

**FUNCTIONAL SERVICING & STORMWATER
MANAGEMENT REPORT**

**7072 SIXTH LINE
TOWN OF MILTON
REGION OF HALTON**

**PREPARED FOR:
TARGET TRUCK SALES**

**PREPARED BY:
C.F. CROZIER & ASSOCIATES INC.
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| Revision Number | Date | Comments |
|------------------------|---------------|-----------------------|
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1.0 INTRODUCTION

C.F. Crozier & Associates Inc. (Crozier) has been retained by Target Truck Sales to complete a Functional Servicing and Stormwater Management Report in support of a Zoning-By-Law Amendment (ZBA) and Site Plan Approval (SPA) application for the property located at 7072 Sixth Line, in the Town of Milton. The proposed development will herein be referred to as the Subject Development/Subject Lands. This report demonstrates how the proposed development's functional servicing will conform with the requirements of the Town of Milton (Town), Region of Halton (Region) and Conservation Halton (CH).

C.F. Crozier & Associates is part of a team of consultants providing support for this development. Other members of the consulting team include:

- Glen Shnarr and Associates Inc. (Planning)
- EnVision (Ecology, Geology, Hydrogeology, and Arborist Reports)
- Crozier (Civil and Transportation Engineering)

These consultants have prepared studies/ plans to support the planning application. This report prepared by Crozier should be read in conjunction with the work of the other team members.

2.0 SITE DESCRIPTION AND BACKGROUND

2.1 EXISTING CONDITIONS

The Subject Lands are approximately 1.07 ha and currently consist of an existing two-storey dwelling and combination gravel and asphalt parking lot. The property is located along the eastern limit of the Derry Green Business Park area and is currently bound by Sixth Line to the east, agricultural lands to the south and west, and agricultural and natural heritage lands to the north. Please refer to **Figure 1** for the Site Location Plan.

2.2 PROPOSED CONDITIONS

The Development Concept Plan, prepared by GSAI and dated October 2025, includes the construction of a 1-storey 720 m² industrial building complete with 16 trailer parking spaces, 24 vehicle parking spaces, drive aisles, landscape areas, and natural heritage space. Site access is proposed from Sixth Line with a potential additional truck access proposed via an access road from a proposed future industrial development to the south. The site layout from the Development Concept Plan has been shown on the Concept Plan completed by Crozier and is included in **Figure 2**.

2.3 RELATED STUDIES AND REPORTS

This report has been completed in accordance with the guidelines, standards and policies of the Town, Region and Conservation Halton. The relevant background studies and reports include:

- "Subwatershed Impact Study – Study Area 5A Derry Green Corporate Business Park" prepared by The Municipal Infrastructure Group Ltd., October 2017
- "Subwatershed Impact Study Addendum – 7072 Sixth Line" prepared by Crozier, October 2025
- "Sixteen Mile Creek Areas 2 & 7 Subwatershed Update Study" prepared by Amec Environment and Infrastructure., April 2013 (Revised November 2015).

3.0 SITE ACCESS AND GRADING

Access to the Subject Development will be provided via a 10 meter wide driveway access from Sixth Line. Please refer to the Transportation Brief (Crozier, October 2025), submitted under separate cover, which identifies future operating conditions of the boundary road network surrounding the development.

The site grading will be influenced by the existing and proposed drainage systems within the Subject Development. Grading will tie into the existing elevations along the property limits, match the pre-development overland stormwater flow patterns where possible, and provide sufficient cover for the proposed water, sanitary and storm servicing, and required groundwater separation.

The parking lot will have curb and gutter throughout and will be designed in accordance with Town of Milton Engineering Standards. Grading of parking will be completed to ensure no flooding of private property or depths greater than 0.30 m occur during storm events up to and including the 100-year storm event; this is to ensure safe access and egress is provided.

4.0 WATER SERVICING

4.1 EXISTING WATER SERVICING

The property is currently serviced by an existing well located southwest of the existing 2-storey brick dwelling. Refer to the Subsurface Utility Investigation (SUE) completed by Multiview in October 2024 included in **Appendix A** showing the location of the existing well. The yield of the well is currently unknown.

The Halton Region Existing Water Distribution System figure included in the Sustainable Halton Water & Wastewater Master Plan (included in **Appendix B** for reference) shows an existing watermain on Sixth Line along the frontage of the property. Review of Town and Region record drawings along with the SUE completed for the Site did not confirm the existence, location, or size of this watermain.

4.2 PROPOSED WATER SERVICING

The current Concept Plan layout shows the proposed building overtop of the existing well location. As such, the well shall be decommissioned and a new well will be required on the property to service the proposed building. Alternatively, if the watermain on Sixth Line can be located, a water service connection to the existing watermain should be installed.

Preliminary water demands for the Subject Development have been estimated in conjunction with Town Standards that concur with Table 3-1 of the Ministry of Environment, Conservation and Parks (MECP) Design Guidelines for Drinking Water Systems. Applicable design criteria have been summarized in **Table 1** below.

Table 1: Water Supply Design Criteria

| Criteria | Standard |
|--------------------------------|----------|
| Average Flow Rate (L/cap/day) | 450 |
| Maximum Day Peaking Factor | 2.5 |
| Industrial Density (person/ha) | 125 |

The following water demands have been calculated for the Subject Development per Town standards identified above:

- Average Daily Flow Rate – **0.06 L/s**
- Max Daily Flow Rate – **0.15 L/s**

Since there are no hydrants near the Subject Lands, it is assumed that the Town of Milton rural fire service will apply to these lands, and that fire flow will be provided to the Subject Development by pumper truck. This is to be confirmed through discussion with the Town of Milton Fire Department.

Refer to **Appendix C** for the water demand calculations. The preliminary proposed well location is shown on **Figure 3**, to be confirmed at the Site Plan stage.

5.0 SANITARY SERVICING

5.1 EXISTING SANITARY SERVICING

The existing site is serviced by a 1250 gallon on site septic system. The existing septic tank was not discovered during the subsurface utility investigation, however, an approximate location is shown on **Figure 3**. It is expected that the septic tank and all appurtenances will be located and uncovered during construction.

The Halton Region Existing Wastewater System figure included in the Sustainable Halton Water & Wastewater Master Plan (included in **Appendix B** for reference) shows no existing sanitary sewer on Sixth Line.

5.2 PROPOSED SANITARY SERVICING

The proposed servicing solution for the Subject Development will be to install a septic system to support the proposed industrial building. The design of the septic tank will be confirmed in the Site Plan Approval submission.

Preliminary sanitary flows for the Subject Development were estimated according to Town standards. Applicable design criteria have been summarized in **Table 2**.

Table 2: Sanitary Design Criteria

| Criteria | Standard |
|---------------------------------|----------|
| Average Flow Rate (L/s/ha) | 0.64 |
| Infiltration (L/s/ha) | 0.23 |
| Peaking Factor (Harmon Formula) | 2.25 |
| Industrial Density (person/ha) | 125 |

Based on above criteria and the proposed unit totals, it is estimated that peak sanitary flow from the Subject Development is **0.57 L/s**. Refer to **Appendix C** for sanitary flow calculations. The preliminary proposed septic location is shown on **Figure 3**, to be confirmed at the Site Plan stage.

6.0 STORMWATER MANAGEMENT (SWM) SERVICING

6.1 DESIGN CRITERIA

The management of stormwater and site drainage for the proposed development must comply with the policies and standards of the various agencies, including the Town of Milton, Conservation Halton, and the Ministry of Environment, Conservation and Parks (MECP).

The stormwater management criteria for the Subject Development includes the following:

- Development Standards
 - Minor and major drainage system to convey frequent and infrequent rainfall/ runoff events, respectively.
 - Grades at 2% optimum.
- Water Quality Control
 - 80% removal efficiency of total suspended solids per MECP 'enhanced protection' requirements.
- Water Quantity Control
 - Control of the post development peak flows to pre-development levels for all storms up to and including the 100-year event.
- Erosion Control
 - 48-hour detention of the 25 mm event.
- External Drainage Management
 - The stormwater management strategy for the site must ensure that the identified external drainage areas are safely conveyed through the site, to the outlet.

6.2 EXISTING DRAINAGE CONDITIONS

The Subject Development is located within the Sixteen Mile Creek Subwatershed. The Subject Lands are currently characterized by open space and an existing commercial building. Based on the existing contours the majority of the of the Subject Lands drain to the existing drainage feature north of the Subject Development, before draining east via a culvert at Sixth Line toward Sixteen Mile Creek.

The existing drainage conditions for the Subject Lands have been split into the following two drainage areas:

- **Catchment PRE-1:** This catchment is approximately 0.5 ha and represents the portion of the Subject Lands contributing to the existing drainage feature at the north limit of the Site. It consists of open space and an existing two-storey dwelling. The catchment does not include the portion of the Natural Heritage System associated with the existing drainage feature, as this area will remain unchanged between existing and proposed conditions.
- **Catchment PRE-2:** This catchment is approximately 0.2 ha and represents the portion of the Subject Lands draining overland to the property to the south. It consists of open space and an existing asphalt driveway.

Refer to **Figure 4** for the pre-development drainage plan.

6.3 PROPOSED DRAINAGE CONDITIONS

The SWM controls for the Subject Development will be provided by a private underground SWM facility located within the Subject Development. The Subject Development will include curb and gutters and storm sewers to convey stormwater flows to the underground SWM facility. The preliminary storm servicing layout is presented in **Figure 3**. A detailed storm servicing layout with pipe sizes and slopes will be provided at the site plan approval application stage.

The proposed drainage conditions for the Subject Lands have been split into the following three drainage areas:

- **Catchment POST-1:** This catchment is approximately 0.6 ha and consists of the majority of the Subject Development. Stormwater from this area will be conveyed to the underground SWM facility and ultimately to the drainage feature at the north limit of the Subject Lands.
- **Catchment POST-2:** This catchment is approximately 0.05 ha and consists of open space within the Subject Development that sheet drains uncontrolled to the property to the south.
- **Catchment POST-3:** This catchment is approximately 0.02 ha and consists of open space within the Subject Development that drains uncontrolled to the drainage feature at the north limit of the Subject Lands.

Refer to **Figure 5** for the post-development drainage plan.

6.4 WATER QUANTITY ANALYSIS

A private underground SWM facility will provide majority of the water quantity control for the Subject Development. Additional volume will be provided via pipe and parking lot storage. A control maintenance hole complete with a multi-stage outlet will address 2-100 Year flow control requirements. The outlet structure will consist of a 150 mm diameter orifice plate and a 65 degree v-notch weir.

Site hydrology was evaluated using the Rational Method using storm data from Town of Milton standards. Pre- and post-development (uncontrolled) flow rates along with the storages required to control flows to pre-development levels are summarized in **Table 3** below.

Table 3: SWM Flow Rate and Storage Volume Summary

| Storm | Pre-Development Flows (m ³ /s) | Post Development Uncontrolled Flows (m ³ /s) | Post Development Controlled Flows (m ³ /s) | Required Storage (m ³) |
|----------|---|---|---|------------------------------------|
| 2 Year | 0.03 | 0.13 | 0.03 | 88 |
| 5 Year | 0.05 | 0.17 | 0.04 | 111 |
| 10 Year | 0.08 | 0.20 | 0.05 | 126 |
| 25 Year | 0.11 | 0.23 | 0.06 | 144 |
| 50 Year | 0.14 | 0.26 | 0.08 | 154 |
| 100 Year | 0.17 | 0.29 | 0.10 | 156 |

The design of the SWM facility provides 156m³ of storage and is therefore adequately sized for water quantity storage requirements. Opportunities to offset tank storage with surface ponding and rooftop storage will be investigated at Site Plan stage to confirm overall tank requirements. Refer to **Appendix D** for the SWMF feature sizing calculations.

Areas of the Subject Lands that drain uncontrolled to the property to the south are reduced in both total area and impervious coverage. As such, no quantity control measures are proposed for these areas.

6.5 WATER QUALITY ANALYSIS

Stormwater quality to an Enhanced Protection Level (Stormwater Management and Design Manual, MECP, 2003) will be provided by an Oil and Grit Separator (OGS) providing 60% total suspended solids (TSS) removal in series with sand filters providing 50% TSS removal for a combined treatment train providing 80% TSS removal. The OGS, which is proposed upstream of the underground SWM Facility, is ETV Canada Verified. Sand filters will be located within the underground SWM Facility. Preliminary sizing calculations for the proposed OGS have been provided in **Appendix D**.

6.6 FLOODPLAIN ANALYSIS

The floodplain adjacent to the Subject Lands has been established as part of the Subwatershed Impact Study Addendum prepared by Crozier. The analysis indicates that the floodplain elevation at the proposed Site stormwater management system outlet, corresponding to HEC-RAS model river station 197, under 100 year storm conditions is 187.93. As such, the invert of the proposed underground tank was set above the 100 year floodplain elevation in the creek to avoid loss of active SWM storage to tailwater from the creek.

6.7 WATER BALANCE AND LOW IMPACT DEVELOPMENT (LID) DESIGN

A water balance assessment was prepared by EnVision to determine the annual volume required to be infiltrated to ensure no net loss in total infiltration – *Preliminary Hydrogeological Investigation*, August 2025. Based on the results of the water balance, there is an annual infiltration deficit of 1,264 m³/year for the Subject Development.

Based on the proposed concept plans, various opportunities exist to implement LID measures across the site to help achieve stormwater management objectives, however high groundwater levels limit the ability to reasonably achieve the standard 1 meter separation between the base of the infiltration facility and the seasonally high groundwater level. As such, it is assumed that the infiltration gallery will be set above the seasonally high groundwater level but will not achieve the 1 meter separation.

The infiltration gallery is proposed to be installed below the Stormwater Management tank. The gallery location achieves a minimum 4 m separation from the proposed building and minimum 0.3 m away from the property line. The proposed location and further details for the infiltration gallery have been illustrated on **Figure 6**.

The proposed LID regime results in an annual infiltration rate of 1,355m³/year, addressing the calculated infiltration deficit.

Sizing of the LID facilities as well as water balance mitigation calculations have been included in **Appendix E**.

7.0 UTILITIES

The Subject Development will be serviced with natural gas, telephone, and hydro. The design of such utilities will be coordinated with the local utility companies servicing the Town through the Site

Plan/Detailed Design stage and supplemented with on-site services (such as propane, as is the existing condition) as required.

8.0 EROSION & SEDIMENT CONTROLS

Sediment and erosion controls will be installed prior to the commencement of any earthworks and maintained throughout until the site is stabilized or as directed by the Engineer, Conservation Halton and/or Town. Controls are to be inspected regularly, after each significant rainfall, and maintained in proper working condition.

The proposed erosion and sediment controls for the Subject Development are outlined below.

- Stone Mud Mat

A mud mat will be installed at the main access point to the site (Sixth Line) to reduce the amount of mud tracking onto exiting paved roadways during site servicing operations.

- Dust Suppression

During earthwork activities, the Contractor will ensure that measures for dust suppression are provided as required, such as the application of water or lime.

- Silt Fencing

Heavy Duty Silt fence will be installed where required to intercept sheet flow. Heavy duty silt fence will be located around the perimeter of the site and phasing limits. It should be noted that additional silt fencing may be added based on field decisions by the Site Engineer and Owner prior to, during and following construction.

- Temporary Sediment Trap

Sediment traps will be installed as required at low points on site. Once topsoil has been stripped, runoff generated from the disturbed areas will drain to the sediment trap. The sediment trap will discharge overland to the drainage feature at the north limit of the Site.

- Interceptor Ditches

Swales and interceptor ditches are proposed to be constructed within the site prior to topsoil removal to intercept and convey flow to the sediment basins. Please note interceptor ditches will not interfere with existing drainage conditions. Interceptor ditches will be finished complete with topsoil and hydroseed to reduce potential erosion and reduce flow velocities.

9.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the foregoing, we conclude that the proposed development can meet the servicing and stormwater management objectives of the Town of Milton and Conservation Halton with the proposed servicing, grading and stormwater management scheme as outlined in this report. As such, we offer the following conclusions:

1. Access to the Site will be provided by one (1) connection to Sixth Line at the eastern limit of the Site and one (1) potential connection to future development lands to the south.

2. The Subject Development will be serviced by well and septic. The existing septic system will be decommissioned, and a new septic system will be installed. The existing well will be assessed to confirm available capacity at the Site Plan stage.
3. Site grading conforms to municipal requirements and those outlined in the geotechnical and hydrogeological studies in support of the Subject Development.
4. Low Impact Development measures have been incorporated in the form of infiltration trenches to address the infiltration deficit calculated in the Site water balance.

Based on the conclusion provided, the Site can be serviced according to the Town of Milton, Halton Region, and Conservation Halton requirements. We therefore recommend approval of the Planning Applications for the proposed development from the perspective of functional servicing requirements.

Respectfully submitted,

C.F. CROZIER & ASSOCIATES INC.



Nicole O'Connor, P.Eng.
Project Engineer

C.F. CROZIER & ASSOCIATES INC.



Curtis Scobie
Project Manager

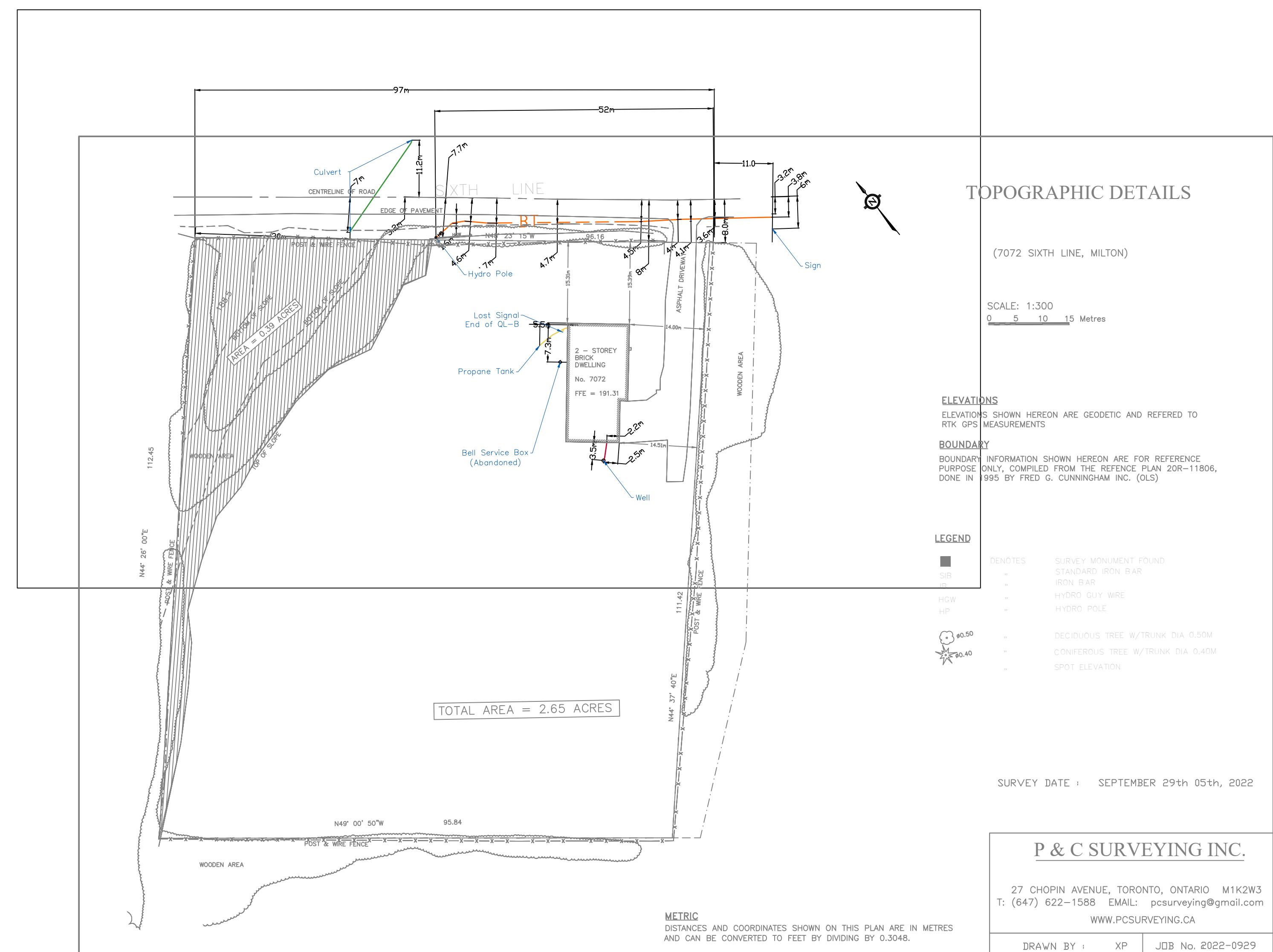
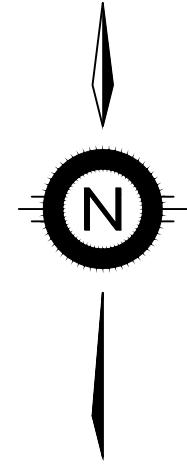
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APPENDIX A

Subsurface Utility Investigation (SUE)
Completed by Multi-View

SUE NOTES:

1. All the utility owners could not provide the records for the service lines, they only provided records for the main lines..
2. Overhead Utilities are not included within the scope of work of the SUE Investigation.
3. Public Health no longer has septic system records.
4. Please see some SUE Investigation challenges and the Technical limitations on sheet #2



KEY MAP

| GLOSSARY | |
|----------|--|
| CSE | - CONFINED SPACE ENTRY |
| SAN | - SANITARY |
| STM | - STORM |
| INV | - INVERT |
| OBV | - OBVERT |
| BOC | - BOTTOM OF CHAMBER |
| FORI | - END OF RECORD INFORMATION |
| AATUR | - UTILITY ABANDONED ACCORDING TO UTILITY RECORDS |
| EOI | - END OF SURFACE GEOPHYSICAL INFORMATION |
| T/G | - TOP OF GRATE ELEVATION |
| ROW | - RIGHT OF WAY |
| NPS | - NOMINAL PIPE SIZE |

FOR: GLEN SCHNARR & ASSOCIATES INC

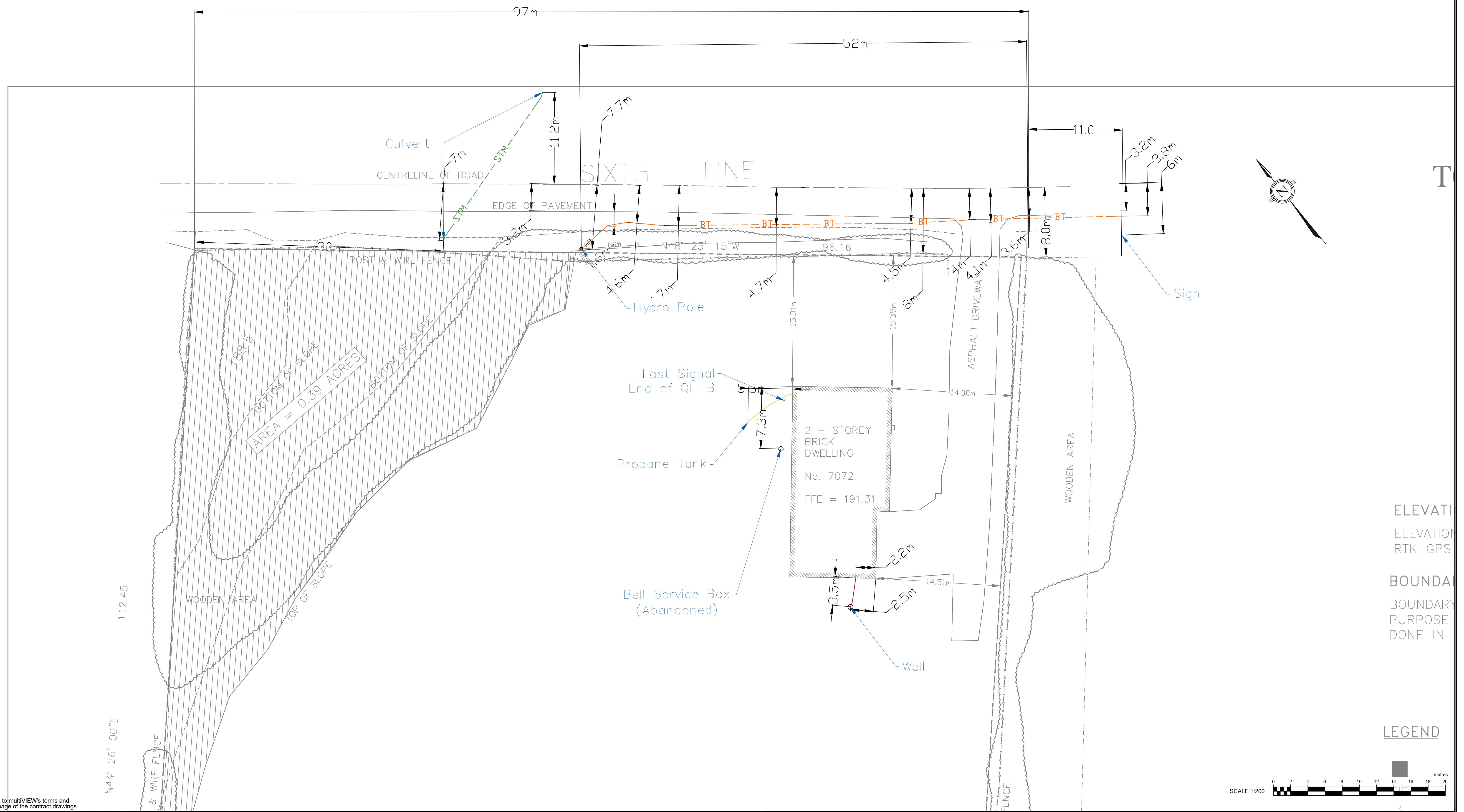
PROJECT NO: 7072 SIXTH LINE

PROJECT NAME: WO 62849

DATE: 2024-10-03



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Data presented herein is subject to multiVIEW's terms and conditions as listed on the final page of the contract drawing.

| | | | | |
|--|---|--------------|-------------------------------|-------------------|
|  <p><i>Insight, not hindsight</i></p> | <p>THE LOCATION OF UNDERGROUND SERVICES SHOULD BE VERIFIED PRIOR TO EXCAVATION. UTILITY LOCATES ARE REQUIRED PRIOR TO ANY EXCAVATION ACTIVITY</p> | Project No.: | Date: | Surveyed/Drawn By |
| | | WO 62849 | 2024-10-03 | FZ/FO |
| | | For: | GLEN SCHNARR & ASSOCIATES INC | |

Checked: Subsurface Utility Engineering CI/ASCE 38-02 Quality

GENERAL NOTES

1. This information is provided for design purposes only.
2. All invert shown on this plan by multiVIEW Locates Inc. are in meters and were measured from the top of the manhole and/or catch basin lids.
3. Subsurface utility information shown on this drawing was obtained on a best effort basis, within the technical limitations of the instrumentation.
4. Utilities shown on this map by multiVIEW Locates Inc. were located using ASCE 38-02 Quality Level 'B' methods unless otherwise noted. All other information hereon has been supplied by others and is not certified.
5. Third party information provided on these drawings are for the convenience of but do not constitute information obtained and delivered by multiVIEW Locates during the course of this project.
6. Elevations represented for this study were obtained by multiVIEW Locates Inc. utilizing datum derived by differential GPS observations and referred to the 2011 National Vertical Datum of the United States.

SUE UTILITY CODES & LEGEND

— G — Gasmain
— BT — Bell
— E — Electrical Cable

ALL UTILITIES DEPICTED ARE AT "QUALITY LEVEL B" UNLESS OTHERWISE NOTED.

| SHEET 1 of 2 | | | | |
|--------------|----------|------------|------------|----------------|
| Rev. No. | Drawn By | Checked By | Date | Revision |
| 01 | AD | AD | 2025-01-23 | NOTES UPDATED. |
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Technical Limitations

- Throughout this schedule, "multiVIEW" is the corporate entity multiVIEW Locates Inc.
- Pipe, cable, conduit, rebar, post-tension cables, anchors, containers, vaults, tanks and similar objects that are buried under the ground or embedded within a structure are referred to in multiVIEW's terms and conditions as Buried Assets.
- Subsurface conditions such as depth to bedrock, change in soil type, presence of karst, voids, contaminated soil or ground water, residual construction or industrial debris or buried waste are referred to in multiVIEW's terms and conditions as Buried Liabilities.
- The Client acknowledges that the laws of fundamental physics apply and acknowledge that sensing instruments can not detect all Buried Assets and Buried Liabilities. Buried Assets and Buried Liabilities which are detectable by properly deployed and operated instruments are termed Locatable Buried Assets and Locatable Buried Liabilities. Buried Assets and Buried Liabilities which are not clearly detectable in an unambiguous manner due to the laws of fundamental physics are termed Unlocatable Buried Assets and Unlocatable Buried Liabilities. multiVIEW follows industry best-practice procedures but is not responsible for determining the presence and location of Unlocatable Buried Assets or Unlocatable Buried Liabilities.
- Instruments to locate Buried Assets use a variety of approaches to detect and infer the location of the Buried Assets. Standard pipe and cable locating instruments detect the magnetic fields associated with electrical current flowing in the Buried Asset. GPR (Ground Penetrating radar) techniques depend on the transmission of radio waves into the host material and detection of waves reflected back from the Buried Assets. Sonding methods require insertion of a source of magnetic field into the pipe or conduit and detection of the magnetic field created by source at the surface of the Work Area to locate the sonde position. For the purposes of this estimate, Locatable Buried Assets are normally characterized as:
 - metallic pipes, cables and conduits that are capable of carrying an electrical current and that can be physically accessed to allow an energizing current source to create an electrical current in the Buried Asset of sufficient magnitude as to be detectable by standard locating instruments;
 - metallic pipes, cables and conduits that actively carry an identifiable electric current that is sufficiently large and has suitable frequency as to be detectable by standard locating instruments;
 - metallic and non-metallic pipes, cables, conduits, rods, bars, wires, voids, and inclusions that represent a substantive electrical contrast to the host material and are embedded in a host material transparent to radio waves such that radio waves reflected from the feature are detectable by a GPR instrument;
 - non-metallic pipes, cables and conduits (i.e. composed of plastic, concrete, asbestos, clay, etc.) which have continuous associated tracer wire capable of carrying an electric current and that can be physically accessed to allow an energizing current source to create an electrical current in the tracer wire of sufficient magnitude as to be detectable by standard cable locating instruments;
 - non-metallic pipes, cables and conduits which have continuous associated tracer wire capable of carrying an electric current and that naturally carries an electrical current of sufficient magnitude and suitable frequency as to be detectable by standard cable locating instruments;
 - open pipe and conduits that can be accessed by a sonde and are sufficiently shallow to permit detectable magnetic fields to be sensed at the surface of the Work Area;
- Examples of Unlocatable Buried Assets include, but are not limited to, the following:
 - pipes, cables and conduits whose depth of burial is too great to create and/or overlain by or in proximity to metallic material which results in signal distortion thus preventing physically measurable signals at the surface or where burial material interferes with current generation and signal emissions;
 - normally Locatable Buried Assets situated in, or emerging from, an area which is an Inaccessible Area;
 - normally Locatable Buried Assets with a break or breaks to the electrical continuity of any metallic pipe, cable or tracer wire (i.e. segmented lengths, corroded connections, sections of plastic repair, etc.);
 - non-metallic pipe, cable and conduits which do not have a continuous and/or accessible associated tracer wire;
 - the host material is opaque to radio waves;
 - Buried Assets that are normally characterized as Locatable become Unlocatable when either ambient interfering electromagnetic fields or the material surrounding and/or enclosing and/or above the Buried Asset disrupt the energizing current or the normal operation of the sensing instrument.
- Instruments used to locate Buried Liabilities use a variety of approaches to detect and infer the location of the Buried Liability. Magnetometers detect the distortion in the local magnetic field induced by the presence of some types of Buried Liabilities. GPR (Ground Penetrating radar) techniques depend on the transmission of radio waves into the host material and detection of waves reflected back from the Buried Liability. In some cases the lack of reflected GPR signal can be a Buried Liability indicator. Electromagnetic induction methods use electromagnetic induction to induce current flow in the subsurface and detect the resulting magnetic fields that are associated with these induced currents to identify Buried Liabilities. Electrical resistivity measurements use direct connect to pass current through host material and map out distortions in the current flow to indicate changes in the subsurface that may indicate the presence of Buried Liabilities. For the purposes of this estimate, Locatable Buried Liabilities are normally characterized as those features that will create a discernable change to the response of the measuring instrument and which differ in character from the background surrounding environment (that is, the features create an Anomalous Response) when industry best practices are followed.
- The Client acknowledges that the laws of fundamental physics apply and that equipment is subject to measurement distortions that are site specific resulting in limited precision when determining positional coordinates. multiVIEW will use best-practice procedures but is not responsible for determining the location of Buried Assets or Buried Liabilities to an accuracy better than what is typical of normal locate instruments.
- Determination of type composition, depth or size of the Buried Assets or Buried Liabilities is not possible and does not constitute part of this service. Identification of the type (i.e. gas, electric, communications, etc) of a specific Buried Asset is not technically possible except by visual surface appurtenance or excavation and visual exposure of the Buried Asset. Inferences that may be drawn by correlation with records and as-built drawings may be offered but such inferences are provided on a best effort basis with no guarantee of correctness.
- Client acknowledges the critical nature of having access to energize Buried Assets to enable locating and assumes full responsibility for identifying and providing access (including provision of licensed plumbing, electrical or confined space entry personnel if required and which adhere to multiVIEW health and safety procedures) to any and all points necessary for the energization of the Buried Assets. multiVIEW accepts no responsibility for locating any Buried Asset for which access and/or appropriate workplace safety measures are not provided.
- Individual Locatable Buried Assets are deemed Unlocatable Buried Assets where there are numerous Buried Assets clustered together either vertically and/or horizontally ("Clustered Utilities") making identification of individual elements physically impossible. multiVIEW is not responsible for identifying the individual Buried Assets in such situations.
- Non-metallic pipe and cable (i.e. fibre-optic systems, etc.) are Unlocatable Buried Assets for standard cable locating instruments unless either an unbroken tracer wire or continuous metallic sheathing surrounding such buried plant is easily accessible from the surface. The Client must provide direct and simple access to every traceable wire or continuous metallic sheathing. Otherwise, multiVIEW accepts neither liability nor responsibility for locating such features since they are deemed Unlocatable.
- Non-metallic pipe and conduits (i.e. plastic, concrete, asbestos, clay, etc.) under pressure (i.e. water, gas, forcemain systems, etc.) are Unlocatable Buried Assets for standard cable locating instruments unless an unbroken tracer wire is attached to the pipe and this tracer wire is easily accessible from the surface. The Client must provide direct and simple access to every traceable wire.
- Non-pressurized, non-metallic (i.e. plastic, concrete, asbestos, clay, etc.) conduits or pipe (i.e. sewers, drains, empty ducts, etc.) are Unlocatable Buried Assets unless a transmitting sonde can be inserted throughout the full length of the pipe or conduit. It is the responsibility of the Client to identify and provide direct access (including provision of licensed plumbing, electrical or confined space entry personnel if required) to any and all access points for such lines. multiVIEW accepts no responsibility for locating such lines where the Client does not provide access and/or appropriate workplace safety measures.
- Any Buried Asset incapable of generating a reflected radar wave detectable by a GPR instrument is an Unlocatable Buried Assets.
- All or part of a Work Area is defined as an Inaccessible Area when inaccessible for surveying Inaccessible Areas include the following: those covered by a structure or object (i.e. buildings, vehicles, debris, stockpiled snow, building materials, etc.); those covered by open water; those covered by woods, vegetation, or snow too thick to permit easy walking; those where the surface terrain slopes steeper than 1:2; those covered by snow; and, those where the safety of the operator is jeopardized (i.e. unstable footing, environmental hazards, uncontrolled roads, etc.). The final decision for defining an area as an Inaccessible Area rests with the multiVIEW Health & Safety Officer.
- Utility data depicted on QL-D CAD lines are derived via utility owners record data and shown only for reference.

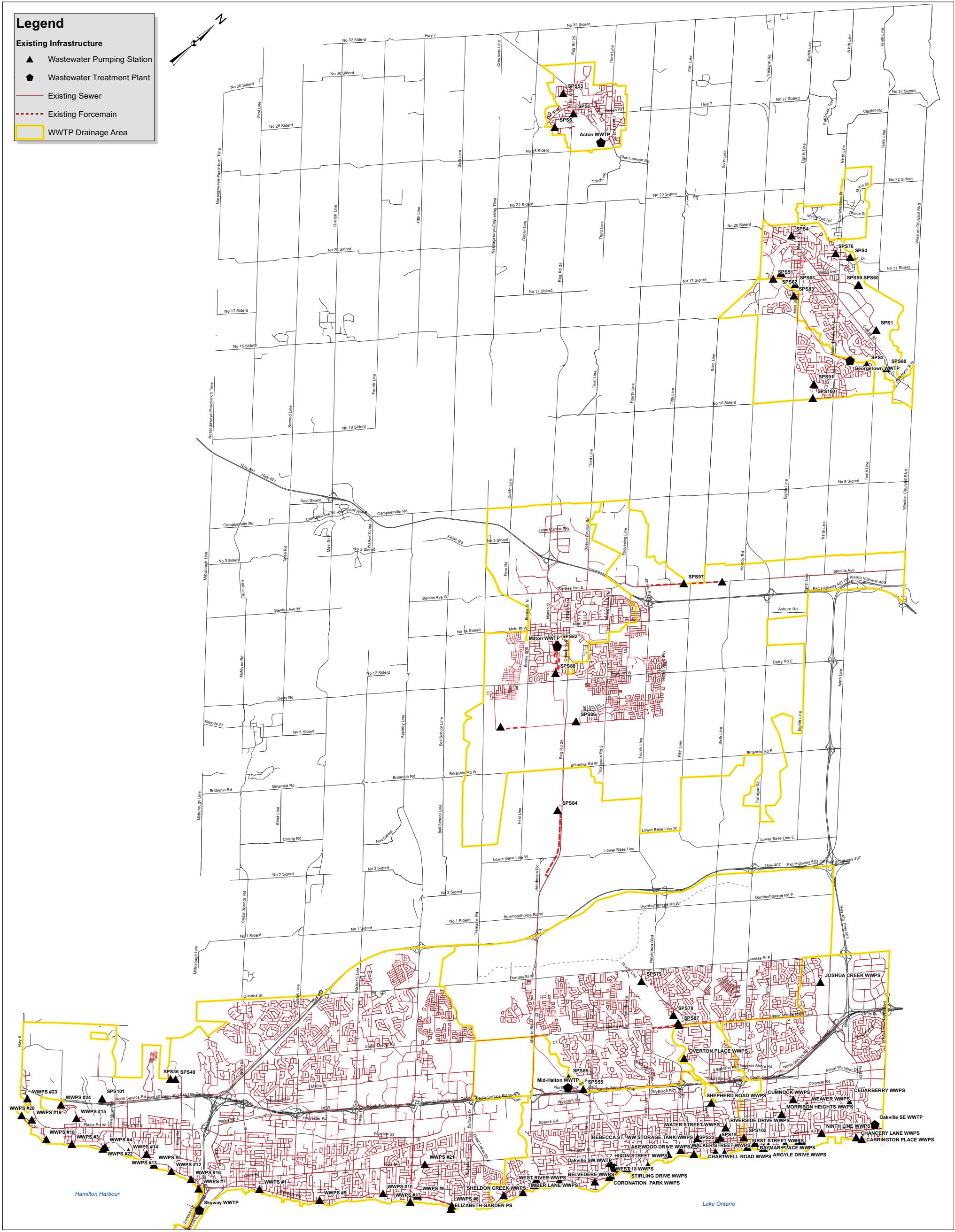
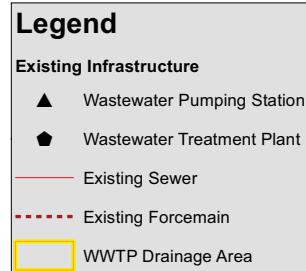
Liability Limitations

- Location and mapping services, marks, reports and results provided by multiVIEW cannot substitute as a legally defined Buried Asset location in jurisdiction where government regulation dictates that the Buried Asset owner is solely responsible for identifying and locating their own Buried Assets. In cases where multiVIEW is legally authorized to act on behalf of the Buried Asset owner to locate the owner's Buried Assets, any results provided by multiVIEW will clearly identify that the Buried Asset location is legally authorized on all records, documents, and reports.
- multiVIEW's markings of Buried Asset or Buried Liability locations are provided as information to be input into the Client's decision making process and the provision of this information does not relieve the Client, or any other person, party, or corporation, from liability for damages for personal injury including death, or for property damage or liability caused to or from any Buried Asset or Buried Liability, within the Work Area.
- Cables carrying DC voltages and/or small diameter cables (i.e. fire alarm or security systems, remote signal cables, inaccessible tracer wire, perfectly balanced AC cables, etc.) can only be detected by methods which create electrical currents and signals in the cables. Where a sensitive or dangerous connection is involved, the Client must provide qualified personnel to isolate and enable direct access to these systems. The Client is responsible for defining the impact of locating signals on sensitive electronics. multiVIEW accepts no responsibility for any damage to plant, or any third party, caused by locating signals. Technical information about locating signals is available from multiVIEW upon request.
- multiVIEW is not liable for damages resulting from physical exposure of any Buried Assets or Buried Liability by the Client, its representatives, their sub-contractors or any other person or corporation.
- multiVIEW will not accept any liability regarding inaccurate estimates of utility depth secured only by electronic means since multiVIEW recommends exposure of any such issues by vacuum excavating if any such depth information is critical to the design, engineering or construction of subsequent infrastructure.
- multiVIEW accepts no responsibility and is not liable for damages suffered by any third party as a result of decisions or actions based on the performance of the statement of work by multiVIEW.
- multiVIEW accepts no responsibility and is not liable for conduit blockage, or restoration of the site to pre-survey conditions, as a result of survey practices needed to fulfill the objectives of the Service provided.
- The completeness of work carried out by multiVIEW is based on information provided by the Client at or prior to the earlier of the time of issuance of this Estimate. If the scope work or size and/or extent of the Work Area changes, a signed Change Order must be issued so that scope of work can be adjusted to address Client requirement changes. Documents and maps provided by multiVIEW are the definitive means legally defining the extent of the Work Area investigated.
- multiVIEW accepts no responsibility for locating Buried Assets or Buried Liabilities outside the limit of the Work Area or in the Inaccessible Areas.
- Except as written in this contract, multiVIEW disclaims any and all promises, representations, warranties and covenants, express, implied, statutory or otherwise.
- multiVIEW shall not be liable for any amount in excess of the fees paid by the Client to multiVIEW for the work described in this estimate on account of any loss, injury, death, or damage whether resulting directly or indirectly to a person or property irrespective of the cause or origin of such loss, injury, death or damage including, without limitation, loss, injury, death or damage attributable to the negligence of multiVIEW, its employees and agents in the performance or non-performance of the Service.
- In any action, claim, loss or damage arising out of the work for which this estimate is provided, the Client agrees that multiVIEW Locates Inc.'s liability will be 'several' and not 'joint and several' and the Client may only claim payment from multiVIEW Locates Inc of multiVIEW Locates Inc.'s proportionate share of the total liability based on degree of fault. Any action against multiVIEW Locates Inc must be commenced on or before the date which is the earlier of: i) eighteen months from the date on which the work in this estimate is completed and, ii) the date by which an action must be commenced under any applicable legislation other than limitation legislation. In no event shall multiVIEW Locates Inc be liable to the Client whether the claim be in tort, contract or otherwise, for an amount in excess of the fees paid by the Company for the services work provided. In no event shall multiVIEW Locates Inc be liable to the Client, whether a claim be in tort, contract or otherwise for any consequential, indirect, lost profit or similar damages, or failure to realize expected savings. multiVIEW Locates Inc will use all reasonable efforts to complete within any agreed upon timeframe the performance of the services described herein; however, multiVIEW Locates Inc shall not be liable for failures or delays in performance that arise from causes beyond its control, including the untimely performance or non-performance by the Client of its obligations.

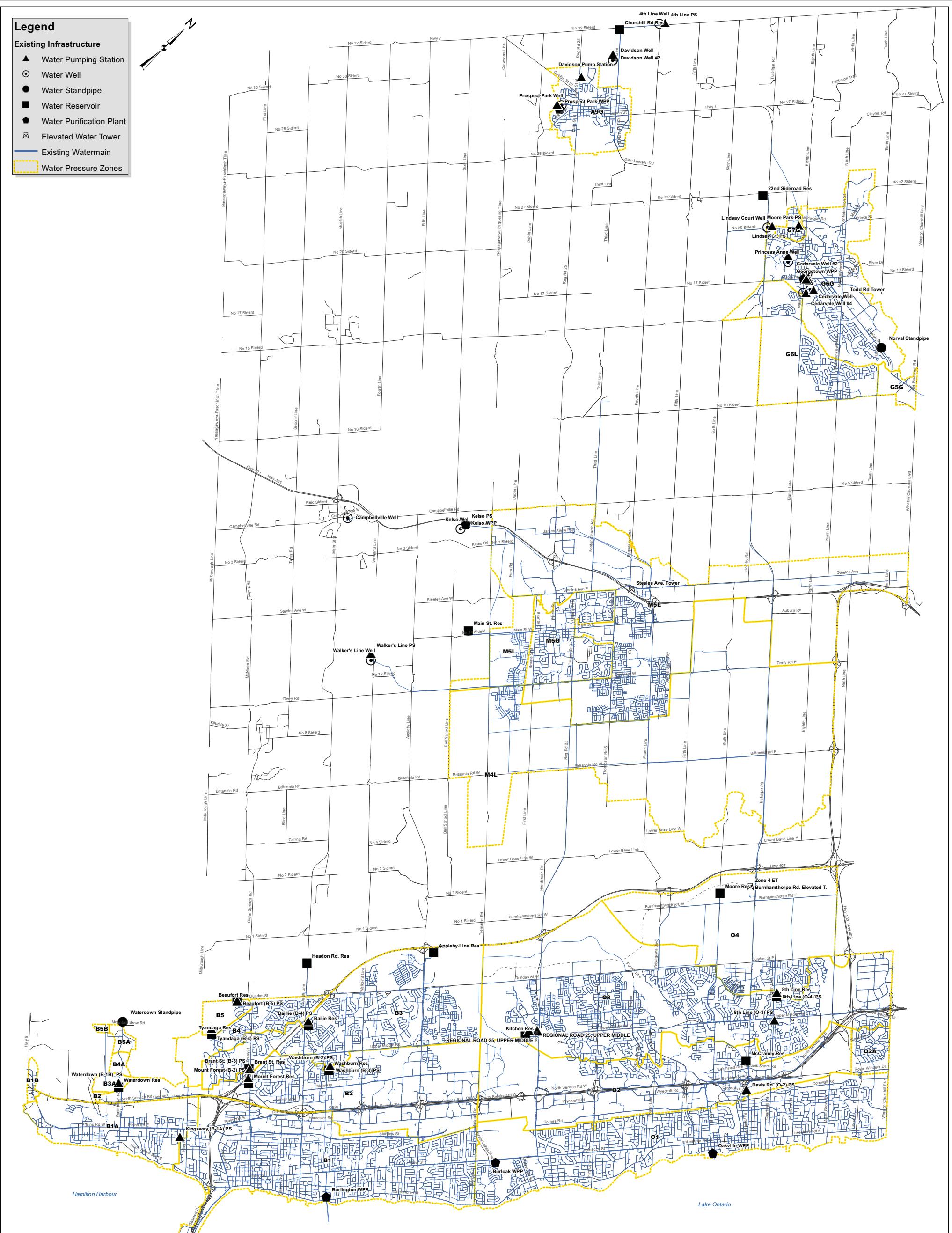
| | | | | | | | | | | |
|--|--|--|-----------------------------|----------------|-------------------------------------|--|---------------|--|--|--|
|  multiVIEW Insight, not hindsight | Project No.: WO 62849 | Date: 2024-10-03 | Surveyed/Drawn By: FZ/FO | Checked: AD | For: GLEN SCHNARR ASSOCIATES INC | Site: 7072 SIXTH LINE, MILTON, ON TERMS & CONDITIONS | SHEET 2 of 2 | | | |
| THE LOCATION OF UNDERGROUND SERVICES SHOULD BE VERIFIED PRIOR TO EXCAVATION ACTIVITY LOCATES ARE REQUIRED PRIOR TO ANY EXCAVATION ACTIVITY | For: GLEN SCHNARR ASSOCIATES INC | Site: 7072 SIXTH LINE, MILTON, ON TERMS & CONDITIONS | Rev. No. | Drawn By | Checked By | Date | Revision | | | |
| SUBSURFACE UTILITY ENGINEERING HYDRO EXCAVATION & CCTV CONCRETE SCANNING UTILITY LOCATES NEAR-SURFACE GEOPHYSICS | Tel: 1-800-363-3116 Fax: 1-866-571-5946 www.multiVIEW.ca 325 Matheson Blvd. East Mississauga, ON, L4Z1X8 | | 01 | AD | AD | 2025-01-23 | NOTES UPDATED | | | |

APPENDIX B

Water and Wastewater Master Plans
Completed by AECOM for Halton Region



Halton Region
Existing Wastewater System
Figure 21



APPENDIX C

Sanitary and Water Demand Calculations



Project: Target Truck Sales
Project No.: 2709-7165
Date: 15-Oct-25
By: TM
Check: NOC

Target Truck Sales - Sanitary Flow Requirements

| | |
|--|--|
| Developed Site Area | 0.62 ha |
| Proposed Building GFA | 0.07 ha |
| Building Area Classification | |
| Warehouse; Industrial Area | |
| | 0.07 ha |
| <u>Industrial Sanitary Demands</u> | |
| Heavy Industrial - Per Gross Area Flow (Town of Milton San Design Criteria 2.1.4) | 0.64 L/sec/ha 0.05 L/sec |
| <u>Inflow & Infiltration Sanitary Demands</u> (Town of Milton San Design Criteria 2.1.5) | |
| Inflow & Infiltration - Per Gross Area Flow | 0.23 L/sec/ha 0.14 L/sec |
| <u>Total Design Sewage Flows</u> | |
| Average Daily Flow | 0.19 L/sec 16.30 m ³ /day |
| Peak Factor | Per Halton Water and Wastewater Linear Design Manual Table 3-2 2.25 |
| Peak Flow | 0.57 L/sec |



Project: Target Truck Sales
Project No.: 2709-7165
Date: 15-Oct-25
By: TM
Check: NOC

Target Truck Sales - Water Demand Requirements

SITE STATISTICS

| | |
|---------------------------|----------------|
| Total Developed Site Area | 0.62 ha |
| Proposed Building GFA | 0.07 ha |

Total Population Estimate - Halton Water and Wastewater Linear Design Manual Table 2-1

| | |
|--------------------------------------|---|
| Industrial - 125 persons per hectare | 9 |
| Total Population | 9 |

Total Industrial Water Design Flows (per Halton Water/Wastewater Technical and OBC)

| | | |
|---|---|--------------------------|
| Population | 9 | 450 L/cap/day |
| Water closets | 1 | 950.00 L/day |
| Loading Docs | 3 | 150.00 L/day |
| Average Daily Flow | | 5.45 m ³ /day |
| Max Day Peak Factor (Industrial Peaking Factor) | | 2.25 |
| Max Day Peak Flow | | 0.15 L/s |

APPENDIX D

Hydrology and SWM Facility Design Calculations



Project: 7072 Sixth Line
 Project No.: 2709-7165
 Created By: N.O'Connor
 Date: 2025-10-14

Modified Rational Calculations - Input Parameters

Storm Data: Town of Milton

| Time of Concentration: | | $T_c =$ | 10 | min |
|------------------------|-------|---------|--------|--------------|
| Return Period | A | B | C | I (mm/hr) |
| 2 yr | 779.0 | 6.00 | 0.8206 | 80.06 |
| 5 yr | 959.0 | 5.70 | 0.8024 | 105.25 |
| 10 yr | 1089 | 5.70 | 0.7955 | 121.81 |
| 25 yr | 1234 | 5.50 | 0.7863 | 143.01 |
| 50 yr | 1323 | 5.30 | 0.7786 | 158.18 |
| 100 yr | 1435 | 5.20 | 0.7751 | 174.10 |

| References |
|--|
| 1. Engineering & Parks Standards Manual (September, 2024). |
| 2. TRCA SWM Criteria (Aug 2012). |

$$I(T_d) = A / (T + B)^C$$

Modified Weighted Runoff Coefficient

$$R_{10} = 0.8 \times R_5 + 0.2$$

$$R_{50} = 0.6 \times R_5 + 0.4$$

$$R_{25} = 0.7 \times R_5 + 0.3$$

$$R_{100} = 0.5 \times R_5 + 0.5$$

Pre - Development Conditions

| Catchment ID | Total Pervious Area (RC = 0.25) (ha) | Total Impervious Area (RC = 0.9) (ha) | Total Area (ha) | Total Area (m ²) | 2 to 10-Year Weighted Runoff Coefficient (C) | 10-Year Weighted Runoff Coefficient (C) | 25-Year Weighted Runoff Coefficient (C) | 50-Year Weighted Runoff Coefficient (C) | 100-Year Weighted Runoff Coefficient (C) |
|-----------------------|---|--|-----------------|------------------------------|--|---|---|---|--|
| Flows to Creek | 0.52 | 0.02 | 0.54 | 5410 | 0.28 | 0.42 | 0.50 | 0.57 | 0.64 |
| Uncontrolled to Creek | 0.00 | 0.00 | 0.00 | 0 | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! | #DIV/0! |
| Uncontrolled to South | 0.14 | 0.03 | 0.17 | 1688 | 0.36 | 0.49 | 0.55 | 0.62 | 0.68 |
| Total | 0.66 | 0.05 | 0.71 | 7097.5 | - | - | - | - | - |

Post - Development Conditions

| Catchment ID | Total Pervious Area (RC = 0.25) (ha) | Total Impervious Area (RC = 0.9) (ha) | Area (ha) | Area (m ²) | 2 to 10-Year Weighted Runoff Coefficient (C) | 10-Year Weighted Runoff Coefficient (C) | 25-Year Weighted Runoff Coefficient (C) | 50-Year Weighted Runoff Coefficient (C) | 100-Year Weighted Runoff Coefficient (C) |
|-----------------------|---|--|-------------|------------------------|--|---|---|---|--|
| Flows to Creek | 0.01 | 0.62 | 0.63 | 6261 | 0.89 | 0.91 | 0.92 | 0.93 | 0.95 |
| Uncontrolled to Creek | 0.02 | 0.01 | 0.02 | 213 | 0.44 | 0.55 | 0.61 | 0.67 | 0.72 |
| Uncontrolled to South | 0.06 | 0.00 | 0.06 | 623 | 0.25 | 0.40 | 0.48 | 0.55 | 0.63 |
| Total | 0.09 | 0.62 | 0.71 | 7097.5 | - | - | - | - | - |

Modified Rational Method - Flows to Creek
Peak Flow

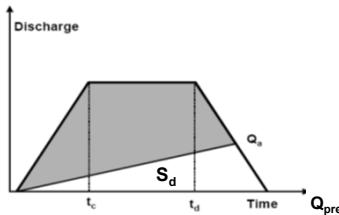
$$Q_{post} = 0.0028 \cdot C_{post} \cdot i_{(T_d)} \cdot A$$

Intensity

$$i_{(T_d)} = A / (T_d + B)^C$$

Storage

$$S_d = Q_{post} \cdot T_d - Q_{pre} (T_d + T_c) / 2$$



| Pre-Development Scenario Data | | |
|-------------------------------|----------------|--------------------------|
| Inputs | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): 80.06 |
| Return Period | 2 Year | |
| Time of Concentration (min) | 10 | |
| Coeff A | 779 | |
| Coeff B | 6 | |
| Coeff C | 0.8206 | |
| Runoff Coeff (Unadjusted) | 0.28 | Flow (m³/s) 0.03 |
| Runoff Coefficient (Adjusted) | 0.28 | |
| Area (ha) | 0.54 | |

| Post-Development Scenario Data | | |
|--------------------------------|----------------|---------------------------|
| Inputs | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): 80.06 |
| Return Period | 2 Year | |
| Time of Concentration (min) | 10 | |
| Coeff A | 779 | |
| Coeff B | 6 | |
| Coeff C | 0.8206 | |
| Runoff Coeff (unadjusted) | 0.86 | Uncont. Flow (m³/s) 0.125 |
| Runoff Coefficient (Adjusted) | 0.89 | |
| Area (ha) | 0.63 | |

| | | |
|-----------------------|-------|---|
| Target Outflow (m³/s) | 0.032 | Pre-dev flow - Uncontrolled Flow to Creek |
| Actual Outflow (m³/s) | 0.026 | From SSD |

REQUIRED STORAGE VOLUME: **88.4 m³**

| Storage Volume Determination (Detailed) | | | | |
|---|--------|----------------|---------------------|----------------|
| T _d | i | T _d | Q _{Uncont} | S _d |
| min | mm/hr | sec | m³/s | m³ |
| 0 | 179.06 | 0 | 0.280 | -7.7 |
| 1 | 157.78 | 60 | 0.247 | 6.4 |
| 2 | 141.40 | 120 | 0.221 | 17.3 |
| 3 | 128.38 | 180 | 0.201 | 26.2 |
| 4 | 117.74 | 240 | 0.184 | 33.5 |
| 5 | 108.89 | 300 | 0.170 | 39.6 |
| 6 | 101.38 | 360 | 0.158 | 44.8 |
| 7 | 94.94 | 420 | 0.148 | 49.3 |
| 8 | 89.34 | 480 | 0.140 | 53.3 |
| 9 | 84.42 | 540 | 0.132 | 56.7 |
| 10 | 80.06 | 600 | 0.125 | 59.8 |
| 15 | 64.05 | 900 | 0.100 | 71.0 |
| 20 | 53.75 | 1200 | 0.084 | 77.9 |
| 25 | 46.53 | 1500 | 0.073 | 82.3 |
| 30 | 41.16 | 1800 | 0.064 | 85.2 |
| 35 | 36.99 | 2100 | 0.058 | 87.0 |
| 40 | 33.66 | 2400 | 0.053 | 88.0 |
| 45 | 30.92 | 2700 | 0.048 | 88.4 |
| 50 | 28.64 | 3000 | 0.045 | 88.4 |
| 55 | 26.70 | 3300 | 0.042 | 88.0 |
| 60 | 25.03 | 3600 | 0.039 | 87.3 |
| 65 | 23.57 | 3900 | 0.037 | 86.3 |
| 70 | 22.29 | 4200 | 0.035 | 85.1 |
| 75 | 21.16 | 4500 | 0.033 | 83.8 |
| 80 | 20.14 | 4800 | 0.031 | 82.3 |
| 85 | 19.23 | 5100 | 0.030 | 80.6 |

Modified Rational Method - Flows to Creek
Peak Flow

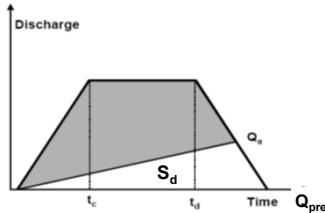
$$Q_{post} = 0.0028 \cdot C_{post} \cdot i_{(T_d)} \cdot A$$

Intensity

$$i_{(T_d)} = A / (T + B)^c$$

Storage

$$S_d = Q_{post} \cdot T_d - Q_{pre} (T_d + T_c) / 2$$



| Pre-Development Scenario Data | | |
|-------------------------------|----------------|---------------------------|
| Inputs | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): 105.25 |
| Return Period | 5 Year | |
| Time of Concentration (min) | 10 | |
| Coeff A | 959 | |
| Coeff B | 5.7 | |
| Coeff C | 0.8024 | |
| Runoff Coeff (Unadjusted) | 0.28 | Flow (m³/s) 0.045 |
| Runoff Coefficient (Adjusted) | 0.28 | |
| Area (ha) | 0.54 | |

| Post-Development Scenario Data | | |
|--------------------------------|----------------|---------------------------|
| Inputs | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): 105.25 |
| Return Period | 5 Year | |
| Time of Concentration (min) | 10 | |
| Coeff A | 959 | |
| Coeff B | 5.7 | |
| Coeff C | 0.8024 | |
| Runoff Coeff (unadjusted) | 0.86 | Uncont. Flow (m³/s) 0.165 |
| Runoff Coefficient (Adjusted) | 0.89 | |
| Area (ha) | 0.63 | |

| | | |
|-----------------------|-------|---|
| Target Outflow (m³/s) | 0.042 | Pre-dev flow - Uncontrolled Flow to Creek |
| Actual Outflow (m³/s) | 0.038 | From SSD |

REQUIRED STORAGE VOLUME: **110.7 m³**

| Storage Volume Determination (Detailed) | | | | |
|---|------------|-----------------------|-----------------------------|----------------------|
| T _d min | i mm/hr | T _d sec | Q _{Uncont} m³/s | S _d m³ |
| 0 | 237.30 | 0 | 0.371 | -11.4 |
| 1 | 208.44 | 60 | 0.326 | 7.0 |
| 2 | 186.42 | 120 | 0.291 | 21.3 |
| 3 | 169.02 | 180 | 0.264 | 32.7 |
| 4 | 154.89 | 240 | 0.242 | 42.1 |
| 5 | 143.17 | 300 | 0.224 | 50.0 |
| 6 | 133.26 | 360 | 0.208 | 56.7 |
| 7 | 124.77 | 420 | 0.195 | 62.5 |
| 8 | 117.41 | 480 | 0.184 | 67.6 |
| 9 | 110.96 | 540 | 0.173 | 72.0 |
| 10 | 105.25 | 600 | 0.165 | 75.9 |
| 15 | 84.31 | 900 | 0.132 | 90.1 |
| 20 | 70.87 | 1200 | 0.111 | 98.7 |
| 25 | 61.45 | 1500 | 0.096 | 104.2 |
| 30 | 54.44 | 1800 | 0.085 | 107.6 |
| 35 | 49.01 | 2100 | 0.077 | 109.6 |
| 40 | 44.66 | 2400 | 0.070 | 110.5 |
| 45 | 41.09 | 2700 | 0.064 | 110.7 |
| 50 | 38.10 | 3000 | 0.060 | 110.3 |
| 55 | 35.56 | 3300 | 0.056 | 109.3 |
| 60 | 33.37 | 3600 | 0.052 | 108.0 |
| 65 | 31.47 | 3900 | 0.049 | 106.3 |
| 70 | 29.79 | 4200 | 0.047 | 104.3 |
| 75 | 28.30 | 4500 | 0.044 | 102.1 |
| 80 | 26.96 | 4800 | 0.042 | 99.7 |
| 85 | 25.77 | 5100 | 0.040 | 97.1 |

Modified Rational Method - Flows to Creek
Peak Flow

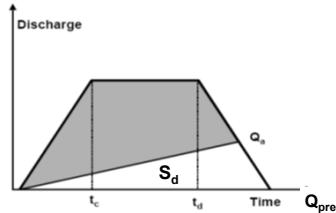
$$Q_{post} = 0.0028 \cdot C_{post} \cdot i_{(T_d)} \cdot A$$

Intensity

$$i_{(T_d)} = A / (T + B)^c$$

Storage

$$S_d = Q_{post} \cdot T_d - Q_{pre} (T_d + T_c) / 2$$



| Pre-Development Scenario Data | | |
|-------------------------------|----------------|---------------------------|
| Inputs | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): 121.81 |
| Return Period | 10 Year | |
| Time of Concentration (min) | 10 | |
| Coeff A | 1089 | |
| Coeff B | 5.7 | |
| Coeff C | 0.7955 | |
| Runoff Coeff (Unadjusted) | 0.28 | Flow (m³/s) 0.08 |
| Runoff Coefficient (Adjusted) | 0.42 | |
| Area (ha) | 0.54 | |

| Post-Development Scenario Data | | |
|--------------------------------|----------------|---------------------------|
| Inputs | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): 121.81 |
| Return Period | 10 Year | |
| Time of Concentration (min) | 10 | |
| Coeff A | 1089 | |
| Coeff B | 5.7 | |
| Coeff C | 0.7955 | |
| Runoff Coeff (unadjusted) | 0.86 | Uncont. Flow (m³/s) 0.20 |
| Runoff Coefficient (Adjusted) | 0.91 | |
| Area (ha) | 0.63 | |

| | | |
|-----------------------|-------|---|
| Target Outflow (m³/s) | 0.074 | Pre-dev flow - Uncontrolled Flow to Creek |
| Actual Outflow (m³/s) | 0.050 | From SSD |

REQUIRED STORAGE VOLUME: 125.8 m³

| Storage Volume Determination (Detailed) | | | | |
|---|--------|----------------|---------------------|----------------|
| T _d | i | T _d | Q _{uncont} | S _d |
| min | mm/hr | sec | m³/s | m³ |
| 0 | 272.73 | 0 | 0.437 | -14.9 |
| 1 | 239.82 | 60 | 0.384 | 6.7 |
| 2 | 214.70 | 120 | 0.344 | 23.4 |
| 3 | 194.82 | 180 | 0.312 | 36.8 |
| 4 | 178.67 | 240 | 0.286 | 47.9 |
| 5 | 165.25 | 300 | 0.265 | 57.1 |
| 6 | 153.92 | 360 | 0.246 | 64.9 |
| 7 | 144.20 | 420 | 0.231 | 71.7 |
| 8 | 135.76 | 480 | 0.217 | 77.6 |
| 9 | 128.36 | 540 | 0.205 | 82.8 |
| 10 | 121.81 | 600 | 0.195 | 87.3 |
| 15 | 97.76 | 900 | 0.157 | 103.7 |
| 20 | 82.30 | 1200 | 0.132 | 113.6 |
| 25 | 71.45 | 1500 | 0.114 | 119.6 |
| 30 | 63.37 | 1800 | 0.101 | 123.2 |
| 35 | 57.09 | 2100 | 0.091 | 125.1 |
| 40 | 52.07 | 2400 | 0.083 | 125.8 |
| 45 | 47.94 | 2700 | 0.077 | 125.5 |
| 50 | 44.48 | 3000 | 0.071 | 124.6 |
| 55 | 41.54 | 3300 | 0.067 | 123.0 |
| 60 | 39.01 | 3600 | 0.062 | 120.9 |
| 65 | 36.80 | 3900 | 0.059 | 118.4 |
| 70 | 34.85 | 4200 | 0.056 | 115.5 |
| 75 | 33.12 | 4500 | 0.053 | 112.4 |
| 80 | 31.57 | 4800 | 0.051 | 109.0 |
| 85 | 30.18 | 5100 | 0.048 | 105.4 |

Modified Rational Method - Flows to Creek
Peak Flow

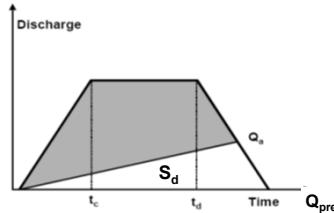
$$Q_{post} = 0.0028 \cdot C_{post} \cdot i_{(T_d)} \cdot A$$

Intensity

$$i_{(T_d)} = A / (T + B)^c$$

Storage

$$S_d = Q_{post} \cdot T_d - Q_{pre} (T_d + T_c) / 2$$



| Pre-Development Scenario Data | | |
|-------------------------------|----------------|---------------------------|
| Inputs | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): 143.01 |
| Return Period | 25 Year | |
| Time of Concentration (min) | 10 | |
| Coeff A | 1234 | |
| Coeff B | 5.5 | |
| Coeff C | 0.7863 | |
| Runoff Coeff (Unadjusted) | 0.28 | Flow (m³/s) 0.11 |
| Runoff Coefficient (Adjusted) | 0.50 | |
| Area (ha) | 0.54 | |

| Post-Development Scenario Data | | |
|--------------------------------|----------------|---------------------------|
| Inputs | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): 143.01 |
| Return Period | 25 Year | |
| Time of Concentration (min) | 10 | |
| Coeff A | 1234 | |
| Coeff B | 5.5 | |
| Coeff C | 0.7863 | |
| Runoff Coeff (unadjusted) | 0.86 | Uncont. Flow (m³/s) 0.23 |
| Runoff Coefficient (Adjusted) | 0.92 | |
| Area (ha) | 0.63 | |

| | | |
|-----------------------|-------|---|
| Target Outflow (m³/s) | 0.102 | Pre-dev flow - Uncontrolled Flow to Creek |
| Actual Outflow (m³/s) | 0.063 | From SSD |

REQUIRED STORAGE VOLUME: **143.6** m³

| Storage Volume Determination (Detailed) | | | | |
|---|--------|----------------|---------------------|----------------|
| T _d | i | T _d | Q _{uncont} | S _d |
| min | mm/hr | sec | m³/s | m³ |
| 0 | 322.97 | 0 | 0.523 | -19.0 |
| 1 | 283.22 | 60 | 0.459 | 6.7 |
| 2 | 253.08 | 120 | 0.410 | 26.4 |
| 3 | 229.36 | 180 | 0.372 | 42.2 |
| 4 | 210.15 | 240 | 0.340 | 55.2 |
| 5 | 194.25 | 300 | 0.315 | 66.0 |
| 6 | 180.84 | 360 | 0.293 | 75.1 |
| 7 | 169.36 | 420 | 0.274 | 83.0 |
| 8 | 159.42 | 480 | 0.258 | 89.8 |
| 9 | 150.71 | 540 | 0.244 | 95.8 |
| 10 | 143.01 | 600 | 0.232 | 101.1 |
| 15 | 114.78 | 900 | 0.186 | 120.0 |
| 20 | 96.68 | 1200 | 0.157 | 131.1 |
| 25 | 83.99 | 1500 | 0.136 | 137.7 |
| 30 | 74.54 | 1800 | 0.121 | 141.5 |
| 35 | 67.20 | 2100 | 0.109 | 143.3 |
| 40 | 61.32 | 2400 | 0.099 | 143.6 |
| 45 | 56.50 | 2700 | 0.092 | 142.8 |
| 50 | 52.45 | 3000 | 0.085 | 141.2 |
| 55 | 49.01 | 3300 | 0.079 | 138.8 |
| 60 | 46.05 | 3600 | 0.075 | 135.8 |
| 65 | 43.46 | 3900 | 0.070 | 132.4 |
| 70 | 41.18 | 4200 | 0.067 | 128.5 |
| 75 | 39.16 | 4500 | 0.063 | 124.3 |
| 80 | 37.34 | 4800 | 0.060 | 119.7 |
| 85 | 35.71 | 5100 | 0.058 | 114.9 |

Modified Rational Method - Flows to Creek
Peak Flow

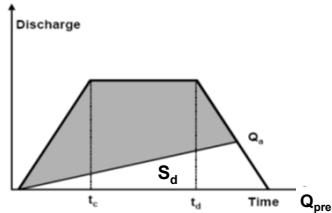
$$Q_{post} = 0.0028 \cdot C_{post} \cdot i_{(T_d)} \cdot A$$

Intensity

$$i_{(T_d)} = A / (T + B)^c$$

Storage

$$S_d = Q_{post} \cdot T_d - Q_{pre} (T_d + T_c) / 2$$



| Pre-Development Scenario Data | | |
|-------------------------------|----------------|---------------------------|
| Inputs | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): 158.18 |
| Return Period | 50 Year | |
| Time of Concentration (min) | 10 | |
| Coeff A | 1323 | |
| Coeff B | 5.3 | |
| Coeff C | 0.7786 | |
| Runoff Coeff (Unadjusted) | 0.28 | Flow (m³/s) 0.14 |
| Runoff Coefficient (Adjusted) | 0.57 | |
| Area (ha) | 0.54 | |

| Post-Development Scenario Data | | |
|--------------------------------|----------------|---------------------------|
| Inputs | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): 158.18 |
| Return Period | 50 Year | |
| Time of Concentration (min) | 10 | |
| Coeff A | 1323 | |
| Coeff B | 5.3 | |
| Coeff C | 0.7786 | |
| Runoff Coeff (unadjusted) | 0.86 | Uncont. Flow (m³/s) 0.26 |
| Runoff Coefficient (Adjusted) | 0.93 | |
| Area (ha) | 0.63 | |

| | | |
|-----------------------|-------|---|
| Target Outflow (m³/s) | 0.130 | Pre-dev flow - Uncontrolled Flow to Creek |
| Actual Outflow (m³/s) | 0.075 | From SSD |

REQUIRED STORAGE VOLUME: **154.3** m³

| Storage Volume Determination (Detailed) | | | | |
|---|--------|----------------|---------------------|----------------|
| T _d | i | T _d | Q _{uncont} | S _d |
| min | mm/hr | sec | m³/s | m³ |
| 0 | 361.11 | 0 | 0.592 | -22.6 |
| 1 | 315.64 | 60 | 0.517 | 6.2 |
| 2 | 281.43 | 120 | 0.461 | 28.2 |
| 3 | 254.66 | 180 | 0.417 | 45.7 |
| 4 | 233.08 | 240 | 0.382 | 60.0 |
| 5 | 215.26 | 300 | 0.353 | 71.9 |
| 6 | 200.28 | 360 | 0.328 | 82.0 |
| 7 | 187.48 | 420 | 0.307 | 90.6 |
| 8 | 176.41 | 480 | 0.289 | 98.1 |
| 9 | 166.73 | 540 | 0.273 | 104.6 |
| 10 | 158.18 | 600 | 0.259 | 110.3 |
| 15 | 126.92 | 900 | 0.208 | 130.7 |
| 20 | 106.93 | 1200 | 0.175 | 142.4 |
| 25 | 92.92 | 1500 | 0.152 | 149.3 |
| 30 | 82.50 | 1800 | 0.135 | 152.9 |
| 35 | 74.42 | 2100 | 0.122 | 154.3 |
| 40 | 67.94 | 2400 | 0.111 | 154.1 |
| 45 | 62.62 | 2700 | 0.103 | 152.7 |
| 50 | 58.17 | 3000 | 0.095 | 150.3 |
| 55 | 54.38 | 3300 | 0.089 | 147.1 |
| 60 | 51.11 | 3600 | 0.084 | 143.2 |
| 65 | 48.25 | 3900 | 0.079 | 138.8 |
| 70 | 45.74 | 4200 | 0.075 | 133.9 |
| 75 | 43.51 | 4500 | 0.071 | 128.6 |
| 80 | 41.51 | 4800 | 0.068 | 123.0 |
| 85 | 39.71 | 5100 | 0.065 | 117.0 |



Modified Rational Method - Flows to Creek

Peak Flow

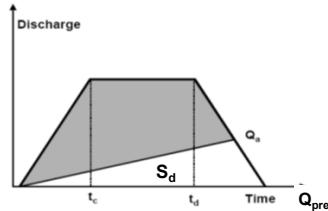
$$Q_{post} = 0.0028 \cdot C_{post} \cdot i_{(T_d)} \cdot A$$

Intensity

$$i_{(T_d)} = A / (T + B)^c$$

Storage

$$S_d = Q_{post} \cdot T_d - Q_{pre} (T_d + T_c) / 2$$



| Pre-Development Scenario Data | | |
|-------------------------------|----------------|---------------------------|
| Inputs | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): 174.10 |
| Return Period | 100 Year | |
| Time of Concentration (min) | 10 | |
| Coeff A | 1435 | |
| Coeff B | 5.2 | |
| Coeff C | 0.775 | |
| Runoff Coeff (Unadjusted) | 0.28 | Flow (m³/s) 0.17 |
| Runoff Coefficient (Adjusted) | 0.64 | |
| Area (ha) | 0.54 | |

| Post-Development Scenario Data | | |
|--------------------------------|----------------|---------------------------|
| Inputs | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): 174.10 |
| Return Period | 100 Year | |
| Time of Concentration (min) | 10 | |
| Coeff A | 1435 | |
| Coeff B | 5.2 | |
| Coeff C | 0.775 | |
| Runoff Coeff (unadjusted) | 0.86 | Uncont. Flow (m³/s) 0.29 |
| Runoff Coefficient (Adjusted) | 0.95 | |
| Area (ha) | 0.63 | |

| | | |
|-----------------------|--------|---|
| Target Outflow (m³/s) | 0.1612 | Pre-dev flow - Uncontrolled Flow to Creek |
| Actual Outflow (m³/s) | 0.0958 | From SSD |

| | | |
|--------------------------|-------|----|
| REQUIRED STORAGE VOLUME: | 156.0 | m³ |
|--------------------------|-------|----|

| Storage Volume Determination (Detailed) | | | | |
|---|--------|----------------|---------------------|----------------|
| T _d | i | T _d | Q _{Uncont} | S _d |
| min | mm/hr | sec | m³/s | m³ |
| 0 | 399.83 | 0 | 0.663 | -28.7 |
| 1 | 348.87 | 60 | 0.578 | 3.1 |
| 2 | 310.69 | 120 | 0.515 | 27.3 |
| 3 | 280.90 | 180 | 0.466 | 46.5 |
| 4 | 256.93 | 240 | 0.426 | 62.0 |
| 5 | 237.18 | 300 | 0.393 | 74.9 |
| 6 | 220.60 | 360 | 0.366 | 85.7 |
| 7 | 206.45 | 420 | 0.342 | 94.9 |
| 8 | 194.22 | 480 | 0.322 | 102.8 |
| 9 | 183.53 | 540 | 0.304 | 109.7 |
| 10 | 174.10 | 600 | 0.289 | 115.7 |
| 15 | 139.66 | 900 | 0.232 | 136.6 |
| 20 | 117.66 | 1200 | 0.195 | 147.9 |
| 25 | 102.26 | 1500 | 0.170 | 153.7 |
| 30 | 90.81 | 1800 | 0.151 | 156.0 |
| 35 | 81.92 | 2100 | 0.136 | 155.9 |
| 40 | 74.81 | 2400 | 0.124 | 154.0 |
| 45 | 68.97 | 2700 | 0.114 | 150.7 |
| 50 | 64.07 | 3000 | 0.106 | 146.3 |
| 55 | 59.91 | 3300 | 0.099 | 141.0 |
| 60 | 56.32 | 3600 | 0.093 | 135.0 |
| 65 | 53.18 | 3900 | 0.088 | 128.3 |
| 70 | 50.42 | 4200 | 0.084 | 121.2 |
| 75 | 47.97 | 4500 | 0.080 | 113.6 |
| 80 | 45.77 | 4800 | 0.076 | 105.6 |
| 85 | 43.79 | 5100 | 0.073 | 97.2 |

Modified Rational Method - Uncontrolled Flows to Creek
Peak Flow

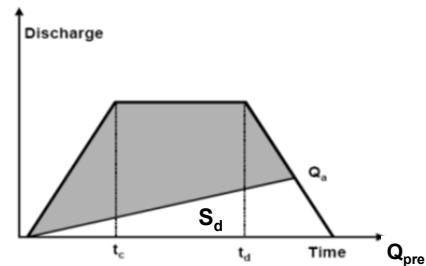
$$Q_{\text{post}} = 0.0028 \cdot C_{\text{post}} \cdot i_{(T_d)} \cdot A$$

Intensity

$$i_{(T_d)} = A / (T + B)^C$$

Storage

$$S_d = Q_{\text{post}} \cdot T_d - Q_{\text{pre}} (T_d + T_c) / 2$$



| Post-Development Scenario Data | | | |
|--------------------------------|----------------|---------------------|-------|
| Inputs | | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): | 80.06 |
| Return Period | 2 Year | | |
| Time of Concentration (min) | 10 | | |
| Coeff A | 779 | | |
| Coeff B | 6 | | |
| Coeff C | 0.8206 | | |
| Runoff Coeff (unadjusted) | 0.44 | Uncont. Flow (m³/s) | 0.002 |
| Runoff Coefficient (Adjusted) | 0.44 | | |
| Area (ha) | 0.02 | | |

Modified Rational Method - Uncontrolled Flows to Creek
Peak Flow

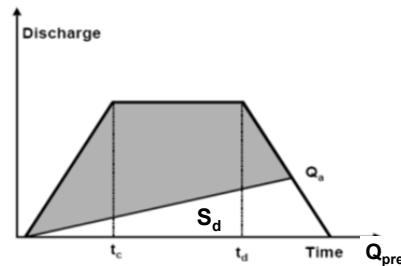
$$Q_{\text{post}} = 0.0028 \cdot C_{\text{post}} \cdot i_{(T_d)} \cdot A$$

Intensity

$$i_{(T_d)} = A / (T + B)^C$$

Storage

$$S_d = Q_{\text{post}} \cdot T_d - Q_{\text{pre}} (T_d + T_c) / 2$$



| Post-Development Scenario Data | | | |
|--------------------------------|----------------|---------------------|--------|
| Inputs | | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): | 105.25 |
| Return Period | 5 Year | | |
| Time of Concentration (min) | 10 | | |
| Coeff A | 959 | | |
| Coeff B | 5.7 | | |
| Coeff C | 0.8024 | | |
| Runoff Coeff (unadjusted) | 0.44 | Uncont. Flow (m³/s) | 0.003 |
| Runoff Coefficient (Adjusted) | 0.44 | | |
| Area (ha) | 0.02 | | |



Modified Rational Method - Uncontrolled Flows to Creek

Peak Flow

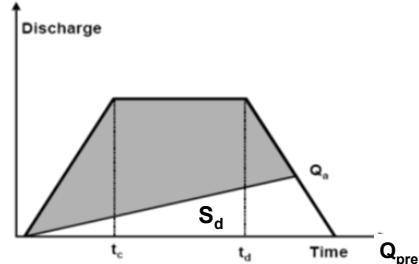
$$Q_{\text{post}} = 0.0028 \cdot C_{\text{post}} \cdot i_{(T_d)} \cdot A$$

Intensity

$$i_{(T_d)} = A / (T + B)^C$$

Storage

$$S_d = Q_{\text{post}} \cdot T_d - Q_{\text{pre}} (T_d + T_c) / 2$$



| Post-Development Scenario Data | | | |
|--------------------------------|----------------|--------------------------|--------|
| Inputs | | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): | 121.81 |
| Return Period | 10 Year | | |
| Time of Concentration (min) | 10 | | |
| Coeff A | 1089 | | |
| Coeff B | 5.7 | | |
| Coeff C | 0.7955 | | |
| Runoff Coeff (unadjusted) | 0.44 | Uncont. Flow (m^3/s) | 0.004 |
| Runoff Coefficient (Adjusted) | 0.55 | | |
| Area (ha) | 0.02 | | |



Modified Rational Method - Uncontrolled Flows to Creek

Peak Flow

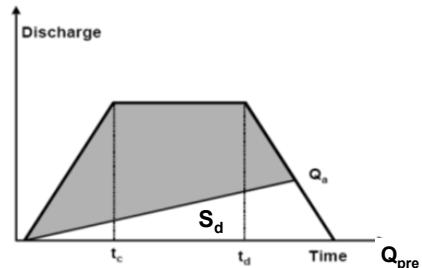
$$Q_{\text{post}} = 0.0028 \cdot C_{\text{post}} \cdot i_{(T_d)} \cdot A$$

Intensity

$$i_{(T_d)} = A / (T + B)^C$$

Storage

$$S_d = Q_{\text{post}} \cdot T_d - Q_{\text{pre}} (T_d + T_c) / 2$$



| Post-Development Scenario Data | | | |
|--------------------------------|----------------|--------------------------|--------|
| Inputs | | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): | 143.01 |
| Return Period | 25 Year | | |
| Time of Concentration (min) | 10 | | |
| Coeff A | 1234 | | |
| Coeff B | 5.5 | | |
| Coeff C | 0.7863 | | |
| Runoff Coeff (unadjusted) | 0.44 | Uncont. Flow (m^3/s) | 0.005 |
| Runoff Coefficient (Adjusted) | 0.61 | | |
| Area (ha) | 0.02 | | |



Modified Rational Method - Uncontrolled Flows to Creek

Peak Flow

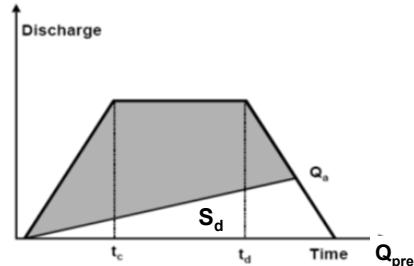
$$Q_{\text{post}} = 0.0028 \cdot C_{\text{post}} \cdot i_{(T_d)} \cdot A$$

Intensity

$$i_{(T_d)} = A / (T + B)^C$$

Storage

$$S_d = Q_{\text{post}} \cdot T_d - Q_{\text{pre}} (T_d + T_c) / 2$$



| Post-Development Scenario Data | | | |
|--------------------------------|----------------|---------------------|--------|
| Inputs | | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): | 158.18 |
| Return Period | 50 Year | | |
| Time of Concentration (min) | 10 | | |
| Coeff A | 1323 | | |
| Coeff B | 5.3 | | |
| Coeff C | 0.7786 | | |
| Runoff Coeff (unadjusted) | 0.44 | Uncont. Flow (m³/s) | 0.006 |
| Runoff Coefficient (Adjusted) | 0.67 | | |
| Area (ha) | 0.02 | | |



Modified Rational Method - Uncontrolled Flows to Creek

Peak Flow

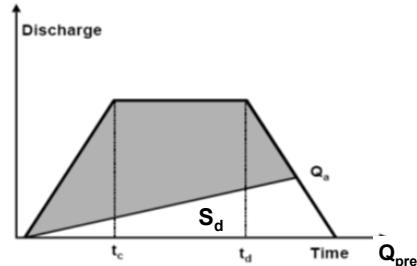
$$Q_{\text{post}} = 0.0028 \cdot C_{\text{post}} \cdot i_{(T_d)} \cdot A$$

Intensity

$$i_{(T_d)} = A / (T + B)^C$$

Storage

$$S_d = Q_{\text{post}} \cdot T_d - Q_{\text{pre}} (T_d + T_c) / 2$$



| Post-Development Scenario Data | | | |
|--------------------------------|----------------|--------------------------|--------|
| Inputs | | Outputs | |
| IDF Location | Town of Milton | Intensity (mm/hr): | 174.10 |
| Return Period | 100 Year | | |
| Time of Concentration (min) | 10 | | |
| Coeff A | 1435 | | |
| Coeff B | 5.2 | | |
| Coeff C | 0.775 | | |
| Runoff Coeff (unadjusted) | 0.44 | Uncont. Flow (m^3/s) | 0.007 |
| Runoff Coefficient (Adjusted) | 0.72 | | |
| Area (ha) | 0.02 | | |



7072 Sixth Line

HYDRAULIC DESIGN OF TANK (Cupolex)

Orifice Diameter: 0.150 m
Orifice Invert Elevation: 188.66 m
V-notch Angle: 65 degrees
V-notch Constant: 0.87
Weir Invert: 188.75 m

| Elev (m) | Depth (m) | Area sq. m | Inc. Volume cu.m | Cupolex cu.m | 1st Orifice Discharge (cu.m/s) | V-notch Weir Discharge (cu.m/s) | Total Discharge (cu.m/s) | Storage (ha-m) | Storage (m³) |
|-------------|--------------|---------------|------------------------|-----------------|--------------------------------------|---------------------------------------|--------------------------------|-------------------|-----------------|
| 188.66 | 0 | 462 | 0.000 | 0.0 | 0.000 | 0.000 | 0.00000 | 0.0000 | 0 |
| 188.67 | 0.01 | 462 | 3.911 | 3.9 | 0.001 | 0.000 | 0.00086 | 0.0004 | 4 |
| 188.68 | 0.02 | 462 | 3.911 | 7.8 | 0.002 | 0.000 | 0.00171 | 0.0008 | 8 |
| 188.69 | 0.03 | 462 | 3.911 | 11.7 | 0.003 | 0.000 | 0.00257 | 0.0012 | 12 |
| 188.70 | 0.04 | 462 | 3.911 | 15.6 | 0.003 | 0.000 | 0.00343 | 0.0016 | 16 |
| 188.71 | 0.05 | 462 | 3.911 | 19.6 | 0.004 | 0.000 | 0.00429 | 0.0020 | 20 |
| 188.72 | 0.06 | 462 | 3.883 | 23.4 | 0.005 | 0.000 | 0.00514 | 0.0023 | 23 |
| 188.73 | 0.07 | 462 | 3.883 | 27.3 | 0.006 | 0.000 | 0.00600 | 0.0027 | 27 |
| 188.74 | 0.08 | 462 | 3.883 | 31.2 | 0.004 | 0.000 | 0.00354 | 0.0031 | 31 |
| 188.75 | 0.09 | 462 | 3.883 | 35.1 | 0.006 | 0.000 | 0.00614 | 0.0035 | 35 |
| 188.76 | 0.10 | 462 | 3.883 | 39.0 | 0.008 | 0.000 | 0.00793 | 0.0039 | 39 |
| 188.77 | 0.11 | 462 | 3.855 | 42.8 | 0.009 | 0.000 | 0.00942 | 0.0043 | 43 |
| 188.78 | 0.12 | 462 | 3.855 | 46.7 | 0.011 | 0.000 | 0.01076 | 0.0047 | 47 |
| 188.79 | 0.13 | 462 | 3.855 | 50.5 | 0.012 | 0.000 | 0.01203 | 0.0051 | 51 |
| 188.80 | 0.14 | 462 | 3.855 | 54.4 | 0.013 | 0.000 | 0.01326 | 0.0054 | 54 |
| 188.81 | 0.15 | 462 | 3.855 | 58.2 | 0.014 | 0.001 | 0.01449 | 0.0058 | 58 |
| 188.82 | 0.16 | 462 | 3.827 | 62.1 | 0.015 | 0.001 | 0.01574 | 0.0062 | 62 |
| 188.83 | 0.17 | 462 | 3.827 | 65.9 | 0.015 | 0.002 | 0.01702 | 0.0066 | 66 |
| 188.84 | 0.18 | 462 | 3.827 | 69.7 | 0.016 | 0.002 | 0.01835 | 0.0070 | 70 |
| 188.85 | 0.19 | 462 | 3.827 | 73.6 | 0.017 | 0.003 | 0.01975 | 0.0074 | 74 |
| 188.86 | 0.20 | 462 | 3.827 | 77.4 | 0.018 | 0.004 | 0.02121 | 0.0077 | 77 |
| 188.87 | 0.21 | 462 | 3.799 | 81.2 | 0.018 | 0.004 | 0.02276 | 0.0081 | 81 |
| 188.88 | 0.22 | 462 | 3.799 | 85.0 | 0.019 | 0.005 | 0.02439 | 0.0085 | 85 |
| 188.89 | 0.23 | 462 | 3.799 | 88.8 | 0.020 | 0.006 | 0.02612 | 0.0089 | 89 |
| 188.90 | 0.24 | 462 | 3.799 | 92.6 | 0.020 | 0.008 | 0.02796 | 0.0093 | 93 |
| 188.91 | 0.25 | 462 | 3.799 | 96.4 | 0.021 | 0.009 | 0.02990 | 0.0096 | 96 |
| 188.92 | 0.26 | 462 | 3.772 | 100.2 | 0.022 | 0.010 | 0.03195 | 0.0100 | 100 |
| 188.93 | 0.27 | 462 | 3.772 | 103.9 | 0.022 | 0.012 | 0.03412 | 0.0104 | 104 |
| 188.94 | 0.28 | 462 | 3.772 | 107.7 | 0.023 | 0.014 | 0.03642 | 0.0108 | 108 |
| 188.95 | 0.29 | 462 | 3.772 | 111.5 | 0.023 | 0.016 | 0.03884 | 0.0111 | 111 |
| 188.96 | 0.30 | 462 | 3.772 | 115.2 | 0.024 | 0.018 | 0.04140 | 0.0115 | 115 |
| 188.97 | 0.31 | 462 | 4.334 | 119.6 | 0.024 | 0.020 | 0.04410 | 0.0120 | 120 |
| 188.98 | 0.32 | 462 | 4.334 | 123.9 | 0.025 | 0.022 | 0.04694 | 0.0124 | 124 |
| 188.99 | 0.33 | 462 | 4.334 | 128.2 | 0.025 | 0.025 | 0.04993 | 0.0128 | 128 |
| 189.00 | 0.34 | 462 | 4.334 | 132.6 | 0.026 | 0.027 | 0.05307 | 0.0133 | 133 |
| 189.01 | 0.35 | 462 | 4.334 | 136.9 | 0.026 | 0.030 | 0.05636 | 0.0137 | 137 |
| 189.02 | 0.36 | 462 | 3.428 | 140.3 | 0.027 | 0.033 | 0.05981 | 0.0140 | 140 |
| 189.03 | 0.37 | 462 | 3.428 | 143.8 | 0.027 | 0.036 | 0.06342 | 0.0144 | 144 |
| 189.04 | 0.38 | 462 | 3.428 | 147.2 | 0.028 | 0.040 | 0.06720 | 0.0147 | 147 |
| 189.05 | 0.39 | 462 | 3.428 | 150.6 | 0.028 | 0.043 | 0.07115 | 0.0151 | 151 |
| 189.06 | 0.40 | 462 | 3.428 | 154.0 | 0.029 | 0.047 | 0.07526 | 0.0154 | 154 |
| 189.07 | 0.41 | 462 | 0.532 | 154.6 | 0.029 | 0.051 | 0.07956 | 0.0155 | 155 |
| 189.08 | 0.42 | 462 | 0.468 | 155.0 | 0.029 | 0.055 | 0.08403 | 0.0155 | 155 |
| 189.09 | 0.43 | 462 | 0.403 | 155.5 | 0.030 | 0.059 | 0.08869 | 0.0155 | 155 |
| 189.10 | 0.44 | 462 | 0.339 | 155.8 | 0.030 | 0.063 | 0.09353 | 0.0156 | 156 |
| 189.11 | 0.45 | 462 | 0.202 | 156.0 | 0.031 | 0.068 | 0.09855 | 0.0156 | 156 |



7072 Sixth Line

HYDRAULIC DESIGN OF TANK (Cupolex)

Orifice Diameter: 0.150 m
Orifice Invert Elevation: 188.66 m
V-notch Angle: 68 degrees
V-notch Constant: 0.92
Weir Invert: 188.75 m

| Elev (m) | Depth (m) | Area sq. m | Inc. Volume cu.m | Cupolex cu.m | 1st Orifice Discharge (cu.m/s) | V-notch Weir Discharge (cu.m/s) | Total Discharge (cu.m/s) | Storage (ha-m) | Storage (m³) |
|-------------|--------------|---------------|------------------------|-----------------|--------------------------------------|---------------------------------------|--------------------------------|-------------------|-----------------|
| 188.66 | 0 | 462 | 0.000 | 0.0 | 0.000 | 0.000 | 0.00000 | 0.0000 | 0 |
| 188.67 | 0.01 | 462 | 3.911 | 3.9 | 0.001 | 0.000 | 0.00086 | 0.0004 | 4 |
| 188.68 | 0.02 | 462 | 3.911 | 7.8 | 0.002 | 0.000 | 0.00171 | 0.0008 | 8 |
| 188.69 | 0.03 | 462 | 3.911 | 11.7 | 0.003 | 0.000 | 0.00257 | 0.0012 | 12 |
| 188.70 | 0.04 | 462 | 3.911 | 15.6 | 0.003 | 0.000 | 0.00343 | 0.0016 | 16 |
| 188.71 | 0.05 | 462 | 3.911 | 19.6 | 0.004 | 0.000 | 0.00429 | 0.0020 | 20 |
| 188.72 | 0.06 | 462 | 3.883 | 23.4 | 0.005 | 0.000 | 0.00514 | 0.0023 | 23 |
| 188.73 | 0.07 | 462 | 3.883 | 27.3 | 0.006 | 0.000 | 0.00600 | 0.0027 | 27 |
| 188.74 | 0.08 | 462 | 3.883 | 31.2 | 0.004 | 0.000 | 0.00354 | 0.0031 | 31 |
| 188.75 | 0.09 | 462 | 3.883 | 35.1 | 0.006 | 0.000 | 0.00614 | 0.0035 | 35 |
| 188.76 | 0.10 | 462 | 3.883 | 39.0 | 0.008 | 0.000 | 0.00793 | 0.0039 | 39 |
| 188.77 | 0.11 | 462 | 3.855 | 42.8 | 0.009 | 0.000 | 0.00942 | 0.0043 | 43 |
| 188.78 | 0.12 | 462 | 3.855 | 46.7 | 0.011 | 0.000 | 0.01077 | 0.0047 | 47 |
| 188.79 | 0.13 | 462 | 3.855 | 50.5 | 0.012 | 0.000 | 0.01204 | 0.0051 | 51 |
| 188.80 | 0.14 | 462 | 3.855 | 54.4 | 0.013 | 0.001 | 0.01329 | 0.0054 | 54 |
| 188.81 | 0.15 | 462 | 3.855 | 58.2 | 0.014 | 0.001 | 0.01453 | 0.0058 | 58 |
| 188.82 | 0.16 | 462 | 3.827 | 62.1 | 0.015 | 0.001 | 0.01580 | 0.0062 | 62 |
| 188.83 | 0.17 | 462 | 3.827 | 65.9 | 0.015 | 0.002 | 0.01711 | 0.0066 | 66 |
| 188.84 | 0.18 | 462 | 3.827 | 69.7 | 0.016 | 0.002 | 0.01848 | 0.0070 | 70 |
| 188.85 | 0.19 | 462 | 3.827 | 73.6 | 0.017 | 0.003 | 0.01991 | 0.0074 | 74 |
| 188.86 | 0.20 | 462 | 3.827 | 77.4 | 0.018 | 0.004 | 0.02142 | 0.0077 | 77 |
| 188.87 | 0.21 | 462 | 3.799 | 81.2 | 0.018 | 0.005 | 0.02302 | 0.0081 | 81 |
| 188.88 | 0.22 | 462 | 3.799 | 85.0 | 0.019 | 0.006 | 0.02471 | 0.0085 | 85 |
| 188.89 | 0.23 | 462 | 3.799 | 88.8 | 0.020 | 0.007 | 0.02650 | 0.0089 | 89 |
| 188.90 | 0.24 | 462 | 3.799 | 92.6 | 0.020 | 0.008 | 0.02840 | 0.0093 | 93 |
| 188.91 | 0.25 | 462 | 3.799 | 96.4 | 0.021 | 0.009 | 0.03042 | 0.0096 | 96 |
| 188.92 | 0.26 | 462 | 3.772 | 100.2 | 0.022 | 0.011 | 0.03256 | 0.0100 | 100 |
| 188.93 | 0.27 | 462 | 3.772 | 103.9 | 0.022 | 0.013 | 0.03483 | 0.0104 | 104 |
| 188.94 | 0.28 | 462 | 3.772 | 107.7 | 0.023 | 0.015 | 0.03722 | 0.0108 | 108 |
| 188.95 | 0.29 | 462 | 3.772 | 111.5 | 0.023 | 0.017 | 0.03976 | 0.0111 | 111 |
| 188.96 | 0.30 | 462 | 3.772 | 115.2 | 0.024 | 0.019 | 0.04244 | 0.0115 | 115 |
| 188.97 | 0.31 | 462 | 4.334 | 119.6 | 0.024 | 0.021 | 0.04527 | 0.0120 | 120 |
| 188.98 | 0.32 | 462 | 4.334 | 123.9 | 0.025 | 0.023 | 0.04824 | 0.0124 | 124 |
| 188.99 | 0.33 | 462 | 4.334 | 128.2 | 0.025 | 0.026 | 0.05138 | 0.0128 | 128 |
| 189.00 | 0.34 | 462 | 4.334 | 132.6 | 0.026 | 0.029 | 0.05467 | 0.0133 | 133 |
| 189.01 | 0.35 | 462 | 4.334 | 136.9 | 0.026 | 0.032 | 0.05813 | 0.0137 | 137 |
| 189.02 | 0.36 | 462 | 3.428 | 140.3 | 0.027 | 0.035 | 0.06175 | 0.0140 | 140 |
| 189.03 | 0.37 | 462 | 3.428 | 143.8 | 0.027 | 0.038 | 0.06555 | 0.0144 | 144 |
| 189.04 | 0.38 | 462 | 3.428 | 147.2 | 0.028 | 0.042 | 0.06952 | 0.0147 | 147 |
| 189.05 | 0.39 | 462 | 3.428 | 150.6 | 0.028 | 0.046 | 0.07367 | 0.0151 | 151 |
| 189.06 | 0.40 | 462 | 3.428 | 154.0 | 0.029 | 0.049 | 0.07801 | 0.0154 | 154 |
| 189.07 | 0.41 | 462 | 0.532 | 154.6 | 0.029 | 0.054 | 0.08253 | 0.0155 | 155 |
| 189.08 | 0.42 | 462 | 0.468 | 155.0 | 0.029 | 0.058 | 0.08724 | 0.0155 | 155 |
| 189.09 | 0.43 | 462 | 0.403 | 155.5 | 0.030 | 0.062 | 0.09214 | 0.0155 | 155 |
| 189.10 | 0.44 | 462 | 0.339 | 155.8 | 0.030 | 0.067 | 0.09724 | 0.0156 | 156 |
| 189.11 | 0.45 | 462 | 0.202 | 156.0 | 0.031 | 0.072 | 0.10254 | 0.0156 | 156 |

APPENDIX E

Water Balance and LID Calculations



Project: 2709-7165
Project No: 7072 Sixth Line
Modelled By: N. O'Connor
Date Created: 2025.10.14

Design Storm Determination
Project Name: 7072 Sixth Line
Water Balance/Water Budget Assessment

Total Infiltration Deficit 1,264 m³/yr (From Hydrogeological Report prepared by EnVision, August 2025)

Days with Precipitation (From Climate Data)

| | Apr | May | Jun | Jul | Aug | Sep | Oct | Total |
|-----------|------|------|------|------|------|------|------|-------|
| >= 0.2 mm | 12.4 | 11.9 | 11.2 | 10.6 | 10.6 | 11.7 | 12.3 | 81 |
| >= 5 mm | 5.3 | 5 | 4.8 | 4 | 4.6 | 5.1 | 4.7 | 34 |
| >= 10 mm | 2.6 | 3 | 2.2 | 2.3 | 2.6 | 3.1 | 2.4 | 18 |
| >= 25 mm | 0.32 | 0.48 | 0.52 | 0.56 | 0.6 | 0.62 | 0.35 | 3 |

Available Precipitation

| Storm Event (mm) | Total Days Per Year | Incremental Precipitation (mm/yr) | Cumulative Precipitation (mm/yr) |
|------------------|---------------------|-----------------------------------|----------------------------------|
| 0.2 | 81 | 16.1 | 16.1 |
| 5 | 34 | 167.5 | 183.6 |
| 10 | 18 | 182.0 | 365.6 |
| 25 | 3 | 86.3 | 451.9 |
| Total | 136 | 451.9 | |

Infiltration Trench

Impervious Area: 6180 m²
Depth of Rainfall: 5.98 mm/event
Equivalent Annual Cumulative Precipitation: 219 mm/yr
Total Annual Infiltration Volume: 1,355 m³/yr

Resulting Infiltration Deficit: -91 m³/yr



Design Storm Determination
Project Name: 7072 Sixth Line
On-Site Retention Calculation

| | |
|------------------------------|---------------------|
| Total Impervious Area | 6180 m ² |
| Infiltration Target | 5 mm |
| Infiltration Volume Target | 31 m ³ |
| Infiltration Volume Provided | 37 m ³ |
| Equivalent Infiltration | 6.0 mm |

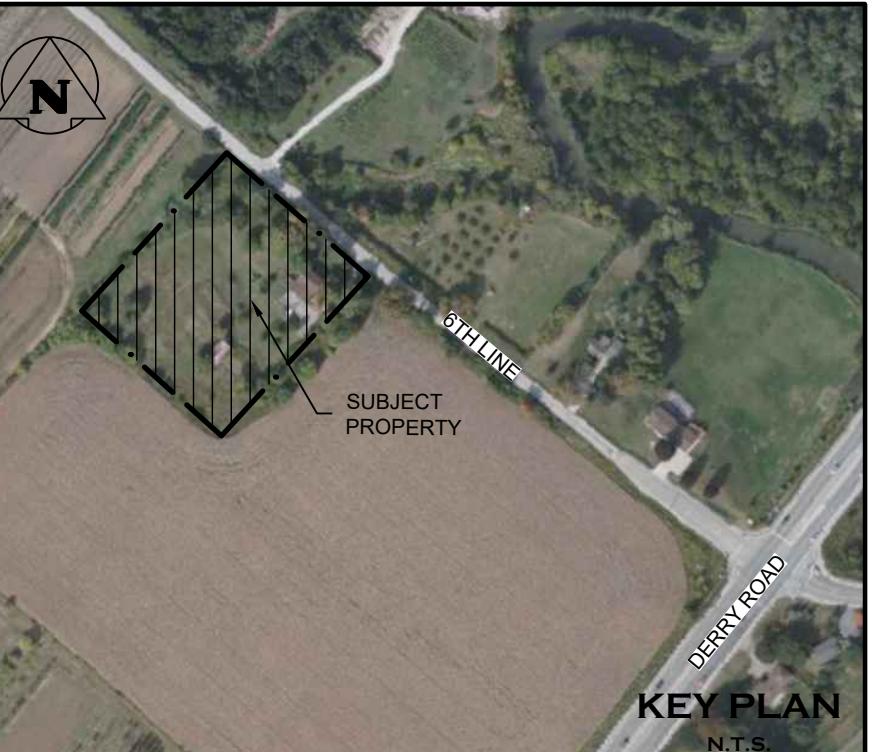
Mitigation Provided by Private LIDs

Infiltration Trench

| Contributing Area | Height (m) | Contact Area (m ²) | Runoff Volume (m ³) | Equivalent RV (mm) |
|-------------------|------------|--------------------------------|---------------------------------|--------------------|
| 6180 | 0.20 | 462.0 | 37.0 | 5.98 |

FIGURES

- Figure 1: Site Location Plan
- Figure 2: Concept Plan
- Figure 3: Preliminary Grading and Servicing Plan
- Figure 4: Existing Drainage Plan
- Figure 5: Proposed Drainage Plan
- Figure 6: Preliminary LID Plan



LEGEND

- SITE LOCATION
- WATERCOURSE

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TEMPORARY BENCHMARKS

TBM#1-
TBM#2-
TBM#3-

***ADD REFERENCE TO SURVEY/SOURCE

Town _____

No. _____

ISSUE _____

DATE: YYYY/MM/DD

Engineer _____

Engineer _____

Project _____

Drawing _____

7072 SIXTH LINE
TOWN OF MILTON

SITE LOCATION PLAN



Drawn By A.T. Design By N.O.C./K.S. Project 2709-7165
 Check By N.O.C./K.S. Check By N.O.C./K.S. Drawing FIG1



| LEGEND | |
|--------|---|
| | STUDY AREA |
| | WATERCOURSE |
| | PRE-DEVELOPMENT DRAINAGE AREA |
| | CONTOUR |
| | EXISTING OVERLAND FLOW DIRECTION |
| | DRAINAGE ID |
| | AREA (ha) CN COEFFICIENT/% IMPERVIOUS |

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Engineer

Project

7072 SIXTH LINE

TOWN OF MILTON

Drawing

EXISTING CONDITIONS CATCHMENT

DRAINAGE PLAN

709-7165

FIG4

Drawn By A.T. Design By N.O.C./K.S. Project 2709-7165
 Check By N.O.C./K.S. Check By N.O.C./K.S. Drawing FIG4



10 0m 10 20
SCALE: 1:300

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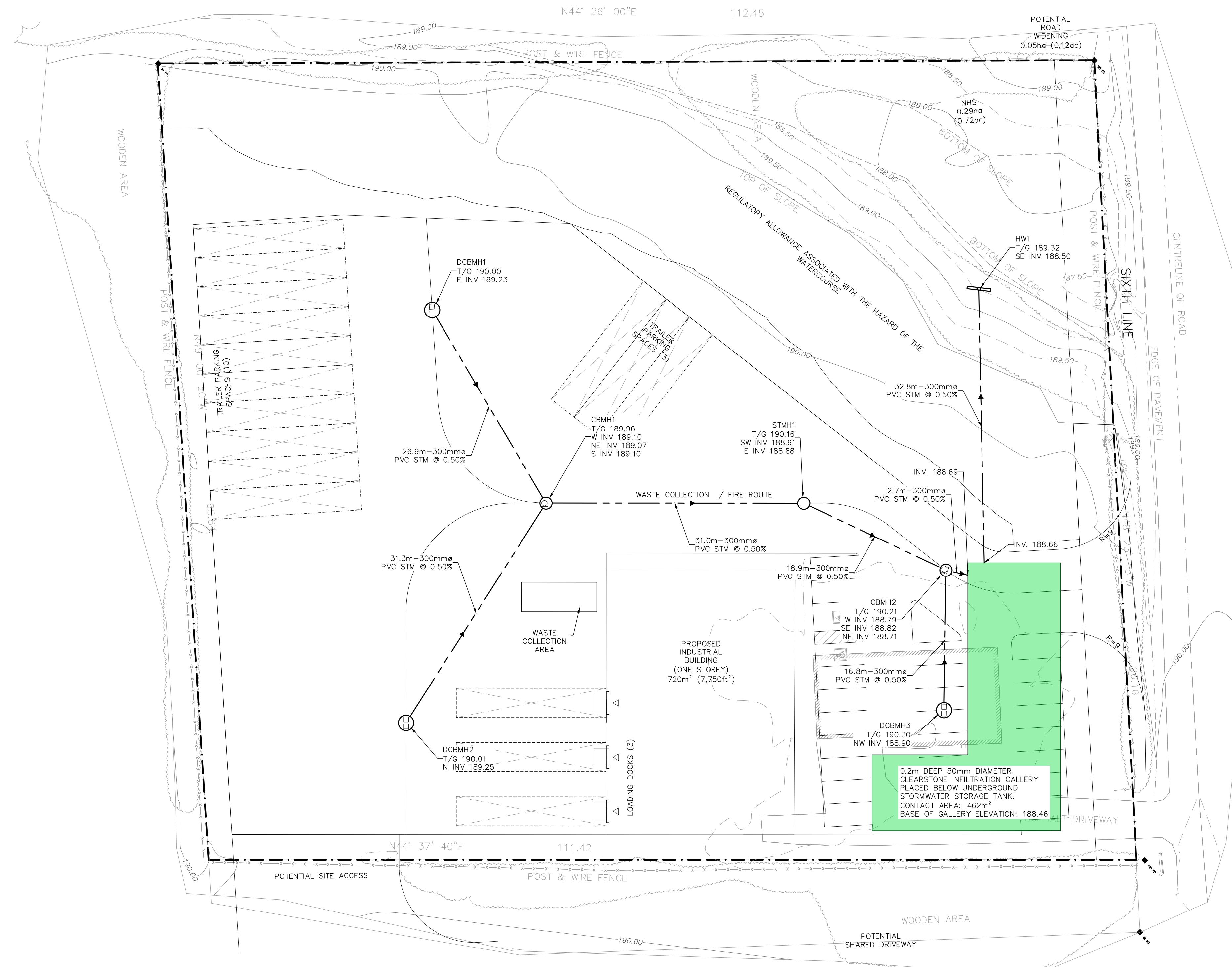
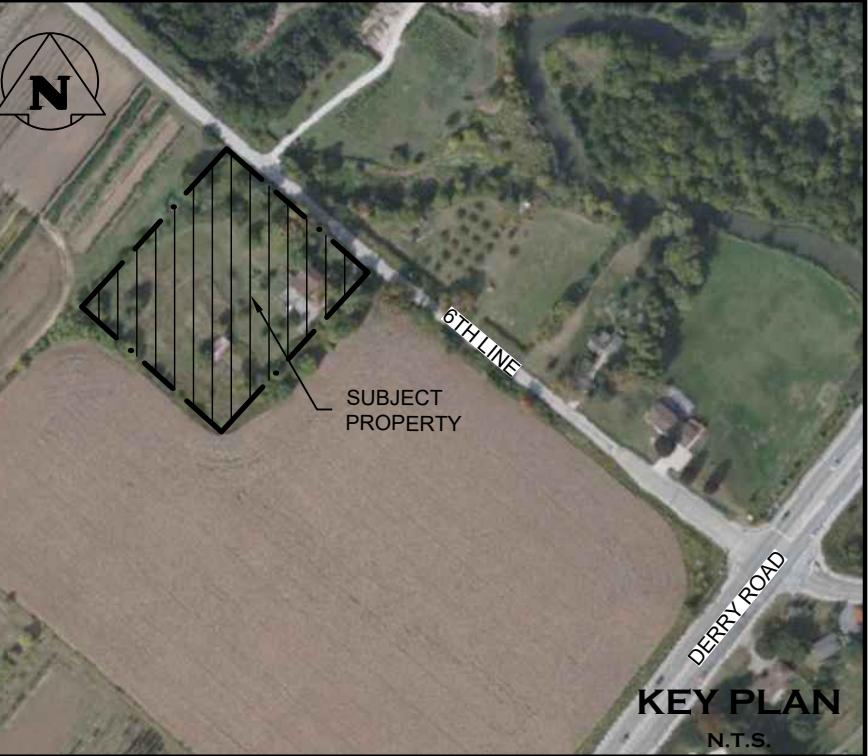
7072 SIXTH LINE
TOWN OF MILTON

PROPOSED CONDITIONS CATCHMENT DRAINAGE PLAN



CROZIER
CONSULTING ENGINEERS

Drawn By A.T. Design By N.O.C./K.S. Project 2709-7165
Check By N.O.C./K.S. Check By N.O.C./K.S. Drawing FIG5



10 0m 10 20
SCALE: 1:300

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Engineer

Engineer

Project

Drawing

7072 SIXTH LINE

TOWN OF MILTON

PRELIMINARY LID PLAN

CROZIER
CONSULTING ENGINEERS
Drawn By A.T. Design By N.O.C./K.S. Project 2709-7165
Check By N.O.C./K.S. Check By N.O.C./K.S. Drawing FIG6