PUBLIC ROW SHALL BE IN ACCORDANCE WITH THE TOWN OF OAKVILLE ROAD CUT PERMIT AND TO THE SATISFACTION OF THE ENGINEERING & CONSTRUCTION DEPARTMENT.
3. SURROUND ALL MANHOLES WITH A MINIMUM OF 1.5m COMPACTED GRANULAR 'C' BACKFILL.
4. ALL ENDS OF SERVICE CONNECTIONS SHALL BE MARKED WITH 50x100 LUMBER PLACED FROM INVERT OF SERVICE TO 1.0m ABOVE GRADE.

STORM SEWERS

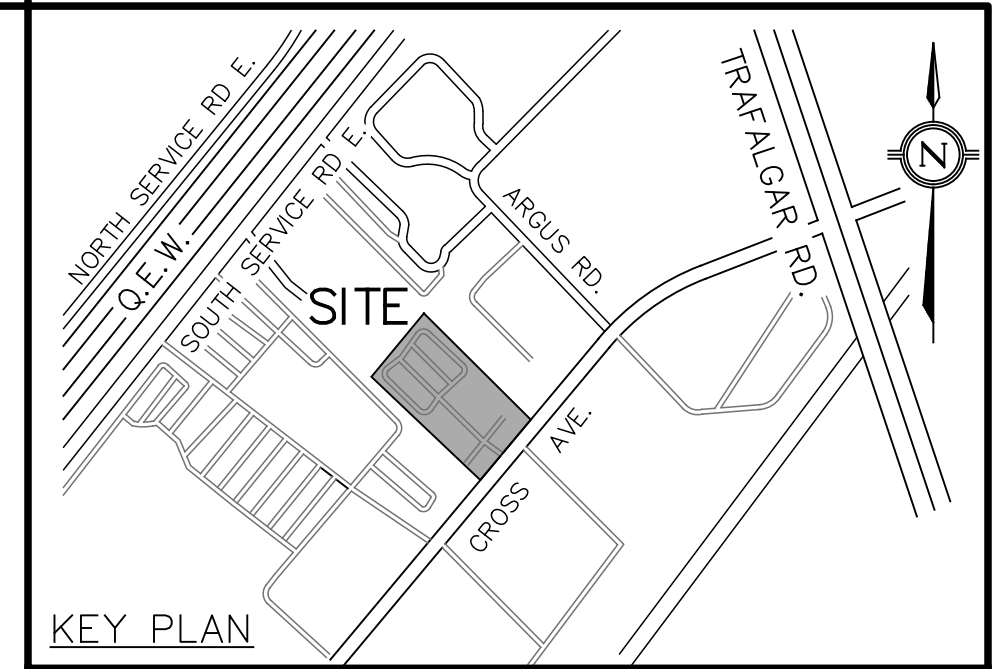
1. ALL STORM SEWERS 600 mm AND SMALLER SHALL BE PVC SDR35 CSA B182.2 WITH BEDDING PER OPSD 802.010 UNLESS OTHERWISE NOTED.
2. ALL STORM SEWERS 675 mm AND LARGER SHALL BE REINFORCED CONCRETE PIPE CLASS 65-D CSA A257.2 COMPLETE WITH BEDDING PER OPSD 802.030.
3. CATCHBASIN SHALL BE PER OPSD 705.010, DOUBLE CATCHBASIN PER OPSD 705.020 c/w GRATE PER OPSD 400.100.
4. ALL CB AND CBMH IN PAVED AREAS SHALL BE INSTALLED WITH 3.0m-100mm PERFORATED PIPE c/w FILTER SOCK EXTENDING OUT FROM THE CB AND LOCATED BELOW THE SUBGRADE SURROUNDED BY 50mm GRANULAR 'A'.
5. ALL CB LEADS SHALL BE 250mm ϕ AT 1.0% UNLESS OTHERWISE NOTED.
6. ALL DCB OR DI SHALL BE 300mm ϕ AT 1.0% UNLESS OTHERWISE NOTED.
7. CATCHBASINS IN LANDSCAPE AREAS SHALL BE SUMPLESS AND WITH 'BEEHIVE' TOP PER TOWN STD. 5-2.
8. ALL STORM MH'S SHALL BE 1200mm ϕ PER OPSD 701.010 c/w COVER PER OPSD 401.010, UNLESS OTHERWISE NOTED.
9. ALL CATCHBASIN MANHOLES SHALL BE BENCHED.

SANITARY SEWERS

1. ALL SANITARY SEWERS SHALL BE PVC SDR28, BEDDING PER OPSD 802.010*.
2. SANITARY MANHOLE SHALL BE AS PER OPSD 701.010* c/w COVER PER OPSD 401.010*.
3. * INDICATES O.P.S.D. CAN BE USED MODIFIED BY REGION OF HALTON.

WATERMAIN NOTES

1. 100mm AND LARGER SERVICES SHALL BE PVC, C-900, CLASS 150, SDR18 c/w MECHANICAL RESTRAINTS & TRACER WIRE PER REGION OF HALTON REQUIREMENTS.
2. 50mm AND SMALLER SERVICE SHALL BE TYPE "K" SOFT COPPER TUBING.
3. BEDDING ON WATER SERVICE SHALL BE PER OPSD 802.010*.
4. VALVE AND BOX FOR 100mm TO 300mm WATER SERVICE PER REGION OF HALTON STDS.
5. COVER SHALL BE 1.7m MIN. UNLESS OTHERWISE NOTED.
6. CONNECTION TO EXISTING WATERMAIN SHALL BE PER REGION OF HALTON STD RH 409.01.
7. WATER SYSTEM SHALL BE PRESSURE TESTED TO 150 PSI FOR 3 HRS AND WITNESSED BY REGION OF HALTON.
8. HYDRANTS SHALL BE MANUFACTURED IN ACCORDANCE WITH AWWA C502 AND SHALL HAVE STEAMER PORTS AS PER REGION STANDARD SPECIFICATIONS (SEE NOTE 11). ALL HYDRANTS SHALL BE INSTALLED AS PER OPSD 1105.010*. IF HYDRANT BARREL DEPTH EXCEEDS 1.7m A HYDRANT THAT CAN BE RAISED FROM THE BOTTOM WITHOUT INCREASING ROD LENGTH IS TO BE USED.
9. * INDICATES O.P.S.D. CAN BE USED AS MODIFIED BY REGION OF HALTON.
10. MINIMUM LATERAL SEPARATION FROM OTHER UTILITIES IS 2.5m
11. STORZ PUMPER CONNECTION FOR HYDRANTS AS FOLLOWS: TWO (2) 63.5mm (2 1/2") WITH CSA STANDARD THREAD, 63.5mm I.D., 5 THREADS PER 25mm, 31.75mm SQUARE OPERATING NUT; AND STORZ CAP PAINTED GLOSS BLACK.
12. WATER SERVICES/MAINS SHALL BE TESTED & DISINFECTED AS PER ANSI/AWWA C651-99 AND REGION OF HALTON REQUIREMENTS.
13. NEW WATER SERVICES TO HAVE PHYSICAL SEPARATION FROM LIVE WATER SERVICES FOR TESTING PURPOSES.



LEGEND

NO.	DATE	BY/DRAWN	REVISIONS
1	2024/02/28	AJP/ZI	ISSUED FOR ZBA/OBA

CAD FILE: 1827GS.dwg | PLOT SCALE: 1:1 | PLOT DATE: Feb 28, 2024

BENCHMARK
ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE TOWN OF OAKVILLE BENCHMARKS: No. 236 ELEVATION=159.311m No. 258 ELEVATION=185.692m

LOCAL BENCHMARK
CUT CROSS LOCATED ON CONCRETE WALK NEXT TO PAVING STONES LEADING TO THE BUILDING AT 165 CROSS AVE, AS SHOWN ON THE FACE OF PLAN. ELEVATION=102.73m

NOTE
THE SURVEY WAS COMPLETED ON THE 13TH DAY OF JUNE, 2023 BY J.D. BARNES LIMITED, ONTARIO LAND SURVEYORS, REFERENCE No.: 21-30-700-02-A.

<p>DESIGNED BY</p>	<p>APPROVED BY</p>
--------------------	--------------------

CONSULTANT

TRAFALGAR ENGINEERING
81-481 MORDEN ROAD, OAKVILLE, ON, L6K 3W6
www.trafalgareng.com

PROJECT TITLE

**DISTRIKT MIDTOWN
TOWN OF OAKVILLE**

LOCATION

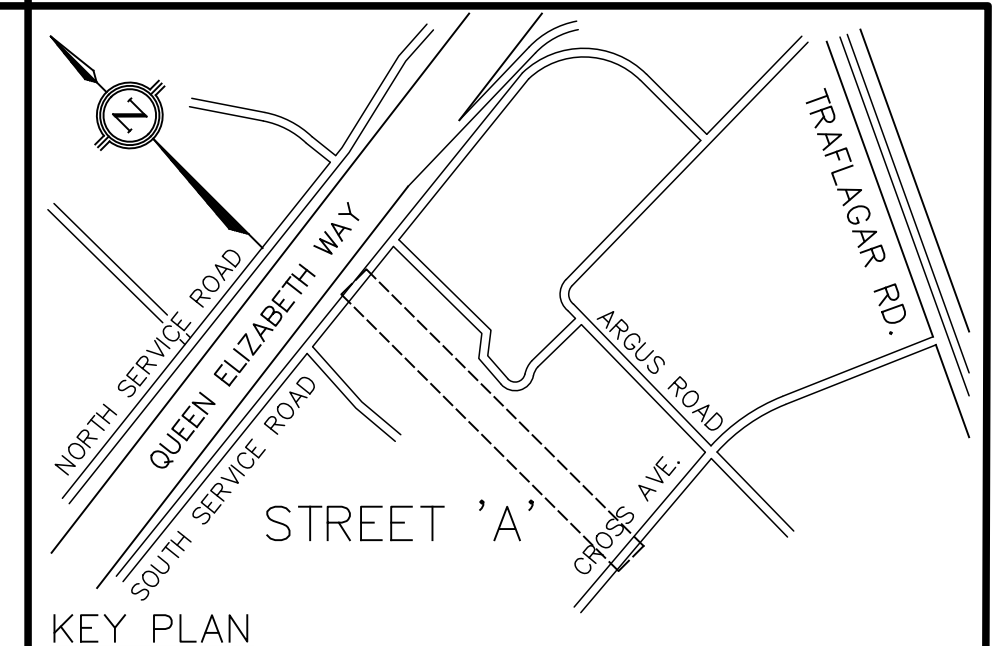
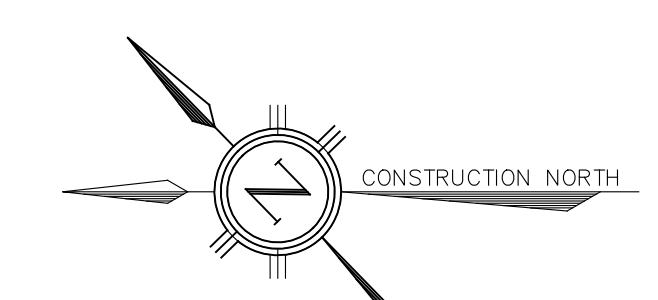
**157/165 CROSS AVENUE
OAKVILLE, ONTARIO**

DRAWING TITLE

GENERAL NOTES

SCALE	1:300	DESIGN BY	AJP	PROJECT No.	1827
DRAWN BY	ZI	CHECKED BY	JN	PLAN No.	N1
DATE	2023/09/20	SHEET	1 OF 1		

FILENAME: P:\1829-District Midtown Roads West\04-CAD-Subdivision\1829P.dwg
 PLOTDATE: Feb 28, 2024 9:47am

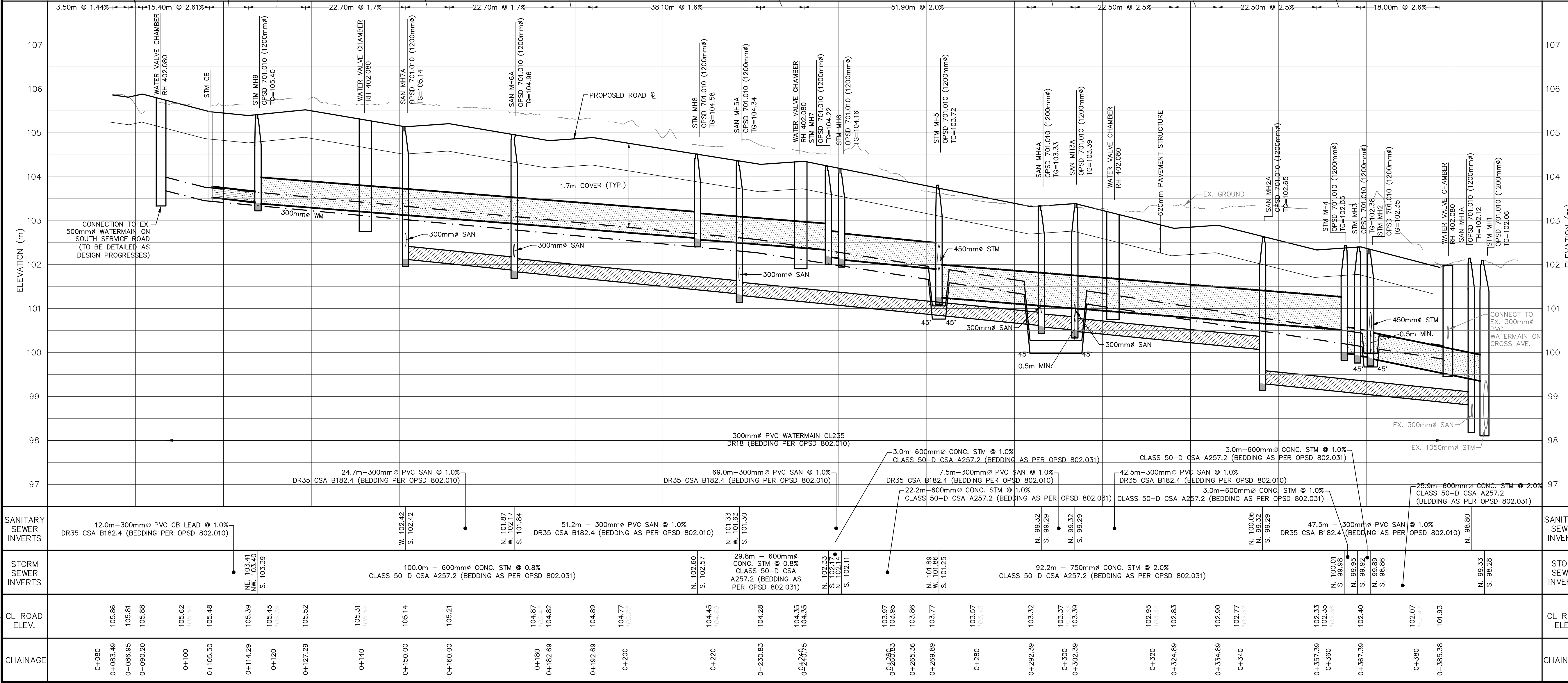
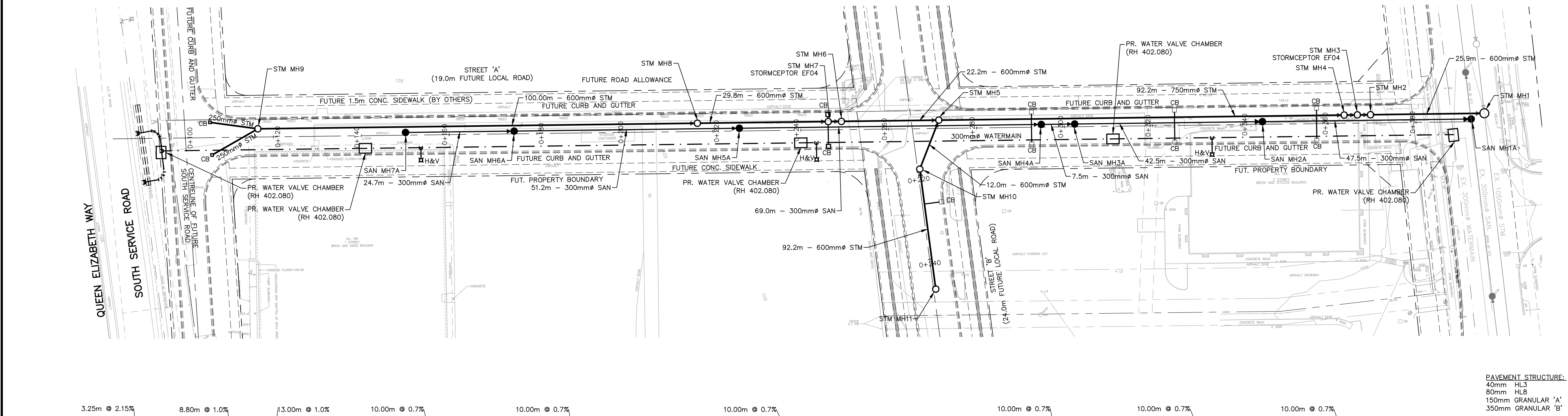


- LEGEND**
- PROPOSED STORM MANHOLE
 - PROPOSED STORM CATCHBASIN
 - PROPOSED SANITARY MANHOLE
 - ⊗ PROPOSED FIRE HYDRANT
 - ⊕ PROPOSED VALVE & BOX
 - PROPOSED STORM SEWER
 - PROPOSED SANITARY SEWER
 - PROPOSED WATERMAIN
 - - - PROPERTY BOUNDARY
 - EXISTING STORM SEWER
 - EXISTING SANITARY SEWER
 - EXISTING WATERMAIN
 - EXISTING STORM MANHOLE
 - EXISTING SANITARY MANHOLE

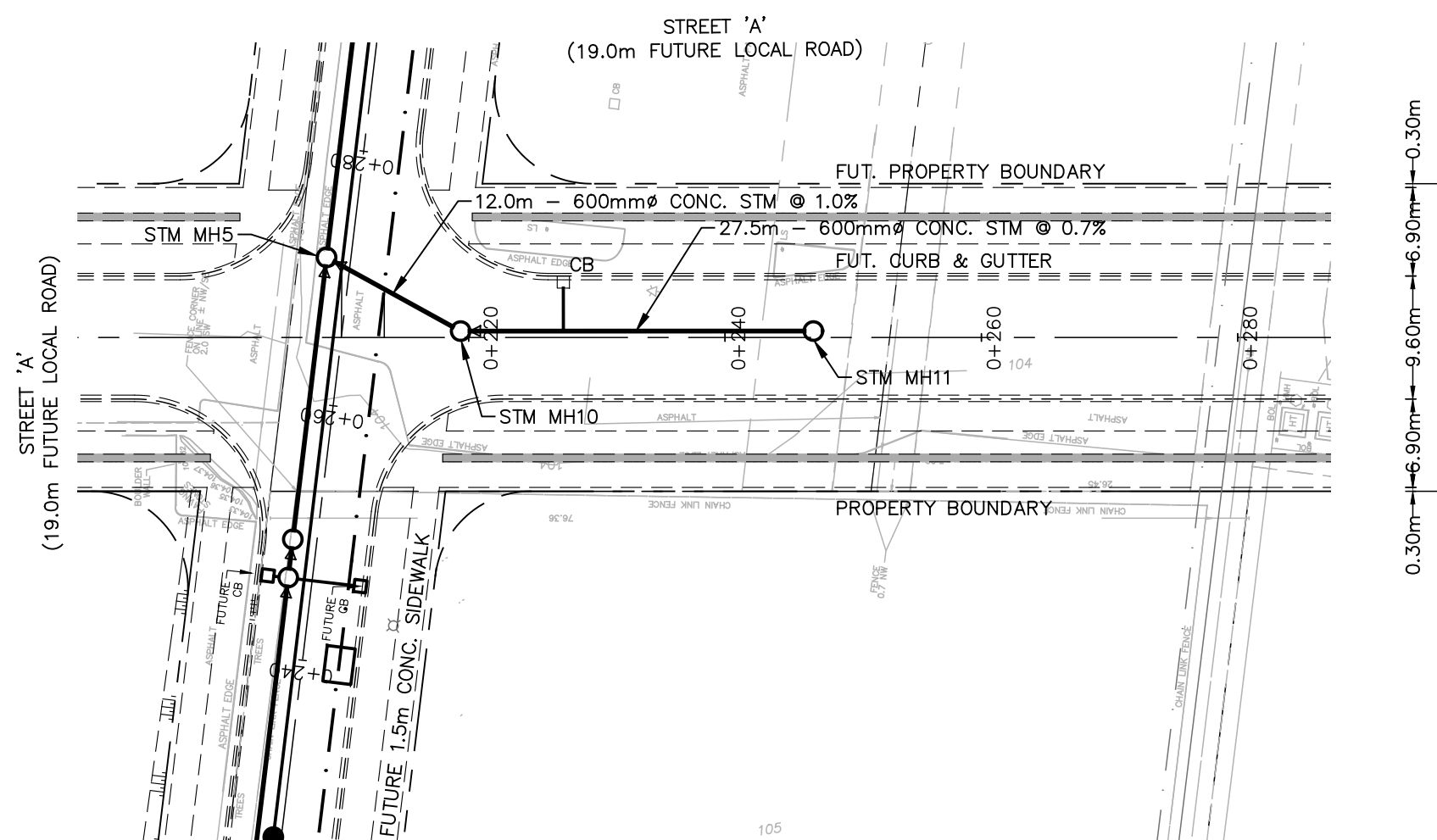
ELEVATION NOTE
 ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE TOWN OF OAKVILLE BENCHMARKS:
 No. 236
 ELEVATION=159.311m
 No. 258
 ELEVATION=185.692m

LOCAL BENCHMARK
 CUT CROSS ON CURB LOCATED APPROXIMATELY 4.5m SOUTHWEST AND 4.3m SOUTHEAST OF THE MOST WESTERN CORNER OF SUBJECT PROPERTY, AS SHOWN ON THE FACE OF THE PLAN.
 ELEVATION=106.09m

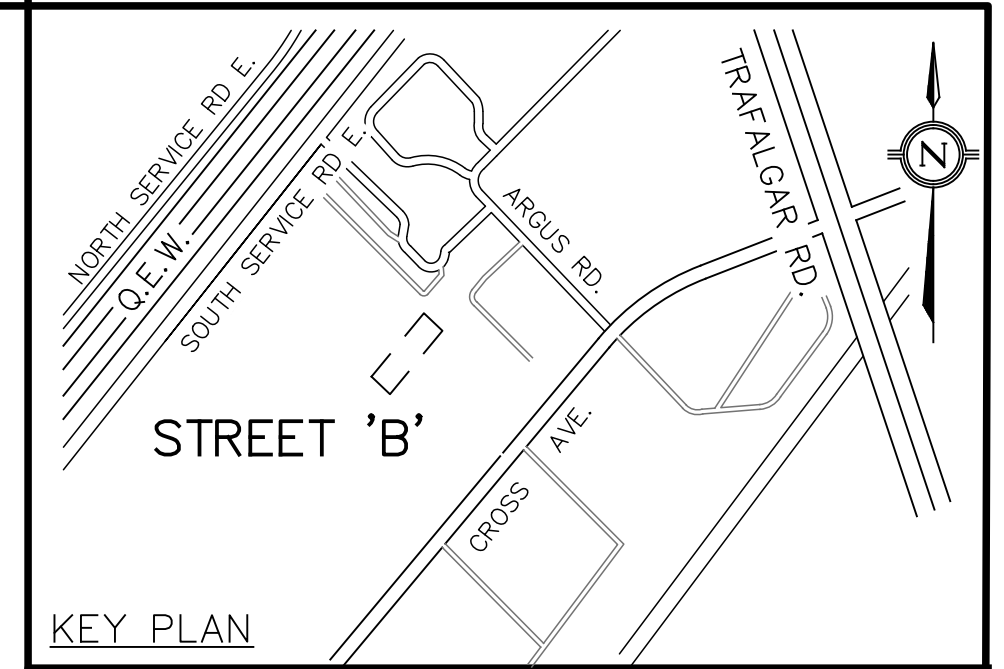
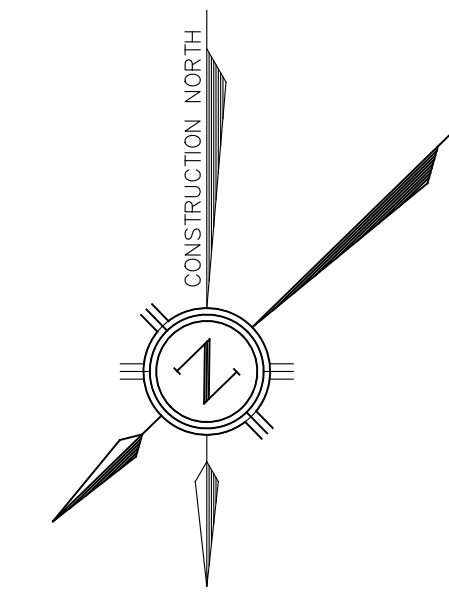
THE TOPOGRAPHIC DETAIL SHOWN HEREON WAS ACQUIRED ON APRIL 21, 2021, BY J.D.BARNES LTD, LAND INFORMATION SPECIALISTS



1 2024/02/28 AJP/ZI ISSUED FOR SITE ZBA/OPA	
Design	Chk'd - Cod 1829P.dwg
Drawn	Chk'd - Plot Date 02/28/24
Scale	References
APPROVALS	
Municipal	APPROVED IN PRINCIPLE SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN OF OAKVILLE STANDARDS AND SPECIFICATIONS.
Regional Approval	DESIGN OF WATER &/OR WASTEWATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM AREA MUNICIPALITY.
DISTRIKT DEVELOPMENTS CONCEPTUAL STREET 'A' PLAN AND PROFILE STA 0+083.49 TO 0+400	
Municipal No.	Regional No.
Contract No.	Consultant No. 1829
Sheet	P1



PAVEMENT STRUCTURE:
 40mm HL3
 80mm HL8
 150mm GRANULAR 'A'
 350mm GRANULAR 'B'



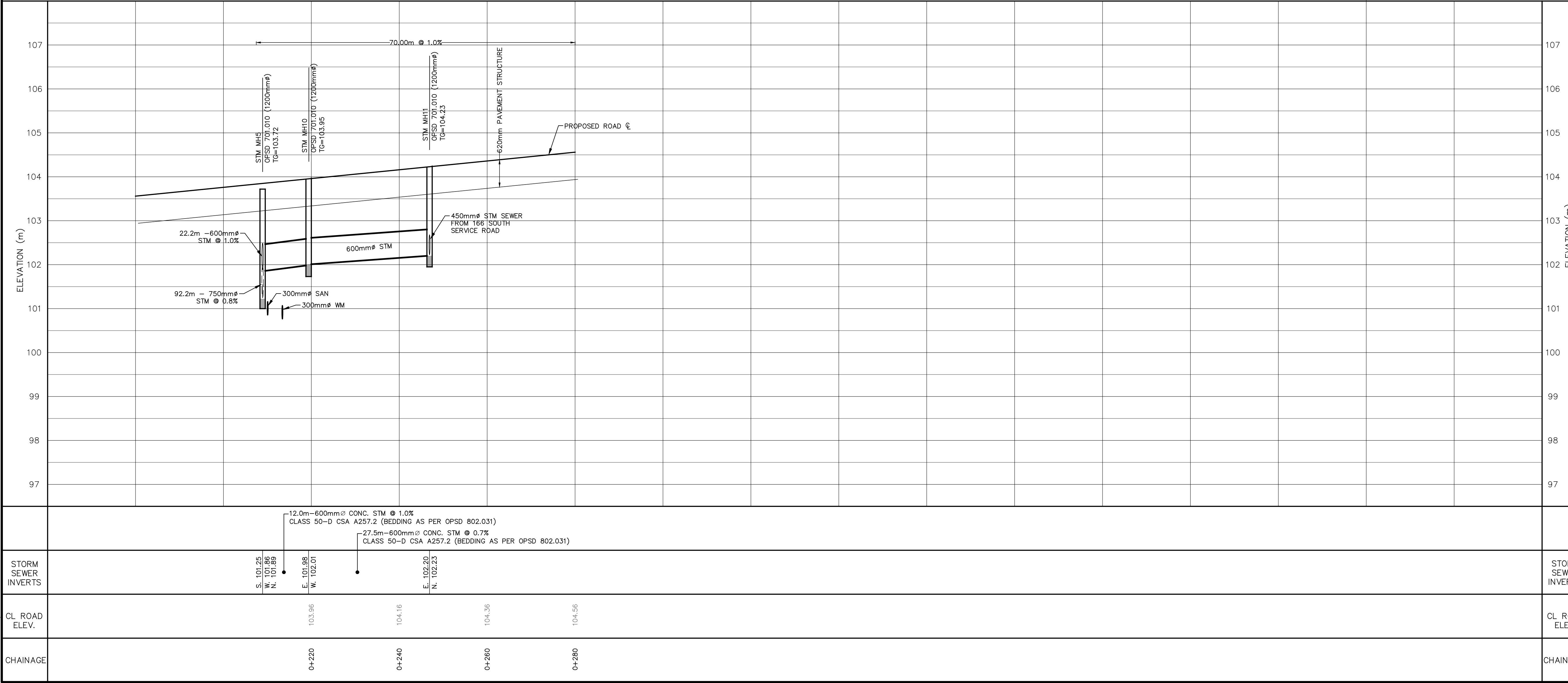
LEGEND

- PROPOSED STORM MANHOLE
- ◻ PROPOSED STORM CATCHBASIN
- PROPOSED SANITARY MANHOLE
- ⊕ PROPOSED FIRE HYDRANT
- ⊗ PROPOSED VALVE & BOX
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- - - PROPERTY BOUNDARY
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- - - EXISTING WATERMAIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE

BENCHMARK
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LOCAL BENCHMARK
 CUT CROSS LOCATED ON CONCRETE WALK NEXT TO PAVING STONES LEADING TO THE BUILDING AT 165 CROSS AVE., AS SHOWN ON THE FACE OF PLAN. ELEVATION=102.73m

NOTE
 THE SURVEY WAS COMPLETED ON THE 13TH DAY OF JUNE, 2023 BY J.D. BARNES LIMITED, ONTARIO LAND SURVEYORS, REFERENCE No.: 21-30-700-02-A.



1	2024/02/28	AJP/ZI	ISSUED FOR SITE ZBA/OPA
No.	DD/MM/YY	By/DRN	REVISIONS
Design	-	Chk'd	-
Drawn	-	Chk'd	-
Scale	-	-	02/28/24

APPROVALS		Field Notes
Municipal	APPROVED IN PRINCIPLE SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO TOWN OF OAKVILLE STANDARDS AND SPECIFICATIONS.	Bell <input type="checkbox"/> Hydro <input type="checkbox"/>
Regional Approval	DESIGN OF WATER &/OR WASTEWATER SERVICES APPROVED SUBJECT TO DETAIL CONSTRUCTION CONFORMING TO HALTON REGION STANDARDS & SPECIFICATIONS & LOCATION APPROVAL FROM AREA MUNICIPALITY.	Gas <input type="checkbox"/> Cable <input type="checkbox"/>
Consultant	TRAFALGAR ENGINEERING	Traf. <input type="checkbox"/> Water <input type="checkbox"/>

SIGNED: _____ DATE: _____
 LEGISLATIVE AND PLANNING SERVICES DEPT.

PROFESSIONAL ENGINEER
 J. NELSON
 18185393
 28 Feb 2024
 PROVINCE OF ONTARIO

TRAFALGAR ENGINEERING
 #1-451 MORDEEN ROAD, OAKVILLE, ON, L6K 3W6
 www.trafalgareng.com

Municipality: **OAKVILLE** **Halton REGION**

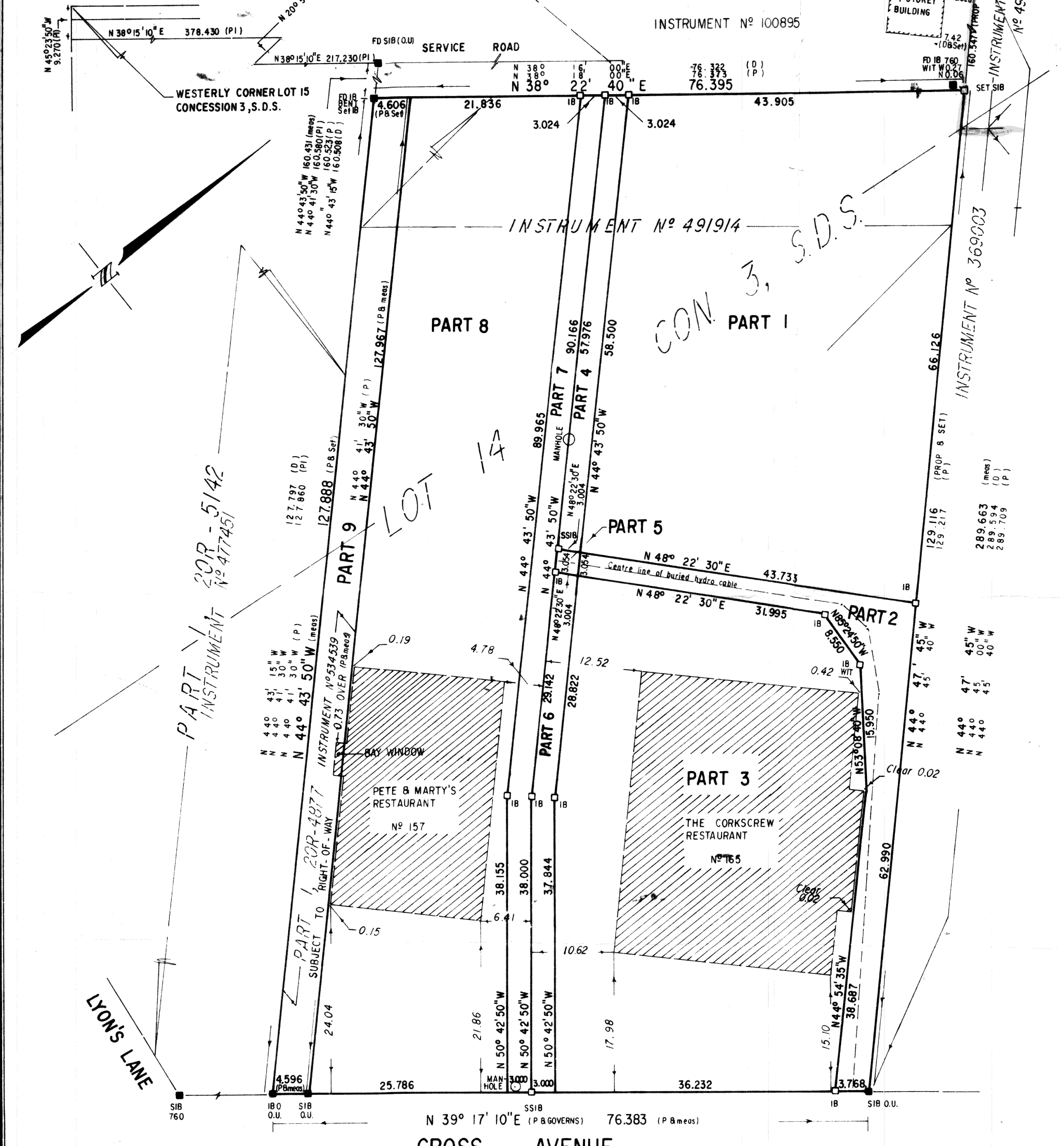
DISTRIKT DEVELOPMENTS
CONCEPTUAL STREET 'B'
PLAN AND PROFILE
STA 0+220 TO 0+280

Municipal No.	Regional No.
Contract No.	Consultant No. 1829
Sheet	P2

FILENAME: P:\1829 Distrikt Midtown Roads West\04-CAD\04-Subdivision\1829P.dwg
 PLOTDATE: Feb 28 2024 9:51am

APPENDIX 'H'

PLAN MATERIAL
 Plastic - MYLAR
 Gauge - 0.076 mm
 Ink - Special 'T'



I REQUIRE THIS PLAN TO BE DEPOSITED UNDER THE REGISTRY ACT.
 DATE: September 2, 1982
 JOHN F. YOUNG B.Sc., O.L.S.
 ONTARIO LAND SURVEYOR

PLAN 20R-5913
 RECEIVED AND DEPOSITED
 DATE: 28 Sept 1982
 C. H. McCONELL
 DEP. LAND REGISTRAR FOR THE
 REGISTRY DIVISION OF HALTON
 (No 20)

CAUTION: THIS PLAN IS NOT A PLAN OF SUBDIVISION WITHIN THE MEANING OF THE PLANNING ACT.

PLAN OF SURVEY OF
 PART OF LOT 14, CONCESSION 3, SOUTH OF DUNDAS STREET
 TOWN OF OAKVILLE
 REGIONAL MUNICIPALITY OF HALTON
 (Formerly the Township of Trafalgar, County of Halton)

SCALE: 1:500

0 5 10 20 30 40 50 metres
 JOHN F.G. YOUNG B.Sc., O.L.S. - 1982

SCHEDULE				
PART NO	LOT NO	CONCESSION	INST. NO	AREA
1	14	3 S. D. S.	491914	272 ha
2	"	"	"	412 m ²
3	"	"	"	242 ha
4	"	"	"	175 m ²
5	"	"	"	9 m ²
6	"	"	"	201 m ²
7	"	"	"	384 m ²
8	"	"	"	285 ha
9	SUBJECT TO RIGHT-OF-WAY IN		534539 & 491914	585 m ²

NOTES:
 BEARINGS SHOWN HEREON ARE ASTRONOMIC AND ARE REFERRED TO THE N 39°17'10"E OF THE NORTHWEST LIMIT OF CROSS AVENUE AS SHOWN ON DEPOSITED PLAN 20R-4877.

- DENOTES SURVEY MONUMENT SET
- " SURVEY MONUMENT FOUND
- IB " IRON BAR (.016 x .016 x .610 m)
- SIB " STANDARD IRON BAR (.025 x .025 x 1.219 m)
- SSIB " SHORT STANDARD IRON BAR (.025 x .025 x .610 m)
- FD " FOUND
- WIT " WITNESS
- O.U. " ORIGIN UNKNOWN
- meas. " MEASURED
- (P) " DEPOSITED PLAN 20R-4877
- (PI) " DEPOSITED PLAN 20R-5142
- (D) " DEED INSTRUMENT NO 100895 - PLAN ATTACHED
- (prop) " PROPORTION
- 760 " K.H. MCCONNELL O.L.S.

SURVEYOR'S CERTIFICATE:
 I CERTIFY THAT;
 1) THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT AND THE REGISTRY ACT AND THE REGULATIONS MADE THEREUNDER,
 2) THE SURVEY WAS COMPLETED ON THE 2nd DAY OF September 1982
September 2, 1982
 DATE
 JOHN F. YOUNG B.Sc., O.L.S.
 ONTARIO LAND SURVEYOR

JOHN F.G. YOUNG - ONTARIO LAND SURVEYOR
 R R NO 1 BOLTON ONTARIO LOP 1A0
 BUS. (416) 857-2484 RES (519) 941-7382
 DRAWN BY: J.F.G.Y.
 PROJECT NO 82-204

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

GRANT OF EASEMENT

582527

THIS INDENTURE made in duplicate the 2nd day of August, 1983.

B E T W E E N :

ROSHORN LIMITED,
A Company incorporated under the laws
of the Province of Ontario

hereinafter called "the Grantor"

OF THE FIRST PART

- and -

THE CORPORATION OF THE TOWN OF OAKVILLE,

hereinafter called "the Grantee"

OF THE SECOND PART

Whereas the hereinafter described property is registered in the name of D.L. Fowles Developments Limited.

Whereas Articles of Amalgamation dated the 30th of March, 1982 were registered in the Land Registry Office for the Registry Division of Halton #20 as Instrument 557358.

WITNESSES that in consideration of the sum of TWO-----
----- (\$2.00)-----DOLLARS

of lawful money of Canada now paid by the Grantee to the Grantor (the receipt whereof is hereby by him acknowledged), the Grantor grants to the Grantee, its successors and assigns, the right, liberty and privilege appurtenant to its undertaking as a Municipal Corporation to construct, operate, maintain, replace and repair and to permit others to construct, operate, maintain, replace and repair underground sewers, drains, pipes, conduits, wires and services generally with such above ground accesses, manholes, catch basins, hydrants, service boxes and other appurtenances as it desires, at its expense and for so long as it desires, upon, across, along and under the lands described in Schedule "A" hereto, and for every such purpose the Grantee and those claiming under it, shall have access to the said lands at all times but reserving to the Grantor the right to use the surface of the said lands for any purpose which does not conflict with the Grantee's rights hereunder, and specifically excluding the planting of any trees and the erection of any building or structure.

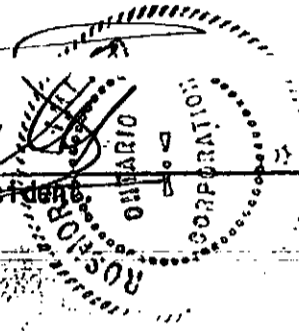
The Grantee will, every time it enters upon the land in pursuance of its rights hereunder, as quickly as conveniently possible, after it has completed its operations thereon for the time being, restore the surface of the said land and everything which the Grantor is by the terms of this grant permitted to maintain thereon, to, nearly as practicable their condition immediately prior to the time when entry was made.

IN WITNESS WHEREOF the said parties hereto have hereunto set their hands and seals.

WITNESSES:
in the presence of:

ROSHORN LIMITED.


D. L. Fowles, President



SCHEDULE "A"

ALL AND SINGULAR that certain parcel or tract of land and premises situate, lying and being in the Town of Oakville, Regional Municipality of Halton and being composed of Part of Lot 14, Concession 3, South of Dundas Street more particularly described as Part 2 on 20-R-5913.

Form 1 - Land Transfer Tax Act

AFFIDAVIT OF RESIDENCE AND OF VALUE OF THE CONSIDERATION

IN THE MATTER OF THE CONVEYANCE OF (insert brief description of land) IN THE TOWN OF OAKVILLE
REGIONAL MUNICIPALITY OF HALTON BEING PART OF LOT 14 CON 3 SDS
DESIGNATED AS PART 2 ON 20-R-5913

BY (print names of all transferors in full) ROSHORN LIMITED
TO (see instruction 1 and print names of all transferees in full) THE CORPORATION OF THE TOWN OF OAKVILLE

I, (see instruction 2 and print name(s) in full) LOIS E. PAYNE

MAKE OATH AND SAY THAT:

1. I am (place a clear mark within the square opposite that one of the following paragraphs that describes the capacity of the deponent(s)): (see instruction 2)

- (a) A person in trust for whom the land conveyed in the above-described conveyance is being conveyed;
- (b) A trustee named in the above-described conveyance to whom the land is being conveyed;
- (c) A transferee named in the above-described conveyance;
- (d) The authorized agent or solicitor acting in this transaction for (insert name(s) of principal(s)) THE CORPORATION OF THE TOWN OF OAKVILLE described in paragraph(s) (a), (b), (c) above; (strike out references to inapplicable paragraphs)
- (e) The President, Vice-President, Manager, Secretary, Director, or Treasurer authorized to act for (insert name(s) of corporation(s))
- (f) A transferee described in paragraph () (insert only one of paragraph (a), (b) or (c) above, as applicable) and am making this affidavit on my own behalf and on behalf of (insert name of spouse) who is my spouse described in paragraph () (insert only one of paragraph (a), (b) or (c) above, as applicable)

and as such, I have personal knowledge of the facts herein deposed to.

2. I have read and considered the definitions of "non-resident corporation" and "non-resident person" set out respectively in clauses 1 (1)(f) and (g) of the Act. (see instruction 3).

3. The following persons to whom or in trust for whom the land conveyed in the above-described conveyance is being conveyed are non-resident persons within the meaning of the Act. (see instruction 4) NONE

4. THE TOTAL CONSIDERATION FOR THIS TRANSACTION IS ALLOCATED AS FOLLOWS:

(a) Monies paid or to be paid in cash	\$	NIL	
(b) Mortgages (i) Assumed (show principal and interest to be credited against purchase price)	\$	NIL	
(ii) Given back to vendor	\$	NIL	
(c) Property transferred in exchange (detail below)	\$	NIL	
(d) Securities transferred to the value of (detail below)	\$	NIL	
(e) Liens, legacies, annuities and maintenance charges to which transfer is subject	\$	NIL	
(f) Other valuable consideration subject to land transfer tax (detail below)	\$	NIL	
(g) VALUE OF LAND, BUILDING, FIXTURES AND GOODWILL SUBJECT TO LAND TRANSFER TAX (TOTAL OF (a) to (f))	\$	NIL	\$ NIL
(h) VALUE OF ALL CHATTELS - Items of tangible personal property (Retail Sales Tax is payable on the value of all chattels unless exempt under the provisions of the "Retail Sales Tax Act", R.S.O. 1980, c.454, as amended)	\$	NIL	\$ NIL
(i) Other consideration for transaction not included in (g) or (h) above	\$	NIL	\$ NIL
(j) TOTAL CONSIDERATION	\$	NIL	\$ NIL

ALL BLANKS
MUST BE
FILLED IN.
INSERT "NIL"
WHERE
APPLICABLE.

5. If consideration is nominal, describe relationship between transferor and transferee and state purpose of conveyance. (see instruction 5)

6. If the consideration is nominal, is the land subject to any encumbrance?

7. Other remarks and explanations, if necessary THE VALUE OF THE CONSIDERATION (AS DEFINED IN SECTION 1(1)(p) OF THE LAND TRANSFER TAX ACT, 1980) FOR THIS CONVEYANCE IS NIL.

GRANT OF EASEMENT PURSUANT TO LAND DIVISION CONSENT B131/82

SWORN before me at the TOWN OF OAKVILLE
in the REGIONAL MUNICIPALITY OF HALTON
this 4th day of August 1983

PATRICIA MARY DUBLEY, Commissioner,
Judicial District of Halton, for the Corporation of
the Town of Oakville.

Lois E. Payne
signature(s)

Expires 31 MAY, 1985

PROPERTY INFORMATION RECORD

A. Describe nature of Instrument: GRANT OF EASEMENT

B. (i) Address of property being conveyed (if available): 165 CROSS AVENUE
OAKVILLE

(ii) Assessment Roll No. (if available): 03001002600

C. Mailing address(es) for future Notices of Assessment under the Assessment Act for property being conveyed (see instruction 6):
OAKVILLE HYDRO
2350 TRAFALGAR ROAD, OAKVILLE

D. (i) Registration number for last conveyance of property being conveyed (if available) N/A
(ii) Legal description of property conveyed: Same as in D.(i) above. Yes No Not Known

E. Name(s) and address(es) of each transferee's solicitor
LOIS E. PAYNE
ASSISTANT SOLICITOR
TOWN OF OAKVILLE
1225 TRAFALGAR ROAD
OAKVILLE L6J 5A6

For Land Registry Office use only	
REGISTRATION NO.	
Land Registry Office No.	
Registration Date	

582527

REGISTRY DIVISION
NOTARIES TO CERTIFY
MAY 1983

AUG 5 3 37 AM '83

RR
gp

DATED August 2nd, 1983.

ROSHORN LIMITED

- and -

THE CORPORATION OF THE TOWN OF
OAKVILLE

1225 TRAFALGAR RD.
OAKVILLE, ONT

LAND REGISTRY
MILTON (NO. 20)

ABSTR.	RR
BY-LAW.	
GR.	
14-382	

GRANT OF EASEMENT

14-382

REGISTRATION FEE	15.00
LAND TRANSFERTY	None
RETAIL SALES TAX	

Lois E. Payne,
Assistant Solicitor,
Town of Oakville,
1225 Trafalgar Road,
Oakville, Ontario.

151

THIS INDENTURE made in duplicate this 27th day of July, 1983.

IN PURSUANCE OF THE SHORT FORMS OF CONVEYANCE ACT:

BETWEEN:

ROSHORN LIMITED, a corporation incorporated under the laws of the Province of Ontario,

hereinafter called the "GRANTOR"

OF THE FIRST PART

-and-

MARLENE A. BEER, of the City of Toronto, in the Municipality of Metropolitan Toronto,

hereinafter called the "GRANTEE"

OF THE SECOND PART

WHEREAS the title to the property described herein is held in the name of D. L. FOWLES DEVELOPMENTS LIMITED;

AND WHEREAS the said D.L. FOWLES DEVELOPMENTS LIMITED amalgamated with ROSHORN LIMITED, an Ontario corporation, the amalgamated corporation being named ROSHORN LIMITED, by Articles of Amalgamation dated March 30, 1982 and registered in the Registry Office for the Registry Division of Halton (No. 20) as Instrument No. 557358.

WITNESSETH that in consideration of other good and valuable and the sum of TWO-----(\$2.00)-----DOLLARS now paid by the said Grantee to the said Grantor, the receipt whereof is hereby by him acknowledged, he the said Grantor DOTH GRANT unto the said Grantee in fee simple

THOSE lands and premises located in the following municipality, namely, in the Town of Oakville, in the Regional Municipality of Halton, and being composed of

ALL AND SINGULAR that certain parcel or tract of land and premises situate, lying and being in the Town of Oakville, in the Regional Municipality of Halton and being composed of part of Township Lot 14 in Concession 3 South of Dundas Street of the Township of Trafalgar, now in the Town of Oakville, and being more particularly composed of all of Parts 7, 8 and 9 on a Plan registered in the Registry Office for the Registry Division of Halton (No. 20) as No. 20R-5913;

TOGETHER WITH a right-of-way for the purposes of ingress and egress for persons and vehicles over, along and upon that certain parcel or tract of land situate, lying and being in the said Lot 14, Concession 3 South of Dundas Street, and being composed of all of Parts 4, 5, and 6 on the said Plan 20R-5913;

The Planning Act Certificate of Secretary-Treasurer

Pursuant to Section 52(21) of the Planning Act, I certify that the consent of the LAND DIVISION COMMITTEE of the Region of HALTON was given on 5th August, 1983, to the transaction to which the within instrument relates.

Acting Secretary-Treasurer Betty Roberts

Dated this 5th day of August, 1983

AND TOGETHER WITH a right-of-way in the nature of an easement to allow for the maintenance and repair of buried utility service lines over, along, upon and beneath the surface of that certain parcel or tract of land situate, lying and being in the said Lot 14, Concession 3, South of Dundas Street, and being composed of all of Part 2 on the said Plan 20R-5913;

AND SUBJECT to a right-of-way for the purposes of ingress and egress for persons and vehicles over, along and upon that certain parcel or tract of land situate, lying and being all of Part 7 on the said Plan 20R-5913, for the benefit of that land abutting to the west of the land herein and being all of Parts 1, 2, 3, 4, 5 and 6 on the said Plan 20R-5913, and the owners and occupants thereof;

AND SUBJECT to an easement in favour of the lands adjacent to the north for the purposes of the installation and maintenance of hydro, water, sanitary sewers and drains and communication services over the westerly 15 feet of the property, being all of Part 9 on the said Plan 20R-5913.

TO HAVE AND TO HOLD unto the said Grantee, his heirs, executors, administrators, successors and assigns to and for their sole and only use forever;
SUBJECT NEVERTHELESS to the reservations, limitations, provisos and conditions expressed in the original grant thereof from the Crown.

The said Grantor **COVENANTS** with the said Grantee that he has the right to convey the said lands to the said Grantee notwithstanding any act of the said Grantor.

AND that the said Grantee shall have quiet possession of the said lands free from all encumbrances.

AND the said Grantor **COVENANTS** with the said Grantee that he will execute such further assurances of the said lands as may be requisite.

AND the said Grantor **COVENANTS** with the said Grantee that he has done no act to encumber the said lands.

AND the said Grantor **RELEASES** to the said Grantee **ALL** his claims upon the said lands.

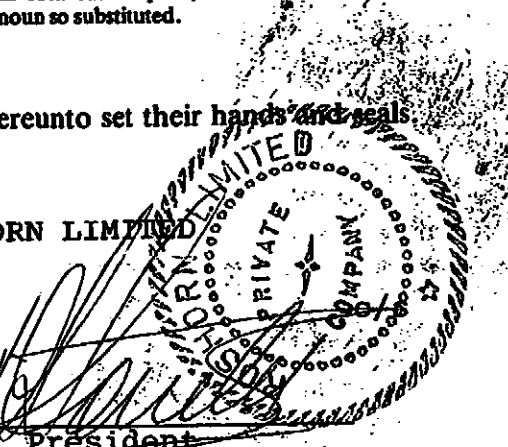
PROVIDED that in construing these presents the words "Grantor" and "Grantee" and the pronouns "he", "his" or "him" relating thereto and used therewith shall be read and construed as "Grantor" or "Grantors", "Grantee" or "Grantees", and "he", "she", "it" or "they", "his", "her", "its" or "their", or "him", "her", "it" or "them", respectively, as the number and gender of the party or parties referred to in each case require, and the number of the verb agreeing therewith shall be construed as agreeing with the said word or pronoun so substituted.

IN WITNESS WHEREOF the said parties hereto have hereunto set their hands and seals

SIGNED, SEALED AND DELIVERED
In the Presence of

ROSHORN LIMITED

by: 
President



AFFIDAVIT OF RESIDENCE AND OF VALUE OF THE CONSIDERATION

IN THE MATTER OF THE CONVEYANCE OF (insert brief description of land) Part of Township Lot 14, in Concession 3 South of Dundas Street of the Township of Trafalgar, now in the Town of Oakville, and being more particularly composed of all of Parts 7, 8 and 9 on a Plan registered in the Registry BY (print names of all transferors in full) ROSHORN LIMITED (Office for the Registry Division of Halton (No. 20) as No. 20R-5913

TO (see instruction 1 and print names of all transferees in full) MARLENE A. BEER

I, (see instruction 2 and print name(s) in full) MARLENE A. BEER

MAKE OATH AND SAY THAT:

1. I am (place a clear mark within the square opposite that one of the following paragraphs that describes the capacity of the deponent(s): (see instruction 2)

- (a) A person in trust for whom the land conveyed in the above-described conveyance is being conveyed;
(b) A trustee named in the above-described conveyance to whom the land is being conveyed;
(c) A transferee named in the above-described conveyance;
(d) The authorized agent or solicitor acting in this transaction for (insert name(s) of principal(s))
(e) The President, Vice-President, Manager, Secretary, Director, or Treasurer authorized to act for (insert name(s) of corporation(s))

(f) A transferee described in paragraph () (insert only one of paragraph (a), (b) or (c) above, as applicable) and am making this affidavit on my own behalf and on behalf of (insert name of spouse) who is my spouse described in paragraph () (insert only one of paragraph (a), (b) or (c) above, as applicable)

and as such, I have personal knowledge of the facts herein deposed to.

2. I have read and considered the definitions of "non-resident corporation" and "non-resident person" set out respectively in clauses 1 (1)(f) and (g) of the Act. (see instruction 3).

3. The following persons to whom or in trust for whom the land conveyed in the above-described conveyance is being conveyed are non-resident persons within the meaning of the Act. (see instruction 4) none

4. THE TOTAL CONSIDERATION FOR THIS TRANSACTION IS ALLOCATED AS FOLLOWS:

Table with 3 columns: Description, Amount, and Total. Rows include: (a) Monies paid or to be paid in cash \$220,000.00; (b) Mortgages (i) Assumed \$663,000.00; (ii) Given back to vendor nil; (c) Property transferred in exchange nil; (d) Securities transferred nil; (e) Liens, legacies, annuities and maintenance charges nil; (f) Other valuable consideration nil; (g) VALUE OF LAND, BUILDING, FIXTURES AND GOODWILL SUBJECT TO LAND TRANSFER TAX (TOTAL OF (a) to (f)) \$883,000.00; (h) VALUE OF ALL CHATTELS - Items of tangible personal property (Retail Sales Tax is payable on the value of all chattels unless exempt under the provisions of the "Retail Sales Tax Act", R.S.O. 1980, c.454, as amended) nil; (i) Other consideration for transaction not included in (g) or (h) above nil; (j) TOTAL CONSIDERATION \$883,000.00

ALL BLANKS MUST BE FILLED IN. INSERT "NIL" WHERE APPLICABLE.

5. If consideration is nominal, describe relationship between transferor and transferee and state purpose of conveyance. (see instruction 5) nil

6. If the consideration is nominal, is the land subject to any encumbrance? nil

7. Other remarks and explanations, if necessary none

SWORN before me at the City of Toronto in the Municipality of Metropolitan Toronto

this 22nd day of September 19 83

A Commissioner for taking Affidavits, etc.

MARLENE A. BEER signature(s)

PROPERTY INFORMATION RECORD

- A. Describe nature of instrument: Deed
B. (i) Address of property being conveyed (if available) 157 Cross Avenue, Oakville
(ii) Assessment Roll No. (if available) not available
C. Mailing address(es) for future Notices of Assessment under the Assessment Act for property being conveyed (see instruction 6) 55 Harbour Square Apt. 3311, Toronto, Ontario M5J 2L1
D. (i) Registration number for last conveyance of property being conveyed (if available) not available
(ii) Legal description of property conveyed: Same as in D.(i) above. Yes [] No [] Not Known [x]

E. Name(s) and address(es) of each transferee's solicitor ENFIELD, HEMMERICK & WOOD 372 Bay Street, Ste. 1800 Toronto, Ontario M5H 2W9

For Land Registry Office use only
REGISTRATION NO.
Land Registry Office No.
Registration Date

AFFIDAVIT OF SUBSCRIBING WITNESS

I,
of the
in the

make oath and say:

I am a subscribing witness to the attached instrument and I was present and saw it executed

at _____ by _____

*See footnote

*See footnote

I verily believe that each person whose signature I witnessed is the party of the same name referred to in the instrument.

SWORN before me at the _____

this _____ day of _____ 19 _____

A COMMISSIONER FOR TAKING AFFIDAVITS, ETC.

* Where a party is unable to read the instrument or where a party signs by making his mark or in foreign characters add "after the instrument had been read to him and he appeared fully to understand it". Where executed under a power of attorney insert "(name of attorney) as attorney for (name of party)"; and for next clause substitute "I verily believe that the person whose signature I witnessed was authorized to execute the instrument as attorney for (name)".

Rm
Dated July 27, 19 83

ROSHORN LIMITED

TO

MARLENE W. BEER

Address: 55 Harbour Square
Suite 3311, Toronto

Deed of Land

SITUATE

14-350.S

DYE & BURNHAM CO. LIMITED

ASSESSMENT ROLL NO.

ADDRESS OF PROPERTY:

157 Cross Avenue, Oakville

ENFIELD, HEMMERICK & WOOD
Barristers and Solicitors
372 Bay Street
Suite 1800
Toronto, Ontario M5H 2W9

589004

REGISTRY DIVISION
HALLOW NO. 20 I CERTIFY
THAT THIS INSTRUMENT IS
REGISTERED / RECORDED AS OF

NOV 3 4 04 PM '83

LAND REGISTRY OFFICE
AT MILLTON, ONTARIO
John Pappas

REGISTRY
DIVISION

<i>HS</i>	<i>14-350.S</i>
-----------	-----------------

REGISTRATION FEE	<i>15-</i>
LAND TRANSFER TAX	<i>6884-</i>
RETAIL SALES TAX	

THIS INDENTURE made in duplicate this 27th day of July, 1983.

IN PURSUANCE OF THE SHORT FORMS OF CONVEYANCE ACT:

BETWEEN:

ROSHORN LIMITED, a corporation incorporated
under the laws of the Province of Ontario,

hereinafter called the "GRANTOR"

OF THE FIRST PART

-and-

DOUGLAS W. BEER, of the City of Toronto,
in the Municipality of Metropolitan Toronto,

hereinafter called the "GRANTEE"

OF THE SECOND PART

WHEREAS the title to the property described herein is held in the
name of D. L. FOWLES DEVELOPMENTS LIMITED;

AND WHEREAS the said D.L. FOWLES DEVELOPMENTS LIMITED amalgamated
with ROSHORN LIMITED, an Ontario corporation, the amalgamated
corporation being named ROSHORN LIMITED, by Articles of
Amalgamation dated March 30, 1982 and registered in the Registry
Office for the Registry Division of Halton (No. 20) as
Instrument No. 557358.

WITNESSETH that in consideration of other good and valuable
and the sum of TWO-----(\$2.00)-----DOLLARS
now paid by the said Grantee to the said Grantor, the receipt
whereof is hereby by him acknowledged, he the said Grantor
DOTH GRANT unto the said Grantee in fee simple

THOSE lands and premises located in the following municipality,
namely, in the Town of Oakville, in the Regional Municipality of
Halton, and being composed of

ALL AND SINGULAR that certain parcel or tract of land and premises
situate, lying and being in the Town of Oakville, in the Regional
Municipality of Halton and being composed of part of Township Lot
14 in Concession 3 South of Dundas Street of the Township of
Trafalgar, now in the Town of Oakville, and being more particularly
composed of all of Parts 1, 2, 3, 4, 5 and 6 on a Plan registered in
the Registry Office for the Registry Division of Halton (No. 20) as
No. 20R-5913;

TOGETHER WITH a right-of-way for the purposes of ingress and egress
for persons and vehicles over, along and upon that certain parcel or
tract of land situate, lying and being in the said Lot 14, Concession
3 South of Dundas Street, and being composed of all of Part 7 on the
said Plan 20R-5913;

AND SUBJECT to a right-of-way for the purposes of ingress and egress for persons and vehicles over, along and upon that certain parcel or tract of land situate, lying and being all of Parts 4, 5 and 6 on the said Plan 20R-5913, for the benefit of that land abutting to the west of the land herein and being all of Parts 7, 8 and 9 on the said Plan 20R-5913, and the owners and occupants thereof;

AND SUBJECT TO a right-of-way in the nature of an easement to allow for the maintenance and repair of buried utility service lines for the benefit of the land abutting the west of the land herein and being all of parts 7, 8 and 9 on the said Plan 20R-5913, over, along, upon and beneath the surface of that certain parcel or tract of land situate, lying and being in the said Lot 14, Concession 3, South of Dundas Street, and being composed of all of Part 2 on the said Plan 20R-5913.

TO HAVE AND TO HOLD unto the said Grantee, his heirs, executors, administrators, successors and assigns to and for their sole and only use forever;
SUBJECT NEVERTHELESS to the reservations, limitations, provisoes and conditions expressed in the original grant thereof from the Crown.

The said Grantor COVENANTS with the said Grantee that he has the right to convey the said lands to the said Grantee notwithstanding any act of the said Grantor.

AND that the said Grantee shall have quiet possession of the said lands free from all encumbrances.

AND the said Grantor COVENANTS with the said Grantee that he will execute such further assurances of the said lands as may be requisite.

AND the said Grantor COVENANTS with the said Grantee that he has done no act to encumber the said lands.

AND the said Grantor RELEASES to the said Grantee ALL his claims upon the said lands.

PROVIDED that in construing these presents the words "Grantor" and "Grantee" and the pronouns "he", "his" or "him" relating thereto and used therewith shall be read and construed as "Grantor" or "Grantors", "Grantee" or "Grantees", and "he", "she", "it" or "they", "his", "her", "its" or "their", or "him", "her", "it" or "them", respectively, as the number and gender of the party or parties referred to in each case require, and the number of the verb agreeing therewith shall be construed as agreeing with the said word or pronoun so substituted.

IN WITNESS WHEREOF the said parties hereto have hereunto set their hands and seals.

SIGNED, SEALED AND DELIVERED
In the Presence of

ROSHORN LIMITED

by: 
President



PLANNING ACT AFFIDAVIT

IN THE MATTER OF THE PLANNING ACT (as amended)

AND IN THE MATTER OF THE TITLE TO part of Township Lot 14 in
Concession 3 South of Dundas Street of the Township of
Trafalgar, now in the Town of Oakville, and being more
particularly composed of all of Parts 1, 2, 3, 4, 5 and 6 on a Plan
registered in the Registry Office for the Registry Division of
Halton (No. 20) as No. 20R-5913

Deed, Transfer,
Mortgage, Charge,
etc.

AND IN THE MATTER OF A Deed

THEREOF, FROM ROSHORN LIMITED

TO DOUGLAS W. BEER

DATED July 27, 19 83 .

I, Douglas L. Fowles
of the City of Mississauga in the
Regional Municipality of Peel

MAKE OATH AND SAY AS FOLLOWS:

- I am the President of ROSHORN LIMITED, the Grantor,
named in the above mentioned Instrument, and have knowledge of the matters hereinafter sworn.
- A consent under section ⁴³~~29~~ of the Planning Act, as amended, in respect of the said Instrument is not required because
 - the person conveying or otherwise dealing with land in the said Instrument does not retain the fee or the equity of redemption in, or a power or right to grant, assign or exercise a power of appointment with respect to any land abutting the land that is being conveyed or otherwise dealt with.*

To be made by
one of the parties
or by his solicitor

Delete (a)
if not applicable

State other
reason if any

SWORN before me City of Toronto

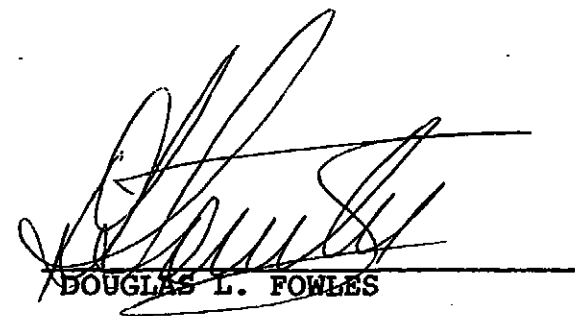
~~at the~~ in the Municipality of

~~in the~~ Metropolitan Toronto

this 27th

day of July

19 83.



DOUGLAS L. FOWLES

AFFIDAVIT OF RESIDENCE AND OF VALUE OF THE CONSIDERATION

THE MATTER OF THE CONVEYANCE OF (insert brief description of land) Part of Township Lot 14, in Concession 3
south of Dundas Street of the Township of Trafalgar, now in the Town of Oakville, and being
more particularly composed of all of Parts 1, 2, 3, 4, 5 and 6 on a Plan registered in the
BY (print names of all transferors in full) ROSHORN LIMITED (Registry Office for the Registry Division
of Halton (No. 20) as No. 20R-5913.

TO (see instruction 1 and print names of all transferees in full) DOUGLAS W. BEER

I, (see instruction 2 and print name(s) in full) DOUGLAS W. BEER

MAKE OATH AND SAY THAT:

- 1. I am (place a clear mark within the square opposite that one of the following paragraphs that describes the capacity of the deponent(s): (see instruction 2)
(a) A person in trust for whom the land conveyed in the above-described conveyance is being conveyed;
(b) A trustee named in the above-described conveyance to whom the land is being conveyed;
(c) A transferee named in the above-described conveyance;
(d) The authorized agent or solicitor acting in this transaction for (insert name(s) of principal(s))
described in paragraph(s) (a), (b), (c) above; (strike out references to inapplicable paragraphs)
(e) The President, Vice-President, Manager, Secretary, Director, or Treasurer authorized to act for (insert name(s) of corporation(s))
described in paragraph(s) (a), (b), (c) above; (strike out references to inapplicable paragraphs)
(f) A transferee described in paragraph () (insert only one of paragraph (a), (b) or (c) above, as applicable) and am making this affidavit on my own behalf and on behalf of (insert name of spouse) who is my spouse described in paragraph () (insert only one of paragraph (a), (b) or (c) above, as applicable)

- and as such, I have personal knowledge of the facts herein deposed to.
2. I have read and considered the definitions of "non-resident corporation" and "non-resident person" set out respectively in clauses 1 (1)(f) and (g) of the Act. (see instruction 3).
3. The following persons to whom or in trust for whom the land conveyed in the above-described conveyance is being conveyed are non-resident persons within the meaning of the Act. (see instruction 4) none

4. THE TOTAL CONSIDERATION FOR THIS TRANSACTION IS ALLOCATED AS FOLLOWS:

Table with 3 columns: Description, Amount, and Total. Rows include: (a) Monies paid or to be paid in cash \$ 380,000.00; (b) Mortgages (i) Assumed \$ 1,037,000.00; (ii) Given back to vendor nil; (c) Property transferred in exchange nil; (d) Securities transferred nil; (e) Liens, legacies, annuities nil; (f) Other valuable consideration nil; (g) VALUE OF LAND, BUILDING, FIXTURES AND GOODWILL SUBJECT TO LAND TRANSFER TAX (TOTAL OF (a) to (f)) \$ 1,417,000.00; (h) VALUE OF ALL CHATTELS - items of tangible personal property nil; (i) Other consideration for transaction not included in (g) or (h) above nil; (j) TOTAL CONSIDERATION \$ 1,417,000.00

ALL BLANKS MUST BE FILLED IN. INSERT "NIL" WHERE APPLICABLE.

- 5. If consideration is nominal, describe relationship between transferor and transferee and state purpose of conveyance. (see instruction 5) nil
6. If the consideration is nominal, is the land subject to any encumbrance? nil
7. Other remarks and explanations, if necessary none

SWORN before me at the City of Toronto
in the Municipality of Metropolitan Toronto
this 22nd day of September 19 83
A Commissioner for taking Affidavits, etc.

Signature of Douglas W. Beer
DOUGLAS W. BEER signature(s)

PROPERTY INFORMATION RECORD

- A. Describe nature of instrument: DEED
B. (i) Address of property being conveyed (if available): 165 Cross Avenue, Oakville, Ontario
(ii) Assessment Roll No. (if available): not available
C. Mailing address(es) for future Notices of Assessment under the Assessment Act for property being conveyed (see instruction 6): 55 Harbour Square Apt. 3311, Toronto, Ontario M5J 2L1
D. (i) Registration number for last conveyance of property being conveyed (if available): not available
(ii) Legal description of property conveyed: Same as in D.(i) above. Yes [] No [] Not Known [x]
E. Name(s) and address(es) of each transferee's solicitor: ENFIELD, HEMMERICK & WOOD 372 Bay Street, Suite 1800 Toronto, Ontario M5H 2W9

For Land Registry Office use only
REGISTRATION NO.
Land Registry Office No.
Registration Date

AFFIDAVIT OF SUBSCRIBING WITNESS

I, _____
of the _____
in the _____
_____ make oath and say:
I am a subscribing witness to the attached instrument and I was present and saw it executed
at _____ by _____

I verily believe that each person whose signature I witnessed is the party of the same name referred to in
the instrument.

SWORN before me at the _____
_____ this _____ day of _____ 19 _____

*See footnote

*See footnote

A COMMISSIONER FOR TAKING AFFIDAVITS, ETC.

* Where a party is unable to read the instrument or where a party signs by making his mark or in foreign characters add "after the instrument had been read to him and he appeared fully to understand it". Where executed under a power of attorney insert "(name of attorney) as attorney for (name of party)"; and for next clause substitute "I verily believe that the person whose signature I witnessed was authorised to execute the instrument as attorney for (name)".

Dated July 27 19 83

ROSHORN LIMITED

TO

DOUGLAS W. BEER

Address: 55 Harbour Square
Suite 3311, Toronto

Deed of Land

SITUATE

Part of Township Lot 14,
Concession 3, S.D.S., Town
of Oakville

DYE & DURHAM CO. LIMITED

ASSESSMENT ROLL NO.
ADDRESS OF PROPERTY:
165 Cross Avenue, Oakville

ENFIELD, HEMMERICK & WOOD
Barristers and Solicitors
372 Bay Street
Suite 1800
Toronto, Ontario M5H 2W9

589005

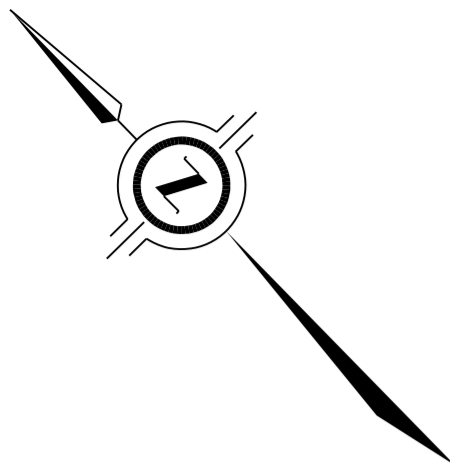
REGISTRY DIVISION
HALTON NO. 20 1 CERTIFY
THAT THIS INSTRUMENT IS
RECORDED / DEPOSITED AS OF

NOV 3 4 04 PM '83

LAND REGISTRY OFFICE
AT MILTON, ONTARIO
John Howard

EN-100	11,156
GR.	
LOT 14 CON 3 S.D.S.	

REGISTRATION FEE	15-
LAND TRANSFER TAX	11,156-
RETAIL SALES TAX	

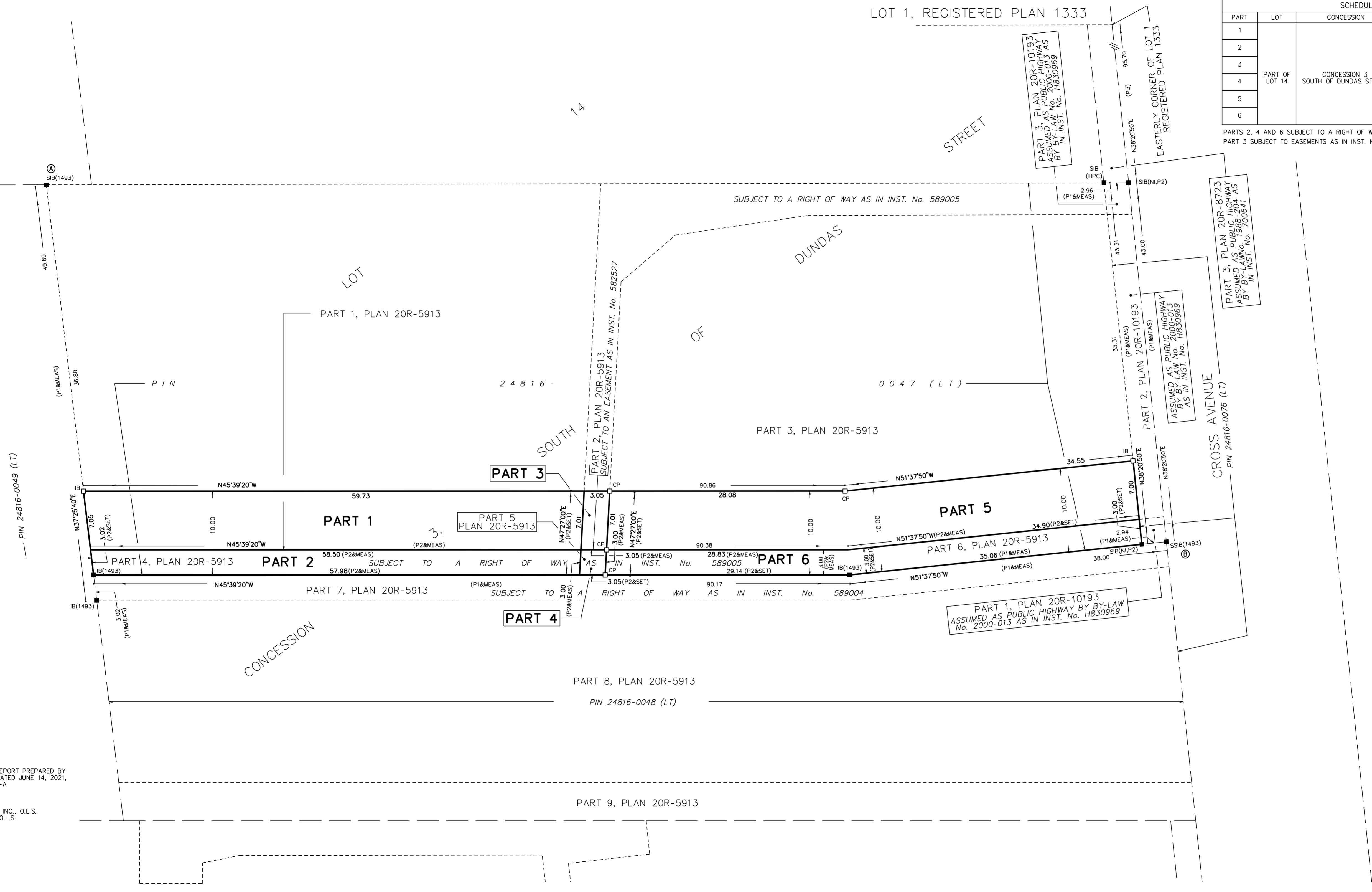


LOT 1, REGISTERED PLAN 1333

SCHEDULE			
PART	LOT	CONCESSION	PIN
1			
2			
3			
4	PART OF LOT 14	CONCESSION 3 SOUTH OF DUNDAS STREET	PART OF PIN 24816-0047 (LT)
5			
6			

PARTS 2, 4 AND 6 SUBJECT TO A RIGHT OF WAY AS IN INST. No. 589005
PART 3 SUBJECT TO EASEMENTS AS IN INST. Nos. 582527 AND 589005

PLAN 20R-22099
Received and deposited
February 23rd, 2022
Lucy Wang
Representative for the
Land Registrar for the
Land Titles Division of
Halton (No.20)



PLAN OF SURVEY OF
**PART OF LOT 14
CONCESSION 3
SOUTH OF DUNDAS STREET**
(GEOGRAPHIC TOWNSHIP OF TRAFALGAR)
TOWN OF OAKVILLE
REGIONAL MUNICIPALITY OF HALTON
SCALE 1 : 250

5 10 15 metres

THE INTENDED PLOT SIZE OF THIS PLAN IS 915mm IN WIDTH BY 457mm IN HEIGHT WHEN PLOTTED AT A SCALE OF 1:200
J.D. BARNES LIMITED

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

NOTES
BEARINGS ARE UTM GRID, DERIVED FROM OBSERVED REFERENCE POINTS A AND B, BY REAL TIME NETWORK (RTN) OBSERVATIONS, UTM ZONE 17, NAD83 (CSRS) (2010.0).
DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.999727.
FOR BEARING COMPARISONS, A ROTATION OF 0°55'30" COUNTER-CLOCKWISE WAS APPLIED TO BEARINGS ON P2.

INTEGRATION DATA			
OBSERVED REFERENCE POINTS (ORPs): UTM ZONE 17, NAD83 (CSRS) (2010.0).			
COORDINATES TO URBAN ACCURACY PER SECTION 14 (2) OF O.R.G 216/10.			
POINT ID	EASTING	NORTHING	
ORP (A)	606 320.94	4 812 349.18	
ORP (B)	606 386.73	4 812 225.37	
COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.			
THE RESULTANT TIE BETWEEN ORP (A) AND ORP (B) IS 140.25 N27°59'10"W.			

SURVEYOR'S CERTIFICATE
I CERTIFY THAT:
1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON FEBRUARY 14, 2022.

FEBRUARY 15, 2022
DATE
R.S. QUERUBIN
ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER 2187124

J.D. BARNES
LIMITED
SURVEYING
MAPPING
GIS
LAND INFORMATION SPECIALISTS
401 WHEELABRATOR WAY, SUITE A, MILTON, ON L9T 3C1
T: (905) 875-9955 F: (905) 875-9956 www.jdbarnes.com

DRAWN BY:	SG	CHECKED BY:	AB	REFERENCE NO.:	21-30-700-01-A	
FILE:	G:\21-30-700\01\Drawing\21-30-700-01-A.dgn				DATED:	FEBRUARY 18, 2022
					PLOTTED:	2/18/22

- LEGEND**
- DENOTES SURVEY MONUMENT FOUND
 - DENOTES SURVEY MONUMENT SET
 - SIB DENOTES STANDARD IRON BAR
 - SIB DENOTES SHORT STANDARD IRON BAR
 - IB DENOTES IRON BAR
 - CP DENOTES CONCRETE PIN
 - P1 DENOTES SURVEYOR'S REAL PROPERTY REPORT PREPARED BY J.D. BARNES LIMITED, O.L.S., DATED JUNE 14, 2021, REFERENCE No. 21-30-700-00-A
 - P2 DENOTES PLAN 20R-5913
 - P3 DENOTES PLAN 20R-10193
 - WT DENOTES WITNESS
 - 1493 DENOTES YOUNG AND YOUNG SURVEYING INC., O.L.S.
 - HPC DENOTES H. PILLAR CORPORATION LTD., O.L.S.
 - NI DENOTES NOT IDENTIFIABLE
 - MEAS DENOTES MEASURED
 - JDB DENOTES J.D. BARNES LIMITED

Properties

PIN 24816 - 0047 LT *Interest/Estate* Easement Add Easement
Description SERVIENT LANDS: PT LT 14, CON 3 TRAF SDS, PTS 1-6 20R22099; TOWN OF OAKVILLE
 DOMINANT LANDS: PT LT 14, CON 3 TRAFALGAR, SOUTH OF DUNDAS STREET , AS IN
 811940 EXCEPT PT 1 20R7001 ; OAKVILLE/TRAFALGAR (PIN 24816-0049)
Address OAKVILLE

Consideration

Consideration \$2.00

Transferor(s)

The transferor(s) hereby transfers the easement to the transferee(s).

Name 165 CROSS INC.
Address for Service 90 Wingold Avenue, Suite 1
 Toronto, Ontario M6B1P5

A person or persons with authority to bind the corporation has/have consented to the registration of this document.

This document is not authorized under Power of Attorney by this party.

Transferee(s)*Capacity**Share*

Name 166 SOUTH SERVICE INC.
Address for Service 90 Wingold Avenue, Suite 1
 Toronto, Ontario M6B1P5

Statements

Schedule: See Schedules

Signed By

Anthony Francesco Salandra Box 48 Suite 5300, TD Bank Tower acting for Signed 2022 05 06
 Toronto Transferor(s)
 M5K 1E6

Tel 416-362-1812

Fax 416-868-0673

I have the authority to sign and register the document on behalf of all parties to the document.

Anthony Francesco Salandra Box 48 Suite 5300, TD Bank Tower acting for Signed 2022 05 06
 Toronto Transferee(s)
 M5K 1E6

Tel 416-362-1812

Fax 416-868-0673

I have the authority to sign and register the document on behalf of all parties to the document.

Submitted By

MCCARTHY TETRAULT LLP Box 48 Suite 5300, TD Bank Tower 2022 05 06
 Toronto
 M5K 1E6

Tel 416-362-1812

Fax 416-868-0673

Fees/Taxes/Payment

Statutory Registration Fee \$66.30

Provincial Land Transfer Tax \$0.00

Total Paid \$66.30

File Number

Transferor Client File Number : 224884-547197

LAND TRANSFER TAX STATEMENTS

In the matter of the conveyance of: 24816 - 0047 SERVIENT LANDS: PT LT 14, CON 3 TRAF SDS, PTS 1-6 20R22099; TOWN OF OAKVILLE

DOMINANT LANDS: PT LT 14, CON 3 TRAFALGAR, SOUTH OF DUNDAS STREET , AS IN 811940 EXCEPT PT 1 20R7001 ; OAKVILLE/TRAFALGAR (PIN 24816-0049)

BY: 165 CROSS INC.
TO: 166 SOUTH SERVICE INC.

1. EMIL TOMA

I am

- (a) A person in trust for whom the land conveyed in the above-described conveyance is being conveyed;
 - (b) A trustee named in the above-described conveyance to whom the land is being conveyed;
 - (c) A transferee named in the above-described conveyance;
 - (d) The authorized agent or solicitor acting in this transaction for _____ described in paragraph(s) () above.
 - (e) The President, Vice-President, Manager, Secretary, Director, or Treasurer authorized to act for 166 SOUTH SERVICE INC. described in paragraph(s) (c) above.
 - (f) A transferee described in paragraph () and am making these statements on my own behalf and on behalf of _____ who is my spouse described in paragraph () and as such, I have personal knowledge of the facts herein deposed to.
-

3. The total consideration for this transaction is allocated as follows:

(a) Monies paid or to be paid in cash	\$2.00
(b) Mortgages (i) assumed (show principal and interest to be credited against purchase price)	\$0.00
(ii) Given Back to Vendor	\$0.00
(c) Property transferred in exchange (detail below)	\$0.00
(d) Fair market value of the land(s)	\$0.00
(e) Liens, legacies, annuities and maintenance charges to which transfer is subject	\$0.00
(f) Other valuable consideration subject to land transfer tax (detail below)	\$0.00
(g) Value of land, building, fixtures and goodwill subject to land transfer tax (total of (a) to (f))	\$2.00
(h) VALUE OF ALL CHATTELS -items of tangible personal property	\$0.00
(i) Other considerations for transaction not included in (g) or (h) above	\$0.00
(j) Total consideration	\$2.00

4.

Explanation for nominal considerations:

- o) Transfer of easement or right of way for no consideration.
-

5. The land is subject to encumbrance

6. Other remarks and explanations, if necessary.

1. The information prescribed for purposes of section 5.0.1 of the Land Transfer Tax Act is not required to be provided for this conveyance.
 2. The transferee(s) has read and considered the definitions of "designated land", "foreign corporation", "foreign entity", "foreign national", "Greater Golden Horseshoe Region", "specified region", "spouse" and "taxable trustee" as set out in subsection 1(1) of the Land Transfer Tax Act and O. Reg 182/17. The transferee(s) declare that this conveyance is not subject to additional tax as set out in subsection 2(2.1) of the Act because:
 3. (b) This is not a conveyance of "designated land".
 4. The transferee(s) declare that they will keep at their place of residence in Ontario (or at their principal place of business in Ontario) such documents, records and accounts in such form and containing such information as will enable an accurate determination of the taxes payable under the Land Transfer Tax Act for a period of at least seven years.
 5. The transferee(s) agree that they or the designated custodian will provide such documents, records and accounts in such form and containing such information as will enable an accurate determination of the taxes payable under the Land Transfer Tax Act, to the Ministry of Finance upon request.
-

PROPERTY Information Record

A. Nature of Instrument: Transfer Easement
LRO 20 Registration No. HR1889581 Date: 2022/05/06

B. Property(s): PIN 24816 - 0047 Address OAKVILLE Assessment -
Roll No

C. Address for Service: 90 Wingold Avenue, Suite 1
Toronto, Ontario M6B1P5

D. (i) Last Conveyance(s): PIN 24816 - 0047 Registration No. HR1851959
(ii) Legal Description for Property Conveyed: Same as in last conveyance? Yes No Not known

E. Tax Statements Prepared By: Anthony Francesco Salandra
Box 48 Suite 5300, TD Bank Tower
Toronto M5K 1E6

OPERATION EASEMENT AGREEMENT

THIS AGREEMENT made as of the 6th day of May, 2022 (the “**Agreement**”)

BETWEEN:

165 CROSS INC.
(the “**Transferor**”)

- and -

166 SOUTH SERVICE INC.
(the “**Transferee**”)

WHEREAS:

- A. The Transferor is the owner of certain lands described in Schedule A to this Agreement and all current improvements thereon (the “**165 Lands**”);
- B. The Transferee is the owner of certain landed described in Schedule B to this Agreement and all current improvements thereon (the “**Dominant Lands**”);
- C. Located on those portions of the 165 Lands described in Schedule C to this Agreement, are access points for the operation, installation and maintenance of hydro, water, sanitary, sewers, drains and communication services for the benefit of the Dominant Lands (the “**Easement Lands**”); and
- D. The Transferor and Transferee (each a “**Party**” and collectively the “**Parties**”) wishes to evidence and document the certain easement rights in connection with the Easement Lands and has agreed to grant to the Transferee as an appurtenance to and for the benefit of the Dominant Lands, easements over the Easement Lands in accordance with this Agreement.

NOW THEREFORE this Agreement witnesseth that in consideration of the sum of ten (\$10.00) dollars and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged by the parties hereto, the parties agree as follows:

- 1. **Grant:** The Transferor hereby irrevocably grants, transfers and conveys to the Transferee, its successors and assigns the following rights (the “**Easement**”):
 - (a) A free uninterrupted and non-exclusive easement or right in the nature of the easement in, on, over, along, upon, under and through the Easement Lands for the purpose of operating, installing and maintaining hydro, water, sanitary, sewers, drains and communication services for the benefit of the Dominant Lands (the “**Works**”);
 - (b) The Easement (i) is granted as and from the date hereof subject to Section 13 hereof, in perpetuity or until a date which is the date on which the Transferee executes and delivers a full and complete surrender and release of all rights and easements granted hereunder with respect to all the Easement Lands; and (ii) may be used by the Transferee’s servants, employees, contractors, consultants and agents and other permitted users (“**Transferee Parties**”).

2. **Run With the Lands:** The burden of the easements or rights in the nature of easements granted above shall run with the Easement Lands and each and every part thereof and the benefit thereof shall run with and be appurtenant to the Dominant Lands and each and every part thereof and shall bind and enure to the benefit of the parties hereto and their successors and assigns. The parties expressly declare their intention and agreement that the principles of benefit and burden shall apply to their relationship and that, they respectively, agree to assume the burden of and be bound by, each and every of the covenants entered into by them in this Agreement.

3. **Easement Rights and General Condition**

- (a) The Transferor's interests and use of the 165 Lands, including the Easement Lands, shall be unrestricted by this Agreement, provided that, the Transferor shall not unreasonably interfere with the Transferee's exercise and enjoyment of the easements hereby granted. The Easement is granted in common with the rights of others entitled thereto.
- (b) In exercising its rights hereunder, the Transferee and all Transferee Parties shall at all times comply with all of the Transferor's reasonable health, safety, environmental and construction rules and standards communicated to the Transferee from time to time, provided that such compliance does not result in a breach of any Applicable Laws (as defined below).
- (c) The Transferor reserves the right to remove any person from the Easement Lands and/or stop any works thereon without notice: (a) the Transferor has reasonable concerns that such person and/or works constitute a threat to the health and safety of others and/or threat to the physical integrity of property and/or environment; and (b) the Transferor has communicated such concerns to the Transferee and the Transferee has failed to immediately take reasonable action to eliminate such threat, to the satisfaction of Transferor acting reasonably.
- (d) In the event of an incident involving fire or explosion, or a spill, leak or emission of any hazardous substance into the environment, or any other unusual and dangerous circumstance, which arises on the Easement Lands or the 165 Lands as a result of Transferee's exercise of any rights granted herein (an "**Incident**"), Transferee shall provide any and all necessary emergency response and cleanup in compliance with Applicable Laws (as defined below) and as approved by the Transferor acting reasonably. Whichever Party first becomes aware of an Incident shall immediately notify the other Party by telephone and e-mail and subsequently forthwith follow-up that notification with a written notification to the other Party.

4. **Indemnity and Release:**

- (a) For the purpose of this Agreement "**Claims**" means all past, present and future claims, suits, proceedings, liabilities, obligations, losses, damages, penalties, judgements, costs, expenses, fines, disbursements, legal fees (on a substantial indemnity basis) and other professional fees and disbursements, interest.
- (b) Transferee shall at all times be responsible for the safety of its employees, contractors and agents on the Easement Lands and shall be the constructor and employer in respect of all activities, including all works, conducted by Transferee, its employees, contractors and agents on the Easement Lands, for the purpose of all applicable health and safety

legislation, including the *Occupational Health and Safety Act*, (Ontario), regulations thereunder and the *Workplace Safety and Insurance Act*, (Ontario).

- (c) Transferee and all Transferee Parties shall use the Easement Lands at their own risk, cost and expense and Transferor shall not be liable for any Claims, loss, damage, injury to it or any property or person, except as caused by the gross negligence or willful act of Transferor, and Transferee hereby releases Transferor, subject to the aforementioned terms, from all Claims in respect of any such Claims, loss, damage or injury, and Transferee shall not make any Claim against the Transferor in connection with the foregoing.
- (d) Transferee acknowledges that it accepts the Easement Lands on an “as is” “where is” basis. Transferee acknowledges that the Transferor has made no representations or warranties as to the condition of the Easement Lands and/or the purposes to which they can be put to use.
- (e) Transferee shall fully indemnify Transferor for, and hold Transferor harmless from, any damages and losses and Claims suffered by Transferor resulting from Transferee’s exercise of any of its easements rights hereunder including, the Transferee and/or any Transferee Party’s presence, access, and use of the Easement Lands, except as caused by the gross negligence or wilful act of Transferor. Without limiting the generality of the foregoing, Transferee shall be responsible for, and shall indemnify Transferor, its affiliates and subsidiaries and each of its officers, directors, employees and agents (collectively the “**Indemnified Parties**”), and hold the Indemnified Parties harmless from and against all Claims, that any Indemnified Party may incur or suffer as a result of or in connection with Transferee’s and/or any Transferee Party’s entry upon, access to, and activities on the Easement Lands and/or Transferor at the 165 Lands , except as caused by the gross negligence or wilful act of Transferor. Without limiting the generality of the foregoing Transferee further covenants and agrees to be responsible for, and to indemnify the Indemnified Parties as a result of or in connection with:
 - (i) the discovery of any pollutant, contaminant, or hazardous substance, which has escaped, seeped, leaked, spilled, discharged, or released on, in or under the Easement Lands and its surrounding environment to the extent arising from and/or consequent to Transferee’s use or enjoyment of the Easement Lands following the date hereof; and
 - (ii) the imposition of any remedial order affecting the Easement Lands as a result of Transferee’s acts or omissions or a non-compliance with environmental laws or environmental approvals to the extent arising from Transferee or any Transferee Party’s use or enjoyment of the Easement Lands following the date hereof.

This Section 5 shall survive the termination of this Agreement.

5. **Transferee Work:**

- (a) At least 30 days prior to commencement of any installation, maintenance, repair or replacement of the Works, the Transferee shall submit to the Transferor for its approval, plans and specifications for such work, together with a schedule for completion, for approval of Transferor in its sole discretion.

- (b) Any installation, maintenance, repair, and/or replacement of the Works shall be completed to the reasonable satisfaction of the Transferor. The Transferee agrees to perform or cause to be performed such work in accordance with the approved plans and specifications noted in Section 6(a) and provide evidence to the Transferor of such completion, such evidence to include delivery of as-built plans where applicable. If there is any material variation from the approved plans and specifications, delivered pursuant to Section 6(a), the Transferee agrees to obtain the approval of the Transferor to such variations. The reasonable third party out of pocket costs incurred by the Transferor for the reasonable review of the plans and specifications under Section 6 will be paid for by the Transferee and the Transferor agrees to provide evidence of such costs on request of the Transferee. The Transferor and the Transferee agree to act co-operatively during this process of review and approval.
- (c) On completion of any maintenance, repair or replacement of the Works, the Easement Lands and the 165 Lands shall be restored to materially the same condition existing immediately prior to commencement of such work, all to the satisfaction of the Transferor.
- (d) The Transferee shall be responsible for its costs and expenses of examining, repairing, renewing, using and maintaining the Works and shall be responsible for obtaining all approvals, consents and permits required by Applicable Laws (as defined below) for such purposes. The Transferor shall perform or cause to be performed its permitted work and activities on the Easement Lands at its sole cost, expense and risk, and diligently, expeditiously and without unreasonable delay, and in accordance with prudent industry practices having regard for all existing structures and improvements, in such manner as may be requested and required by the Transferor, acting reasonably. The Transferee shall permit representatives of the Transferor to review and inspect such work and activities at any time during business hours and from time to time.

6. Compliance with Laws:

The Transferee acknowledges and agrees that:

- (a) while this Agreement is in effect, it will at its sole cost and expense comply with all applicable laws, by-laws, rules, regulations, policies and orders of governmental authorities (“**Applicable Laws**”) and obtain all required permits, authorizations and other approvals of applicable authorities, to the extent the same relate to the Works or to the use and enjoyment of the Easement Lands by the Transferee and/or any Transferee Party; and
- (b) It will, except as otherwise permitted under this Agreement, not do or suffer any waste, damage, disfiguration or injury to the Easement Lands or the 165 Lands.

7. Ownership of Works

Notwithstanding any rule of law or equity, the Works shall be the property of the Transferee and its successors and assigns even though the same may now or hereafter be annexed or affixed to the Easement

Lands. The Transferor hereby quitclaim and release all of its right, title and interest in and to any current or future Works, if any.

9. Insurance

- (a) Transferee shall ensure that it has secured and maintained full insurance coverage pursuant to the requirements of the *Workplace Safety and Insurance Act, 1997*, S.O. 1997, c. 16, Sched. A and that all assessments for same are paid in relation to any work constructed on the Easement Lands.
- (b) Transferee shall maintain at all times while this Agreement is in effect, at its expense:
 - (i) a comprehensive general liability and excess liability insurance policy that in total are in an amount not less than \$5,000,000.00 per occurrence; and
 - (ii) an owned and non-owned automobile insurance policy in an amount of not less than \$2,000,000.00 per occurrence,

covering Transferor and Transferee with respect to Claims, and all liability which may be imposed by law for loss of life, personal injury or damage to property arising or resulting from Transferee's and/or any Transferee Party, access to and/or use of the Easement Lands and/or 165 Lands. Transferee shall effect such insurance policies with an reputable insurer licensed to operate in Canada and shall include Transferor's as an additional insured on such policy(ies). Transferee shall provide a true copy of the certificates evidencing the insurances required herein and deposit same with Transferor.

10. Arbitration

In the event of a dispute between the parties under this Agreement, such dispute shall be promptly referred to a member of senior management of each of Transferor and Transferee who shall attempt to resolve such dispute. If such members of senior management are unable to resolve such dispute within twenty (20) days after referral to them, then Transferor and Transferee shall resolve such dispute in accordance with the remaining provisions of this Section 10. Such dispute under this Agreement shall be referred to and be finally resolved by arbitration pursuant to the National Arbitration Rules of the ADR Institute of Canada, Inc. in effect at the time of commencement of the arbitration. Unless Transferor and Transferee otherwise agree, the place of arbitration shall be Toronto, Ontario. The language of the arbitration shall be English.

11. Construction Liens

- (a) Transferee covenants that it shall pay all accounts for services and materials supplied to the Easement Lands at the request of or on behalf of or with the privity or consent of or for the benefit of Transferee in a timely manner in order that no lien certificate of pending litigation and/or registration under the *Construction Act (Ontario)* (herein a "Lien") shall be registered against title to all or any part of the 165 Lands by reason of, Transferee's failure to pay and/or any other matter or thing relating to Transferee and/or any Transferee Party.
- (b) If any Lien or is registered against title to any part of 165 Lands as a result of any matter set out in Section 11(a) above or any other act or omission of Transferee and/or any Transferee Party, Transferee shall take all steps necessary to cause such Lien to be discharged or vacated, as the case may be, within ten days of receiving notice thereof. If

Transferee does not remove any Lien or in accordance with paragraph 11(a) above, Transferor may, but shall not be obligated to, secure the removal of such Lien by paying the amount claimed into court (but not to the lien claimant directly), and any amount paid by Transferor in doing so, together with all costs and expenses of Transferor, shall be payable by Transferee to Transferor upon demand. Nothing herein shall imply any consent or agreement or request on the part of Transferor to subject Transferor's estate or interest in the Easement Lands or any part thereof or in any other part of 165 Lands to any Lien. Notice is hereby given that Transferor expressly refuses and denies any consent or agreement or request to permit Transferor's estate or interest in 165 Lands, including the Easement Lands, to be subject to any Lien. Transferee hereby agrees to indemnify and save harmless Transferor from and against all Claims resulting from or in connection with any Liens filed against title to all or any part of the 165 Lands relating to any matter set out in Section 11(a).

12. **Restoration.** In the event: (a) the Transferee wishes to abandon the Easement granted hereunder; (b) any Works and/or the Easement have been abandoned and/or have not been used by Transferee on a *bona fide* basis for a period of 5 years; or (c) this Agreement is otherwise terminated for any reason, at the election of Transferee in case of item (a) or (c), the applicable party may so notify the other, and the Transferee and the Transferor shall forthwith enter into an agreement in registrable form which terminates the Easement, in connection with any Works on such abandoned and/or terminated Easement (collectively with all contents located therein the "**Abandoned Works**"). The Transferee shall at its own cost and expense repair any damage caused to the 165 Lands by the Abandoned Work.
13. **Planning Act:** This Agreement, the Easements and the rights, obligations and liabilities created hereby are granted in perpetuity to the extent permitted by Applicable Laws and subject to this Section 13. This Agreement is subject to the express condition that the provisions of section 50 of the *Planning Act* (Ontario) are complied with. In the sole discretion of the Transferee, it may take all necessary steps required to obtain the requisite consents required pursuant to the provisions of the *Planning Act* (Ontario) to ensure the easements granted hereby may be granted in perpetuity (the "**Consent**"). Unless and until the required Consent is obtained (including without limitation completion of all conditions thereunder and the expiry of any appeal or approval thereunder), notwithstanding anything to the contrary contained in this Agreement, the term of this Agreement shall expire twenty one (21) years less one (1) day from the date hereof.
14. **Registration:** Transferee or Transferor intended that this Agreements shall be registered on title to the Easement Lands by no later than 10 days following the execution thereof. The cost to register this Agreement on title to the Easement Lands (including any land transfer tax) shall be borne by the Transferee at its sole cost and expense. The Transferee shall not register any other document, notice, certificate, or other instrument in in connection with this Agreement on title to all or any part of the 165 Lands (including the Easement Lands).
15. **Default:** The Transferee or Transferor (as applicable the "**Defaulting Party**") acknowledges and agrees that should it at any time fail to comply with any term and/or condition of this Agreement, it shall within 5 days from the giving of a written notice of such non-compliance by the other party (as applicable the "**Non Defaulting Party**"), remedy such non-compliance (or if such non-compliance cannot be reasonably remedied within such 5 day period, the Defaulting Party commences to remedy such non-compliance in such 5 day period or thereafter proceeds to diligently remedy such non-compliance), failing which, without prejudice to any other rights of the Non Defaulting Party at law, the Non Defaulting Party may: (a) take whatever action it may deem necessary or fit to remedy or attempt to remedy the non-compliance, at the Defaulting Party's sole

expense plus a fifteen percent (15%) administration fee; and (b) where such default has a material and adverse effect on the Non Defaulting or any part of the 165 Lands that cannot be remedied by financial compensation, suspend the Defaulting Party's right to use the Easement Lands and Works in whole or as to any particular part or parts until such time as the non-compliance is cured; and all expenses of the Non Defaulting Party in remedying or attempting to remedy non-compliance shall constitute a debt owing by the Defaulting Party to the Non Defaulting Party payable upon demand together with interest at a rate equal to 7% above the commercial prime lending rate of the Toronto Dominion Bank, from the date such cost was incurred by the Non Defaulting Party until repaid by the Defaulting Party, plus an administration fee of fifteen (15%), and the Non Defaulting Party shall not be liable for any costs, expenses or damages incurred by the Defaulting Party. This Section 16 shall survive the termination of this Agreement.

16. Miscellaneous:

- (a) This Agreement shall be registered on title to the Dominant Lands and the 165 Lands as soon as reasonably possible following the execution and delivery of this Agreement.
- (b) In exercising their rights under this Agreement, each Party shall act reasonably and reasonably promptly in the circumstances, and in good faith.
- (c) No Party shall in any way or for any purpose be a partner of any other in the conduct of its business, or otherwise, or a joint venturer or a member of a joint enterprise with another Party by reason of the entry into of this Agreement or the performance of its obligations or enjoyment of its rights hereunder.
- (d) If and to the extent that any of the parties hereto shall be prevented or delayed by reason of Force Majeure in the performance of any obligation hereunder, it shall not be in default and the period for the fulfilment of such obligation shall be extended accordingly. For the purposes of this Agreement "**Force Majeure**" shall mean a delay resulting from an event or events the occurrence of which cannot be prevented by the exercise of reasonable best efforts by a Party, provided that the Party that purports to rely on the occurrence of a Force Majeure in excusing its failure to perform an obligation under this Agreement when required to do so has made reasonable best efforts in the circumstances to anticipate and minimize the adverse effect of the Force Majeure on the subject matter of this Agreement; without limiting the generality of the foregoing, "Force Majeure" includes delays resulting from strike, lock out, riots, insurrection, war, fire, tempest, flood, abnormal weather conditions, abnormal subsurface conditions, any other Act of God, shortage of material, but shall expressly exclude, without limitation, any delay caused by any economic matter;
- (e) Any notice to be given in connection with this Agreement shall be in writing and shall be given either by personal delivery, by registered prepaid post or by email addressed to the Transferee and Transferor in the address for service set out in the registration instrument of this Agreement on title, or such other municipal address, email address or individual as may be designated by notice by either Party to the other. Any communication given by personal delivery will be conclusively deemed to have been given on the day of actual delivery thereof or, if given by registered mail, on the fifth business day following the deposit thereof in the mail. If the Party giving any communication knows or ought reasonably to know of any difficulties with the postal system that might affect the delivery of mail, any such communication must not be mailed but must be given by personal delivery or by email. If given by email, the email will be deemed to have been given on the day of transmittal thereof if given during the normal business hours of the recipient and on

the business day during which normal business hours next occur if not given during such hours on any day.


- (f) Time shall be of the essence of this Agreement.
- (g) No waiver by any Party of any breach by any other Party of any of its covenants, obligations and agreements under this Agreement shall be a waiver of any subsequent breach or of any other covenant, obligation or agreement, nor shall any forbearance to seek a remedy for any breach be a waiver of any rights and remedies with respect to such or any subsequent breach.
- (h) If any covenant, obligation or agreement in this Agreement, or the application thereof to any person or circumstances shall, to any extent, be invalid or unenforceable, the remainder of this Agreement, or the application of such covenant, obligation or agreement to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each covenant, obligation and agreement in this Agreement shall be separately valid and enforceable to the fullest extent permitted.
- (i) The article and section headings in this Agreement have been inserted for convenience of reference only, and shall not be referred to in the interpretation of this Agreement. This Agreement shall be read with all changes of gender and number required by the context.
- (j) In this Agreement: (i) the words “including”, “includes” and “include” mean “including (or includes or include), without limitation”; (ii) the phrase “the total aggregate of”, “the total of” or a phrase of similar meaning means “the aggregate (or total), without duplication, of”; (iii) unless otherwise specified, the words “Article” and “Section” followed by a number mean and refer to the specified Article or Section of this Agreement; (iv) in the computation of periods of time from a specified date to a later specified date, unless otherwise expressly stated, the word “from” means “from and including” and the word “until” means “to and including”; (v) unless otherwise expressly stated, the phrase “sole discretion” means “sole, absolute and unfettered discretion” and will not be subject to any restriction, limitation, challenge or review of any kind whatsoever at any time by the other Party, any court or any other third party; (vi) except as otherwise provided in this Agreement any reference in this Agreement to a statute refers to such statute and all rules and regulations made under it, as it or they may have been or may from time to time be amended or re-enacted; and (vii) whenever payments are to be made, an action is to be taken on a day which is not a business day, then such payment shall be made, such action shall be taken and such date will be deemed to fall on the next succeeding business day.
- (k) This Agreement shall be construed and enforced in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein from time to time, and shall be treated in all respects as an Ontario agreement.
- (l) Each Party agrees to give such further assurances as may be reasonably required from time to time by any other Party to more fully implement the true intent of this Agreement.
- (m) This Agreement shall enure to the benefit of and be binding upon the parties hereto and their respective successors and assigns including successors in title from time to time of the Easement Lands and the Dominant Lands.

- (n) This Agreement may be executed in one or more counterparts, each of which so executed shall constitute an original and all of which together shall constitute one and the same agreement.

[SIGNATURE PAGE TO FOLLOW]

IN WITNESS WHEREOF, the parties hereto, intending to be legally bound by the terms hereof, have hereunto set their hands, as of the date first above written.

165 CROSS INC.


Per: 

Name: Emil Toma
Title: A.S.O.

Per: _____
Name:
Title:

I/We have the authority to bind the Corporation.

166 SOUTH SERVICE INC.

Per: 

Name: Emil Toma
Title: A.S.O.

Per: _____
Name:
Title:

I/We have the authority to bind the Corporation.

SCHEDULE A
165 LANDS

PIN 24816-0047 (LT)

PT LT 14, CON 3 TRAF SDS, PTS 1-6 20R5913 EXCEPT PTS 1-3 20R10193 S/T & T/W 589005. S/T
582527. T/W 755151; TOWN OF OAKVILLE

Municipal Address: 165 Cross Avenue, Oakville, Ontario

**SCHEDULE B
DOMINANT LANDS**

PIN 24816-0049 (LT)

PT LT 14, CON 3 TRAFALGAR, SOUTH OF DUNDAS STREET, AS IN 811940 EXCEPT PT 1
20R7001 ; OAKVILLE/TRAFALGAR

Municipal Address: 166 South Service Road East, Oakville, Ontario

**SCHEDULE C
EASEMENT LANDS**

PART OF PIN 24816-0047 (LT)

PT LT 14, CON 3 TRAF SDS, PTS 1-6 20R22099; TOWN OF OAKVILLE

APPENDIX 'I'

Memorandum



URBANTECH®

To: Sasha Lauzon
Senior Director of Planning & Development
Distrikt

Date: February 26, 2024

From: Kate Connell
Senior Project Manager
Urbantech Consulting

Project #: 22-282W

Re: Midtown Oakville Wastewater Capacity Analysis (Existing and Future Conditions)

This memo has been prepared by Urbantech to support on-going development applications for Distrikt properties in Midtown Oakville.

The sections that follow describe the capacity available in the Midtown wastewater pipe network, under both existing and future conditions, using a first-principles approach. The analysis was completed to:

- Confirm existing capacity constraints, prior to the Region's planned trunk sewer upgrades (on-going capital project).
- Evaluate capacity available in the future system (with trunk sewer upgrades complete), under a variety of development scenarios.
- Identify additional upgrades that may be required in the local sanitary system to support development.

Results of the analysis indicate that the future system will be able to accommodate all of the Distrikt developments (plus additional growth) with only minor upgrades to the local network.

1. Midtown Oakville Existing Wastewater System

Figure 1 shows the existing Midtown Oakville wastewater network. The main trunk sewer (West Trunk) that services Midtown Oakville (west of Trafalgar Road) also provides sanitary capacity for approximately 260 ha north of the QEW. This trunk sewer runs south along Argus Road, through the GO Station parking lot and along Trafalgar Road to Cornwall.

A second, smaller sub-trunk sewer (East Trunk) provides sanitary capacity for Midtown east of Trafalgar Road (as well as a small area west of Trafalgar Road, north of Cross Avenue). This sub-trunk runs west along Davis Road and south on Trafalgar to Cornwall.

The two trunk sewers combine south of Cornwall and drain to the Rebecca Trunk sewer, terminating at the Oakville Southwest Wastewater Treatment Plant.

The Region has noted existing capacity constraints in both the West Trunk and East Trunk. They have initiated a capital project to upgrade the sewer extents as shown in **Figure 1** (blue and orange). The Region intends to have the upgrades completed in the 2026 timeframe.

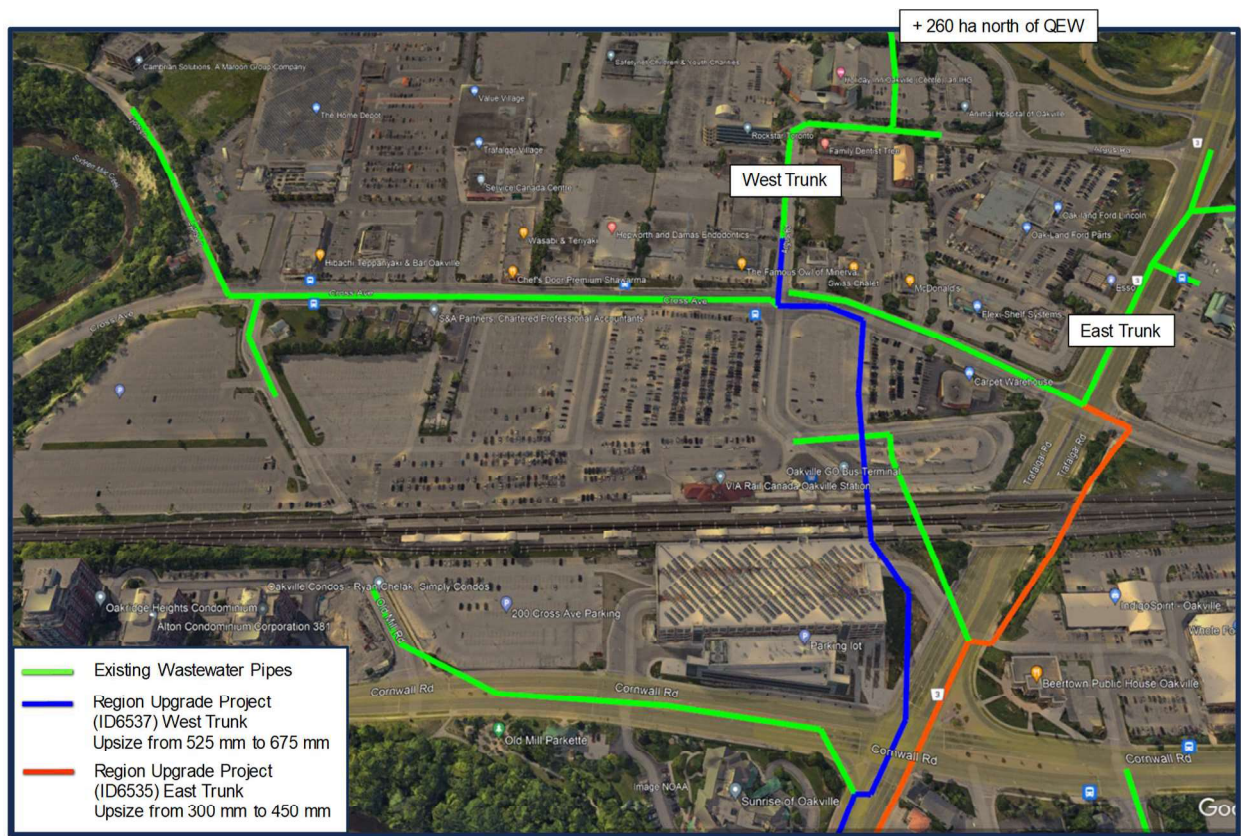


Figure 1: Midtown Oakville Wastewater Network (Existing)

2. Existing Wastewater Capacity Analysis

A first-principles wastewater analysis was undertaken to evaluate capacity in the existing sanitary network. This approach uses current land use, typical population densities and per-capita flow generation rates (in accordance with Region of Halton standards) to calculate pipe flow at the individual component level. This allows a pipe-by-pipe assessment of both trunk and local sewers.

Figure 2 shows the results of the existing conditions analysis for the Midtown sewer system. Lighter coloured pipes have more capacity and darker are more constrained. The limiting pipe segments for each trunk are identified. Results confirm an existing constraint in the West Trunk, through the GO Station parking lot. The East Trunk shows limited residual existing capacity.

Full details are available in **Attachment 1**, including associated drawings, drainage areas, key assumptions, and sanitary design sheets. It is noted that the West Trunk assessment includes calculations for the 260 ha north of the QEW which drain through Midtown. All flows are calculated using the Harmon peaking factor and inflow / infiltration in accordance with the Region’s Linear Design Manual (2019).

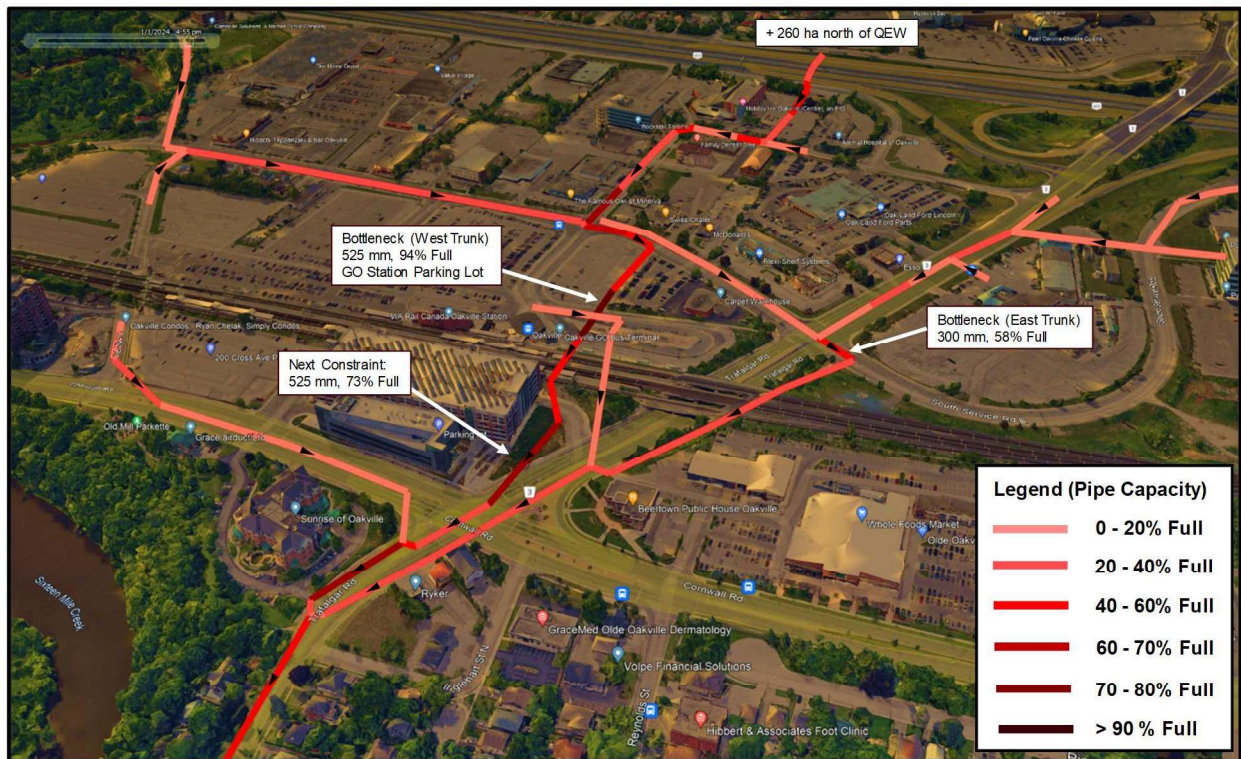


Figure 2: Midtown Oakville Existing Conditions – Pipe Capacity Analysis Results

3. Future Wastewater Capacity Analysis

The future wastewater capacity analysis for Midtown uses the same approach as outlined in Section 2 but augments the sanitary design sheet to upsize pipe components associated with the Region's upgrade project as shown in **Figure 1** (i.e., 525 mm updated to 675 mm, and 300 mm updated to 450 mm). The alignment and slopes of the existing pipe network are kept the same. These may change as the Region progresses their design, but minor changes are not anticipated to impact the results of this analysis.

Four (4) future scenarios were run to assess the impact of development on the Midtown Oakville wastewater system:

Scenario 1 (Base Case):

- Region trunk sewer upgrades complete.
- No new development added to the system (existing conditions).

Scenario 2A:

- Region trunk sewer upgrades complete.
- Population and employment projections for Distrikt planned developments added to the sewer network at appropriate nodes (all new wastewater flow directed to the West Trunk).

Scenario 2B:

- Region trunk sewer upgrades complete.
- Population and employment projections for Distrikt planned developments added to the sewer network at appropriate nodes (wastewater flow is split between the West and East Trunks)

Scenario 3:

- Region trunk sewer upgrades complete.
- Population and employment projections for all near-term development in Midtown Oakville (including Distrikt developments) added to the system at appropriate nodes. This includes 627 Lyons Lane, 349 Davis Road and 177 Cross Avenue.

Attachment 2 includes mapping, a summary of results, and detailed design sheets for the four (4) future scenarios. Population estimates for Distrikt developments are based on current engineering design (population and employment estimates) as provided by Trafalgar Engineering.

In general, results show that:

- The Region's planned trunk sewer upgrades resolve the existing capacity constraints in the Midtown system. The trunk sewer upgrades (as proposed) provide sufficient downstream capacity under all scenarios tested.
- The local 300 mm sanitary sewer on Cross Avenue (running east/west from Argus Road to Lyons Lane) has existing capacity to accommodate full build-out of Distrikt's 157/165 Cross Avenue site. Any additional development connecting to the Cross Avenue sewer will trigger an upsize from 300 mm to 450 mm diameter for a short section (approximately 140 m total, from Argus Road to 140 m west of Argus Road). The 450 mm diameter size is sufficient to support new growth under all scenarios tested (including Scenario 3 which adds 166 South Service Road, 627 Lyons Lane and 177 Cross Avenue future developments to the Cross Avenue local sewer).
- There are no other local capacity constraints in any of the future scenarios considered. Further infrastructure planning will be required to identify ultimate (i.e., 2041, 2051) servicing needs. The analysis herein, however, confirms that the system can support near-term development (currently in the pipeline) with only minor modifications.

4. Conclusions

The wastewater system in Midtown Oakville provides opportunities for near-term development. The first-principles analysis of system capacity shows that:

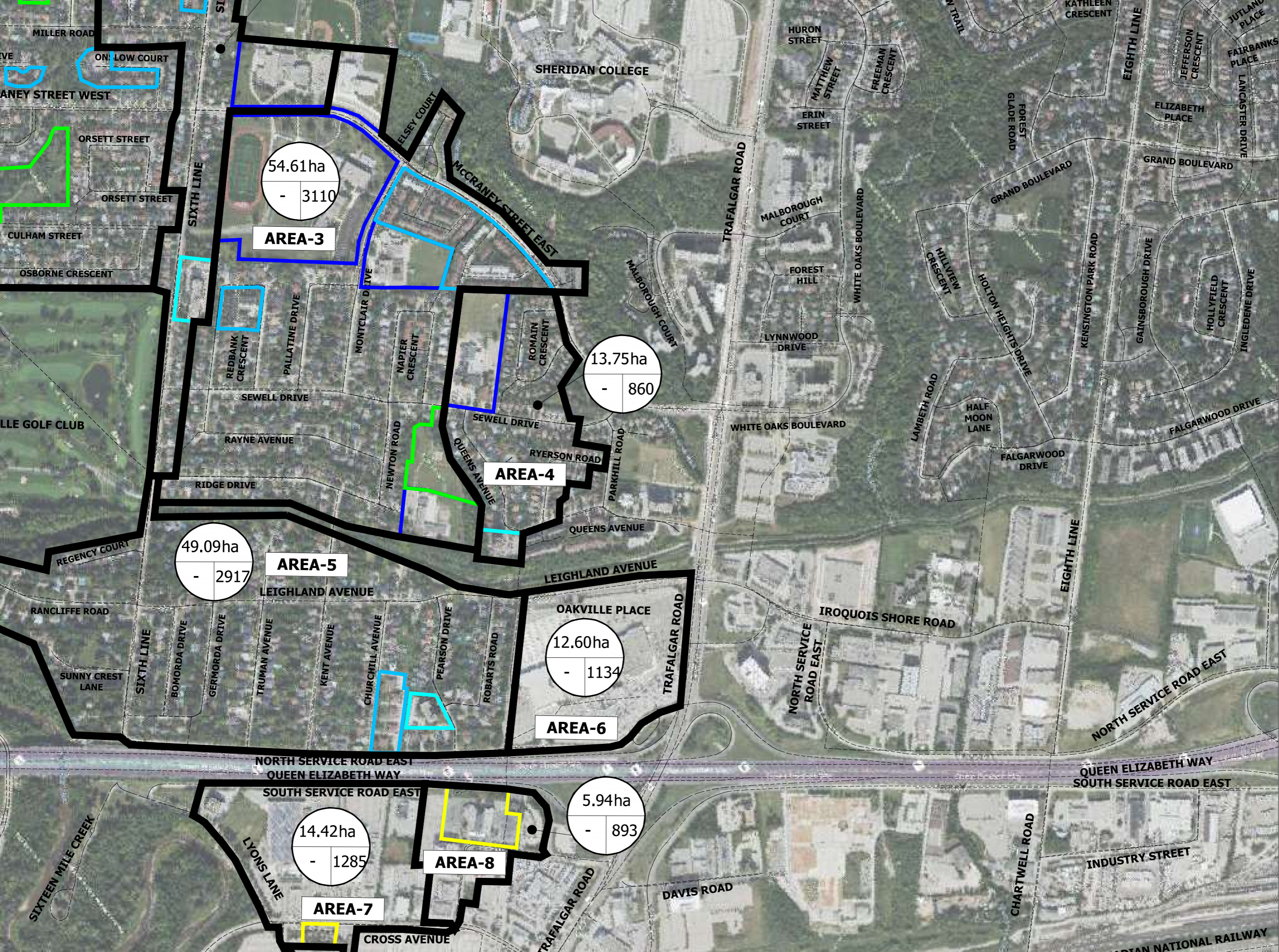
- The Region's planned trunk sewer upgrades alleviate the existing capacity constraints in the trunk sewer system.
- Once the trunk sewers are upgraded, there is capacity in the West Trunk and East Trunk to support all development currently in the pipeline (including all Distrikt developments), with spare capacity for other landowners.
- The local sanitary system has sufficient capacity to accommodate all near-term growth, with the exception of a short (140 m) section of the existing Cross Avenue sewer (from Argus Road to 140 m west of Argus Road). This sewer can accommodate full build-out of the 157/165 Cross Avenue site but would need to be upgraded from a 300 mm diameter sewer to a 450 mm diameter sewer to facilitate additional development.

Report Prepared By:



Kate Connell, P.Eng.
Senior Project Manager
Urbantech

ATTACHMENT 1:
Existing System Capacity Analysis



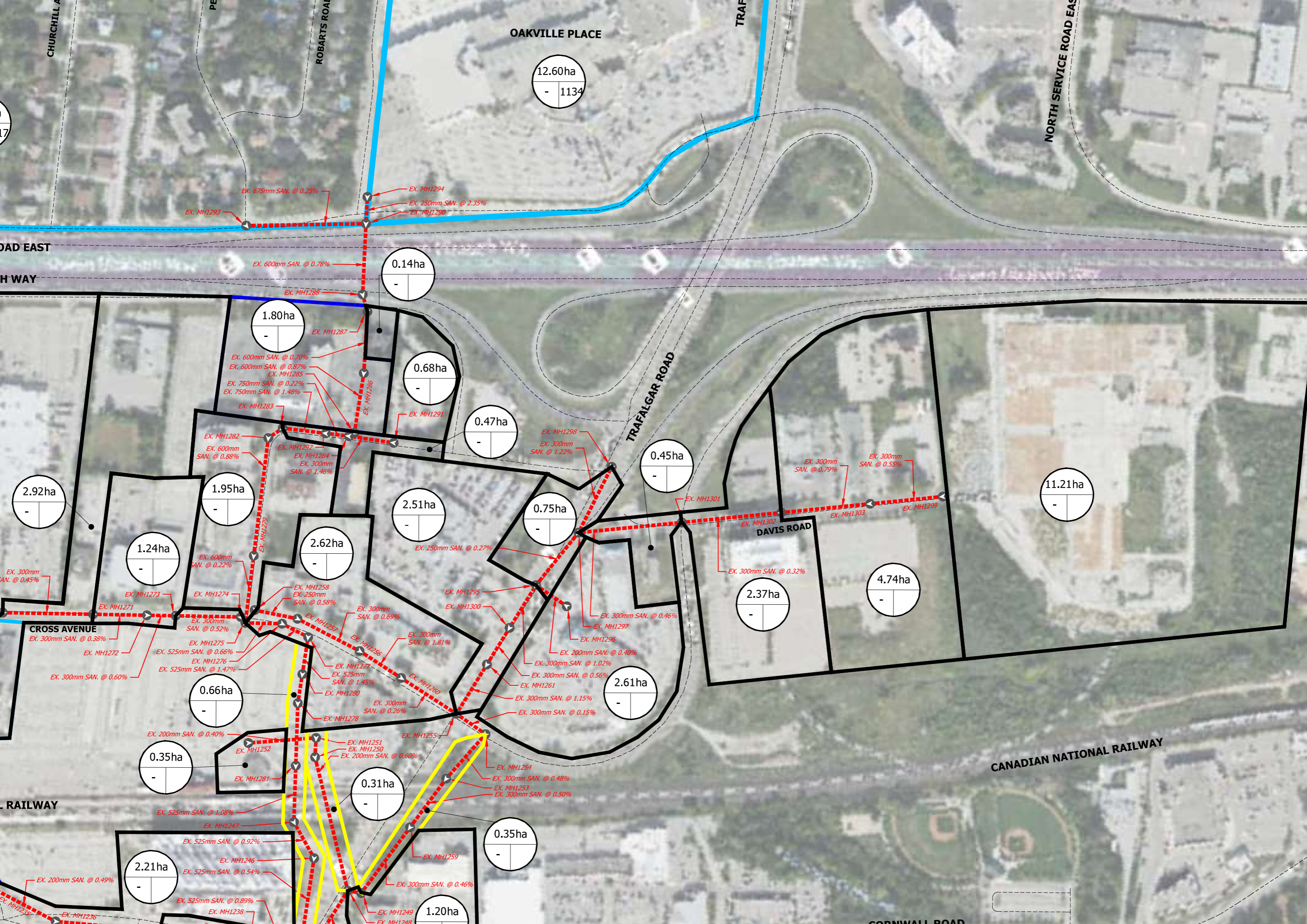
AREA-4
COMMERCIAL
SCHOOL
PARK
HIGHRISE
TOWNHOUSE
SINGLE FAMILY
TOTAL

AREA-5
COMMERCIAL
SCHOOL
PARK
HIGHRISE
TOWNHOUSE
SINGLE FAMILY
TOTAL

AREA-6
COMMERCIAL
SCHOOL
PARK
HIGHRISE
TOWNHOUSE
SINGLE FAMILY
TOTAL

AREA-7
COMMERCIAL
SCHOOL
PARK
HIGHRISE
TOWNHOUSE
SINGLE FAMILY
TOTAL

AREA-8
COMMERCIAL
SCHOOL
PARK
HIGHRISE
TOWNHOUSE
SINGLE FAMILY
TOTAL



12.60ha
- 1134

0.14ha
-

1.80ha
-

0.68ha
-

0.47ha
-

0.45ha
-

11.21ha
-

2.92ha
-

1.95ha
-

2.51ha
-

0.75ha
-

2.37ha
-

4.74ha
-

1.24ha
-

2.62ha
-

2.61ha
-

0.66ha
-

0.35ha
-

0.31ha
-

0.35ha
-

2.21ha
-

1.20ha
-

EX. 675mm SAN. @ 0.25%

EX. MH1294

EX. 250mm SAN. @ 2.35%

EX. MH1290

EX. MH1293

EX. 600mm SAN. @ 0.78%

0.14ha

EX. MH1288

EX. MH1287

EX. 600mm SAN. @ 0.70%

EX. 600mm SAN. @ 0.87%

EX. MH1285

EX. 750mm SAN. @ 0.22%

EX. 750mm SAN. @ 1.48%

EX. MH1283

EX. MH1282

EX. 600mm SAN. @ 0.88%

EX. MH1292

EX. MH1284

EX. 300mm SAN. @ 1.46%

EX. MH1286

0.68ha

EX. MH1291

EX. MH1298

EX. 300mm SAN. @ 1.22%

EX. 300mm SAN. @ 0.79%

EX. 300mm SAN. @ 0.55%

EX. 300mm SAN. @ 0.45%

EX. MH1273

EX. MH1274

EX. 600mm SAN. @ 0.22%

EX. MH1272

EX. 300mm SAN. @ 0.52%

EX. MH1275

EX. 525mm SAN. @ 0.66%

EX. MH1276

EX. 525mm SAN. @ 1.47%

EX. MH1277

EX. 525mm SAN. @ 1.45%

EX. MH1278

EX. 300mm SAN. @ 0.26%

EX. MH1279

EX. 200mm SAN. @ 0.40%

EX. MH1280

EX. 300mm SAN. @ 0.60%

EX. MH1281

EX. 200mm SAN. @ 0.40%

EX. MH1282

EX. 525mm SAN. @ 1.08%

EX. MH1283

EX. 525mm SAN. @ 0.92%

EX. MH1284

EX. 525mm SAN. @ 0.54%

EX. MH1285

EX. 525mm SAN. @ 0.89%

EX. MH1286

EX. 525mm SAN. @ 0.89%

EX. MH1287

EX. 200mm SAN. @ 0.49%

EX. MH1288

EX. MH1258

EX. 250mm SAN. @ 0.58%

EX. MH1259

EX. 300mm SAN. @ 0.69%

EX. MH1260

EX. 300mm SAN. @ 1.81%

EX. MH1261

EX. 200mm SAN. @ 0.40%

EX. MH1262

EX. 300mm SAN. @ 1.02%

EX. MH1263

EX. 300mm SAN. @ 0.56%

EX. MH1264

EX. 300mm SAN. @ 1.15%

EX. MH1265

EX. 300mm SAN. @ 0.15%

EX. MH1266

EX. 300mm SAN. @ 0.26%

EX. MH1267

EX. 200mm SAN. @ 0.60%

EX. MH1268

EX. 300mm SAN. @ 0.48%

EX. MH1269

EX. 300mm SAN. @ 0.50%

EX. MH1270

EX. 250mm SAN. @ 0.27%

EX. MH1295

EX. MH1300

EX. 300mm SAN. @ 0.46%

EX. MH1297

EX. 300mm SAN. @ 0.46%

EX. MH1298

EX. 300mm SAN. @ 0.46%

EX. MH1299

EX. 300mm SAN. @ 0.32%

EX. MH1301

EX. 300mm SAN. @ 0.79%

EX. MH1302

EX. 300mm SAN. @ 0.55%

EX. MH1303

EX. 300mm SAN. @ 0.48%

EX. MH1304

EX. 300mm SAN. @ 0.50%

EX. MH1305

EX. 300mm SAN. @ 0.46%

EX. MH1306

EX. 300mm SAN. @ 0.46%

EX. MH1307

EX. 300mm SAN. @ 0.46%

EX. MH1308

EX. 300mm SAN. @ 0.46%

EX. MH1309

EX. 300mm SAN. @ 0.46%

EX. 300mm SAN. @ 0.32%

EX. MH1301

EX. 300mm SAN. @ 0.79%

EX. MH1302

EX. 300mm SAN. @ 0.55%

EX. MH1303

EX. 300mm SAN. @ 0.48%

EX. MH1304

EX. 300mm SAN. @ 0.50%

EX. MH1305

EX. 300mm SAN. @ 0.46%

EX. MH1306

EX. 300mm SAN. @ 0.46%

EX. MH1307

EX. 300mm SAN. @ 0.46%

EX. MH1308

EX. 300mm SAN. @ 0.46%

EX. MH1309

EX. 300mm SAN. @ 0.46%

EX. MH1310

EX. 300mm SAN. @ 0.46%

EX. MH1311

EX. 300mm SAN. @ 0.46%

EX. MH1312

EX. 300mm SAN. @ 0.46%

EX. MH1313

EX. 300mm SAN. @ 0.32%

EX. MH1301

EX. 300mm SAN. @ 0.79%

EX. MH1302

EX. 300mm SAN. @ 0.55%

EX. MH1303

EX. 300mm SAN. @ 0.48%

EX. MH1304

EX. 300mm SAN. @ 0.50%

EX. MH1305

EX. 300mm SAN. @ 0.46%

EX. MH1306

EX. 300mm SAN. @ 0.46%

EX. MH1307

EX. 300mm SAN. @ 0.46%

EX. MH1308

EX. 300mm SAN. @ 0.46%

EX. MH1309

EX. 300mm SAN. @ 0.46%

EX. MH1310

EX. 300mm SAN. @ 0.46%

EX. MH1311

EX. 300mm SAN. @ 0.46%

EX. MH1312

EX. 300mm SAN. @ 0.46%

EX. MH1313

CANADIAN NATIONAL RAILWAY

DAD EAST
H WAY

CROSS AVENUE

RAILWAY

CORNWALL ROAD

OAKVILLE PLACE

TRAFALGAR ROAD

DAVIS ROAD

NORTH SERVICE ROAD EAST

CHURCHILL

ROBERTS ROAD

TRAF

SANITARY SEWER DESIGN SHEET (EXISTING)

Midtown - Existing Conditions

TOWN OF OAKVILLE

REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS

Project No: 22-282
Date: 12-Jan-24
Designed by: J.P.O
Checked by: KC

DESIGN CRITERIA

Min Diameter = 200 mm Avg. Domestic Flow = 275.0 l/c/d
Mannings 'n' = 0.013 Infiltration = 0.286 l/s/ha
Min. Velocity = 0.60 m/s Max. Peaking Factor = 4.00
Max. Velocity = 3.00 m/s Min. Peaking Factor = 2.00

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	LENGTH (m)	RESIDENTIAL						COMMERCIAL/INDUSTRIAL/INSTITUTIONAL						FLOW CALCULATIONS						PIPE DATA														
				AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/Unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (P/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	INFILTRATION (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	RES. FLOW (l/s)	COMM. FLOW (l/s)	ACCUM. COMM. FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)							
	MH1241	MH1242			259.14										15739		26.51						2391	81.7	18130	2.70	155.5			237.2	1.02	600	620.1	2.19	1.97	38%
	MH1298	MH1297										0.75	0.75	90			68	68	0.2	68	4.00	0.9			1.1	1.22	300	106.8	1.51	0.39	1%					
	MH1299	MH1303										4.74	4.74	90			427	427	1.4	427	4.00	5.4			6.8	0.55	300	71.7	1.01	0.63	9%					
	MH1303	MH1302										4.74	4.74	90			427	427	1.4	427	4.00	5.4			6.8	0.79	300	85.9	1.22	0.72	8%					
	MH1302	MH1301										2.37	7.11	90			214	641	2.0	641	3.92	8.0			10.0	0.32	300	54.7	0.77	0.58	18%					
	MH1301	MH1297										0.45	7.56	90			41	682	2.2	682	3.90	8.5			10.6	0.46	300	65.6	0.93	0.68	16%					
	MH1297	MH1295											8.31				750	2.4	750	3.88	9.3			11.6	0.27	250	30.9	0.63	0.57	38%						
	MH1296	MH1295										2.61	2.61	90			235	235	0.7	235	4.00	3.0			3.7	0.40	200	20.7	0.66	0.50	18%					
	MH1295	MH1300										2.51	13.43	90			226	1211	3.8	1211	3.74	14.4			18.3	1.02	300	97.7	1.38	1.05	19%					
	MH1300	MH1261											13.43				1211	3.8	1211	3.74	14.4			18.3	0.56	300	72.4	1.02	0.83	25%						
	MH1261	MH1255											13.43				1211	3.8	1211	3.74	14.4			18.3	1.15	300	103.7	1.47	1.10	18%						
	MH1258	MH1257										2.62	2.62	90			236	236	0.7	236	4.00	3.0			3.8	0.58	250	45.3	0.92	0.54	8%					
	MH1257	MH1256											2.62				236	0.7	236	4.00	3.0			3.8	0.69	300	80.3	1.14	0.56	5%						
	MH1256	MH1260											2.62				236	0.7	236	4.00	3.0			3.8	1.81	300	130.1	1.84	0.77	3%						
	MH1260	MH1255											2.62				236	0.7	236	4.00	3.0			3.8	0.26	300	49.3	0.70	0.41	8%						
	MH1255	MH1254											16.05				1447	4.6	1447	3.69	17.0			21.6	0.15	300	37.5	0.53	0.54	58%						
	MH1254	MH1253										0.35	16.40	90			32	1479	4.7	1479	3.68	17.3			22.0	0.48	300	67.0	0.95	0.82	33%					
	MH1253	MH1259											16.40				1479	4.7	1479	3.68	17.3			22.0	0.50	300	68.4	0.97	0.84	32%						
	MH1259	MH1249										1.20	17.60	90			108	1587	5.0	1587	3.66	18.5			23.5	0.46	300	65.6	0.93	0.84	36%					
	MH1249	MH1248											17.60				1587	5.0	1587	3.66	18.5			23.5	0.53	300	70.4	1.00	0.87	33%						
	MH1252	MH1251										0.35	0.35	90			32	32	0.1	32	4.00	0.4			0.5	0.40	200	20.7	0.66	0.26	2%					
	MH1251	MH1250										0.31	0.66	90			28	60	0.2	60	4.00	0.8			1.0	2.56	200	52.5	1.67	0.58	2%					
	MH1250	MH1248											0.66				60	0.2	60	4.00	0.8			1.0	0.60	200	25.4	0.81	0.36	4%						
	MH1248	MH1244											18.26				1647	5.2	1647	3.65	19.1			24.4	0.62	300	76.1	1.08	0.94	32%						
	MH1244	MH1243											18.26				1647	5.2	1647	3.65	19.1			24.4	0.44	300	64.1	0.91	0.82	38%						
	MH1243	MH1242											18.26				1647	5.2	1647	3.65	19.1			24.4	2.39	300	149.5	2.11	1.54	16%						
	MH1242	MHX			259.14								44.77				4038	86.9	19777	2.66	167.3			254.2	0.64	600	491.2	1.74	1.72	52%						

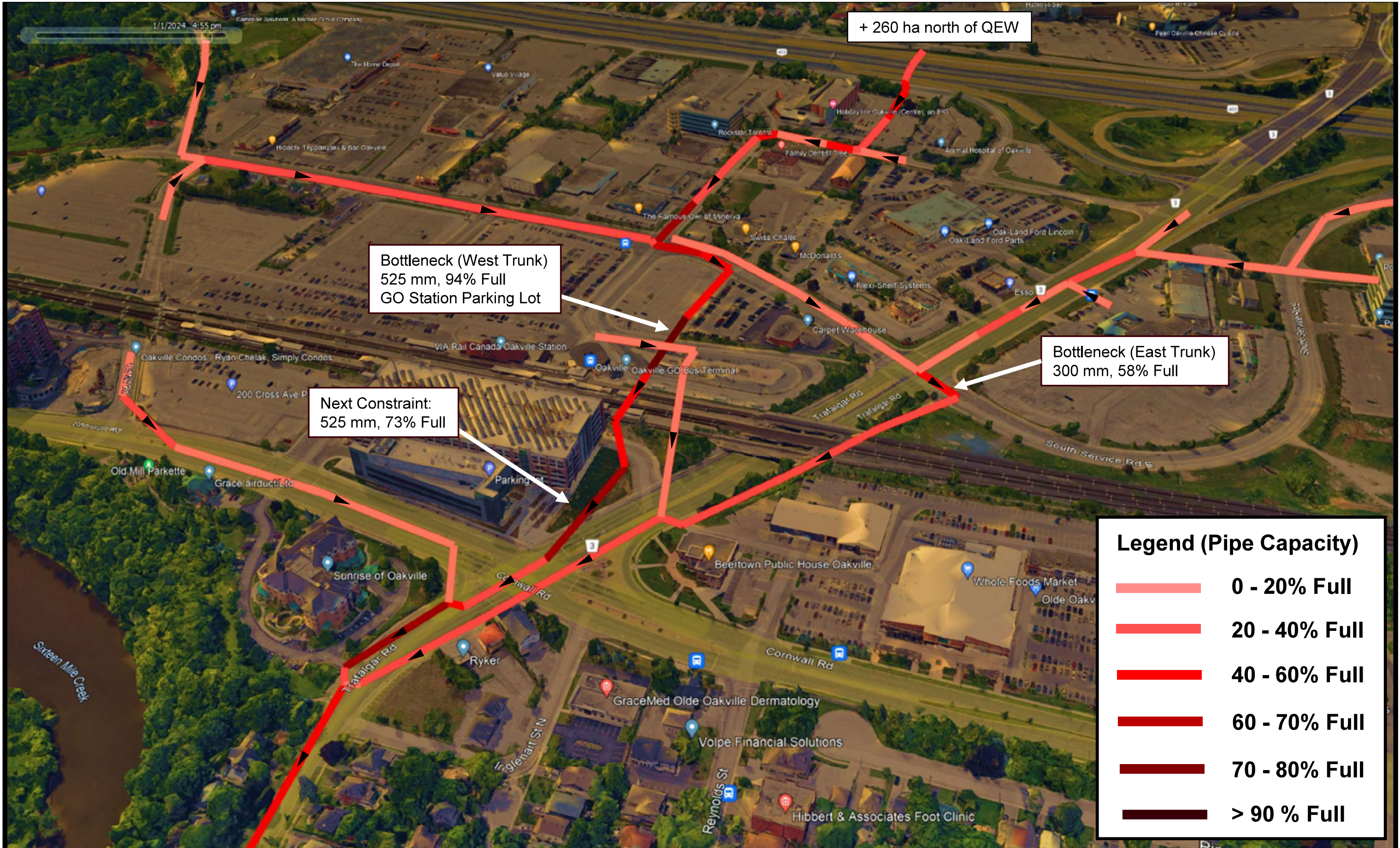
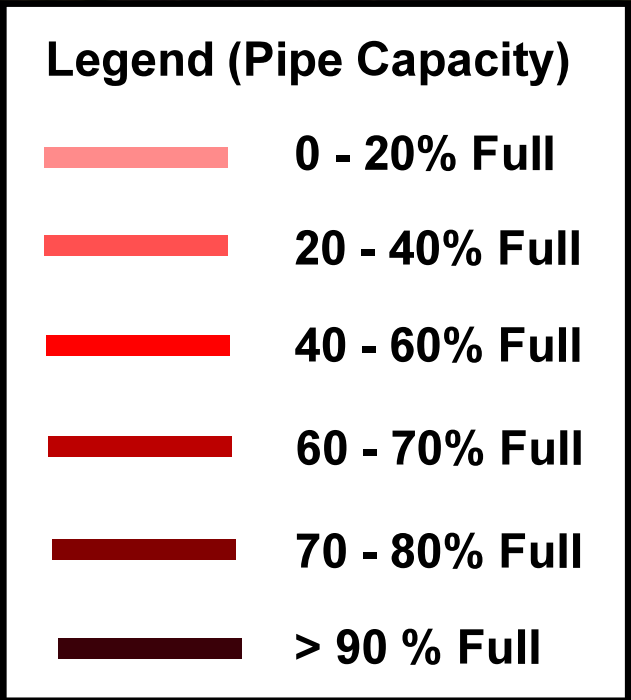
1/1/2024 4:55 pm

+ 260 ha north of QEW

Bottleneck (West Trunk)
525 mm, 94% Full
GO Station Parking Lot

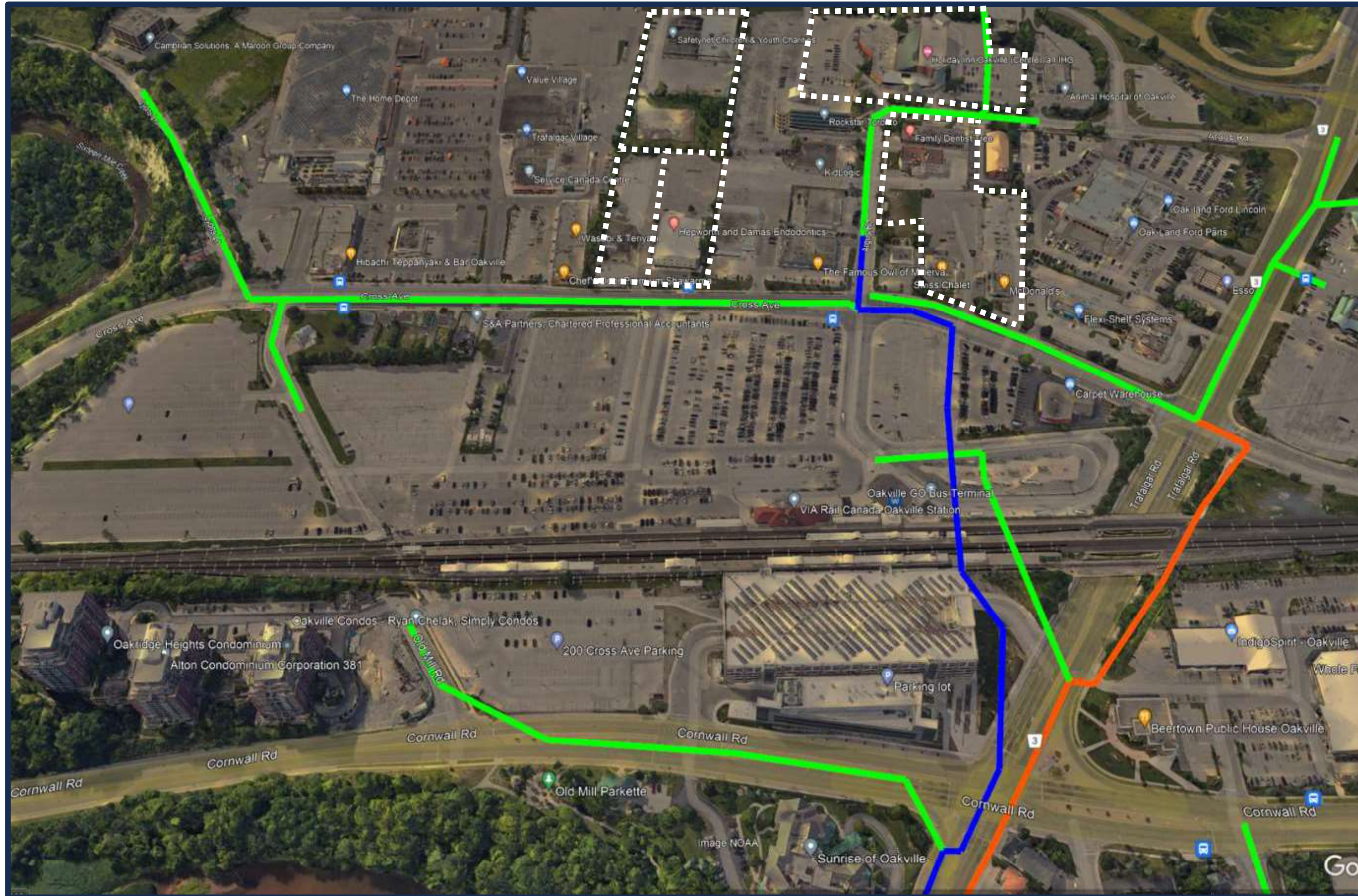
Next Constraint:
525 mm, 73% Full

Bottleneck (East Trunk)
300 mm, 58% Full



ATTACHMENT 2:
Future System Capacity Analysis

Scenario 1: Trunk Sewer Upgrades Complete, No New Development



- Distrikt Developments
- Existing Wastewater Pipes
- Region Upgrade Project (ID6537) West Trunk
Upsize from 525 mm to 675 mm
- Region Upgrade Project (ID6535) East Trunk
Upsize from 300 mm to 450 mm

Results:

Existing system bottlenecks within the Midtown Area are resolved with planned sewer upgrades.

No sewer component exceeds 55% full (this assumes existing conditions – no new development).

SANITARY SEWER DESIGN SHEET (Midtown)

SCENARIO 1

TOWN OF OAKVILLE

REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS

Project No: 22-282

Date: 25-Feb-24

Designed by: J.P.O

Checked by: K.C

DESIGN CRITERIA

Min Diameter = 200 mm

Mannings 'n' = 0.013

Min. Velocity = 0.60 m/s

Max. Velocity = 3.00 m/s

Avg. Domestic Flow = 275.0 l/c/d

Infiltration = 0.286 l/s/ha

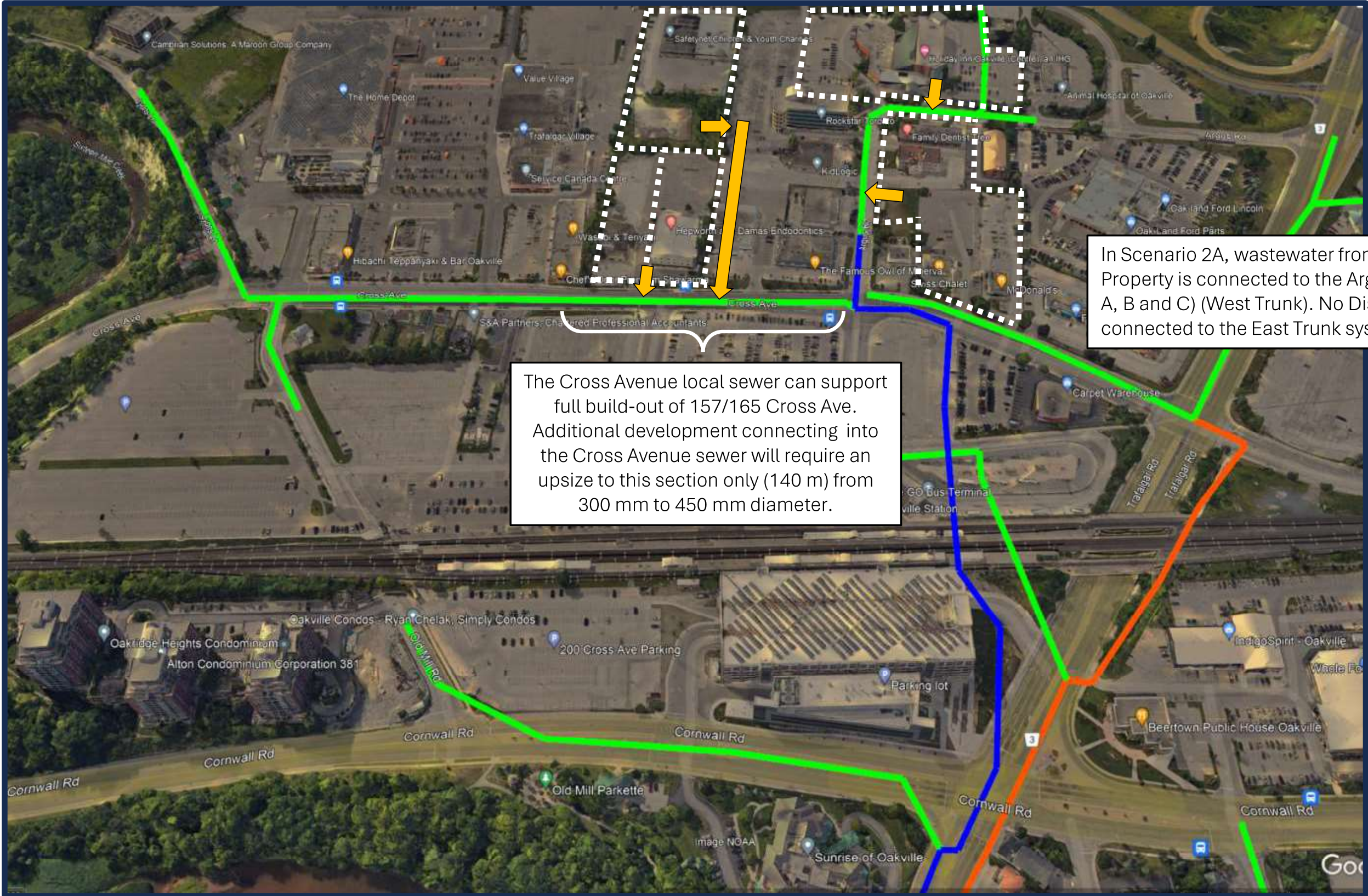
Max. Peaking Factor = 4.00

Min. Peaking Factor = 2.00

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	LENGTH (m)	RESIDENTIAL						COMMERCIAL / INDUSTRIAL / INSTITUTIONAL						FLOW CALCULATIONS						PIPE DATA									
				AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/Unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (P/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	INFILTRATION (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	RES. FLOW (l/s)	COMM. FLOW (l/s)	ACCUM. COMM. FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)		
	MH1241	MH1242			259.14							15739		26.51				2391	81.7	18130	2.70	155.5			237.2	1.02	675	849.0	2.37	2.02	28%
	MH1298	MH1297											0.75	0.75	90		68	68	0.2	68	4.00	0.9			1.1	1.22	300	106.8	1.51	0.39	1%
	MH1299	MH1303											4.74	4.74	90		427	427	1.4	427	4.00	5.4			6.8	0.55	300	71.7	1.01	0.63	9%
	MH1303	MH1302											4.74	4.74	90		427	427	1.4	427	4.00	5.4			6.8	0.79	300	85.9	1.22	0.72	8%
	MH1302	MH1301											2.37	7.11	90		214	641	2.0	641	3.92	8.0			10.0	0.32	300	54.7	0.77	0.58	18%
	MH1301	MH1297											0.45	7.56	90		41	682	2.2	682	3.90	8.5			10.6	0.46	300	65.6	0.93	0.68	16%
	MH1297	MH1295												8.31			750	750	2.4	750	3.88	9.3			11.6	0.27	250	30.9	0.63	0.57	38%
	MH1296	MH1295											2.61	2.61	90		235	235	0.7	235	4.00	3.0			3.7	0.40	200	20.7	0.66	0.50	18%
	MH1295	MH1300											2.51	13.43	90		226	1211	3.8	1211	3.74	14.4			18.3	1.02	300	97.7	1.38	1.05	19%
	MH1300	MH1261												13.43			1211	1211	3.8	1211	3.74	14.4			18.3	0.56	300	72.4	1.02	0.83	25%
	MH1261	MH1255												13.43			1211	1211	3.8	1211	3.74	14.4			18.3	1.15	300	103.7	1.47	1.10	18%
	MH1258	MH1257											2.62	2.62	90		236	236	0.7	236	4.00	3.0			3.8	0.58	250	45.3	0.92	0.54	8%
	MH1257	MH1256												2.62			236	236	0.7	236	4.00	3.0			3.8	0.69	300	80.3	1.14	0.56	5%
	MH1256	MH1260												2.62			236	236	0.7	236	4.00	3.0			3.8	1.81	300	130.1	1.84	0.77	3%
	MH1260	MH1255												2.62			236	236	0.7	236	4.00	3.0			3.8	0.26	300	49.3	0.70	0.41	8%
	MH1255	MH1254												16.05			1447	1447	4.6	1447	3.69	17.0			21.6	0.15	450	110.4	0.69	0.53	20%
	MH1254	MH1253											0.35	16.40	90		32	1479	4.7	1479	3.68	17.3			22.0	0.48	450	197.5	1.24	0.82	11%
	MH1253	MH1259												16.40			1479	1479	4.7	1479	3.68	17.3			22.0	0.50	450	201.6	1.27	0.84	11%
	MH1259	MH1249											1.20	17.60	90		108	1587	5.0	1587	3.66	18.5			23.5	0.46	450	193.4	1.22	0.81	12%
	MH1249	MH1248												17.60			1587	1587	5.0	1587	3.66	18.5			23.5	0.53	450	207.6	1.31	0.86	11%
	MH1252	MH1251											0.35	0.35	90		32	32	0.1	32	4.00	0.4			0.5	0.40	200	20.7	0.66	0.26	2%
	MH1251	MH1250											0.31	0.66	90		28	60	0.2	60	4.00	0.8			1.0	2.56	200	52.5	1.67	0.58	2%
	MH1250	MH1248												0.66			60	60	0.2	60	4.00	0.8			1.0	0.60	200	25.4	0.81	0.36	4%
	MH1248	MH1244												18.26			1647	1647	5.2	1647	3.65	19.1			24.4	0.62	450	224.5	1.41	0.93	11%
	MH1244	MH1243												18.26			1647	1647	5.2	1647	3.65	19.1			24.4	0.44	450	189.1	1.19	0.82	13%
	MH1243	MH1242												18.26			1647	1647	5.2	1647	3.65	19.1			24.4	2.39	450	440.8	2.77	1.50	6%
	MH1242	MHX			259.14							15739		44.77			4038	86.9	19777	2.66	167.3			254.2	0.64	675	672.5	1.88	1.69	38%	

Scenario 2A: Trunk Sewer Upgrades Complete, All Distrikt Developments Connected (Option 1)



- Distrikt Developments
- Existing Wastewater Pipes
- Region Upgrade Project (ID6537) West Trunk
Upsize from 525 mm to 675 mm
- Region Upgrade Project (ID6535) East Trunk
Upsize from 300 mm to 450 mm

In Scenario 2A, wastewater from the 587 Argus Property is connected to the Argus Road sewer (Tower A, B and C) (West Trunk). No Distrikt developments are connected to the East Trunk system.

The Cross Avenue local sewer can support full build-out of 157/165 Cross Ave. Additional development connecting into the Cross Avenue sewer will require an upsize to this section only (140 m) from 300 mm to 450 mm diameter.

Results:

In this Scenario, all Distrikt developments connect to the GO Station Trunk system (West Trunk). Once the trunk sewer is upgraded to 675 mm in diameter, there are no capacity constraints identified, except for the existing local 300 mm pipe on Cross Ave (west of Argus, as noted).

Excluding the 300 mm pipe, no sewer component exceeds 72% full.



SANITARY SEWER DESIGN SHEET (Midtown)

SCENARIO 2A

TOWN OF OAKVILLE

REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS

Project No: 22-282
 Date: 25-Feb-24
 Designed by: J.P.O
 Checked by: K.C

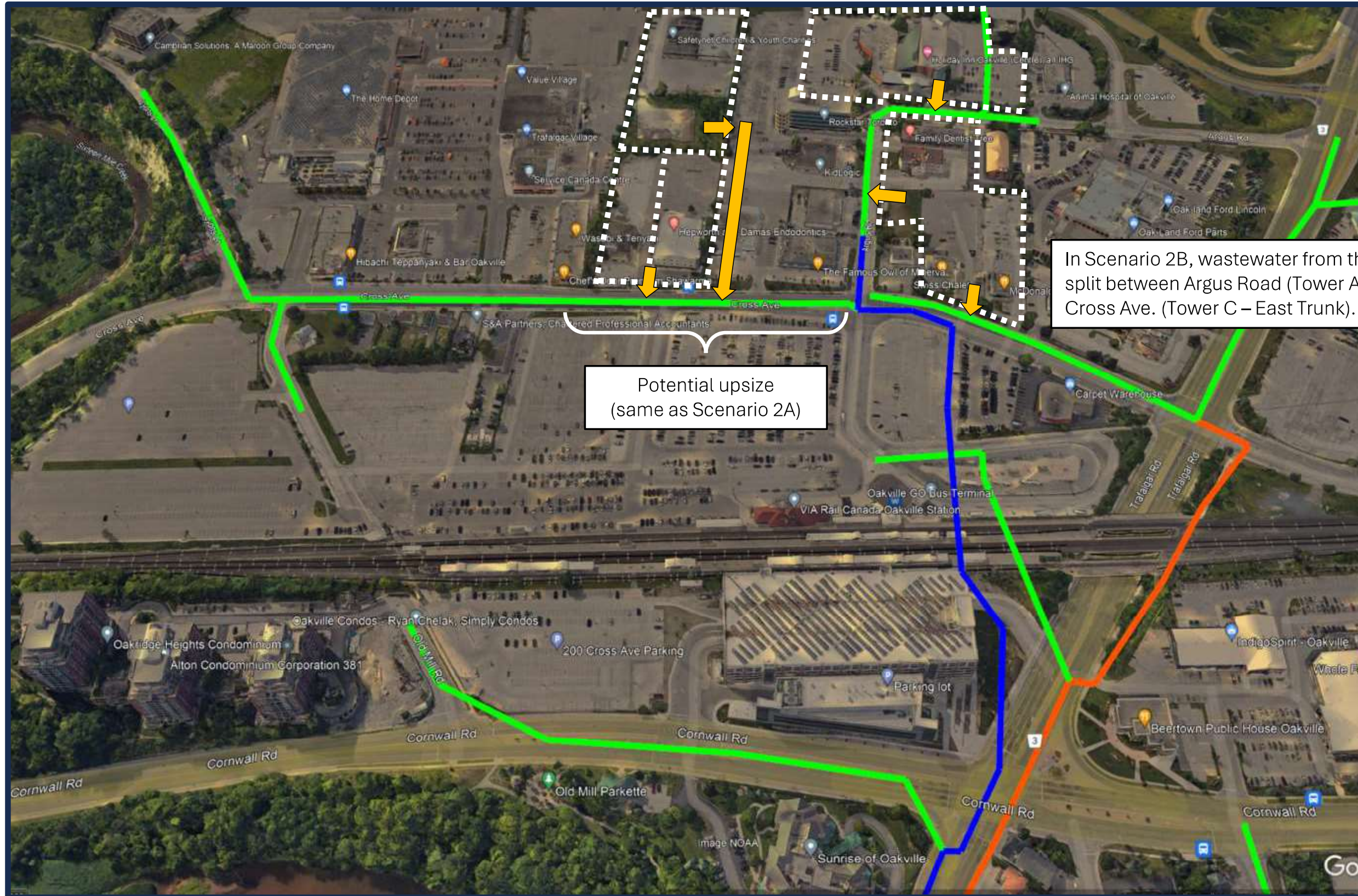
DESIGN CRITERIA

Min Diameter = 200 mm Avg. Domestic Flow = 275.0 l/c/d
 Mannings 'n' = 0.013 Infiltration = 0.286 l/s/ha
 Min. Velocity = 0.60 m/s Max. Peaking Factor = 4.00
 Max. Velocity = 3.00 m/s Min. Peaking Factor = 2.00

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	LENGTH (m)	RESIDENTIAL					COMMERCIAL / INDUSTRIAL / INSTITUTIONAL					FLOW CALCULATIONS					PIPE DATA												
				AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/Unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (P/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	INFILTRATION (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	RES. FLOW (l/s)	COMM. FLOW (l/s)	ACCUM. COMM. FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)		
Area-1	Area-1	Area-2		99.09	99.09						5352	5352						28.3	5352	3.22	54.8			83.1		200					
Area-2	Area-2	Area-3		30.00	129.09						2366	7718						36.9	7718	3.07	75.3			112.2		200					
Area-4	Area-4	Area-3		13.75	13.75						860	860						3.9	860	3.84	10.5			14.4		200					
Area-3	Area-3	MH1293		54.61	197.45						3110	11688						56.5	11688	2.89	107.4			163.9		200					
Area-5	MH1293	MH1290		49.09	246.54						2917	14605						70.5	14605	2.79	129.7			200.2	0.25	675	420.3	1.17	1.13	48%	
Area-6	MH1294	MH1290		12.60	12.60						1134	1134						3.6	1134	3.76	13.6			17.2	2.35	250	91.2	1.86	1.41	19%	
	MH1290	MH1288			259.14							15739						74.1	15739	2.76	138.1			212.2	0.78	600	542.3	1.92	1.73	39%	
	MH1288	MH1287			259.14							15739	0.14	0.14	90	13	13	74.2	15752	2.76	138.2			212.4	0.58	600	467.6	1.65	1.59	45%	
	MH1287	MH1286			259.14							19178	1.80	1.94	90	162	175	74.7	19353	2.67	164.3			238.9	0.70	600	513.7	1.82	1.74	47%	
	MH1286	MH1285			259.14							19178		1.94			175	74.7	19353	2.67	164.3			238.9	0.87	600	572.7	2.03	1.88	42%	
	MH1285	MH1284			259.14							19178		1.94			175	74.7	19353	2.67	164.3			238.9	0.85	600	566.1	2.00	1.86	42%	
	MH1291	MH1284										1.15	1.15	90	104	104	0.3	104	4.00	1.3			1.7	1.46	300	116.8	1.65	0.51	1%		
	MH1284	MH1292			259.14							19178		3.09			279	75.0	19457	2.66	165.0			240.0	0.22	750	522.2	1.18	1.13	46%	
	MH1292	MH1283			259.14							19178		3.09			279	75.0	19457	2.66	165.0			240.0	1.48	750	1354.4	3.07	2.30	18%	
	MH1283	MH1282			259.14							22835	1.95	5.04	90	176	455	75.6	23290	2.59	191.7			267.3	0.77	600	538.8	1.91	1.89	50%	
	MH1282	MH1279			259.14							22835		5.04			455	75.6	23290	2.59	191.7			267.3	0.88	600	576.0	2.04	1.96	46%	
	MH1279	MH1275			259.14							22835		5.04			455	75.6	23290	2.59	191.7			267.3	0.22	675	394.3	1.10	1.16	68%	
	MH1262	MH1263										1.74	1.74	90	157	157	0.5	157	4.00	2.0			2.5	0.85	250	54.8	1.12	0.55	5%		
	MH1263	MH1265										1.74	1.74				0.5	157	4.00	2.0			2.5	0.26	250	30.3	0.62	0.36	8%		
	MH1265	MH1264										0.50	2.24	90	45	202	0.6	202	4.00	2.6			3.2	1.00	250	59.5	1.21	0.63	5%		
	MH1264	MH1266											2.24			202	0.6	202	4.00	2.6			3.2	0.56	300	72.4	1.02	0.50	4%		
	MH1266	MH1267											2.24			202	0.6	202	4.00	2.6			3.2	0.58	300	73.6	1.04	0.51	4%		
	MH1269	MH1268										0.30	0.30	90	27	27	0.1	27	4.00	0.3			0.4	0.44	300	64.1	0.91	0.24	1%		
	MH1268	MH1267											0.30			27	0.1	27	4.00	0.3			0.4	0.36	250	35.7	0.73	0.19	1%		
	MH1267	MH1270										8.74	11.28	90	787	1016	3.2	1016	3.80	12.3			15.5	0.37	300	58.8	0.83	0.69	26%		
	MH1270	MH1271										3540	2.92	14.20	90	263	1279	4.1	4819	3.26	50.0			54.1	0.45	300	64.9	0.92	1.01	83%	
	MH1271	MH1272										2716	1.24	15.44	90	112	1391	4.4	7647	3.07	74.7			79.1	0.38	300	59.6	0.84	0.96	133%	
	MH1272	MH1273										6256		15.44			1391	4.4	7647	3.07	74.7			79.1	0.60	300	74.9	1.06	1.21	106%	
	MH1273	MH1274										6256		15.44			1391	4.4	7647	3.07	74.7			79.1	0.52	300	69.7	0.99	1.12	113%	
	MH1274	MH1275										6256		15.44			1391	4.4	7647	3.07	74.7			79.1	0.85	300	89.2	1.26	1.40	89%	
	MH1275	MH1276			259.14							29091		20.48			1846	80.0	30937	2.46	242.6			322.6	0.66	675	682.9	1.91	1.83	47%	
	MH1276	MH1277			259.14							29091		20.48			1846	80.0	30937	2.46	242.6			322.6	1.47	675	1019.2	2.85	2.48	32%	
	MH1277	MH1280			259.14							29091	0.66	21.14	90	60	1906	80.2	30997	2.46	243.0			323.2	1.45	675	1012.2	2.83	2.46	32%	
	MH1280	MH1278			259.14							29091		21.14			1906	80.2	30997	2.46	243.0			323.2	1.67	675	1086.3	3.04	2.64	30%	
	MH1278	MH1281			259.14							29091		21.14			1906	80.2	30997	2.46	243.0			323.2	0.33	675	482.9	1.35	1.42	67%	
	MH1281	MH1247			259.14							29091		21.14			1906	80.2	30997	2.46	243.0			323.2	1.08	675	873.6	2.44	2.20	37%	
	MH1247	MH1246			259.14							29091		21.14			1906	80.2	30997	2.46	243.0			323.2	0.92	675	806.3	2.25	2.10	40%	
	MH1246	MH1245			259.14							29091		21.14			1906	80.2	30997	2.46	243.0			323.2	0.54	675	617.7	1.73	1.71	52%	
	MH1245	MH1240			259.14							29091		21.14			1906	80.2	30997	2.46	243.0			323.2	6.53	675	2148.0	6.00	4.32	15%	
	MH1240	MH1239			259.14							29091		21.14			1906	80.2	30997	2.46	243.0			323.2	0.89	675	793.0	2.22	2.06	41%	
	MH1234	MH1235										1.75	1.75	90	158	158	0.5	158	4.00	2.0			2.5	2.02	200	46.6	1.48	0.77	5%		
	MH1235	MH1236										2.21	3.96	90	199	357	1.1	357	4.00	4.5			5.7	0.49	200	23.0	0.73	0.59	25%		
	MH1236	MH1237											3.96				357	1.1	357	4.00	4.5			5.7	0.47	250	40.8	0.83	0.58	14%	
	MH1237	MH1238										0.45	4.41	90	41	398	1.3	398	4.00	5.1			6.3	0.46	300	65.6	0.93	0.59	10%		
	MH1238	MH1239											4.41				398	1.3	398	4.00	5.1			6.3	1.29	300	109.8	1.55	0.84	6%	
	MH1239	MH1241			259.14							29091	0.96	26.51	90	87	2391	81.7	31482	2.46	246.2			327.9	0.29	675	452.7	1.26	1.35	72%	

Scenario 2B: Trunk Sewer Upgrades Complete, All Distrikt Developments Connected (Option 2)



- Distrikt Developments
- Existing Wastewater Pipes
- Region Upgrade Project (ID6537) West Trunk
Upsize from 525 mm to 675 mm
- Region Upgrade Project (ID6535) East Trunk
Upsize from 300 mm to 450 mm

In Scenario 2B, wastewater from the 587 Argus Property is split between Argus Road (Tower A, B – West Trunk) and Cross Ave. (Tower C – East Trunk).

Potential upsize
(same as Scenario 2A)

Results:

In this Scenario, all Distrikt developments connect to the GO Station Trunk system (West Trunk), except for Tower C on the 587 Argus Road property, which connects into the Cross Ave sewer (east of Argus) and the Trafalgar Road trunk (East Trunk).

Similar to Scenario 2A, there are no trunk sewer capacity constraints identified.

Excluding the 300 mm pipe, no sewer component exceeds 70% full.



SANITARY SEWER DESIGN SHEET (Midtown)
SCENARIO 2B
TOWN OF OAKVILLE
REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS
Project No: 22-282
Date: 25-Feb-24
Designed by: J.P.O
Checked by: K.C

DESIGN CRITERIA

Min Diameter = 200 mm	Avg. Domestic Flow = 275.0 l/c/d
Mannings 'n' = 0.013	Infiltration = 0.286 l/s/ha
Min. Velocity = 0.60 m/s	Max. Peaking Factor = 4.00
Max. Velocity = 3.00 m/s	Min. Peaking Factor = 2.00

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	LENGTH (m)	RESIDENTIAL					COMMERCIAL / INDUSTRIAL / INSTITUTIONAL					FLOW CALCULATIONS					PIPE DATA											
				AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/Unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (P/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	INFILTRATION (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	RES. FLOW (l/s)	COMM. FLOW (l/s)	ACCUM. COMM. FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)	
Area-1	Area-1	Area-2		99.09	99.09					5352	5352						28.3	5352	3.22	54.8			83.1		200					
Area-2	Area-2	Area-3		30.00	129.09					2366	7718						36.9	7718	3.07	75.3			112.2		200					
Area-4	Area-4	Area-3		13.75	13.75					860	860						3.9	860	3.84	10.5			14.4		200					
Area-3	Area-3	MH1293		54.61	197.45					3110	11688						56.5	11688	2.89	107.4			163.9		200					
Area-5	MH1293	MH1290		49.09	246.54					2917	14605						70.5	14605	2.79	129.7			200.2	0.25	675	420.3	1.17	1.13	48%	
Area-6	MH1294	MH1290		12.60	12.60					1134	1134						3.6	1134	3.76	13.6			17.2	2.35	250	91.2	1.86	1.41	19%	
	MH1290	MH1288			259.14						15739						74.1	15739	2.76	138.1			212.2	0.78	600	542.3	1.92	1.73	39%	
	MH1288	MH1287			259.14						15739	0.14	0.14	90	13	13	74.2	15752	2.76	138.2			212.4	0.58	600	467.6	1.65	1.59	45%	
	MH1287	MH1286			259.14						19178	1.80	1.94	90	162	175	74.7	19353	2.67	164.3			238.9	0.70	600	513.7	1.82	1.74	47%	
	MH1286	MH1285			259.14						19178		1.94			175	74.7	19353	2.67	164.3			238.9	0.87	600	572.7	2.03	1.88	42%	
	MH1285	MH1284			259.14						19178		1.94			175	74.7	19353	2.67	164.3			238.9	0.85	600	566.1	2.00	1.86	42%	
	MH1291	MH1284									1.15	1.15	90	104	104	0.3	104	4.00	1.3			1.7	1.46	300	116.8	1.65	0.51	1%		
	MH1284	MH1292			259.14						19178		3.09			279	75.0	19457	2.66	165.0			240.0	0.22	750	522.2	1.18	1.13	46%	
	MH1292	MH1283			259.14						19178		3.09			279	75.0	19457	2.66	165.0			240.0	1.48	750	1354.4	3.07	2.30	18%	
	MH1283	MH1282			259.14						19178	1.95	5.04	90	176	455	75.6	21622	2.62	180.2			255.8	0.77	600	538.8	1.91	1.83	47%	
	MH1282	MH1279			259.14						21167		5.04			455	75.6	21622	2.62	180.2			255.8	0.88	600	576.0	2.04	1.89	44%	
	MH1279	MH1275			259.14						21167		5.04			455	75.6	21622	2.62	180.2			255.8	0.22	675	394.3	1.10	1.16	65%	
	MH1262	MH1263									1.74	1.74	90	157	157	0.5	157	4.00	2.0			2.5	0.85	250	54.8	1.12	0.55	5%		
	MH1263	MH1265									1.74	1.74				157	0.5	157	4.00	2.0			2.5	0.26	250	30.3	0.62	0.36	8%	
	MH1265	MH1264									0.50	2.24	90	45	202	0.6	202	4.00	2.6			3.2	1.00	250	59.5	1.21	0.63	5%		
	MH1264	MH1266										2.24			202	0.6	202	4.00	2.6			3.2	0.56	300	72.4	1.02	0.50	4%		
	MH1266	MH1267										2.24			202	0.6	202	4.00	2.6			3.2	0.58	300	73.6	1.04	0.51	4%		
	MH1269	MH1268									0.30	0.30	90	27	27	0.1	27	4.00	0.3			0.4	0.44	300	64.1	0.91	0.24	1%		
	MH1268	MH1267										0.30			27	0.1	27	4.00	0.3			0.4	0.36	250	35.7	0.73	0.19	1%		
	MH1267	MH1270									8.74	11.28	90	787	1016	3.2	1016	3.80	12.3			15.5	0.37	300	58.8	0.83	0.69	26%		
	MH1270	MH1271									3540	2.92	14.20	90	263	1279	4.1	4819	3.26	50.0			54.1	0.45	300	64.9	0.92	1.01	83%	
	MH1271	MH1272									2716	1.24	15.44	90	112	1391	4.4	7647	3.07	74.7			79.1	0.38	300	59.6	0.84	0.96	133%	
	MH1272	MH1273									6256		15.44			1391	4.4	7647	3.07	74.7			79.1	0.60	300	74.9	1.06	1.21	106%	
	MH1273	MH1274									6256		15.44			1391	4.4	7647	3.07	74.7			79.1	0.52	300	69.7	0.99	1.12	113%	
	MH1274	MH1275									6256		15.44			1391	4.4	7647	3.07	74.7			79.1	0.85	300	89.2	1.26	1.40	89%	
	MH1275	MH1276			259.14						27423		20.48			1846	80.0	29269	2.49	231.8			311.7	0.66	675	682.9	1.91	1.83	46%	
	MH1276	MH1277			259.14						27423		20.48			1846	80.0	29269	2.49	231.8			311.7	1.47	675	1019.2	2.85	2.48	31%	
	MH1277	MH1280			259.14						27423	0.66	21.14	90	60	1906	80.2	29329	2.49	232.2			312.3	1.45	675	1012.2	2.83	2.46	31%	
	MH1280	MH1278			259.14						27423		21.14			1906	80.2	29329	2.49	232.2			312.3	1.67	675	1086.3	3.04	2.58	29%	
	MH1278	MH1281			259.14						27423		21.14			1906	80.2	29329	2.49	232.2			312.3	0.33	675	482.9	1.35	1.42	65%	
	MH1281	MH1247			259.14						27423		21.14			1906	80.2	29329	2.49	232.2			312.3	1.08	675	873.6	2.44	2.20	36%	
	MH1247	MH1246			259.14						27423		21.14			1906	80.2	29329	2.49	232.2			312.3	0.92	675	806.3	2.25	2.03	39%	
	MH1246	MH1245			259.14						27423		21.14			1906	80.2	29329	2.49	232.2			312.3	0.54	675	617.7	1.73	1.71	51%	
	MH1245	MH1240			259.14						27423		21.14			1906	80.2	29329	2.49	232.2			312.3	6.53	675	2148.0	6.00	4.32	15%	
	MH1240	MH1239			259.14						27423		21.14			1906	80.2	29329	2.49	232.2			312.3	0.89	675	793.0	2.22	1.99	39%	
	MH1234	MH1235									1.75	1.75	90	158	158	0.5	158	4.00	2.0			2.5	2.02	200	46.6	1.48	0.77	5%		
	MH1235	MH1236									2.21	3.96	90	199	357	1.1	357	4.00	4.5			5.7	0.49	200	23.0	0.73	0.59	25%		
	MH1236	MH1237										3.96			357	1.1	357	4.00	4.5			5.7	0.47	250	40.8	0.83	0.58	14%		
	MH1237	MH1238									0.45	4.41	90	41	398	1.3	398	4.00	5.1			6.3	0.46	300	65.6	0.93	0.59	10%		
	MH1238	MH1239										4.41			398	1.3	398	4.00	5.1			6.3	1.29	300	109.8	1.55	0.84	6%		
	MH1239	MH1241			259.14						27423	0.96	26.51	90	87	2391	81.7	29814	2.48	235.3			317.0	0.29	675	452.7	1.26	1.35	70%	

SANITARY SEWER DESIGN SHEET (Midtown)

SCENARIO 2B

TOWN OF OAKVILLE

REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS

Project No: 22-282

Date: 25-Feb-24

Designed by: J.P.O

Checked by: K.C

DESIGN CRITERIA

Min Diameter = 200 mm

Mannings 'n' = 0.013

Min. Velocity = 0.60 m/s

Max. Velocity = 3.00 m/s

Avg. Domestic Flow = 275.0 l/c/d

Infiltration = 0.286 l/s/ha

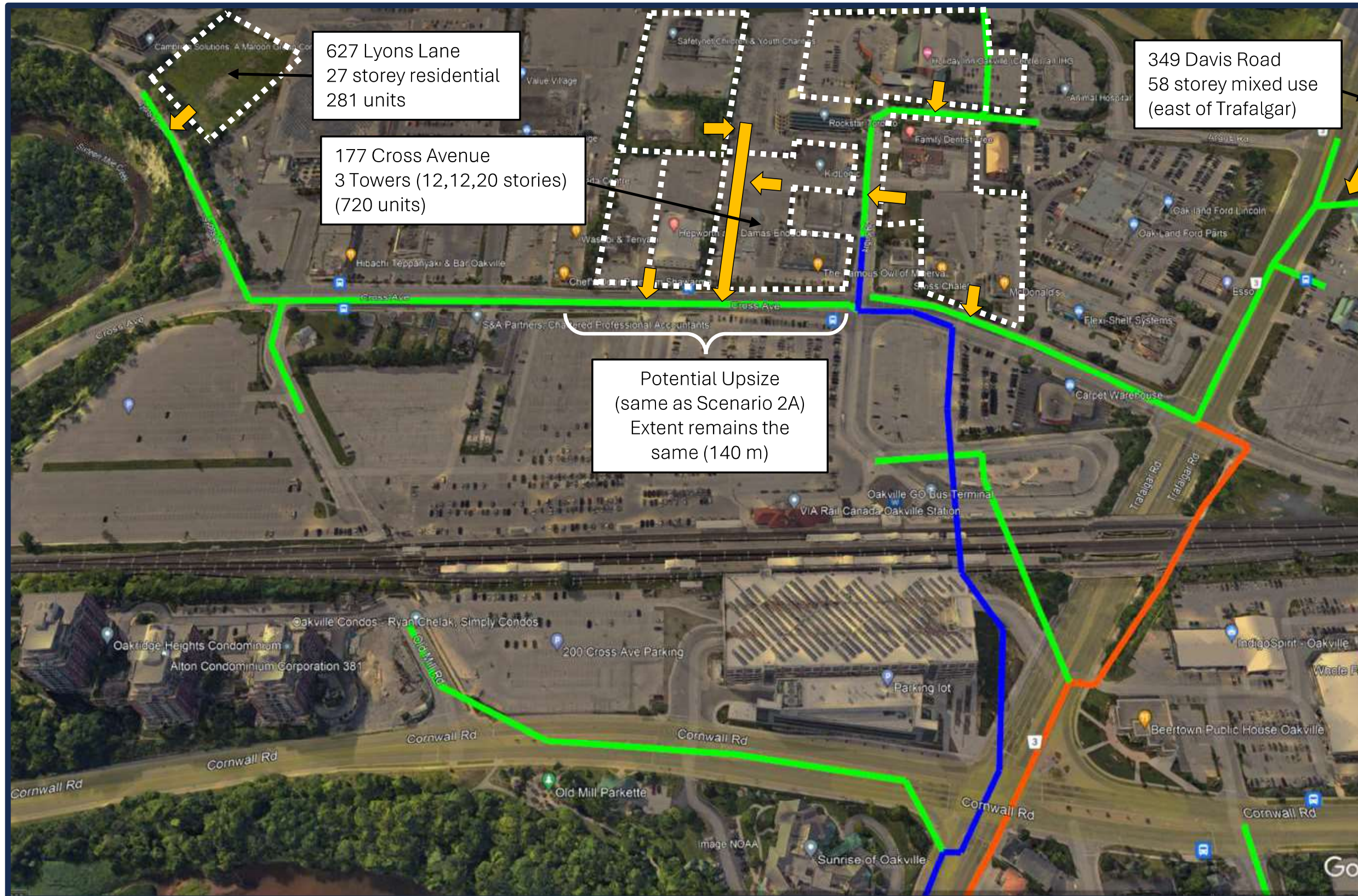
Max. Peaking Factor = 4.00

Min. Peaking Factor = 2.00

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	LENGTH (m)	RESIDENTIAL						COMMERCIAL / INDUSTRIAL / INSTITUTIONAL						FLOW CALCULATIONS						PIPE DATA									
				AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/Unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (P/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	INFILTRATION (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	RES. FLOW (l/s)	COMM. FLOW (l/s)	ACCUM. COMM. FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)		
	MH1241	MH1242			259.14							27423		26.51				2391	81.7	29814	2.48	235.3			317.0	1.02	675	849.0	2.37	2.14	37%
	MH1298	MH1297										0.75	0.75	90		68	68	0.2	68	4.00	0.9			1.1	1.22	300	106.8	1.51	0.39	1%	
	MH1299	MH1303										4.74	4.74	90		427	427	1.4	427	4.00	5.4			6.8	0.55	300	71.7	1.01	0.63	9%	
	MH1303	MH1302										4.74	4.74	90		427	427	1.4	427	4.00	5.4			6.8	0.79	300	85.9	1.22	0.72	8%	
	MH1302	MH1301										2.37	7.11	90		214	641	2.0	641	3.92	8.0			10.0	0.32	300	54.7	0.77	0.58	18%	
	MH1301	MH1297										0.45	7.56	90		41	682	2.2	682	3.90	8.5			10.6	0.46	300	65.6	0.93	0.68	16%	
	MH1297	MH1295											8.31			750	2.4	750	3.88	9.3			11.6	0.27	250	30.9	0.63	0.57	38%		
	MH1296	MH1295										2.61	2.61	90		235	235	0.7	235	4.00	3.0			3.7	0.40	200	20.7	0.66	0.50	18%	
	MH1295	MH1300										2.51	13.43	90		226	1211	3.8	1211	3.74	14.4			18.3	1.02	300	97.7	1.38	1.05	19%	
	MH1300	MH1261											13.43			1211	3.8	1211	3.74	14.4			18.3	0.56	300	72.4	1.02	0.83	25%		
	MH1261	MH1255											13.43			1211	3.8	1211	3.74	14.4			18.3	1.15	300	103.7	1.47	1.10	18%		
	MH1258	MH1257											1668	90		236	236	0.7	1904	3.60	21.8			22.6	0.58	250	45.3	0.92	0.91	50%	
	MH1257	MH1256											1668			236	0.7	1904	3.60	21.8			22.6	0.69	300	80.3	1.14	0.97	28%		
	MH1256	MH1260											1668			236	0.7	1904	3.60	21.8			22.6	1.81	300	130.1	1.84	1.36	17%		
	MH1260	MH1255											1668			236	0.7	1904	3.60	21.8			22.6	0.26	300	49.3	0.70	0.67	46%		
	MH1255	MH1254											1668			1447	4.6	3115	3.43	34.0			38.6	0.15	450	110.4	0.69	0.62	35%		
	MH1254	MH1253										0.35	16.40	90		32	1479	4.7	3147	3.42	34.3			39.0	0.48	450	197.5	1.24	0.96	20%	
	MH1253	MH1259											1668			1479	4.7	3147	3.42	34.3			39.0	0.50	450	201.6	1.27	0.96	19%		
	MH1259	MH1249											1668	1.20	17.60	90	108	1587	5.0	3255	3.41	35.3			40.4	0.46	450	193.4	1.22	0.94	21%
	MH1249	MH1248											1668			1587	5.0	3255	3.41	35.3			40.4	0.53	450	207.6	1.31	0.99	19%		
	MH1252	MH1251											0.35	90		32	32	0.1	32	4.00	0.4			0.5	0.40	200	20.7	0.66	0.26	2%	
	MH1251	MH1250											0.31	90		28	60	0.2	60	4.00	0.8			1.0	2.56	200	52.5	1.67	0.58	2%	
	MH1250	MH1248														60	0.2	60	4.00	0.8			1.0	0.60	200	25.4	0.81	0.36	4%		
	MH1248	MH1244											1668			1647	5.2	3315	3.41	35.9			41.2	0.62	450	224.5	1.41	1.06	18%		
	MH1244	MH1243											1668			1647	5.2	3315	3.41	35.9			41.2	0.44	450	189.1	1.19	0.94	22%		
	MH1243	MH1242											1668			1647	5.2	3315	3.41	35.9			41.2	2.39	450	440.8	2.77	1.72	9%		
	MH1242	MHX			259.14								29091	44.77		4038	86.9	33129	2.44	256.8			343.7	0.64	675	672.5	1.88	1.86	51%		

Scenario 3: Trunk Sewer Upgrades Complete, All Current Midtown Development Applications Connected



- All Near-Term Developments
- Existing Wastewater Pipes
- Region Upgrade Project (ID6537) West Trunk
Upsize from 525 mm to 675 mm
- Region Upgrade Project (ID6535) East Trunk
Upsize from 300 mm to 450 mm

Results:

In this Scenario, wastewater flows from current Midtown Development Applications are added to the system.

There are no trunk sewer capacity constraints noted in the upgraded pipes. Excluding the 300 mm pipe on Cross Ave., no sewer component exceeds 73% full.



SANITARY SEWER DESIGN SHEET (Midtown)

SCENARIO 3

TOWN OF OAKVILLE

REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS

Project No: 22-282

Date: 25-Feb-24

Designed by: J.P.O

Checked by: K.C

DESIGN CRITERIA

Min Diameter = 200 mm

Mannings 'n' = 0.013

Min. Velocity = 0.60 m/s

Max. Velocity = 3.00 m/s

Avg. Domestic Flow = 275.0 l/c/d

Infiltration = 0.286 l/s/ha

Max. Peaking Factor = 4.00

Min. Peaking Factor = 2.00

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	LENGTH (m)	RESIDENTIAL					COMMERCIAL / INDUSTRIAL / INSTITUTIONAL					FLOW CALCULATIONS					PIPE DATA												
				AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/Unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (P/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	INFILTRATION (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	RES. FLOW (l/s)	COMM. FLOW (l/s)	ACCUM. COMM. FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)		
Area-1	Area-1	Area-2		99.09	99.09					5352	5352						28.3	5352	3.22	54.8			83.1		200						
Area-2	Area-2	Area-3		30.00	129.09					2366	7718						36.9	7718	3.07	75.3			112.2		200						
Area-4	Area-4	Area-3		13.75	13.75					860	860						3.9	860	3.84	10.5			14.4		200						
Area-3	Area-3	MH1293		54.61	197.45					3110	11688						56.5	11688	2.89	107.4			163.9		200						
Area-5	MH1293	MH1290		49.09	246.54					2917	14605						70.5	14605	2.79	129.7			200.2	0.25	675	420.3	1.17	1.13	48%		
Area-6	MH1294	MH1290		12.60	12.60					1134	1134						3.6	1134	3.76	13.6			17.2	2.35	250	91.2	1.86	1.41	19%		
	MH1290	MH1288			259.14						15739						74.1	15739	2.76	138.1			212.2	0.78	600	542.3	1.92	1.73	39%		
	MH1288	MH1287			259.14						15739	0.14	0.14	90	13	13	74.2	15752	2.76	138.2			212.4	0.58	600	467.6	1.65	1.59	45%		
	MH1287	MH1286			259.14						19178	1.80	1.94	90	162	175	74.7	19353	2.67	164.3			238.9	0.70	600	513.7	1.82	1.74	47%		
	MH1286	MH1285			259.14						19178		1.94			175	74.7	19353	2.67	164.3			238.9	0.87	600	572.7	2.03	1.88	42%		
	MH1285	MH1284			259.14						19178		1.94			175	74.7	19353	2.67	164.3			238.9	0.85	600	566.1	2.00	1.86	42%		
	MH1291	MH1284									1.15	1.15	90	104	104	0.3	104	4.00	1.3			1.7	1.46	300	116.8	1.65	0.51	1%			
	MH1284	MH1292			259.14						19178		3.09			279	75.0	19457	2.66	165.0			240.0	0.22	750	522.2	1.18	1.13	46%		
	MH1292	MH1283			259.14						19178		3.09			279	75.0	19457	2.66	165.0			240.0	1.48	750	1354.4	3.07	2.30	18%		
	MH1283	MH1282			259.14						19178	1.95	5.04	90	176	455	75.6	21622	2.62	180.2			255.8	0.77	600	538.8	1.91	1.83	47%		
	MH1282	MH1279			259.14						21167		5.04			455	75.6	21622	2.62	180.2			255.8	0.88	600	576.0	2.04	1.89	44%		
	MH1279	MH1275			259.14						21167		5.04			455	75.6	21622	2.62	180.2			255.8	0.22	675	394.3	1.10	1.16	65%		
	MH1262	MH1263									1.74	1.74	90	157	157	0.5	157	4.00	2.0			2.5	0.85	250	54.8	1.12	0.55	5%			
	MH1263	MH1265									515	1.74	1.74	90	157	157	0.5	672	3.90	8.4			8.8	0.26	250	30.3	0.62	0.53	29%		
	MH1265	MH1264									515	0.50	2.24	90	45	202	0.6	717	3.89	8.9			9.5	1.00	250	59.5	1.21	0.88	16%		
	MH1264	MH1266									515		2.24			202	0.6	717	3.89	8.9			9.5	0.56	300	72.4	1.02	0.71	13%		
	MH1266	MH1267									515		2.24			202	0.6	717	3.89	8.9			9.5	0.58	300	73.6	1.04	0.72	13%		
	MH1269	MH1268									0.30	0.30	90	27	27	0.1	27	4.00	0.3			0.4	0.44	300	64.1	0.91	0.24	1%			
	MH1268	MH1267									0.30					27	0.1	27	4.00	0.3			0.4	0.36	250	35.7	0.73	0.19	1%		
	MH1267	MH1270									515	8.74	11.28	90	787	1016	3.2	1531	3.67	17.9			21.1	0.37	300	58.8	0.83	0.75	36%		
	MH1270	MH1271									3540	4055	2.92	14.20	90	263	1279	4.1	5334	3.22	54.6			58.7	0.45	300	64.9	0.92	1.04	91%	
	MH1271	MH1272									2716	6771	1.24	15.44	90	112	1391	4.4	8162	3.04	79.0			83.4	0.38	300	59.6	0.84	0.96	140%	
	MH1272	MH1273									6771		15.44			1391	4.4	8162	3.04	79.0			83.4	0.60	300	74.9	1.06	1.21	111%		
	MH1273	MH1274									1300	8071		15.44		1391	4.4	9462	2.98	89.7			94.1	0.52	300	69.7	0.99	1.12	135%		
	MH1274	MH1275									8071		15.44			1391	4.4	9462	2.98	89.7			94.1	0.85	300	89.2	1.26	1.44	106%		
	MH1275	MH1276			259.14						29238		20.48			1846	80.0	31084	2.46	243.6			323.6	0.66	675	682.9	1.91	1.83	47%		
	MH1276	MH1277			259.14						29238		20.48			1846	80.0	31084	2.46	243.6			323.6	1.47	675	1019.2	2.85	2.48	32%		
	MH1277	MH1280			259.14						29238	0.66	21.14	90	60	1906	80.2	31144	2.46	244.0			324.1	1.45	675	1012.2	2.83	2.46	32%		
	MH1280	MH1278			259.14						29238		21.14			1906	80.2	31144	2.46	244.0			324.1	1.67	675	1086.3	3.04	2.64	30%		
	MH1278	MH1281			259.14						29238		21.14			1906	80.2	31144	2.46	244.0			324.1	0.33	675	482.9	1.35	1.42	67%		
	MH1281	MH1247			259.14						29238		21.14			1906	80.2	31144	2.46	244.0			324.1	1.08	675	873.6	2.44	2.20	37%		
	MH1247	MH1246			259.14						29238		21.14			1906	80.2	31144	2.46	244.0			324.1	0.92	675	806.3	2.25	2.10	40%		
	MH1246	MH1245			259.14						29238		21.14			1906	80.2	31144	2.46	244.0			324.1	0.54	675	617.7	1.73	1.71	52%		
	MH1245	MH1240			259.14						29238		21.14			1906	80.2	31144	2.46	244.0			324.1	6.53	675	2148.0	6.00	4.32	15%		
	MH1240	MH1239			259.14						29238		21.14			1906	80.2	31144	2.46	244.0			324.1	0.89	675	793.0	2.22	2.06	41%		
	MH1234	MH1235									1.75	1.75	90	158	158	0.5	158	4.00	2.0			2.5	2.02	200	46.6	1.48	0.77	5%			
	MH1235	MH1236									2.21	3.96	90	199	357	1.1	357	4.00	4.5			5.7	0.49	200	23.0	0.73	0.59	25%			
	MH1236	MH1237											3.96			357	1.1	357	4.00	4.5			5.7	0.47	250	40.8	0.83	0.58	14%		
	MH1237	MH1238									0.45	4.41	90	41	398	1.3	398	4.00	5.1			6.3	0.46	300	65.6	0.93	0.59	10%			
	MH1238	MH1239											4.41			398	1.3	398	4.00	5.1			6.3	1.29	300	109.8	1.55	0.84	6%		
	MH1239	MH12																													

SANITARY SEWER DESIGN SHEET (Midtown)

SCENARIO 3

TOWN OF OAKVILLE

REGIONAL MUNICIPALITY OF HALTON

PROJECT DETAILS

Project No: 22-282

Date: 25-Feb-24

Designed by: J.P.O

Checked by: K.C

DESIGN CRITERIA

Min Diameter = 200 mm

Mannings 'n' = 0.013

Min. Velocity = 0.60 m/s

Max. Velocity = 3.00 m/s

Avg. Domestic Flow = 275.0 l/c/d

Infiltration = 0.286 l/s/ha

Max. Peaking Factor = 4.00

Min. Peaking Factor = 2.00

NOMINAL PIPE SIZE USED

STREET	FROM MH	TO MH	LENGTH (m)	RESIDENTIAL						COMMERCIAL / INDUSTRIAL / INSTITUTIONAL						FLOW CALCULATIONS						PIPE DATA									
				AREA (ha)	ACC. AREA (ha)	UNITS (#)	DENSITY (P/ha)	DENSITY (P/Unit)	POP	ACCUM. RES. POP.	AREA (ha)	ACC. AREA (ha)	EQUIV. POP. (P/ha)	FLOW RATE (l/s/ha)	EQUIV. POP.	ACCUM. EQUIV. POP.	INFILTRATION (l/s)	TOTAL ACCUM. POP.	PEAKING FACTOR	RES. FLOW (l/s)	COMM. FLOW (l/s)	ACCUM. COMM. FLOW (l/s)	TOTAL FLOW (l/s)	SLOPE (%)	PIPE DIAMETER (mm)	FULL FLOW CAPACITY (l/s)	FULL FLOW VELOCITY (m/s)	ACTUAL VELOCITY (m/s)	PERCENT FULL (%)		
	MH1241	MH1242			259.14							29238		26.51				2391	81.7	31629	2.45	247.1			328.8	1.02	675	849.0	2.37	2.14	39%
	MH1298	MH1297										0.75	0.75	90		68	68	0.2	68	4.00	0.9			1.1	1.22	300	106.8	1.51	0.39	1%	
	MH1299	MH1303										4.74	4.74	90		427	427	1.4	427	4.00	5.4			6.8	0.55	300	71.7	1.01	0.63	9%	
	MH1303	MH1302										4.74	4.74	90		427	427	1.4	427	4.00	5.4			6.8	0.79	300	85.9	1.22	0.72	8%	
	MH1302	MH1301										2.37	7.11	90		214	641	2.0	641	3.92	8.0			10.0	0.32	300	54.7	0.77	0.58	18%	
	MH1301	MH1297										720	7.56	90		41	682	2.2	1402	3.70	16.5			18.7	0.46	300	65.6	0.93	0.79	28%	
	MH1297	MH1295										720	8.31			750	2.4	1470	3.69	17.2			19.6	0.27	250	30.9	0.63	0.65	64%		
	MH1296	MH1295										2.61	2.61	90		235	235	0.7	235	4.00	3.0			3.7	0.40	200	20.7	0.66	0.50	18%	
	MH1295	MH1300										720	13.43	90		226	1211	3.8	1931	3.60	22.1			26.0	1.02	300	97.7	1.38	1.15	27%	
	MH1300	MH1261										720	13.43			1211	3.8	1931	3.60	22.1			26.0	0.56	300	72.4	1.02	0.92	36%		
	MH1261	MH1255										720	13.43			1211	3.8	1931	3.60	22.1			26.0	1.15	300	103.7	1.47	1.19	25%		
	MH1258	MH1257										1668	2.62	90		236	236	0.7	1904	3.60	21.8			22.6	0.58	250	45.3	0.92	0.91	50%	
	MH1257	MH1256										1668	2.62			236	0.7	1904	3.60	21.8			22.6	0.69	300	80.3	1.14	0.97	28%		
	MH1256	MH1260										1668	2.62			236	0.7	1904	3.60	21.8			22.6	1.81	300	130.1	1.84	1.36	17%		
	MH1260	MH1255										1668	2.62			236	0.7	1904	3.60	21.8			22.6	0.26	300	49.3	0.70	0.67	46%		
	MH1255	MH1254										2388	16.05			1447	4.6	3835	3.35	40.9			45.5	0.15	450	110.4	0.69	0.65	41%		
	MH1254	MH1253										2388	0.35	16.40	90		32	1479	4.7	3867	3.35	41.2			45.9	0.48	450	197.5	1.24	0.98	23%
	MH1253	MH1259										2388	16.40			1479	4.7	3867	3.35	41.2			45.9	0.50	450	201.6	1.27	1.00	23%		
	MH1259	MH1249										2388	1.20	17.60	90		108	1587	5.0	3975	3.34	42.2			47.2	0.46	450	193.4	1.22	0.98	24%
	MH1249	MH1248										2388	17.60			1587	5.0	3975	3.34	42.2			47.2	0.53	450	207.6	1.31	1.03	23%		
	MH1252	MH1251										0.35	0.35	90		32	32	0.1	32	4.00	0.4			0.5	0.40	200	20.7	0.66	0.26	2%	
	MH1251	MH1250										0.31	0.66	90		28	60	0.2	60	4.00	0.8			1.0	2.56	200	52.5	1.67	0.58	2%	
	MH1250	MH1248											0.66			60	0.2	60	4.00	0.8			1.0	0.60	200	25.4	0.81	0.36	4%		
	MH1248	MH1244										2388	18.26			1647	5.2	4035	3.33	42.8			48.0	0.62	450	224.5	1.41	1.09	21%		
	MH1244	MH1243										2388	18.26			1647	5.2	4035	3.33	42.8			48.0	0.44	450	189.1	1.19	0.96	25%		
	MH1243	MH1242										2388	18.26			1647	5.2	4035	3.33	42.8			48.0	2.39	450	440.8	2.77	1.83	11%		
	MH1242	MHX			259.14							31626	44.77			4038	86.9	35664	2.40	272.9			359.8	0.64	675	672.5	1.88	1.86	54%		