



WALTER OSTOJIC & SONS LIMITED

Functional Servicing Report

Warehouse Street Development, St. Thomas



December 4, 2025

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Attention: Joe Ostojic
President

Warehouse Street Development – Functional Servicing Report

Enclosed is our Final Functional Servicing Report for the above-referenced project, submitted in support of the Zoning By-Law Amendment (ZBA) and Draft Plan of Subdivision (DPS) application.

This report identifies potential constraints related to sanitary sewerage, water supply, drainage, and stormwater management. It also considers site grading, transportation, and the availability of utilities. Where necessary, our analysis is based on reasonable assumptions consistent with standard industry practice.

We have concluded that adequate services are available to support the proposed development, with further input and clarifications from the City and adjacent land owners regarding internal site and external overland drainage conveyance, prior to commencing with detailed design. The recommendations outlined in this report will be incorporated into the detailed design phase following the approval of the ZBA & DPS Application.

Sincerely,

DILLON CONSULTING LIMITED

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MM:rrk
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Executive Summary

Dillon Consulting Limited has prepared this Functional Servicing Report (FSR) on behalf of Walter Ostojic & Sons Limited in support of a Zoning By-Law Amendment and Draft Plan of Subdivision for the proposed Warehouse Street Development. The project involves developing a 1.125-hectare (ha) undeveloped parcel on the north side of Warehouse Street in the City of St. Thomas. The proposed 38-unit residential subdivision will consist of five duplexes and seven fourplexes.

This report provides a comprehensive servicing analysis, establishing the site's existing conditions, outlining design objectives, presenting a feasible concept for site servicing and stormwater management, and providing conclusions and recommendations for the project to proceed.

The servicing and stormwater strategy was developed in accordance with the policies and standards of the City of St. Thomas and the provincial Ministry of the Environment, Conservation and Parks (MECP). The design framework was established by reviewing planning documents, municipal engineering standards, and supporting technical studies, including the Phase Two Environmental Site Assessment (EXP, January 2023).

The proposed development will be fully serviced by connecting to existing infrastructure on Warehouse Street.

- The site will be serviced by the 250 mm gravity sanitary sewer fronting Warehouse Street. The existing 250 mm sanitary sewer is proposed to be replaced and will be completed under a separate design. Private Drain Connections (PDCs) are proposed for each of the proposed lots.
- The existing 150 mm watermain will be replaced with a new 200 mm main completed under a separate design. This will provide adequate domestic supply and fire protection. Water services are proposed for each of the proposed lots.
- Runoff will be collected by a new storm sewer system, directed to a dedicated stormwater management (SWM) facility for quantity control and treated for quality by an Oil Grit Separator (OGS) before discharging to the municipal storm sewer system, being extended to the west limit of the site from the Warehouse Street and Park Avenue intersection.
- The existing storm sewer on Warehouse Street is proposed to be extended toward the east limit of the site under a separate design. Private Drain Connections (PDCs) are proposed for each of the proposed lots.

Based on the analysis herein, it is concluded that the proposed residential development can be adequately serviced, with further input and clarifications from the City and adjacent land owners regarding internal site and external drainage conveyance. The functional servicing and grading concepts are technically feasible, conforms to all governing standards, and can be supplied without negatively impacting existing infrastructure.

It is recommended that the City of St. Thomas and relevant agencies accept this Functional Servicing Report in support of the Zoning By-Law Amendment and Draft Plan of Subdivision application. We further recommend that the servicing concepts and design criteria outlined in this report be carried forward into the detailed design phase following approval. Finally, it is recommended that the City and adjacent land owners provide clarification on internal and external overland drainage conveyance prior to commencing detailed design.

1.0

Introduction

Walter Ostoja & Sons Limited has retained Dillon Consulting Limited (Dillon) to prepare this draft Functional Servicing Report in support of a Zoning By-Law Amendment and Draft Plan of Subdivision application for the Warehouse Street Development (the Site) in St. Thomas, Ontario. The Site is irregular in shape with a total area of 1.125 ha. Refer to Figure 1 for the site location.

The Site is bounded to the south by Warehouse Street, to the east by the existing single-family property known as 37 Warehouse Street, to the west by an unopened right-of-way (ROW) for the extension of Park Avenue, and to the north by commercial sites.

Based on a review of historical aerial photographs, maps, and available records, the Site has a long history of railway use. Multiple railway lines occupied the northern property boundary and northwestern portion of the Site from at least the 1910s. A reduction in on-site railway infrastructure was observed by the 1970s, and by the late 2000s, only a single line remained to the north of the Site; this remaining line was removed in the early 2010s. Records from the late 1970s indicate the Site may have been utilized as a railway yard or for construction material storage. Furthermore, evidence of ground disturbance observed during the 1970s and again in the early 2010s suggests that fill materials were likely imported to the Site during these periods.



Figure 1: Site Location

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The proposed development on the site consists of five duplex buildings, which comprise ten residential units, and seven fourplex buildings which comprise 28 residential units for a total of 38 units. The plan also includes associated driveways, 35 surface parking spaces, and a stormwater management (SWM) facility. Please refer to **Appendix A** for the Concept Plan prepared in November 2025 for the proposed site layout.

2.0

Applicable Policies and Design Standards

This chapter outlines the policy framework upon which the servicing and stormwater management plan is built. Previous studies, municipal and provincial standards, as well as field investigations undertaken to support the project, are examples of information described in this chapter. This background information is then used to build an appropriate plan for the site. The next chapter, Objectives and Targets, describes the site-specific requirements noted from the following sources.

2.1

Planning Documents

This Functional Servicing Report has been prepared in accordance with the guidelines established by the Province of Ontario and the City of St. Thomas. The primary documents guiding the land use planning and development for this project include:

- **Provincial Planning Statement (2024):** Issued under the *Planning Act*, the Provincial Planning Statement (PPS) provides province-wide direction on matters of provincial interest related to land use planning and development. It promotes efficient development patterns, the protection of resources, and public health and safety.
- **City of St. Thomas Official Plan (2021 Consolidation):** The Official Plan outlines the City's long-term vision for growth and development. It contains specific policies regarding land use designations, infrastructure provision, environmental protection, and urban design that are applicable to the Site.
- **City of St. Thomas Comprehensive Zoning By-law Z-10:** This by-law implements the policies of the Official Plan by regulating the use of land, the size and location of buildings, and other site-specific requirements. The subject application for a Zoning By-law Amendment seeks to rezone the Site to permit the proposed form of development.
- **Watershed Plans:** The Site is located within the jurisdiction of the Kettle Creek Conservation Authority (KCCA). The following studies provide guidance on managing water resources within the local watershed.
- **Kettle Creek Watershed Plan and Flood Plain Mapping:** This online mapping tool provides a broad overview of the watershed's characteristics and establishes a framework for the integrated management of its water and natural resources.

The KCCA maintains flood line mapping for the watercourses within St. Thomas, including Dodd Creek and Stoney Creek. These studies are used to identify flood-prone areas and establish regulations for development to mitigate flood risk. This property is not affected by regulations under the *Conservation Authorities Act* within KCCA's watershed.

2.2 Stormwater Management Studies

This Functional Servicing Report serves as the primary stormwater management study for the development. It has been prepared to establish a comprehensive SWM strategy that aligns with the requirements of the Ministry of the Environment, Conservation and Parks (MECP), Stormwater Management Planning and Design Manual, the City's Consolidated Linear Infrastructure Environmental Compliance Approval (CLI ECA) and City of St. Thomas standards.

2.3 MECP Guidelines

The primary provincial document guiding stormwater management is published by the MECP.

Stormwater Management Planning and Design Manual (MECP, 2003): This manual provides the foundational technical and procedural guidance for the planning, design, and implementation of stormwater management practices across Ontario. It addresses water quantity control (flooding), quality control (pollutant removal), and erosion control.

2.4 Conservation Authority Guidelines

The Kettle Creek Conservation Authority (KCCA) reviews development applications to ensure the protection of natural resources and public safety from natural hazards.

Kettle Creek Conservation Authority Policies and Regulations: The KCCA administers regulations under the Conservation Authorities Act. Its policies guide development in or adjacent to river and stream valleys, wetlands, and shorelines to prevent negative impacts on watercourses and natural features. Submissions must demonstrate compliance with these policies regarding stormwater management, erosion and sediment control, and protection of the natural heritage system.

This property is not affected by regulations under the Conservation Authorities Act within KCCA's watershed, as the Site is not within a regulated area.

2.5 Environmental Studies

A Phase Two Environmental Site Assessment (ESA II) is being prepared by EXP Services Inc. to accompany the development application. Recommendations from this report concerning the protection of natural heritage features will guide the final site servicing, grading, and stormwater management design.

2.6 Source Water Protection

The Site is located within the Thames-Sydenham and Region Source Protection Area. A review of the applicable source protection mapping (Source Water Protection Atlas) indicates the property is not located within a Wellhead Protection Area (WHPA) or other highly vulnerable area related to water quality. However, the mapping confirms the site is situated within a Tier 2 (Moderate Stress) Ground Subwatershed and a Tier 2 (Moderate Stress) Surface Subwatershed.

As such, the development is subject to policies concerning water quantity. A water budget and water conservation plan will be completed during the detailed design phase to ensure compliance with the Source Protection Plan. This will demonstrate how the development will avoid a net increase in consumptive water demand through measures such as water-efficient fixtures and on-site stormwater infiltration through private low impact development (LID) measures.

2.7 Supplementary Subsurface Investigation

A Supplementary Subsurface Investigation for the Site was completed by EXP Services Inc. and is documented in their report titled Phase Two Environmental Site Assessment, Supplementary Subsurface Investigation, & Preliminary Remedial Works, dated January 9, 2023. The investigation identified the general subsurface stratigraphy as consisting of a layer of topsoil, overlying a silt and/or clayey silt fill layer, which in turn overlies native sand and gravel and/or a clayey silt till. The investigation identified soil impacts that exceeded the applicable MECP Table 2 criteria, including cyanide in one area and lead and arsenic in another.

As a result, remedial work was conducted by EXP to remove the impacted soils containing the lead and arsenic exceedances in the eastern portion of the site. The final remedial excavation measured approximately 1,020 square metres in area and extended to depths between 0.3 to 1.2 metres. The EXP report confirms that with the remedial program completed, the environmental objectives for the site have been achieved. The findings from this investigation, including the location and extent of the remedial excavation, have been considered in the preparation of this Functional Servicing Report.

2.8 Pre-Consultation

An informal pre-consultation for this project was undertaken by the client. A meeting was held on January 29, 2025, with representatives for the proponent and staff from the City of St. Thomas. During the meeting, several key design requirements were established. Planning comments highlighted the need for a zoning amendment to permit separate entrances for the proposed four-plex buildings and the requirement that a maximum of 50% of the front yard be used for driveways and parking, with the remainder being landscaped open space. Engineering staff identified the need for infrastructure upgrades, including the construction of a new storm sewer, curb, and sidewalk, as well as an increase of the watermain to a 200 mm diameter. Additionally, the city expressed its preference for a single, centralized stormwater management facility to service the lands. The specific design targets derived

from this consultation are presented in the following chapter, 'Objectives and Criteria', and a copy of the meeting notes is included in **Appendix A**.

2.9 Site Visit

Dillon staff conducted a site visit in July 2025. The purpose of this site visit was to observe existing site conditions, verify overland drainage patterns, locate existing municipal infrastructure on surrounding streets, and document the general characteristics of the adjacent properties.

The site is currently undeveloped and consists primarily of meadow vegetation with scattered trees. The topography generally slopes from the east to the west. Findings from the site visits confirm the information used from available mapping and were used to establish the existing conditions for this servicing analysis. Photographs of the site, taken during the July 24, 2025, visit, are presented below.



Photograph 1 – Undeveloped Park Avenue extension, looking northeast from the Warehouse/Park Avenue intersection.



Photograph 2 – Existing Warehouse Street, looking east from the Warehouse Street/Park Avenue intersection.



Photograph 3 – Site viewed from undeveloped Park Avenue, looking northeast.



Photograph 4 – Undeveloped Park Avenue extension looking south from Elgin Flooring.



Photograph 5 – Site viewed from Elgin Flooring, looking southeast.



Photograph 6 – Existing low-lying area in the north section of the Site, looking east towards the Fairview Bridge removal works.



Photograph 7 – Existing low area in the north section of the Site, looking east towards Fairview Bridge removal.



Photograph 8 – Existing low area in the north section of the Site, looking south towards existing Warehouse Street.



Photograph 9 – Existing low area in the north section of the Site, looking south towards existing Warehouse Street.



Photograph 10 – Existing low area in the north section of the Site, looking SW towards Warehouse/Park Avenue.



Photograph 11 – Existing monitoring well.



Photograph 12 – Existing brush near the low-lying area to the north of the Site.



Photograph 13 – East property line of the Site looking south towards existing Warehouse Street.



Photograph 14 – Site looking west from the east property line towards existing Warehouse Street.



Photograph 15 – Site looking NW from the SE corner.



Photograph 16 – Existing Warehouse Street from the SE corner of the Site looking west.

3.0

Design Criteria

This section outlines the objectives and criteria for the wide variety of issues considered in this report; the following section will demonstrate how the objectives presented have been achieved and how the criteria are met.

3.1

Topographical Information

According to the April 2021 topographic survey prepared by Archibald Gray & McKay Ltd. (AGM), the site generally drains toward the south and southwest. The north and northeast portions of the site feature a low-lying area that collects drainage from external northern and eastern lands. Given the potential for alterations to the natural topography since the completion of the 2021 survey, an updated topographic survey is recommended to inform the detailed design.

A review of the topographic data indicates that the existing overland flow leaves the site on the west side, crosses the unopened Park Avenue right-of-way, and continues to drain further west onto the adjacent property. It is important to note that the intersection of Park Avenue and Warehouse Street is a local low area, with no positive overland drainage route to the Park Ave and Steele Street intersection.

Refer to the completed topographic survey included in **Appendix A**.

3.2

Subsurface Conditions

3.2.1

Background Information

In January 2023, EXP prepared a Phase Two Environmental Site Assessment (ESA) to satisfy due diligence requirements for the land use change from industrial (railway) to residential. In support of the ESA, EXP drilled four 50 mm diameter monitoring wells.

Three Areas of Potential Environmental Concern (APECs) were investigated based on historical use. Four exceedances of the MECP Table 2 Site Condition Standards (SCS) were noted.

An area on the eastern side of the site, identified with lead and arsenic exceedances, was remediated between April and October 2022. The remediation extended to a depth of approximately 0.3 – 1.2 m below the ground surface. While remediation was completed up to the eastern property limit, the exceedance continues beyond the property line in that direction.

3.2.2

Soil Information

EXP found that the general stratigraphy across the site included topsoil underlaid by fill materials over native sand and gravel or clayey silt till. Toward the northeast of the site, a sand fill layer was found generally in the area of the proposed SWM facility.

A comprehensive Geotechnical Investigation is required for the site to confirm engineering properties, bearing capacities, LID measure design, and detailed stratigraphy to support the final design of foundations, pavement structures, and site servicing.

3.2.3 Groundwater Information

There are currently four monitoring wells on site, drilled as part of the Phase Two ESA prepared in 2023 for the previous owner. These monitoring wells provided groundwater elevation and flow information and help inform the suitability of stormwater infiltration infrastructure for the site, which requires a 1.0 m separation between the highest expected groundwater elevation and the bottom of the SWM facility.

EXP states that the inferred groundwater flow direction would be to the northeast.

The four monitoring wells must be removed as per Ontario *Water Resources Act* requirements by a licensed well contractor prior to residential construction.

For more information, refer to the Phase Two Environmental Site Assessment included in **Appendix A**.

3.3 Sanitary Servicing

The primary objective with respect to sanitary servicing is that a sanitary sewer system servicing the site can be constructed as per MECP and City of St. Thomas standards.

The proposed development will be serviced by connection to a replacement of the existing municipal sanitary sewer system under a separate design. An existing 250 mm diameter sanitary sewer runs along Warehouse Street, conveying sewage flows to a sanitary maintenance hole at Park Avenue and continuing south. The city deems the existing 250 mm diameter sanitary sewer old, and it will be replaced with a sanitary sewer of the same diameter under a separate design.

3.4 Water Servicing

There are two objectives regarding water servicing, including providing domestic water supply as per provincial and City requirements, and ensure that an adequate fire-fighting water supply is available as per Ontario Building Code and other City requirements.

An existing 150 mm diameter ductile iron watermain is located in the south boulevard of Warehouse Street. As per the pre-consultation discussions of the client with the City of St. Thomas, this watermain will be upgraded to a 200 mm diameter under a separate design to provide adequate capacity. The overall capacity of the municipal water supply system is considered sufficient to support the additional domestic demand from the 38 new residential units.

Static and residual pressure data will be obtained from the City of St. Thomas to model the local distribution network. Also, a fire hydrant flow test will be obtained as part of the next design stage. This information will be used to demonstrate that the proposed internal water system, incorporating the

upgraded 200 mm main and the existing fire hydrants, are able to provide adequate fire protection as per the Ontario Building Code and City standards, as will be described in the following chapter.

3.5 Stormwater Management

The site SWM control criteria for the proposed development were established based on the MECP 2003 guidelines, City of St. Thomas Design Guidelines Manual (2023), the City's Consolidated Linear Infrastructure Environmental Compliance Approval (CLI-ECA), and consultation with the City of St. Thomas.

As per the client's discussion during the informal pre-consultation with the City of St. Thomas, the proposed development will include a centralized stormwater management (SWM) facility located at the north end of the property. The City's preference is for a single facility to service the contributing areas, which include 0.86 ha from the subject site and 0.60 ha from the adjacent property located to the north of the subject site. The SWM facility would be a dry pond to minimize the footprint of the facility. The SWM facility will provide water quantity control for a 100-year storm event and supplemental quality control (maximum 60% total suspended solids (TSS) removal) for the contributing areas. The minimum TSS removal for the site is 80%, therefore supplemental water quality measures are to be implemented.

The design must also account for the removal of an existing 600 mm concrete pipe, believed to be for drainage of the former CN railroad corridor, that crosses the site, and replacement with an easement for the conveyance of external drainage from the 12.23 ha area east of Fairview Avenue for all storm events up to and including the 100-year return period. External drainage is to be routed around the proposed SWM facility on the adjacent property owned by Elgin Flooring and Briarwood via a storm sewer system (5-year minor design event) and overland drainage system (>5 year-100 year). A formal agreement with the adjacent property owners to the north of the site is required for the proposed easement to be routed through these lands. Any future designs for the adjacent properties (to the north must account for capture and conveyance of the 100-year flows to the SWM facility, without contributing to the external drainage storm sewer and/or the overland drainage system located within the drainage easement. In addition, the SWM facility emergency relief system, must be kept separate from the external overland drainage system. The design of the SWM facility's emergency overland relief system located within the site, and the external overland drainage system will be completed under a separate design.

Immediately downstream of the SWM facility, within the maintenance access road, a proposed trunk storm sewer will have sufficient capacity to convey flows for a 5-year storm event to the existing storm sewers within the Park Avenue and Warehouse Street intersection. The trunk storm sewer will convey controlled flows from the SWM facility (100-year to 5-year pro-rated allotted storm sewer capacity) and the pre-development external five -year flow.

Both the controlled site and external drainage 100-year storm flows will be respectively conveyed overland within the maintenance access road (emergency overland relief system) and overland within a separate drainage easement to west of the unopened Park Avenue Extension ROW, with the receiving

overland drainage system to be confirmed prior to detailed design. Options for conveyance of the emergency overland relief system and external overland drainage include to the west within the former railroad corridor or draining overland to Warehouse Street and Park Avenue, but this would require improvements to the Park Avenue right-of-way to allow for positive drainage.

In addition to stormwater quality and quantity controls, the CLI ECA, criteria indicates a water balance is to be provided as part of the stormwater management detailed design.

The SWM strategy descriptions and calculations for the proposed stormwater management plan for this project can be found in next section.

A detailed design and calculations for the proposed stormwater management plan for this project will be prepared during the subsequent stage of the project and will be submitted under a separate cover.

3.6 Grading and Drainage

The typical objective is to reduce the cost of the development by minimizing earthworks costs, excessive retaining walls, etc., in addition to meeting the municipality's requirements related to the grading of useable yards. To facilitate the design and construction of the SWM facility and an emergency overland relief system along the maintenance access road, the development of Lot 12 may need to be put on hold for the interim until such a time as Park Avenue is extended to allow for interim grading.

3.7 Transportation

Access to the proposed 38-unit residential development will be provided via driveway connections to Warehouse Street. A Transportation Brief was prepared by Dillon Consulting in July 2025 to evaluate the traffic impacts of the development on the surrounding road network, with a focus on the intersection of Warehouse Street and Fairview Avenue.

The brief estimates that the development will generate 15 new vehicle trips in the weekday AM peak hour and 41 new trips in the weekday PM peak hour. The operational analysis for the 2027 build-out year shows that the intersection of Warehouse Street and Fairview Avenue will continue to operate at acceptable levels. The eastbound approach from Warehouse Street is expected to operate at Level of Service (LOS) B during the AM peak and LOS C during the PM peak hour. The study concludes that the traffic from the development is not expected to cause any future operational issues at this intersection.

The design considers the City's future plans for Fairview Avenue, which include a 'road diet' to reduce the cross-section from four lanes to two lanes and add one-way cycle tracks. The internal road network proposed on the Draft Plan has been designed to meet municipal standards and aligns with the recommendations of the Transportation Brief prepared by Dillon.

3.8 Utilities

The following utility companies are required to confirm their ability to service the development:

- Entegrus Powerlines;
- Bell Canada;
- Rogers Cable; and
- Union Gas.

4.0 Servicing Analysis

4.1 Subdivision Design

The proposed subdivision development includes a total of 38 residential units, comprised of semi-detached and fourplex buildings, introducing new housing options to the area. Access to the site will be provided from Warehouse Street which is planned to be urbanized under a separate design. A stormwater management facility is included in the design, located at the northern portion of the site and partly on the adjacent neighboring land. As per discussions with the client, coordination for a formal agreement with adjacent landowners for the proposed stormwater management facility is the responsibility of the client.

As part of the development, a comprehensive stormwater management strategy has been developed. A SWM facility will manage stormwater flows not only from the subject site (0.86 ha) but also from adjacent lands (0.60 ha) to the north bordering Talbot Street. This centralized facility will control post-development flows before discharging to the municipal system.

All lots will front onto Warehouse Street urbanized under a separate design, save for Lot 12 which is to front the future Park Avenue Extension. Each semi-detached unit will have an individual driveway, while the fourplex units will feature shared driveways providing access to rear-yard parking areas.

To promote pedestrian connectivity, a new sidewalk is proposed along the north side of Warehouse Street between the west and east property lines of the site.

4.2 Sanitary Servicing

4.2.1 Existing Infrastructure

An existing 250 mm diameter sanitary sewer is located within the Warehouse Street right-of-way. This sewer conveys flows west to a maintenance hole at Park Avenue before continuing south towards a local pumping station. Based on available data, the full-flow capacity of the existing sewer is approximately 41.5 L/s.

Refer to as-built plan number P-6613-1 (City of St. Thomas dated September 1966), drawing number 2 (City of St. Thomas dated June 1999), and drawing number 3 (dated October 10, 2019) included in **Appendix B** for the existing sanitary sewer along Warehouse Street.

4.2.2 Proposed Development

The proposed sanitary servicing for the development consists of private direct connections for the semi-detached units and shared private connections for the fourplex units. All connections will be made to new private sanitary services that will outlet to a replacement of the existing sanitary sewer on Warehouse Street under a separate design.

Peak sanitary flows were estimated for the 38-unit development based on a design population of 85 people (assuming 2.5 persons per unit). The design criteria used to calculate the peak wet weather flow were based on the following:

- Per capita flow of 250 L/capita/day;
- Infiltration allowance of 0.10 L/s/ha; and
- Peaking factor as determined by the Harmon Formula.

The total estimated peak sanitary design flow from the 1.125 ha site is 2.8 L/s. This represents approximately 6% of the available capacity in the existing 250 mm sewer on Warehouse Street, indicating there is sufficient downstream capacity to service the development. The sanitary flow and capacity calculations are completed and included in **Appendix C**.

Refer to **Appendix D** for the proposed servicing concept for the sanitary servicing design for the site.

4.3 Water Servicing

4.3.1 Existing Infrastructure

An existing 150 mm diameter ductile iron watermain is located in the south boulevard of Warehouse Street. As identified during pre-consultation with the City of St. Thomas, this main will be upgraded to a 200 mm diameter to service the proposed development under a separate design. Two municipal fire hydrants are located along the south side of the right-of-way of Warehouse Street.

Refer to as-built drawing number 2 (City of St. Thomas dated June 1999) and drawing number 3 (dated October 10, 2019) included in Appendix B for the existing watermain along Warehouse Street.

4.3.2 Proposed Development

The proposed water distribution system must provide adequate domestic water supply and fire protection for the 38 residential units. A hydraulic analysis is required to confirm that the required pressures and fire flows can be achieved during detailed design.

The proposed water servicing for the development consists of private water services for the semi-detached units and shared water service with water meters for each unit for the fourplex units. The proposed on-site water servicing will consist of 50 mm diameter PEX water service connections for each fourplex lot and 25 mm PEX water service connections for each duplex unit. These will connect to the upgraded municipal main on Warehouse Street, completed under a separate design. The existing fire hydrants are expected to provide fire flow. It is confirmed that all building entrances are within the 90-metre distance required by the Ontario Building Code. The Site Servicing Plan shows the proposed layout of the watermains and the existing hydrants for the development.

Water demand calculations were completed to determine the domestic and fire flow requirements for the proposed 38-unit development. Based on the City of St. Thomas Design Guidelines, the project is estimated to have an equivalent population of 228 persons, generating a Peak Hourly domestic demand

of 9.26 L/s. Furthermore, Fire Underwriters Survey (FUS) calculations indicate a required fire flow of 7,140 L/min (approximately 119 L/s). This calculation is based on wood frame construction assumptions, a floor area of 363 m², and applicable occupancy and exposure surcharges.

A detailed hydraulic model of the proposed on-site watermain network will be prepared during the detailed design phase of this project. To support this future analysis, a fire hydrant flow test will be required on the existing municipal system to determine the available pressure and flow. The results of this test, combined with the calculated domestic demands and required fire flows, will be used as the boundary conditions for the model. This analysis will confirm that the proposed water services connections to the 200 mm watermain and existing fire hydrants on Warehouse Street can deliver the required fire flows while maintaining pressures above the minimum 140 kPa residual pressure, as required by the Ontario Building Code and City standards. The Water Demand and FUS calculations are completed and included in **Appendix C**.

Refer to **Appendix D** for the proposed servicing concept for the water servicing design for the site.

4.4 Storm Servicing

4.4.1 Existing Infrastructure

An existing 525 mm diameter concrete storm sewer is located within the Warehouse Street right-of-way. This storm sewer conveys drainage west to a maintenance hole at Park Avenue before continuing south within the receiving storm sewer system and eventually discharging to a tributary of Kettle Creek. This existing system is the proposed outlet for the development's controlled stormwater discharge.

Refer to as-built plan drawing number 2 (City of St. Thomas dated June 1999) and drawing number 1 (dated June 1999) included in **Appendix B** for the existing storm sewer along Warehouse Street.

4.4.2 Proposed Development

The on-site storm drainage system will consist of a network of catch basins and storm sewers designed to convey runoff to the proposed SWM facility. The Rational Method was used to calculate the peak stormwater runoff. A post-development weighted runoff coefficient of $C = 0.64$ was calculated, based on the proposed hard surface areas (roofs and asphalt at $C = 0.90$) and landscaped areas ($C = 0.25$). Using the City of St. Thomas IDF data, an uncontrolled 5-year peak flow is anticipated to be approximately 200 L/s from the 1.125 ha site. The SWM facility will be designed to control this runoff to the pro-rated 5-year allotted storm sewer system capacity for the site (based on the Storm Sewer Design Sheet provided by the City) before it is discharged to the municipal storm sewer at the Warehouse Street and Park Avenue intersection via an extension of the sewer on the future Park Avenue right-of-way to the west limit of the site.

Each residential building will be equipped with foundation drains connected to a dedicated sump pump, which will discharge to the storm sewer on Warehouse Street. Roof drains are to discharge overland to swales and inlet structures that convey drainage to the SWM facility. Roof drains are not to convey

runoff south towards Warehouse Street, instead roof drainage is to be conveyed to the north of the proposed homes. Additionally, the extension of the existing storm sewer on Warehouse Street is to be completed under a separate design.

Refer to **Appendix D** for the proposed servicing concept for the storm servicing design for the site.

4.5 Stormwater Management

This section outlines the SWM strategy for the proposed development. All SWM design criteria and supporting calculations are based on the requirements of the MECP, and City of St. Thomas and are included herein.

As shown in **Figure 4**, runoff is conveyed from an internal storm sewer system to a centralized SWM facility at the rear (north) of the property. This facility provides the necessary quantity control and partial quality control. Controlled outflows will be discharged into the proposed by-pass storm sewer, then to the existing municipal storm sewer on Warehouse Street, via a new storm sewer on the future Park Avenue right-of-way.

The proposed SWM facility is a dry pond designed with a multi-stage outlet structure and an emergency overflow spillway. The facility has a total depth of 2 m, comprised of 3:1 side slopes, an active storage component, 0.30 m freeboard and 5.0 m buffers from the bank of the facility are incorporated to accommodate approach grading. The SWM facility's maintenance access path will serve as the major overland relief route, directing excess drainage above the facility's 100-year design storm storage capacity, toward the undeveloped land west of the Park Avenue ROW, based on existing grades within the Park Avenue ROW.

Refer to storm area plan prepared by the City of St. Thomas dated February 25, 2025, included in Appendix B for the drainage area that the subject site is located within.

4.5.1 Water Quantity

The SWM facility is designed to meet the water quantity control targets of the MECP and City of St. Thomas, and services a total area of 1.62 ha. from both the subject site and the commercial development located to the north. The SWM facility provides 814 m³ of active storage at the designed high-water level (HWL). The City of St. Thomas 5-year and 100-year IDF_s, were used with a 12-hour SCS Type II design storm to assess the storage requirements for the facility. The facility is designed to attenuate post-development peak flows up to and including the 100-year storm to the pro-rated 5-year storm sewer peak flow allotment, as provided by the City in the storm sewer design sheet.

The frontage of the subject site, representing a 0.14 ha. area, drains to the Warehouse Street ROW uncontrolled. Flows rates from the SWM facility are overcontrolled to account for the uncontrolled subject site frontage.

A multi-stage outlet structure for the proposed SWM facility includes a 100 mm diameter orifice pipe placed at the bottom of the facility which would control the extended detention storage for the 5-year

storm event, over a discharge period of 24–48-hours, as per the SWM requirements indicated in the City of St. Thomas Design Guidelines Manual. A ditch inlet catch basin (DICB) structure would be placed above the 5-year ponding elevation, with flow from the DICB and the 100 mm diameter orifice, being conveyed through a 130 mm diameter orifice, before discharging to the external drainage bypass sewer.

A stage-storage discharge table for the SWM facility has been provided in **Table 1**.

Table 1: SWM Facility Stage-Storage Discharge

Water Level	Elevation (m)	Active Storage Volume (m ³)	Discharge from Facility (m ³ /s)
Bottom of Facility	234.30	0	-
5-year	235.37	455	0.020
100-year	235.88	814	0.046
HWL	236.00	895	-
Top of Freeboard	236.30	1361	-
Top of Bank	236.50	-	-

Integrated hydrologic/ hydraulic modeling documentation is provided in **Appendix C** of this report.

4.5.2 Water Quality

The SWM facility is designed to meet the 60% total suspended solids (TSS) removal, achieved through extended detention based on a minimum 24-hour drawdown time. To meet the “Enhanced” level of protection, equivalent to 80% TSS removal, in accordance with the MECP manual and required by the City of St. Thomas Design Guidelines Manual, an Oil and Grit Separator (OGS) unit is to be placed before the inlet of the SWM facility. With both the OGS and the SWMF, the minimum of 80% TSS removal will be obtained. The OGS unit will also act to reduce the sedimentation and required maintenance within the SWM facility.

4.5.3 Facility Emergency Overflow

An emergency overflow drainage path (overland emergency relief system) for the SWM facility is to be provided across the proposed maintenance access road. Flow overtopping the flood elevation of 236.0 m within the SWM facility will be conveyed to the proposed maintenance access road. Drainage will also surcharge through the proposed storm sewer network within the maintenance access road. Overflow drainage is to be conveyed to the west of the unopened Park Avenue ROW.

The SWM strategy presented within this report is contingent on overflow drainage being allowed to flow west across the unopened Park Avenue ROW. Under existing conditions, shallow surface drainage within the site area is conveyed west across Park Avenue. Several options were explored to discharge SWM facility overflow drainage overland towards the intersection of Park Street and Warehouse Street, but existing grades at the intersection are higher than the proposed SWM facility overflow elevation. An overland flow route to the Park Avenue and Warehouse Street intersection was deemed unfeasible.

without significant modifications to the current ROW grading. The ultimate SWM overland emergency relief system discharge location must be confirmed prior to detailed design.

4.5.4 External Flow Bypass

External drainage from east of Fairview Avenue currently drains through the Site and is conveyed to the west of the Park Avenue ROW. The City of St. Thomas has delineated a 12.23 ha external drainage area with an average runoff coefficient of 0.35. The 100-year existing conditions peak flow from east of Fairview Avenue has been estimated using a PCSWMM model and a 12-Hour SCS Type II storm distribution and duration, would be approximately 2.44 m³/s. A proposed trunk storm sewer has been sized to convey drainage from the external 12.23 ha for a 5-year storm event, with a peak flow of approximately 0.5 m³/s. The same trunk storm sewer is also designed to convey the controlled peak flows from the pond, as per the future conditions storm area plan provided by the City of St. Thomas as indicated in **Appendix B**. Drainage conveyed by the external drainage bypass pipe will be conveyed to the receiving storm sewer system at the intersection of Park Avenue and Warehouse Street.

External drainage above the bypass sewer capacity from east of Fairview Avenue is to be conveyed by an overland bypass channel, extending through and north of the site from the west side of the Fairview Avenue ROW to the unopened Park Avenue ROW. Preliminary sizing calculations for channel are provided in **Appendix C** and include potential options for a 7.7m wide trapezoidal channel or a 3.3m wide stone rectangular channel to convey the required overland flows. The drainage strategy presented in this report is contingent on the major system drainage being allowed to flow west across the unopened Park Avenue ROW. This strategy is also contingent on the agreement and construction of the overland channel system to convey external drainage, as presented within the concept plan.

The ongoing works within the Fairview Avenue ROW include a box culvert that will facilitate pedestrian access under the roadway as a pedestrian tunnel. It is noted that in profile view that the box culvert indicates a design grade of approximately 237.90 m, while the existing grade on the east side of the ROW is approximately 237.10 m. The design grade of 237.90 m, being 0.80 m above the existing grade, will result in ponding on the lands east of Fairview Avenue in storm events greater than the proposed storm sewer capacity. This does not alter the external flow bypass sizing or configuration, but it is noted for the City's information purposes. Please refer to **Appendix B** for the plan and profile provided by the City for Fairview Avenue.

4.5.5 Water Balance, Infiltration, and Groundwater

The Phase Two ESA identified fine-grained native soils (clayey silt till) with low permeability across the site. Although the soils have limited infiltration capacity, a water balance component relying on infiltration is proposed. Lot-level measures, such as directing roof downspouts to splash pads over grassed areas, will be encouraged to promote minor infiltration, along with onsite LID measures, which may require an underdrain due to the soil conditions.

Groundwater was measured to be approximately 4 to 5 m below the ground surface at the time of surveying. The bottom of the stormwater management facility will extend approximately 2 m below the existing ground surface, providing sufficient clearance between groundwater.

4.6 Grading and Drainage

The site will be graded to provide positive drainage away from all building foundations. The majority of the site's drainage will be directed towards the proposed SWM facility in the northeast corner of the property. Minor grading will be required to achieve elevations that ensure the internal maintenance access road acts as the primary overland flow route and that the elevation difference between the front and rear of the lots is reasonable, creating a buildable lot for the proposed two-storey residential buildings.

The proposed grading plan will maintain adequate separation between building foundations and the seasonal high groundwater table. Finished grades will be established to provide a minimum of 1.0 m of cover over site services.

A preliminary grading design for the site is included in **Appendix D**. The final extent of the grading will be determined during detailed design, and efforts will be made to ensure that any grading and filling are kept to the minimum required.

4.7 Erosion and Sediment Control

Construction activities can cause erosion of native soils and deposition of sediment on other properties or in receiving watercourses. To avoid these problems, siltation control measures, such as sediment traps, silt fencing, and construction staging, will be utilized.

A comprehensive Erosion and Sediment Control (ESC) plan will be implemented prior to any construction and maintained throughout all phases of the project, in accordance with MECP, and City of St. Thomas guidelines. Key measures will include the installation of heavy-duty silt fencing along the perimeter of the site, rock check dams in drainage swales, and a stabilized construction entrance to prevent mud tracking onto public roads. These controls will be inspected by the contractor weekly and after every significant rainfall event to ensure they are functioning correctly. The consultant will also conduct regular site reviews, and any deficiencies will be repaired immediately to prevent sediment from leaving the site.

5.0

Conclusions

A number of reports have been prepared in support of this development, including this Functional Servicing Report, a Planning Justification Report, a Geotechnical Investigation, a Transportation Brief, and a Phase Two Environmental Site Assessment with remedial works.

Sufficient capacity exists in the downstream trunk sewers, the local sanitary pumping station, and the St. Thomas Sunset Water Pollution Control Plant to accommodate the development. The site will be serviced connecting to the existing 250 mm municipal main on Warehouse Street.

The provision of an upgraded 200 mm diameter watermain on Warehouse Street and a will provide adequate flow and pressure for firefighting as per MECP and City of St. Thomas Design Guidelines (2023). Water services will be supplied from this upgraded main.

The SWM plan includes a centralized SWM facility to provide water quantity control and attenuate post-development peak flows to the pro-rated allowable storm sewer capacity for all storm events up to and including the 100-year return period. An “Enhanced” level of water quality treatment will be provided through an OGS unit and extended detention within the dry storage facility. An emergency overland relief system will convey drainage to the west across the unopened Park Avenue ROW for flows above the 100-year design return period of the SWM facility. Further input and clarifications from the City and adjacent land owners regarding internal site and external overland drainage conveyance, prior to commencing with detailed design

As the native soils on site consist of fine-grained clayey silt till, they have limited infiltration capacity, therefore LID measures require an underdrain. A water balance strategy using infiltration measures and roof drainage to pervious areas is proposed.

6.0

Recommendations

Based on the findings of this report, the following is recommended:

- That the preliminary design and servicing concepts outlined in this report be incorporated into the detailed design phase of the project;
- That individual sanitary service connections be provided to each building, connecting to the 250 mm dia. main on Warehouse Street;
- That the detailed water distribution design, including the 200 mm main and hydrant locations, be finalized to meet all Ontario Building Code and City of St. Thomas fire protection requirements;
- That roof drains for each building and the majority of site drainage be directed to SWM facility, and all lots have a storm connection to the existing or future storm mains within Warehouse Street;
- That the emergency overland spillway location be confirmed (i.e., maintain existing drainage patterns to the undeveloped lands to the west of the Park Avenue ROW or drain south through a re-designed Park Avenue and Warehouse Street intersection; and
- That the City of St. Thomas review and approve this document as a suitable basis for the Zoning By-law Amendment and Draft Plan of Subdivision applications.

7.0

References

The following documents were referenced in the preparation of this report:

Project-Specific Reports:

- EXP Services Inc., Phase Two Environmental Site Assessment, Supplementary Subsurface Investigation, & Preliminary Remedial Works, Warehouse Street, St. Thomas, Ontario, January 9, 2023;
- Dillon Consulting Limited, Warehouse Street, St. Thomas - Transportation Brief, July 16, 2025; and
- Dillon Consulting Limited, Planning Justification Report, Warehouse Street Development, December 2025.

Provincial Legislation, Policies, and Manuals:

- Government of Ontario, Ontario Building Code, O. Reg. 332/12;
- MECP, Design Guidelines for Drinking-Water Systems, 2008; and
- MECP, Stormwater Management Planning and Design Manual, March 2003.

Municipal and Conservation Authority Documents:

- City of St. Thomas, Engineering Design Standards and Guidelines;
- Kettle Creek Conservation Authority (KCCA), Policies and Regulations; and
- Thames-Sydenham and Region Source Protection Committee, Thames-Sydenham and Region Source Protection Plan.

DILLON CONSULTING LIMITED
LONDON, ONTARIO



Mohammad Meqdad, P.Eng.
Civil Engineer

Walter Ostojic & Sons Limited

Functional Servicing Report - Warehouse Street Development, St. Thomas

December 2025 – 25-1537x-xxxx



Walter Ostoja & Sons Limited

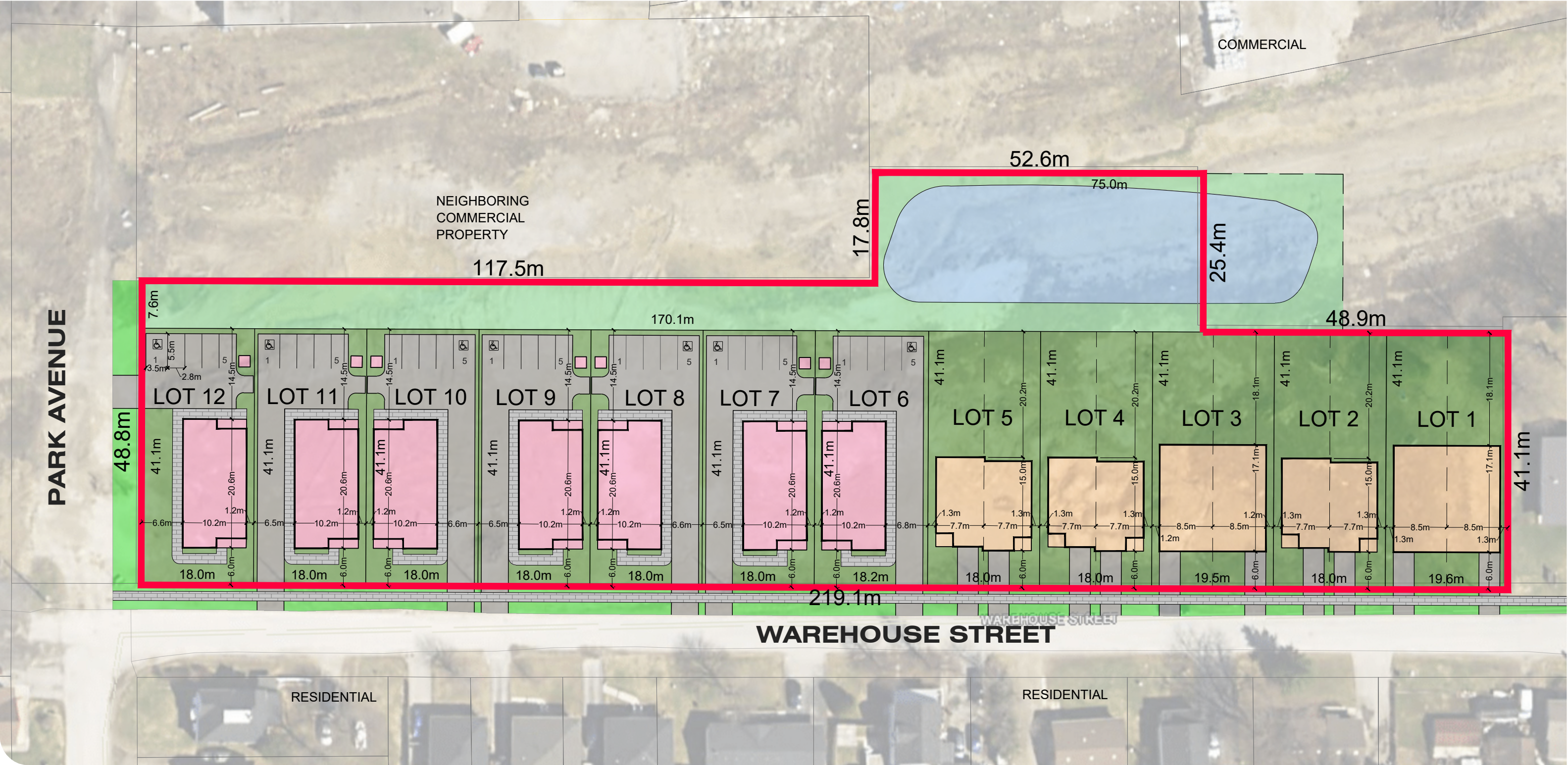
Functional Servicing Report - Warehouse Street Development, St. Thomas

December 2025 – 25-1537x-xxxx



Appendix A

*Concept Plan, Consultation Notes,
Topographic Survey, and Phase II ESA*



WALTER OSTOJIC & SONS LTD.
WAREHOUSE ST. PROPERTY ST. THOMAS

CONCEPT PLAN
FIGURE 1.0

**SUBJECT AREA**
(±1.12ha / 2.77ac)

**PROPOSED FOURPLEX**
(28 UNITS)

**PROPOSED LANDSCAPE**

**PROPOSED SEMI-DETACHED**
(10 UNITS)

**PROPOSED SWM POND**
(±0.22 ha / 0.54 ac)

**PROPOSED SIDEWALK**

SITE MATRIX (SEMI-DETACHED)
PROPOSED ZONE - R4-XX
FRONT YARD DEPTH - 6.0m
REAR YARD DEPTH - 9.0m
INT. SIDE YARD DEPTH - 1.0m
EXT. SIDE YARD DEPTH - 4.0m
LOT FRONTAGE - 18.0m
PARKING SPACES - 1 per unit

SITE MATRIX (FOURPLEX)
PROPOSED ZONE - R4-XX
FRONT YARD DEPTH - 6.0m
REAR YARD DEPTH - 9.0m
INT. SIDE YARD DEPTH - 1.2m*
EXT. SIDE YARD DEPTH - 4.0m
LOT FRONTAGE - 18.0m*
PARKING SPACES - 1.25 per unit
*REQUIRE RELIEF FROM THE R4 ZONE

File Location:
c:\pw working directory\projects 2025\dillon_10js\dms31912\251537 - concept
plan.dwg
December, 03, 2025 12:49 AM

SOURCE: ELGIN COUNTY MAPPING (2024)

MAP/DRAWING INFORMATION
THIS DRAWING IS FOR INFORMATION PURPOSES ONLY.
ALL DIMENSIONS AND BOUNDARY INFORMATION SHOULD
BE VERIFIED BY AN O.L.S PRIOR TO CONSTRUCTION.

CREATED BY: JSC
CHECKED BY: CPW
DESIGNED BY: WALTER OSTOJIC & SONS LTD.

SCALE: 1:600 (11x17)





PROJECT: 25-1537

STATUS: DRAFT

DATE: 12/03/2025

Consultation – Warehouse Street – Jan 29th at 9am
Steve Craig, Shayne Reitsma, Jim McCoomb, Angelo DiCicco, Lou Pompili
Joe Ostojic, Peter Ostojic

Joe

- 6 4-plexes (2 storey, 2 parking spots for each tenant)
- storm pond at rear of property
- sold for rentals
- also 5 semis

Jim

- R7 zone
- parking is 1.25 so only require 5 spaces – could reduce
- prefer alternate to tandem spots
 - Joe – can revise this
- doesn't mind combo of built form -would make for nice streetscape
- technical issue is stormwater block and it being accessed through private road
 - Joe- spoke to Bill and he suggested meeting with two groups as well as Elgin Flooring to talk about an arrangement
 - if they don't make deal with Bill then the last semi will be single family home and right of way for storm pond will go there

Lou

- interested in facilitating this meeting between the neighbours

Steve

- The Zoning By-law limits the area of driveways and parking in a front yard to a maximum of 50%, the other 50% needs to be landscaped and open space.
- The Zoning By-law definition for an apartment dwelling requires a common entrance for the dwelling units. The zoning amendment will need to permit separate entrances for the proposed dwelling containing four dwelling units.

Shayne

FSR needed

- SWM report needed – cost shared with other developers
- sidewalk need
- Curb needed
- Storm sewer to be constructed
- Watermain to be increased to 200m
- city is looking at cost sharing Sanitary sewers
 - Joe-storm main manhole stops at easterly or continue to fairview?
 - Shayne-would like to see the manhole on the opposite side of the last house

Angelo

- bc are going to be 4 units buildings – 1 unit will need to be accessible

Joe

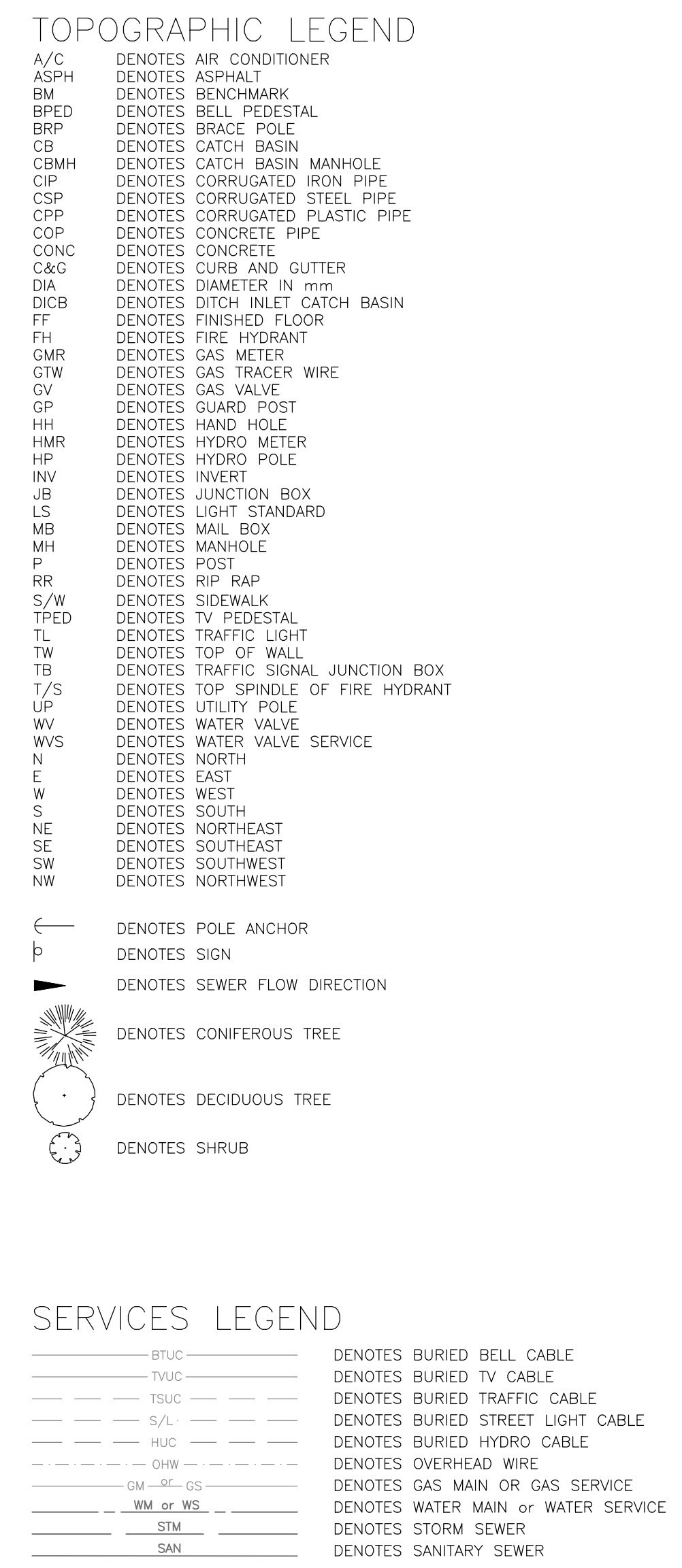
- storm pond is it needed by everyone on that site?
 - Jim- would rather have one centralized facility – city doesn't want to see multiples
- phased ESA phase 1 and 2 – have been filed by owner now – CJDLC said storm pond was never in the study – will this be a concern bc not mentioned in the report?
 - Shayne – doesn't see any issue with this bc will have a record of site condition
- 600mm concrete pipe that crosses the property from approx. 3rd semi from road across and into the easterly location of the pond – aware of this? -Shayne – CN drainage he thinks- will have a report on this in the next week or so
- rezoning and plan of subdivision – simultaneously? – Jim – yes but just can't get final approval on subdivision util zoning is in place -2 -3 months to get zoning in place and get to draft approval

Next steps

- timing? -aug-sept this year – would like to start the road
- will submit apps asap
- get multi party meeting set up asap

Supporting documentation required

- functional servicing report
- traffic letter report
- planning justification letter report



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

BENCHMARK

ELEVATIONS ARE GEODETIC CGVD28(HTV2.0), DERIVED FROM G.P.S.
OBSERVATIONS AND THE LEICA GPS SMARTNET NETWORK.

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DRAWN BY: BLB	DIGITAL FILE: ACAD-ST2102TP1.dwg	PLAN No:
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Plot date: Nov 27, 2025	FILE No: ST-5-1	

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North Shore Farming Co. Ltd.

43502 Sparta Line
St. Thomas, Ontario
N5P 3S8

Attention: Aaron Everatt

**Phase Two Environmental Site Assessment,
Supplementary Subsurface Investigation, &
Preliminary Remedial Works**

Warehouse Street
St. Thomas, Ontario

Project Number
LON-21016021-A0

Prepared By:
EXP Services Inc.
15701 Robin's Hill Road
London, Ontario
N5V 0A5 Canada

Date Submitted
January 9, 2023

Executive Summary

EXP Services Inc. (EXP) was retained by Northshore Farming Co. Ltd to complete a Phase Two Environmental Site Assessment (ESA) and Remediation Works at the property located on the north side of Warehouse Street, approximately 60 m west of Fairview Avenue, in the City of St. Thomas, Ontario, hereinafter referred to as the “Site”. It is EXP’s understanding that the Phase Two ESA was required for due diligence purposes prior to redevelopment of the Site and that a Record of Site Condition (RSC) will be required due to a change in land use.

The Phase Two ESA was completed in general accordance to CSA Standard Z769-00, November 2001 (R 2018). Subject to this standard of care, EXP makes no express or implied warranties regarding its services and no third-party beneficiaries are intended. Limitation of liability, scope of report and third-party reliance are outlined in Section 7 of this report.

The Site is located at the north side of Warehouse Street approximately 60 metres west of Fairview Avenue and extends to Park Avenue (Figure 2 – Site Plan), in the City of St. Thomas, Ontario. The Site is irregular in shape and is 2.78 acres in area with a lot frontage along Warehouse Street of approximately 226 metres. The Site is currently vacant former railway lands is characterized by exposed subsurface and landscaped areas. The Site was relatively flat with a slope at the north portion of the Site. This slope was steep at the eastern side of the Site and became more gradual in the westward direction. Local topography is gently sloping to the southwest towards a tributary of Kettle Creek. A Site location plan is provided in Figure 1 and a Site and Surrounding Property Use plan in Figure 2.

Based on a review of historical aerial photographs, historical maps, and other records review, the Site was occupied by multiple railway lines along the northern property boundary and within the northwestern portion of the Site since at least the 1910s until the late 2000s when there was only one railway line remaining to the north of the Site. By the 1970s, a decrease in railway lines on-Site was noted. In the early 2010s, the remaining railway line north of the Site was removed. The Site may have been used as a possible railway yard use and/or construction material storage was noted on the Site in the late 1970s. Evidence of on-Site ground disturbance was noted in the 1970s and again in the early 2010s, suggesting that fill materials were likely imported onto the Site during these events.

The surrounding study area was observed as largely vacant agricultural land with some residential homes since at least the 1910s. A significant increase in commercial and/or industrial properties to the north of the Site occurred from the 1950s until the 1980s while significant increases in residential land use occurred to the south of the Site from the 1950s until the 1970s. Notable historical and current occupants in the surrounding area include historical railway land use adjacent to the north, northeast, and west of the Site (circa 1910s – 2000s), a former rail yard operations at 1081 Talbot Street (unknown – 2000s) automotive garages at 2 Park Avenue (1990s – Present), 1024 Talbot Street (2000s – 2020s), 1026 Talbot Street (1990s), and 1030 Talbot Street (1960s – 1970s), commercial trucking facilities at 2 Park Avenue (1960s – 1970s) and 48 Steeles Street (1970s), gasoline service stations at 1020 Talbot Street (1990s – 2020s), 1024 Talbot Street (1990s – 2000s), 1026 Talbot Street (1960s – 1990s), 1061 Talbot Street (2000s – Present), and 1089 Talbot Street (2010s – Present), a dry cleaning facility at 1026 Talbot Street (1970s), an auto wrecking facility at 1022 Talbot Street (1950s – 1980s), a marine vehicle servicing facility at 1103-1105 Talbot Street (1970s), a pet food manufacturer and distribution

facility at 1125 Talbot Street (1950s – Present), a corrugated container manufacturer at 1155 Talbot Street (1970s – 1990s), and a welding and repairs shop at 8 Warehouse Street (1960s – 1990s).

A total of twelve (12) Potentially Contaminating Activities (PCAs) were identified on- and off-Site within the Phase One Study area which identified the following four (4) Areas of Potential Environmental Concern (APECs):

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Contaminants of Potential Concern	Media Potentially Impacted
APEC 1 - Importation of fill materials for Site grading, railway line removals, and surface material stripping in the early 2010s.	Entire Site (see Figure 2)	Metals and Inorganics, PAHs	Soil
APEC 2 – Former railway lines on-Site and adjacent to the Site, and possible use of Site as a Rail Yard`	Entire Site (see Figure 2)	Metals and Inorganics, PAHs, PHCs, VOCs	Soil and Groundwater
APEC 3 – Former operations of gasoline service stations, automotive repair and maintenance garages, a dry cleaner, and a car sales facility to the north of the Site.	Northern Perimeter of Site (see Figure 2)	PHCs, VOCs	Soil and Groundwater
APEC 4 – Current and former operations of a commercial trucking company and automotive repair and maintenance garage to the southwest of the Site.	Southwest Perimeter of Site (see Figure 2)	PHCs, VOCs	Soil and Groundwater

Based on the review of records and other information pertaining to the Site and observations made during the Site reconnaissance, PCAs were identified on- and off-Site within the Phase One Study Area, which may have contributed to APECs on the Phase One Property. Assessment of Site and general area geologic and hydrogeologic conditions from subsurface investigations and geological mapping identified the Site as fine textured materials on Site with an inferred shallow groundwater flow direction to the west-southwest. Thus, possible preferential flow paths may be present for transport of potential COCs from off-Site PCAs from the north, northeast, and east towards the Phase One ESA property. A Phase Two ESA would be required to delineate the identified COCs at the Site and to further assess the soil and groundwater at the property. This would include the advancement of boreholes and test

The Phase Two ESA was undertaken to assess potential impacts to the soil and groundwater conditions at the Site as a result of former railways operations on and off-Site, fill materials on-Site, and the historical and current presence of gasoline service stations, automotive garages, a car sales facility, a commercial trucking facility, and a dry-cleaning facility up- and trans-gradient, or close in proximity to the Site (see APECs table above).

The fieldwork for the Phase Two ESA was completed on August 19, 2021, September 27, 2021, and September 30, 2021. On August 19, 2021, six (6) boreholes were advanced at the Site by Direct Environmental Drilling under the full-time supervision of EXP staff. A track-mounted Geoprobe® 7782DT drill rig equipped with continuous flight (“standard”) augers with tube samplers and direct push sampling equipment was used to advance both of the boreholes. No petroleum-based greases or solvents were used during drilling activities. Boreholes were advanced to completion depths of approximately 4.6 to 7.0 m (15 to 23 feet) below ground surface (bgs). Monitoring wells were installed in Boreholes 1, 2, 4 and 6 (BH1/MW, BH2/MW, BH4/MW and BH6/MW).

On September 27 and 30, 2021, twenty-seven (27) test pits were advanced at the Site by a private contractor under the full-time supervision of EXP staff. An excavator was used to advance the test pits to completion depths of approximately 1.5 to 3.8 m below ground surface (bgs).

The general stratigraphy at the Site, as observed in the boreholes, consisted of a layer of topsoil, overlying a silt and/or clayey silt fill layer, overlying native sand and gravel and/or clayey silt till.

Thirteen (13) soil samples, including one (1) duplicate, were recovered from Test Pit 1, Test Pit 3, Test Pit 5, Test Pit 7, Test Pit 9, Test Pit 11, Test Pit 13, Test Pit 15, Test Pit 17, Test Pit 19, Test Pit 22, and Test Pit 25 (i.e. TP1 SA2, TP3 SA1, TP5 SA1, TP7 SA2, TP9 SA1, TP11 SA1, TP13 SA1, TP15 SA1, TP17 SA1, TP19 SA1, TP22 SA2, TP25 SA1 and DUP02) were evaluated for metals and inorganics. An exceedance of the 2011 MECP Table 2 SCSs for cyanide was measured in the sample recovered from TP1 SA3. In addition, exceedances of lead were measured in the samples recovered from TP9 SA1, TP25 SA1, and DUP02, and exceedances of arsenic were measured at TP25 SA1 and DUP02. All other metals and inorganics concentrations were measured at levels below the 2011 MECP Table 2 SCSs.

The above noted soil samples were also evaluated for were also evaluated for PAHs. Low concentrations of PAHs were detected at all test pit locations except for TP19 SA1. However, all PAHs concentrations were measured at levels below the 2011 MECP Table 2 SCSs.

Nine (9) soil samples, including one (1) duplicate, recovered from Boreholes 1, 2, 3, 4, 5, 6 and Test Pits 26 and 27 (i.e. BH1/MW SA6, BH2/MW SA4, BH3 SA3, BH4/MW SA3, BH5 SA4, BH6/MW SA2, TP26 SA2, TP27 SA3 and DUP01) were evaluated for VOC, including BTEX. All VOC concentrations were measured at concentrations below the reported detection limits (RDLs) and hence, below the 2011 MECP Table 2 SCSs.

The above noted soil samples were also evaluated for Petroleum Hydrocarbons (PHCs) Fractions 1-4. PHC Fraction 2 was detected in BH3 SA3 at low concentrations. Elevated concentrations of PHC Fractions 2, 3, and 4 were detected in BH6/MW SA2, but remained below the 2011 MECP Table 2 SCSs for residential land use in fine/medium textured soils. All other PHC concentrations were measured at concentrations below the reported detection limits (RDLs) and hence, below the 2011 MECP Table 2 SCSs.

Soil/fill samples that exceeded the applicable 2011 MECP Table 2 SCSs are summarized in the table below.

Sample ID	Parameter	Result (ug/g)	Table 2 SCS for Commercial/Industrial/Community Land Use –Medium/Fine Texture (ug/g)
TP1 SA3	WAD Cyanide (free)	0.14	0.051
TP9 SA1	Lead	270	120
TP25 SA1	Arsenic Lead	25 800	18 120
DUP02	Arsenic Lead	21 650	18 120

The monitoring wells installed in Boreholes 1, 2, 4, and 6 (BH1/MW, BH2/MW, BH4/MW, and BH6/MW) were developed on September 9, 2021, and subsequently on October 11, 2021 groundwater samples were recovered from monitoring wells BH2/MW and BH4/MW using low flow sampling technology. Water samples obtained were generally clear, colourless and odourless with no light non-aqueous phase liquid present.

Five (5) groundwater samples, including one (1) duplicate, were recovered from the monitoring wells BH1/MW, BH2/MW, BH4/MW, and BH6/MW were submitted for analysis of VOCs, including BTEX. All VOCs in the samples were measured at levels below the reported detection limit, and hence, the 2011 MECP Table 2 SCSs.

The above noted groundwater sample was also submitted for analysis of PHCs, Fractions 1-4. All PHC fractions in the sample were measured at concentrations below the reported detection limit and hence, below the 2011 MECP Table 2 SCSs

The findings of the Phase Two ESA indicated that the analytical results for the groundwater samples tested were within the Table 2 SCS criteria for Residential/Parkland/Institutional Property Use with fine/medium textured soil in a Potable groundwater condition "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" ("the SGWS Standards"), Ministry of the Environment, Conservation and Parks (MECP), July 1, 2011 (Ontario Regulation 153/04 as amended).

However, the analytical results for the soil samples tested indicated two (2) areas where soils exceeded the Table 2 SCS criteria for Residential/Parkland/Institutional Property Use with fine/medium textured soil in a Potable groundwater condition "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" ("the SGWS Standards"), Ministry of the Environment, Conservation and Parks (MECP), July 1, 2011 (Ontario Regulation 153/04 as amended). These areas were defined as:

- In the southwest portion of the Site, along the southern property boundary, a cyanide exceedance was detected within the soils of TP1 at a depth of 0.6 to 0.9 m bgs.
- In the eastern portion of the Site, along the eastern property boundary extending the entire north-west direction of the Site, exceedances of lead were detected in TP9 and TP25, and an exceedance of arsenic were detected in TP25, at depths of 0.0 – 0.3 m bgs and 0.0 – 0.4 m bgs, respectively. The spatial extent of the lead and arsenic exceedances is unknown but is expected to be confined to the eastern portion of the Site.

Further investigative work was required to delineate and/or determine if the elevated cyanide identified in Test Pit 1 (TP1) is representative of on-Site conditions in that area or anomalous. Remedial work was recommended and conducted by EXP staff in the eastern portion of the Site to remove the impacted soils containing the arsenic and lead exceedances in the vicinity of TP9 and TP25.

In addition to these two (2) areas of concern, elevated levels of Petroleum Hydrocarbons (PHCs) Fractions 2, 3, and 4 were noted in the soil sample tested at BH6/MW at a depth of 1.1 to 1.5 m bgs. Further investigation was conducted to ensure that PHC concentrations in the area surrounding BH6/MW were within the 2011 MECP Table 2 SCS criteria for Residential/Parkland/Institutional Property Use with fine/medium textured soil in a Potable groundwater condition.

The fieldwork for the supplementary subsurface investigation was completed on September 27, 2021 and April 11, 2022. On September 27, 2021, two (2) test pits were advanced at the Site for supplementary subsurface investigation purposes by a private contractor under the full-time supervision of EXP staff. An excavator was used to advance the test pits to completion depths of approximately 1.5 to 1.7 m below ground surface (bgs). On April 11, 2022, six (6) test holes were advanced at the Site for supplementary subsurface investigation purposes by EXP staff. A shovel and soil auger was used to advance the test holes to completion depths of approximately 0.5 to 0.9 m bgs.

The impacted soils in the eastern portion of the Site were excavated and removed off the Site by an excavator and bulldozer operated by North Shore Faming Co. Ltd. under the authority of the client in various stages between April and October of 2022. The impacted soils were excavated and transported to a portion of the property within the project area but outside of the RSC boundary. EXP staff visited the Site after each excavation event. Soil samples from bases and walls were recovered at each stage and submitted for analysis of metals.

The final extent of the excavation for the impacted soils remediation was irregular in shape and measured approximately 1020 square metres (10,980 square feet) in area and extended to a depth of between 0.3 to 1.2 metres (1.0 to 4.0 feet) below ground surface (bgs). The approximate footprint of the excavation extended from the Site's eastern property limit to approximately 17 to 33.5 m west of the eastern property limit and terminated at the north and south property limits.

Four (4) soil samples recovered from Test Holes in the vicinity of TP1 (i.e., TP1 – 1 m North, TP1 – 1 m East, TP1 – Adjacent South, and TP1 – 1 m West) were evaluated for cyanide. All cyanide concentrations were measured at levels below the reported detection limits (RDLs) and hence, below the 2011 MECP Table 2 SCSs.

Two (2) soil samples recovered from Test Holes in the vicinity of BH6/MW (i.e., BH6/MW – 1 m North and BH6/MW – 1 m South) were evaluated for Petroleum Hydrocarbons (PHCs) Fractions 1-4. PHC Fraction 3 and 4 were detected in both BH6/MW – 1 m North and BH6/MW – 1 m South, however, the concentrations were well below the 2011 MECP Table 2 SCSs.

A total of thirty-five (35) bulk samples, including four (4) duplicate samples, from thirty-one (31) locations, including seventeen (17) base and fourteen (14) wall sample locations, were recovered from the excavation area, and submitted for analysis of metals. A description of the soil samples submitted for analysis is provided in Table 5.4b.

Soil samples were submitted for analysis from various sampling events which occurred on April 11, May 4, July 14 and October 4, 2022. Several soil samples submitted during these sampling events contained lead concentrations which exceeded the 2011 MECP Table 2 SCSs, and as such, the excavation was extended where feasible.

Of the thirty-one (31) sampling locations, six (6) base samples and eight (8) wall samples are located at the final extent of the remedial excavation. These samples include Base 104-A, Base 201, Base 202, Base 203, Base 204, Base 405, W1, W2, W3, W4, W7, W8, W405, and W406. All metals concentrations were measured at levels below 2011 MECP Table 2 in all five (5) of the base samples (i.e., Base 201, Base 202, Base 203, and Base 405) and three (3) of the wall samples (i.e., W4, W405, W406). The remaining wall samples (i.e., W1, W2, W3, W7, and W8) had lead concentrations above the 2011 MECP Table 2 SCSs, however, the walls were at the property limit and therefore the remedial excavation could not be advanced further in these directions.

The Phase Two ESA, Supplementary Subsurface Investigation, and Remedial Works programs were completed to identify potential chemicals of concern in relation to the four (4) APECs identified in the Phase One ESA program. The results from the Phase Two ESA identified three (3) areas for further investigation and/or remediation including supplementary subsurface investigations in the vicinity of a cyanide exceedance and elevated PHC concentrations, and a remedial excavation in the eastern portion of the Site where two (2) lead impacts and an arsenic impact were identified.

The observations and analytical results for representative soil samples recovered from the two (2) areas of supplementary subsurface investigations (i.e., the cyanide concentrations in the vicinity of exceedance identified and potential PHC impacts in the vicinity of elevated concentrations identified) indicated that the objectives of the supplementary subsurface investigation and remedial works in these areas had been achieved. The analytical results for the parameters evaluated satisfy the “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act” (“the SGWS Standards”), Ministry of the Environment, Conservation and Parks (MECP), July 1, 2011 – Table 2 Full Depth Background Site Condition Standards (SCS) in a Potable Groundwater Condition for Residential/Parkland/Institutional Property Use with fine/medium textured soils.

In addition, at the time of this report, the observations and analytical results for the representative soil samples recovered from the remedial excavation surrounding lead and arsenic impacts is completed. All impacted soils to date have been excavated and transported to a portion of the property within the project area but outside of the RSC boundary. The limits of the excavation to the north, east, and south have been extended to the property boundary while the limits to the west extended between 17.0 and 33.5 m west of the eastern property boundary. The depth of the excavation ranges from 0.3 to 1.2 m bgs.

At the time of this report, the excavation remains open. Any movement of soils and fill materials brought on-Site must be completed in accordance with Ontario Regulation 347 (as amended), Soil Management Regulation (O. Reg. 406/19)) which will affect the transportation and use of excess soils on-Site and all other applicable regulations.

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1 Introduction

EXP Services Inc. (EXP) was retained by Northshore Farming Co. Ltd to complete a Phase Two Environmental Site Assessment (ESA) and Remediation Works at the property located on the north side of Warehouse Street, approximately 60 m west of Fairview Avenue, in the City of St. Thomas, Ontario, hereinafter referred to as the “Site”. It is EXP’s understanding that the Phase Two ESA was required for due diligence purposes prior to redevelopment of the Site and that a Record of Site Condition (RSC) will be required due to a change in land use.

The Phase Two ESA was completed in general accordance to CSA Standard Z769-00, November 2001 (R 2018). Subject to this standard of care, EXP makes no express or implied warranties regarding its services and no third-party beneficiaries are intended. Limitation of liability, scope of report and third-party reliance are outlined in Section 7 of this report.

1.1 Background

The Site is located at the north side of Warehouse Street approximately 60 metres west of Fairview Avenue and extends to Park Avenue (Figure 2 – Site Plan), in the City of St. Thomas, Ontario. The Site is irregular in shape and is 2.78 acres in area with a lot frontage along Warehouse Street of approximately 226 metres. The Site is currently vacant former railway lands is characterized by exposed subsurface and landscaped areas. The Site was relatively flat with a slope at the north portion of the Site. This slope was steep at the eastern side of the Site and became more gradual in the westward direction. Local topography is gently sloping to the southwest towards a tributary of Kettle Creek. A Site location plan is provided in Figure 1 and a Site and Surrounding Property Use plan in Figure 2.

Based on a review of historical aerial photographs, historical maps, and other records review, the Site was occupied by multiple railway lines along the northern property boundary and within the northwestern portion of the Site since at least the 1910s until the late 2000s when there was only one railway line remaining to the north of the Site. By the 1970s, a decrease in railway lines on-Site was noted. In the early 2010s, the remaining railway line north of the Site was removed. The Site may have been used as a possible railway yard use and/or construction material storage was noted on the Site in the late 1970s. Evidence of on-Site ground disturbance was noted in the 1970s and again in the early 2010s, suggesting that fill materials were likely imported onto the Site during these events.

The surrounding study area was observed as largely vacant agricultural land with some residential homes since at least the 1910s. A significant increase in commercial and/or industrial properties to the north of the Site occurred from the 1950s until the 1980s while significant increases in residential land use occurred to the south of the Site from the 1950s until the 1970s. Notable historical and current occupants in the surrounding area include historical railway land use adjacent to the north, northeast, and west of the Site (circa 1910s – 2000s), a former rail yard operations at 1081 Talbot Street (unknown – 2000s) automotive garages at 2 Park Avenue (1990s – Present), 1024 Talbot Street (2000s – 2020s), 1026 Talbot Street (1990s), and 1030 Talbot Street (1960s – 1970s), commercial trucking facilities at 2 Park Avenue (1960s – 1970s) and 48 Steeles Street (1970s), gasoline service stations at 1020 Talbot Street (1990s – 2020s), 1024 Talbot Street (1990s – 2000s), 1026 Talbot Street (1960s – 1990s), 1061 Talbot Street (2000s – Present), and 1089 Talbot Street (2010s – Present), a dry cleaning facility at 1026 Talbot Street (1970s), an auto wrecking facility at 1022 Talbot Street (1950s – 1980s), a marine

vehicle servicing facility at 1103-1105 Talbot Street (1970s), a pet food manufacturer and distribution facility at 1125 Talbot Street (1950s – Present), a corrugated container manufacturer at 1155 Talbot Street (1970s – 1990s), and a welding and repairs shop at 8 Warehouse Street (1960s – 1990s).

A total of twelve (12) Potentially Contaminating Activities (PCAs) were identified on- and off-Site within the Phase One Study area which identified the following four (4) Areas of Potential Environmental Concern (APECs):

Area of Potential Environmental Concern (APEC)	Location of APEC on Phase One Property	Contaminants of Potential Concern	Media Potentially Impacted
APEC 1 - Importation of fill materials for Site grading, railway line removals, and surface material stripping in the early 2010s.	Entire Site (see Figure 2)	Metals and Inorganics, PAHs	Soil
APEC 2 – Former railway lines on-Site and adjacent to the Site, and possible use of Site as a Rail Yard`	Entire Site (see Figure 2)	Metals and Inorganics, PAHs, PHCs, VOCs	Soil and Groundwater
APEC 3 – Former operations of gasoline service stations, automotive repair and maintenance garages, a dry cleaner, and a car sales facility to the north of the Site.	Northern Perimeter of Site (see Figure 2)	PHCs, VOCs	Soil and Groundwater
APEC 4 – Current and former operations of a commercial trucking company and automotive repair and maintenance garage to the southwest of the Site.	Southwest Perimeter of Site (see Figure 2)	PHCs, VOCs	Soil and Groundwater

Based on the review of records and other information pertaining to the Site and observations made during the Site reconnaissance, PCAs were identified on- and off-Site within the Phase One Study Area, which may have contributed to APECs on the Phase One Property. Assessment of Site and general area geologic and hydrogeologic conditions from subsurface investigations and geological mapping identified the Site as fine textured materials on Site with an inferred shallow groundwater flow direction to the west-southwest. Thus, possible preferential flow paths may be present for transport of potential COCs from off-Site PCAs from the north, northeast, and east towards the Phase One ESA property. A Phase Two ESA would be required to delineate the identified COCs at the Site and to further assess the soil and groundwater at the property. This would include the advancement of boreholes and test

The Phase Two ESA was undertaken to assess potential impacts to the soil and groundwater conditions at the Site as a result of former railways operations on and off-Site, fill materials on-Site, and the historical and current presence of gasoline service stations, automotive garages, a car sales facility, a commercial trucking facility, and a dry-cleaning facility up- and trans-gradient, or in close proximity to the Site (see APECs table above).

1.2 Scope of Work

The proposed scope of work for the Phase Two ESA was as follows:

- Request local utility locating companies (cable, telephone, gas, hydro) to mark any underground utilities present at the Site;
- Retain a private utility locating company to mark any underground utilities present in the vicinity of the borehole locations and to clear the individual borehole locations;

- Advance a total of six (6) boreholes on the property;
- Advance a total of twenty-seven (27) test pits on the property.
- Collect representative soil samples for analysis of Metals & Inorganics, Polycyclic Aromatic Hydrocarbons (PAHs), Volatile Organic Compounds (VOCs), including Benzene, Toluene, Ethylbenzene, Xylene (BTEX), Petroleum Hydrocarbons (PHCs) Fraction 1-4, and pHs;
- Equip four (4) of the boreholes with groundwater monitoring wells
- Prepare a report of the findings.

It is EXP's understanding that the Phase Two ESA was required for due diligence purposes prior to redevelopment of the Site and that a Record of Site Condition (RSC) will be filed with the Ontario Ministry of the Environment, Conservation and Parks (MECP) due to a change in land use.

1.3 Site Assessment Criteria

The assessment criteria (Site Condition Standards (SCSs) applicable to a given site in Ontario are established under subsection 168.4(1) of the Environmental Protection Act. Tabulated generic criteria are provided in "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" ("the SGWS Standards"), Ministry of the Environment, Conservation and Parks (MECP), effective July 1, 2011. These criteria are based on site sensitivity (sensitive or non-sensitive), ground water use (potable or non-potable), property use (residential, parkland, institutional, commercial, industrial, community and agricultural/other), soil type (coarse or medium/fine textured) and restoration depth (full or stratified restoration). In addition, site specific criteria may be established on the basis of the findings of a Risk Assessment carried out in accordance with Part IX and Schedule C of Ontario Regulation 153/04 (O.Reg.) 153/04, as amended.

The SGWS Standards specify SCSs for soil, groundwater and sediment that are tabulated as follows:

- Table 1 - Full Depth Background Site Condition Standards;
- Table 2 - Full Depth Generic Site Condition Standards in a Potable Groundwater Condition;
- Table 3 - Full Depth Generic Site Condition Standards in a Non-potable Groundwater Condition;
- Table 4 - Stratified Site Condition Standards in a Potable Groundwater Condition;
- Table 5 - Stratified Site Condition Standards in a Non-Potable Groundwater Condition;
- Table 6 - Generic Site Condition Standards for Shallow Soils in a Potable Groundwater Condition;
- Table 7 - Generic Site Condition Standards for Shallow Soils in a Non-Potable Groundwater Condition;
- Table 8 - Generic Site Condition Standards for use within 30 m of a Water Body in a Potable Groundwater Condition; and
- Table 9 - Generic Site Condition Standards for use within 30 m of a Water Body in a Non-Potable Groundwater Condition.

For assessment purposes, EXP selected the Table 2 Site Condition Standards (SCSs) for Residential/Parkland/Institutional Property Use with fine/medium textured soils in a potable groundwater condition for the Site.

The selection of this category is based on the following factors:

- The Site is not considered a sensitive site;
- The Site soil is generally considered to have fine/medium grained soils (clayey silt till);
- The Property Use of the Site is industrial (former railway land) with a proposed change in land use planned to a more sensitive residential land use;
- There is no intention to carry out a stratified restoration at the Site.

2 Methodology

2.1 Drilling, Test Pitting and Soil Sampling

Prior to the commencement of drilling and test pitting activities, the locations of underground utilities including telephone, natural gas and electrical lines were marked out by a private utility locating service that also cleared the individual borehole locations. Public utility locates were also marked in the field, with locate documentation forwarded to our London office for reference.

The fieldwork for the Phase Two ESA was completed on August 19, 2021, September 27, 2021, and September 30, 2021. On August 19, 2021, six (6) boreholes were advanced at the Site by Direct Environmental Drilling under the full-time supervision of EXP staff. A track-mounted Geoprobe® 7782DT drill rig equipped with continuous flight (“standard”) augers with tube samplers and direct push sampling equipment was used to advance both of the boreholes. No petroleum-based greases or solvents were used during drilling activities. Boreholes were advanced to completion depths of approximately 4.6 to 7.0 m (15 to 23 feet) below ground surface (bgs). Monitoring wells were installed in Boreholes 1, 2, 4 and 6 (BH1/MW, BH2/MW, BH4/MW and BH6/MW).

On September 27 and 30, 2021, twenty-seven (27) test pits were advanced at the Site by a private contractor under the full-time supervision of EXP staff. An excavator was used to advance the test pits to completion depths of approximately 1.5 to 3.8 m below ground surface (bgs).

The approximate locations of the boreholes, test pits, and monitoring wells are shown on Figure 2 (Borehole, Test Pit, Test Hole, and Monitoring Well Location Plan). The rationale for the selection of boreholes was determined as follows:

- BH1/MW through BH6/MW and TP1 through TP27 were advanced to provide coverage for potential impacts from APECs 1 and 2.
- BH/MW2 through BH6/MW and TP19 through TP27 were advanced to assess potential impacts from APEC 3.
- BH1/MW, TP1, and TP18 were advanced to assess potential impacts from APEC 4.

EXP continuously monitored the drilling activities to record the physical characteristics of the soil, depth of soil sample collection and total depth of boreholes. Field observations are summarized on the borehole logs and test pit logs provided in Appendix A and Appendix B. Representative soil samples were recovered in the overburden of the boreholes at regular intervals using a continuous core sampler with PVC liners. No visual or olfactory evidence of environmental impact was noted in any of the Borehole samples.

Dedicated Nitrile gloves (i.e., one pair per sample) were used during sample handling. A portion of each soil core was placed in a sealed plastic bag and allowed to reach ambient temperature prior to field screening using an RKI Eagle II total combustible vapour meter, recently calibrated with hexane. The measurements were made by inserting the instrument's probe into the plastic bag while manipulating the sample to ensure volatilization of the soil gases. These readings provide a real-time indication of the relative concentration of combustible vapours encountered in the subsurface during drilling and are used to aid in the assessment of the vertical and horizontal extent of contamination and the selection of soil samples for analysis. The vapour readings, in parts per million (ppm), are provided on the borehole logs and test pit logs in Appendix A and Appendix B. These samples were subsequently

delivered to EXP's laboratory for visual, textural and olfactory classification. Collected soil samples were stored in laboratory-supplied hermetically sealed, soil core samplers and glass jars.

Soil samples intended for analysis of Volatile Organic Compounds (VOC's), including Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) were collected by means of core samplers. The core samplers provide a soil sample with virtually no head-space thus reducing the potential for induced volatilization during storage and transport to the laboratory. Individual core samplers were used to collect a soil sample at each interval. Samples collected by the core sampler were injected into a vial containing methanol and the vial immediately capped. By being submerged in the methanol, volatilization of VOC's within the soil sample is reduced prior to analysis. Soil samples intended for analysis of non-volatile chemical parameters were placed directly into pre-cleaned, laboratory supplied glass jars. All soil samples were placed in clean ice-packed coolers prior to and during transportation to the subcontract laboratory, Bureau Veritas Laboratories. The samples were transported/submitted under Chain of Custody documentation.

Soil samples were selected for laboratory analysis on the basis of their visual or olfactory evidence of impacts or potential water-bearing zones. The soil samples submitted for laboratory analysis are summarized in the following table:

Table 2.1: Summary of Soil Samples Submitted for Chemical Analyses

Sample Identification	Depth (m bgs)	Rationale for Sample	Analysis
BH1/MW SA6	3.8 – 4.6	Inferred Water Table Depth	VOCs, PHCs
BH2/MW SA4	2.3 – 3.0	Inferred Water Table Depth	VOCs, PHCs
BH3 SA3	1.5 – 2.3	Inferred Water Table Depth	VOCs, PHCs
BH4/MW SA3	1.5 – 2.3	Inferred Water Table Depth	VOCs, PHCs
BH5 SA4	2.3 – 3.0	Inferred Water Table Depth	VOCs, PHCs, pH
BH6/MW SA2	1.1 – 1.5	Inferred Water Table Depth	VOCs, PHCs
TP1 SA3	0.6 – 0.9	Fill Material	Metals & Inorganics, PAHs
TP3 SA1	0.0 – 0.4	Fill Material	Metals & Inorganics, PAHs
TP5 SA1	0.0 – 0.5	Fill Material	Metals & Inorganics, PAHs
TP7 SA2	0.2 – 0.8	Fill Material	Metals & Inorganics, PAHs

Sample Identification	Depth (m bgs)	Rationale for Sample	Analysis
TP9 SA1	0.0 – 0.4	Fill Material	Metals & Inorganics, PAHs
TP11 SA1	0.0 – 0.9	Fill Material	Metals & Inorganics, PAHs
TP13 SA1	0.0 – 0.8	Fill Material	Metals & Inorganics, PAHs
TP15 SA1	0.0 – 0.5	Fill Material	Metals & Inorganics, PAHs
TP17 SA1	0.0 – 0.4	Fill Material	Metals & Inorganics, PAHs
TP19 SA1	0.0 – 0.3	Fill Material	Metals & Inorganics, PAHs
TP22 SA2	0.2 – 2.3	Fill Material	Metals & Inorganics, PAHs
TP25 SA1	0.0 – 0.3	Fill Material	Metals & Inorganics, PAHs
TP26 SA2	1.0 – 1.2	Inferred Water Table Depth	VOCs, PHCs
TP27 SA3	1.2 – 1.3	Inferred Water Table Depth	VOCs, PHCs, pH
DUP01	-	QA/QC, Duplicate Sample of TP27 SA3	VOCs, PHCs
DUP02	-	QA/QC, Duplicate Sample of TP25 SA1	Metals & Inorganics, PAHs

Note:

VOCs = Volatile Organic Compounds

PHCs = Petroleum Hydrocarbons

PAHs = Polycyclic Aromatic Hydrocarbons

2.2 Groundwater Sampling

Groundwater monitoring wells were installed in Boreholes 1, 2, 4, and 6 at the Site. The monitoring wells were installed in general accordance with the Ontario Water Resources Act - R.R.O. 1990, Regulation 903 - Amended to O. Reg. 128/03 and were installed by a licensed well contractor ("Direct Environmental Drilling").

The monitoring well installed on-Site was constructed of 50 mm Schedule 40 PVC screen and riser. 3.1m long screens and an appropriate length of riser pipe were used in the well construction. Details of the individual well installation are provided on the borehole logs in Appendix A. The well screen has a

slot size of approximately 0.25 mm (slot 10) and was sealed at the base with a PVC end cap. The annular space around each well screen was backfilled with #3 silica sand to an average height of 0.3 m above the top of the screen. The sand pack was extended above the screen to allow for compaction of the sand pack and expansion of the overlying well seal. A granular Bentonite (“Hole Plug”) seal was placed in the borehole annulus from the top of the sand pack to just below ground surface. The well was finished at surface with a flush mount well casing. The void within the casing was also filled with #3 silica sand. Lubricants and adhesives were not used when constructing the monitoring well.

The Site was visited on September 9, 2021 and the monitoring wells were developed, if possible. It is noted that BH4/MW and BH5/MW were dry at the time of this visit. On October 11, 2021, groundwater samples were recovered from all four (4) monitoring wells using low flow sampling technology. Water samples obtained were generally clear, colourless and odourless with no light non-aqueous phase liquid present. Once the geochemical parameters were found to be stabilized (based on electronic multi-meter readings) and/or at a drawdown of greater than 10cm, groundwater samples were collected from the monitoring wells, placed into laboratory-supplied glass jars, immediately placed in a clean ice packed cooler and submitted under chain of custody procedures to Bureau Veritas Laboratories for VOCs and PHCs (Fractions F1-F4).

Details of the analysis performed on the selected groundwater samples are summarized in the following table:

Table 2.2: Groundwater Samples Submitted for Analysis

Sample Identification	Analysis
BH1/MW	VOCs, PHCs
BH2/MW	VOCs, PHCs
BH4/MW	VOCs, PHCs
BH6/MW	VOCs, PHCs
DUP-01 (Duplicate)	VOCs, PHCs

Note:

PHC = Petroleum Hydrocarbons

VOCs = Volatile Organic Compounds

3 Findings

3.1 Subsurface Conditions

The detailed soil profiles encountered in each borehole are provided on the attached borehole logs (Appendix A) and test pit logs (Appendix B). Boundaries of soil indicated on the log sheets are intended to reflect transition zones for the purpose of environmental assessment and should not be interpreted as exact planes of geological change. The general stratigraphy at the Site, as observed in the boreholes, consisted of a layer of topsoil, overlying a silt and/or clayey silt fill layer, overlying native sand and gravel and/or clayey silt till.

3.1.1 Fill Materials

A 50 – 300 mm layer of topsoil was encountered at the surface of BH2/MW, BH3, BH4/MW, BH5/MW, BH6/MW, TP1, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP19, TP20, TP21, TP23, TP24, TP25, and TP26. The topsoil was characterized as either brown or black and moist. Fill materials were encountered beneath the topsoil or at the surface of all boreholes and test pits to a depth of approximately 0.2 to 2.7 m bgs.

A silt fill was encountered at the surface of BH1/MW, TP4, and TP27, and beneath the topsoil in BH2/MW, BH5, TP9, TP24, TP25, and TP26, to a depth of 0.2 to 1.5 m bgs. The silt fill was characterized as brown and moist with various quantities of clay, sand, and gravel. Trace glass and asphalt was encountered in the silt fill materials in BH2/MW. Topsoil was intermixed in this fill layer in BH2/MW, BH5, TP1, TP4, TP9, and TP24.

A silt and clayey silt fill was encountered at the surface of TP3, TP5, TP15, TP16, TP17, TP18, and TP22, and beneath the topsoil in BH3, BH4/MW, TP1, TP6, TP7, TP8, TP10, TP11, TP19, TP21, and TP23, to a depth of 0.3 to 2.7 m bgs. The silt and clayey silt fill material was characterized as brown or brown and grey, and moist with various quantities of sand and gravel. Pieces of asphalt were encountered in the silt and clayey silt fill materials in BH3, TP17, TP18, TP19, and TP23. Trace plastic was encountered in this fill layer in TP23. Topsoil was intermixed in this fill layer in BH4/MW, TP5, TP8, TP15, TP18, and TP22.

A clayey silt fill was encountered at the surface of TP2 and beneath the topsoil of TP12, TP13, TP14, and TP20 to a depth of 1.0 to 2.1 m bgs. The clayey silt fill was characterized as brown and moist with various quantities of sand and gravel. Pieces of asphalt were encountered in this fill layer in TP2, TP14, and TP20. Municipal refuse was encountered in this fill layer in TP2. Concrete was encountered in this fill material in TP20.

Beneath the topsoil in BH6/MW, the silt fill layer in BH5, or the silt and clayey silt fill layer in TP22, a sand fill layer was encountered to a depth of 1.4 to 2.5 m bgs. The sand was generally fine to medium grained, brown, moist to wet, and contained some gravel.

Beneath the silt and clayey silt fill layer in TP10, a sandy silt fill layer was encountered to a depth of 1.7 m bgs. The sandy silt was characterized as brown, moist and containing some gravel.

Water seepage was observed in the fill materials of BH3, BH5, TP22 at depths of approximately 1.1 to 2.3 m bgs.

No petroleum odours were noted in any of the fill samples recovered from the boreholes.

3.1.2 Native Materials

No native materials were encountered in the soils from TP13 and TP22, which were terminated in fill materials.

Underlying the fill materials in BH3, BH4/MW, BH5, TP4, TP10, TP16, TP20, TP23, TP25, and TP27, a native sand and gravel was encountered to a depth of 0.8 to 3.2 m bgs. The sand and gravel layer was brown and moist to wet. The sand and gravel layers were wet at depths of 1.2 to 2.7 m bgs.

Underlying the fill materials in BH1/MW, BH2/MW, BH6/MW, TP1, TP2, TP3, TP5, TP6, TP7, TP8, TP9, TP11, TP12, TP14, TP15, TP17, TP18, TP19, TP21, TP24, and TP26, and the native sand and gravel layer in BH4/MW, BH5, TP4, TP16, and TP25, a native clayey silt till was encountered to a depth of 1.5 m bgs, or termination at 1.5 to 7.0 m bgs. This clayey silt till was brown and/or grey, contained trace gravel, and was moist. The clayey silt till layer turned grey at 0.2 to 5.0 m bgs, which is indicative of water table conditions. A wet sand and gravel seam was encountered in the native clayey silt till in TP9 at a depth of 2.2 to 2.4 m bgs. Thin, wet, intermittent sand layers were encountered in the native clayey silt till layer in TP16 and TP21 at a depth of 2.9 to 3.0 m bgs and 1.7 to 2.3 m bgs, respectively.

Beneath the clayey silt till layer in TP19 and TP21, a native sand and gravel layer was encountered to termination at 2.5 to 2.7 m bgs. The sand and gravel layer was brown and/or grey and wet.

No petroleum odours or staining were noted in any of the native samples recovered from the boreholes.

3.2 Total Combustible Vapour Readings

Field screening involved using an RKI Eagle II total combustible vapour meter to measure the total combustible vapour (TCV) concentrations in part per million (ppm). The headspace readings were obtained by inserting the plastic tube of the device into the soil sample bag and recording the TCV readings. The results are presented on the attached borehole logs. As indicated, vapour concentrations in the soil samples from the boreholes and test pits were between 0 and 30 ppm and are indicative of natural background conditions.

3.3 Groundwater Elevations

The depth to groundwater was measured in the monitoring wells on October 11, 2021 during the water sampling events. Groundwater elevations relative to a temporary benchmark are illustrated on the borehole logs in Appendix A and are summarized in the following table:

Table 3.3: Summary of Ground Water Levels

Well No.	Elevation (m) (Ground Surface)	Water Table Depth (m)	Groundwater Elevation (m)
BH1/MW	99.21	4.17	95.04
BH2/MW	98.96	4.57	94.39
BH4/MW	99.65	1.52	98.13
BH6/MW	98.81	5.22	93.59

The temporary benchmark used for the elevation survey was the fire hydrant located between 8 Warehouse Street and 1 Park Avenue. The benchmark was assigned a relative elevation of 100.00 metres.

Groundwater level measurements were taken on October 11, 2021. It should be noted that only one (1) rounds of measurements were taken and the existence of equilibrium conditions (quasi-static water levels) was not confirmed. It is noted that the water within BH4/MW was located within a different lithological layer than the other three (3) boreholes and may have been a perched condition. Thus, the direction of inferred groundwater flow was determined from BH1/MW, BH2/MW and BH6/MW. The inferred groundwater flow direction would be to the northeast.

4 Soil and Groundwater Quality

4.1 General

In accordance with the scope of work, chemical analyses were performed on selected soil samples recovered from the boreholes. The selection of representative “worst case” soil samples from each borehole was based on field screening for organic vapours and visual or olfactory evidence of impacts as detailed in Table 2.1.

4.2 Soil/Fill Quality

Copies of the laboratory Certificates of Analysis for the tested soil samples are provided in Appendix C (boreholes) and Appendix D (test pits). The 2011 MECP Table 2 Site Condition Standards (SCSs) for Residential Property Use with fine/medium textured soil in a potable groundwater condition are included on the Certificates of Analysis. Soil sampling analysis plans are included in Figures 3a, 3b, and 3c.

The 2011 MECP Table 2 SCSs are considered suitable for use if soil pH is in the range of 5 to 9 for surface soil (less than 1.5m below soil surface) and 5 to 11 for subsurface soil (greater than 1.5 m below soil surface). The Certificates of Analysis include pH measurements taken on thirteen (13) soil samples, including BH5 SA4 (subsurface), TP1 SA3 (surface), TP3 SA1 (surface), TP5 SA1 (surface), TP7 SA2 (surface), TP9 SA1 (surface), TP11 SA1 (surface), TP13 SA1 (surface), TP15 SA1 (surface), TP17 SA1 (surface), TP19 SA1 (surface), TP25 SA1 (surface), and TP27 SA3 (surface). The reported pH value of 6.37 to 7.97 in the surface soil samples and 7.90 in the subsurface soil sample is within the acceptable range for the use of the Table 2 SCSs.

4.2.1 Metals and Inorganics

Thirteen (13) soil samples, including one (1) duplicate, were recovered from Test Pit 1, Test Pit 3, Test Pit 5, Test Pit 7, Test Pit 9, Test Pit 11, Test Pit 13, Test Pit 15, Test Pit 17, Test Pit 19, Test Pit 22, and Test Pit 25 (i.e. TP1 SA2, TP3 SA1, TP5 SA1, TP7 SA2, TP9 SA1, TP11 SA1, TP13 SA1, TP15 SA1, TP17 SA1, TP19 SA1, TP22 SA2, TP25 SA1 and DUP02) were evaluated for metals and inorganics. An exceedance of the 2011 MECP Table 2 SCSs for cyanide was measured in the sample recovered from TP1 SA3. In addition, exceedances of lead were measured in the samples recovered from TP9 SA1, TP25 SA1, and DUP02, and exceedances of arsenic were measured at TP25 SA1 and DUP02. All other metals and inorganics concentrations were measured at levels below the 2011 MECP Table 2 SCSs.

4.2.2 Polycyclic Aromatic Hydrocarbons

The above noted soil samples were also evaluated for PAHs. Low concentrations of PAHs were detected at all test pit locations except for TP19 SA1. However, all PAHs concentrations were measured at levels below the 2011 MECP Table 2 SCSs.

4.2.3 Volatile Organic Compounds, including Benzene, Toluene, Ethylbenzene and Xylene

Nine (9) soil samples, including one (1) duplicate, recovered from Boreholes 1, 2, 3, 4, 5, 6 and Test Pits 26 and 27 (i.e. BH1/MW SA6, BH2/MW SA4, BH3 SA3, BH4/MW SA3, BH5 SA4, BH6/MW SA2, TP26 SA2, TP27 SA3 and DUP01) were evaluated for VOC, including BTEX. All VOC concentrations were measured at concentrations below the reported detection limits (RDLs) and hence, below the 2011 MECP Table 2 SCSs.

4.2.4 Petroleum Hydrocarbons (Fractions F1-F4)

The above noted soil samples were also evaluated for Petroleum Hydrocarbons (PHCs) Fractions 1-4. PHC Fraction 2 was detected in BH3 SA3 at low concentrations. Elevated concentrations of PHC Fractions 2, 3, and 4 were detected in BH6/MW SA2, but remained below the 2011 MECP Table 2 SCSs for residential land use in fine/medium textured soils. All other PHC concentrations were measured at concentrations below the reported detection limits (RDLs) and hence, below the 2011 MECP Table 2 SCSs.

4.2.5 Summary of Soil Sample Parameter Exceedances

Soil/fill samples that exceeded the applicable 2011 MECP Table 2 SCSs are summarized in the table below.

Sample ID	Parameter	Result (ug/g)	Table 2 SCS for Commercial/Industrial/Community Land Use –Medium/Fine Texture (ug/g)
TP1 SA3	WAD Cyanide (free)	0.14	0.051
TP9 SA1	Lead	270	120
TP25 SA1	Arsenic Lead	25 800	18 120
DUP02	Arsenic Lead	21 650	18 120

4.3 Groundwater Quality

Copies of the laboratory Certificates of Analysis for the groundwater samples are provided in Appendix E. The 2011 MECP Table 2 SCSs (all types of property use) with fine/medium textured soils are included on the Certificates of Analysis. A groundwater sampling analysis plan is shown in Figure 4.

The monitoring wells installed in Boreholes 1, 2, 4, and 6 (BH1/MW, BH2/MW, BH4/MW, and BH6/MW) were developed on September 9, 2021, and subsequently on October 11, 2021 groundwater samples were recovered from monitoring wells BH2/MW and BH4/MW using low flow sampling technology. Water samples obtained were generally clear, colourless and odourless with no light non-aqueous phase liquid present.

4.3.1 Benzene, Toluene, Ethylbenzene, Xylene

Five (5) groundwater samples, including one (1) duplicate, were recovered from the monitoring wells BH1/MW, BH2/MW, BH4/MW, and BH6/MW were submitted for analysis of VOCs, including BTEX. All VOCs in the samples were measured at levels below the reported detection limit, and hence, the 2011 MECP Table 2 SCSs.

4.3.2 Petroleum Hydrocarbons (Fractions F1-F4)

The above noted groundwater sample was also submitted for analysis of PHCs, Fractions 1-4. All PHC fractions in the sample were measured at concentrations below the reported detection limit and hence, below the 2011 MECP Table 2 SCSs

4.3.3 Quality Assurance

Details regarding quality assurance measures taken in the field, including instrument calibration, decontamination procedures, use of dedicated equipment, sample storage and Chain of Custody documentation are provided in Section 2, Methodology.

The subcontract laboratory used during this investigation, Bureau Veritas, is accredited by the Standards Council of Canada/Canadian Association of Environmental Analytical Laboratories (Accredited Laboratory No. 97) in accordance with ISO/IEC 17025:2017 – “General Requirements for the Competence of Testing and Calibration Laboratories” for the analysis of all parameters for which SCS have been established under Ontario Regulation 153/04.

The “Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act” (“the Analytical Protocol”), MECP, March 2004, establishes criteria used in assessing the performance of analytical laboratories. These include maximum hold times for the extraction (where applicable) and analysis of samples, required methods of analysis, Required Detection Limits (RDLs), fixed recovery ranges for spiked samples and surrogates (compounds added to water samples in known concentrations for calibration purposes), quantified precision required when analyzing laboratory duplicate samples (“Between Run Precision”) and the analysis of method blanks.

All samples were extracted, where applicable, and analyzed within the hold times established under the Analytical Protocol. These analytical results comprise portions of the Certificates of Analysis in Appendix C, Appendix D, and Appendix E.

5 Supplementary Subsurface Investigation and Remedial Works

5.1 Background

The findings of the Phase Two ESA indicated that the analytical results for the groundwater samples tested were within the Table 2 SCS criteria for Residential/Parkland/Institutional Property Use with fine/medium textured soil in a Potable groundwater condition “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act” (“the SGWS Standards”), Ministry of the Environment, Conservation and Parks (MECP), July 1, 2011 (Ontario Regulation 153/04 as amended).

However, the analytical results for the soil samples tested indicated that there were two (2) areas where soils exceeded the Table 2 SCS criteria for Residential/Parkland/Institutional Property Use with fine/medium textured soil in a Potable groundwater condition “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act” (“the SGWS Standards”), Ministry of the Environment, Conservation and Parks (MECP), July 1, 2011 (Ontario Regulation 153/04 as amended). These areas were defined as:

- In the southwest portion of the Site, along the southern property boundary, a cyanide exceedance was detected within the soils of TP1 at a depth of 0.6 to 0.9 m bgs.
- In the eastern portion of the Site, along the eastern property boundary extending the entire north-west direction of the Site, exceedances of lead were detected in TP9 and TP25, and an exceedance of arsenic were detected in TP25, at depths of 0.0 – 0.3 m bgs and 0.0 – 0.4 m bgs, respectively. The spatial extent of the lead and arsenic exceedances is unknown but is expected to be confined to the eastern portion of the Site.

Further investigative work was required to delineate and/or determine if the elevated cyanide identified in Test Pit 1 (TP1) is representative of on-Site conditions in that area or anomalous. Remedial work was recommended and conducted by EXP staff in the eastern portion of the Site to remove the impacted soils containing the arsenic and lead exceedances in the vicinity of TP9 and TP25.

In addition to these two (2) areas of concern, elevated levels of Petroleum Hydrocarbons (PHCs) Fractions 2, 3, and 4 were noted in the soil sample tested at BH6/MW at a depth of 1.1 to 1.5 m bgs. Further investigation was conducted to ensure that PHC concentrations in the area surrounding BH6/MW were within the 2011 MECP Table 2 SCS criteria for Residential/Parkland/Institutional Property Use with fine/medium textured soil in a Potable groundwater condition.

An outline of the Supplementary Subsurface Investigation and Remediation program is shown in Figure 5.

5.2 Scope of Work for Supplementary Investigation and Remedial Works

The proposed scope of work for the Supplementary Investigation and Remedial Works was as follows:

- Refresh request for local utility locating companies (cable, telephone, gas, hydro) to mark any underground utilities present at the Site;

- Refresh request of private utility locating company to mark any underground utilities present in the vicinity of the borehole locations and to clear the individual borehole locations;
- Advance a total of four (4) test holes on the property in the vicinity of TP1 and collect representative soil samples for analysis of Cyanide;
- Advance a total of two (2) test holes and use previously advanced Test Pits 26 and 27 (i.e., TP26 and TP27) to delineate and assess soils in the vicinity of BH6/MW;
- Collect representative soil samples for analysis of Volatile Organic Compounds (VOCs), including Benzene, Toluene, Ethylbenzene, Xylene (BTEX), and/or Petroleum Hydrocarbons (PHCs) Fraction 1-4 from the above test holes;
- Remove the lead and arsenic impacted soils on-Site from the areas surrounding TP9 and TP25;
- Collect representative verification soil samples for analysis of metals from the base and walls of the impacted soils excavation;
- Prepare a report of the findings.

5.3 Methodology

5.3.1 Fieldwork

The fieldwork for the supplementary subsurface investigation was completed on September 27, 2021 and April 11, 2022. On September 27, 2021, two (2) test pits were advanced at the Site for supplementary subsurface investigation purposes by a private contractor under the full-time supervision of EXP staff. An excavator was used to advance the test pits to completion depths of approximately 1.5 to 1.7 m below ground surface (bgs). On April 11, 2022, six (6) test holes were advanced at the Site for supplementary subsurface investigation purposes by EXP staff. A shovel and soil auger were used to advance the test holes to completion depths of approximately 0.5 to 0.9 m bgs.

The approximate locations of the test pits and test holes are shown on Figure 2 (Borehole, Test Pit, Test Hole, and Monitoring Well Location Plan). The rationale for the selection of boreholes was determined as follows:

- TP26 – Assess potential PHC/VOC impacts east of BH6/MW (7 m east of BH6/MW)
- TP27 – Assess potential PHC/VOC impacts west of BH6/MW (5 m west of BH6/MW)
- BH6/MW - 1 m North – Assess potential PHC/VOC impacts north of BH6/MW (1 m north)
- BH6/MW - 1 m South – Assess potential PHC/VOC impacts south of BH6/MW (1 m south)
- TP1 - 1 m North – Assess potential cyanide impact to north of TP1 (1 m north)
- TP1 - 1 m East – Assess potential cyanide impact to east of TP1 (1 m east)
- TP1 - 1 m West – Assess potential cyanide impact to west of TP1 (1 m west)
- TP1 - Adjacent South – Assess potential cyanide impact to south of TP1 (immediately south)

The fieldwork for the project also involved the excavation of impacted soils in the eastern portion of the Site. The impacted soils exceeding the 2011 Ontario Ministry of the Environment, Conservation and Parks (MECP) Table 2 regulatory limits for Residential/Parkland/Institutional Property Use in a potable groundwater condition were excavated and transported to a portion of the property within the project area but outside of the RSC boundary. After the remedial works, the excavation is expected to be backfilled with acceptable excavated soil and brought up to grade.

Following the removal of the impacted soil, the subsurface conditions at the limits of the excavation were characterized by EXP using physical identification methods (e.g. visual, tactile, odour) and soil gas screening techniques in common use. On April 11, 2022, eleven (11) base samples were collected and screened for sample submission. Five (5) samples were selected based on visual observations as verification soil samples recovered from the base limits of the excavation and analyzed for parameters related to the previously identified exceedance (i.e., Metals). An additional five (5) base and eight (8) wall verification soil samples were recovered from the limits of the extended excavation on May 4, 2022. A further five (5) base and two (2) wall verification samples from the further extended excavation on July 14, 2022, and one (1) base and four (4) wall verification samples from an even further extended excavation were collected and analyzed for metals on October 4, 2022. Analytical work was completed by Bureau Veritas Laboratories, an accredited laboratory.

Dedicated Nitrile gloves (i.e., one pair per sample) were used during sample handling. A portion of each soil sample was placed in a sealed plastic bag and allowed to reach ambient temperature prior to field screening using an RKI Eagle II total combustible vapour meter, recently calibrated with hexane. The measurements were made by inserting the instrument's probe into the plastic bag while manipulating the sample to ensure volatilization of the soil gases (See Section 2.1). All vapour concentrations in the soil samples from the Supplementary Subsurface Investigation and Remedial Works were between 0 and 30 ppm and are indicative of natural background conditions.

Soil samples intended for analysis of Volatile Organic Compounds (VOC's), including Benzene, Toluene, Ethylbenzene, and Xylene (BTEX) were collected by means of core samplers. The core samplers provide a soil sample with virtually no head-space thus reducing the potential for induced volatilization during storage and transport to the laboratory. Soil samples intended for analysis of non-volatile chemical parameters were placed directly into pre-cleaned, laboratory supplied glass jars. All soil samples were placed in clean ice-packed coolers prior to and during transportation to the subcontract laboratory, Bureau Veritas Laboratories. The samples were transported/submitted under Chain of Custody documentation.

The soil samples submitted for laboratory analysis are summarized in the following table:

Table 5.1: Summary of Soil Samples Submitted for Chemical Analyses

Sample Identification	Depth (m bgs)	Rationale for Sample	Analysis
TP26 SA2	1.0 – 1.2	Inferred Water Table Depth	VOCs, PHCs
TP27 SA3	1.2 – 1.3	Inferred Water Table Depth	VOCs, PHCs, pH
BH6/MW – 1 m North	0.7 – 0.8	Inferred Water Table Depth	PHCs

Sample Identification	Depth (m bgs)	Rationale for Sample	Analysis
BH6/MW – 1 m South	0.6 – 0.9	Inferred Water Table Depth	PHCs
TP1 – 1 m North	0.5 – 0.7	Approx. stratigraphical layer of Cyanide Impact in TP1 (0.6 – 0.9 m bgs) & Maximum penetration with soil auger	Cyanide
TP1 – 1 m East	0.4 – 0.6	Approx. stratigraphical layer of Cyanide Impact in TP1 (0.6 – 0.9 m bgs) & Maximum penetration with soil auger	Cyanide
TP1 – 1 m West	0.5 – 0.6	Approx. stratigraphical layer of Cyanide Impact in TP1 (0.6 – 0.9 m bgs) & Maximum penetration with soil auger	Cyanide
TP1 – Adjacent South	0.3 – 0.5	Approx. stratigraphical layer of Cyanide Impact in TP1 (0.6 – 0.9 m bgs) & Maximum penetration with soil auger	Cyanide
Ex. 1 Base 1	0.30	Base verification sample.	Metals
Ex. 1 Base 3	0.50	Base verification sample at approximate location of TP25.	Metals
Ex. 1 Base 5	0.30	Base verification sample.	Metals
Ex. 1 Base 8	0.30	Base verification sample.	Metals
Ex. 1 Base 11	0.15	Base verification sample at approximate location of TP9.	Metals
B101-A	0.80	Approx location where Ex. 1 Base 1 exceeded 2011 MECP Table 2 SCSs.	Metals
B102-A	0.80	Approx location where Ex. 1 Base 3 exceeded 2011 MECP Table 2 SCSs.	Metals
B103-A	0.60	Approx location where Ex. 1 Base 15 exceeded 2011 MECP Table 2 SCSs.	Metals
B104-A	0.60	Approx location where Ex. 1 Base 8 exceeded 2011 MECP Table 2 SCSs.	Metals
B105-A	0.30	Approx location where Ex. 1 Base 11 exceeded 2011 MECP Table 2 SCSs.	Metals

Sample Identification	Depth (m bgs)	Rationale for Sample	Analysis
W1	0.0 – 0.6	East Wall verification sample, east of TP25.	Metals
W2	0.0 – 0.6	East Wall verification sample.	Metals
W3	0.0 – 0.6	South Wall verification sample, southwest of TP9.	Metals
W4	0.0 – 0.6	West (South) Wall verification sample.	Metals
W5	0.0 – 0.6	West (North) Wall verification sample.	Metals
W6	0.0 – 0.6	West (North) Wall verification sample.	Metals
W7	0.0 – 0.6	North Wall verification sample.	Metals
W8	0.0 – 0.6	East Wall verification sample, east of TP9.	Metals
Base 201	0.90	Approx location where B101-A exceeded 2011 MECP Table 2 SCSs	Metals
Base 202	0.90	Approx location where B102-A exceeded 2011 MECP Table 2 SCSs	Metals
Base 203	0.70	Approx location where B103-A exceeded 2011 MECP Table 2 SCSs	Metals
Base 204	0.90	Approx location where B104-A exceeded 2011 MECP Table 2 SCSs	Metals
Base 205	0.35	Approx location where B105-A exceeded 2011 MECP Table 2 SCSs	Metals
W205	0.0 – 0.5	Approx location where W5 exceeded 2011 MECP Table 2 SCSs	Metals
W206	0.0 – 0.3	Approx location where W6 exceeded 2011 MECP Table 2 SCSs	Metals
Base 305	0.7	Approx location where B205 exceeded 2011 MECP Table 2 SCSs	Metals
W305	0.0 – 0.5	Approx location where W205 exceeded 2011 MECP Table 2 SCSs	Metals

Sample Identification	Depth (m bgs)	Rationale for Sample	Analysis
W306	0.0 – 0.3	Approx location where W206 exceeded 2011 MECP Table 2 SCSs	Metals
Base 405	1.0	Approx location where B305 exceeded 2011 MECP Table 2 SCSs	Metals
W405	0.0 – 0.5	Approx location where W305 exceeded 2011 MECP Table 2 SCSs	Metals
W406	0.0 – 0.3	Approx location where W306 exceeded 2011 MECP Table 2 SCSs	Metals
B100(DUP)	-	QA/QC – Duplicate Sample of B104-A	Metals
W100(DUP)	-	QA/QC – Duplicate Sample of W6	Metals
DUP401	-	QA/QC – Duplicate Sample of B405	Metals
DUP402	-	QA/QC – Duplicate Sample of W405	Metals

Note:

VOCs = Volatile Organic Compounds

PHCs = Petroleum Hydrocarbons

5.3.2 Excavation and Disposal

The impacted soils in the eastern portion of the Site were excavated and transported to a portion of the property within the project area but outside of the RSC boundary under the authority of the client in various stages between April and October of 2022. EXP staff visited the Site after each excavation event. Soil samples from bases and walls were recovered at each stage and submitted for analysis of metals.

The final extent of the excavation for the impacted soils remediation was irregular in shape and measured approximately 1020 square metres (10,980 square feet) in area and extended to a depth of between 0.3 to 1.2 metres (1.0 to 4.0 feet) below ground surface (bgs). The approximate footprint of the excavation extended from the Site's eastern property limit to approximately 17 to 33.5 m west of the eastern property limit and terminated at the north and south property limits. The full extent of the current excavation limits, including verification sample locations, are shown in Figures 5 and 6c.

5.4 Subsurface Conditions

Test Holes

The soil samples from the six (6) test holes advanced in the vicinity of TP1 and BH6/MW are summarized in the table below. No staining or petroleum odours were noted in any of the samples.

Table 5.4a: Test Hole Soil Sample Descriptions and Field Observations

Sample Identification	Depth (m bgs)	Lithology	Total Combustible Vapour Reading (ppm)
TP1 – 1 m North	0.5 – 0.7	SILT FILL – brown, trace gravel, trace asphalt, moist	0
TP1 – 1 m East	0.4 – 0.6	SILT FILL – brown, trace gravel, moist	0
TP1 – 1 m West	0.5 – 0.6	CLAYEY SILT FILL – brown, moist	0
TP1 – Adjacent South	0.3 – 0.5	SILT FILL – brown, trace gravel, moist	0
BH6/MW – 1 m North	0.7 – 0.8	SAND FILL – coarse grained, brown, trace to some gravel, wet	0
BH6/MW – 1 m South	0.6 – 0.9	SAND AND GRAVEL FILL – brown, wet	0

Remedial Excavation

The base of excavation in the metal impacted remedial area on Site was within a clayey silt to silt to sandy silt/silty sand fill layer to a depth of approximately 0.3 to 1.2 m bgs. The clayey silt to silt fill layer was characterized as brown with some gravel and various pockets of silty sand to sandy silt, and moist. No staining or petroleum odours were noted at the base of the current extent of excavation.

The soil observed at the walls of the current remedial excavation extent, which consisted of the Site property limits to the north, east, and south, consisted of a mixture of fill materials generally summarized as a thin layer of brown to dark brown topsoil (approximately 100mm) overlying a clayey silt to silt/sandy silt fill layer. The northern half of the east wall contained pockets of black topsoil material consistent. No staining or petroleum odours were noted along the final wall excavation limits.

The soil samples submitted from the remedial excavation are summarized in the table below. No staining or petroleum odours were noted in any of the samples.

Table 5.4b: Remedial Excavation Verification Sample Descriptions and Field Observations

Sample Identification	Depth (m bgs)	Lithology	Total Combustible Vapour Reading (ppm)
Ex. 1 Base 1	0.30	SILT & TOPSOIL – brown, trace clayey silt inclusions, trace organics, moist	0
Ex. 1 Base 3	0.50	SILT & TOPSOIL – brown, trace clayey silt inclusions, trace organics, moist	0
Ex. 1 Base 5	0.25	SILT FILL – brown, some gravel, trace sand, moist	0
Ex. 1 Base 8	0.30	SILT & TOPSOIL – brown, trace clayey silt inclusions, trace organics, moist	0

Sample Identification	Depth (m bgs)	Lithology	Total Combustible Vapour Reading (ppm)
Ex. 1 Base 11	0.10	SILT FILL – brown, some topsoil, some gravel, trace sand, moist	0
B101-A	0.75	SILTY SAND AND CLAY FILL – brown, moist	-
B102-A	0.60	CLAYEY SILT AND SAND FILL – brown, trace topsoil, moist	-
B103-A	0.60	CLAYEY SILT FILL – brown, trace sand, moist	-
B104-A	0.60	SILTY SAND FILL – brown, moist	-
B105-A	0.30	CLAYEY SILT FILL – brown, trace sand, moist	-
W1	0.0 – 0.6	CLAYEY SILT FILL AND TOPSOIL – brown and black, moist	-
W2	0.0 – 0.6	CLAYEY SILT FILL AND TOPSOIL – brown and black, moist	-
W3	0.0 – 0.6	CLAYEY SILT FILL AND TOPSOIL – brown, moist	-
W4	0.0 – 0.6	SANDY SILT FILL AND TOPSOIL – brown, moist	-
W5	0.0 – 0.6	CLAYEY SILT FILL – brown, moist	-
W6	0.0 – 0.6	CLAYEY SILT FILL AND TOPSOIL – brown, moist	-
W7	0.0 – 0.6	SILTY SAND FILL – brown, moist	-
W8	0.0 – 0.6	CLAYEY SILT FILL AND TOPSOIL – brown, moist	-
Base 201	0.80	SILT AND CLAYEY SILT FILL – brown, some sand, some gravel, moist	0
Base 202	0.90	SILT AND CLAYEY SILT FILL – brown, some sand, some gravel, moist	0
Base 203	0.65	SILT AND CLAYEY SILT FILL – brown, some sand, some gravel, moist	0
Base 204	0.90	SILT AND CLAYEY SILT FILL – brown, some sand, some gravel, moist	0
Base 205	0.35	SILT AND CLAYEY SILT FILL – brown, some sand, some gravel, moist	0
W205	0.0 – 0.5	SILT AND CLAYEY SILT FILL – brown, some gravel, trace concrete, moist	0
W206	0.0 – 0.3	SILT AND CLAYEY SILT FILL – brown, some dark brown topsoil intermixed, moist	0
Base 305	0.7	SANDY SILT FILL – brown, moist	0
W305	0.0 – 0.5	SILT FILL AND TOPSOIL – brown, some gravel, moist	0
W306	0.0 – 0.3	TOPSOIL – black, moist	0

Sample Identification	Depth (m bgs)	Lithology	Total Combustible Vapour Reading (ppm)
Base 405	1.0	SANDY SILT FILL – brown, moist	0
W405	0.0 – 0.5	SILTY SAND FILL – brown, some gravel, moist	0
W406	0.3	SILT AND CLAYEY SILT FILL – brown, trace gravel, moist	0

5.5 Soil Analysis

In accordance with the scope of work, chemical analyses were performed on selected soil samples recovered from the test holes and remedial excavation base and walls. The selection of representative “worst case” soil samples from each borehole was based on sample location in relation to previously identified impacts, field screening for organic vapours, and visual or olfactory evidence of impacts as detailed in Table 5.1.

Copies of the laboratory Certificates of Analysis for the tested soil samples are provided in Appendix F. The 2011 MECP Table 2 Site Condition Standards (SCSs) for Residential Property Use with fine/medium textured soil in a potable groundwater condition are included on the Certificates of Analysis. Soil sampling analysis plans are included in 6a, 6b, and 6c.

5.5.1 Cyanide

Four (4) soil samples recovered from Test Holes in the vicinity of TP1 (i.e., TP1 – 1 m North, TP1 – 1 m East, TP1 – Adjacent South, and TP1 – 1 m West) were evaluated for cyanide. All cyanide concentrations were measured at levels below the reported detection limits (RDLs) and hence, below the 2011 MECP Table 2 SCSs.

5.5.2 Petroleum Hydrocarbons (Fractions F1-F4)

Two (2) soil samples recovered from Test Holes in the vicinity of BH6/MW (i.e., BH6/MW – 1 m North and BH6/MW – 1 m South) were evaluated for Petroleum Hydrocarbons (PHCs) Fractions 1-4. PHC Fraction 3 and 4 were detected in both BH6/MW – 1 m North and BH6/MW – 1 m South, however, the concentrations were well below the 2011 MECP Table 2 SCSs.

5.5.3 Metals

A total of thirty-five (35) bulk samples, including four (4) duplicate samples, from thirty-one (31) locations, including seventeen (17) base and fourteen (14) wall sample locations, were recovered from the excavation area, and submitted for analysis of metals. A description of the soil samples submitted for analysis is provided in Table 5.4b.

Soil samples were submitted for analysis from various sampling events which occurred on April 11, May 4, July 14 and October 4, 2022. Several soil samples submitted during these sampling events contained lead concentrations which exceeded the 2011 MECP Table 2 SCSs, and as such, the excavation was extended where feasible.

Of the thirty-one (31) sampling locations, six (6) base samples and eight (8) wall samples are located at the final extent of the remedial excavation. These samples include Base 104-A, Base 201, Base 202, Base 203, Base 204, Base 405, W1, W2, W3, W4, W7, W8, W405, and W406. All metals concentrations were measured at levels below 2011 MECP Table 2 in all five (5) of the base samples (i.e., Base 201, Base 202, Base 203, and Base 405) and three (3) of the wall samples (i.e., W4, W405, W406). The remaining wall samples (i.e., W1, W2, W3, W7, and W8) had lead concentrations above the 2011 MECP Table 2 SCSs, however, the walls were at the property limit and therefore the remedial excavation could not be advanced further in these directions. The verification samples from the final excavation outline are shown in Figure 6c.

6.0 Discussion

6.1 Assessment of Areas of Potential Environmental Concerns (APECs)

Potential chemicals of concern (COCs) in the soil and groundwater within the APECs were assessed as part of EXP's Phase Two ESA soil and groundwater sampling programs. The assessment of potential COCs in soil is discussed in section 6.1.1 below. The assessment of potential COCs in groundwater is discussed in section 6.1.2 below.

6.5.1 Assessment of Soil COCs

Soil at the Phase Two Property within the identified APECs were assessed for the potential presence of COCs that may be associated with PCAs identified both on and off-Site. Many of the boreholes and test pits within the APECs were used for screening purposes to identify potential COCs (i.e., soil hydrocarbon vapour screening, visual and olfactory observations, etc.) prior to selecting samples for analytical testing. Soil samples were collected from twelve (12) test pit locations for the analysis of metals and inorganics and PAHs (refer to Figure 3a and 3b), four (4) test hole locations for the analysis of cyanide (refer to Figure 6a), six (6) borehole locations and two (2) test pit locations for the analysis of PHCs and VOCs (refer to Figure 3c), two (2) test hole locations for the analysis of PHCs (refer to Figure 6b), and thirteen (13) bulk sample locations for the analysis of metals (refer to Figure 6c).

ASSESSMENT OF APEC 1

APEC 1 – Importation of fill materials for Site grading, railway line removals, and surface material stripping in the early 2010s.

- Three (3) distinct fill materials were identified at the Site. It should be noted that none of the fill materials encountered on the Site, other than the material removed during the remedial excavation, exhibited evidence of impact including staining, odour, or elevated soil hydrocarbon vapour concentrations. The fill material is described below:

Topsoil – was identified across the Site at the surface of BH2/MW, BH3, BH4/MW, BH5/MW, BH6/MW, to a depth of approximately 0.05 to 0.3 m bgs. The topsoil was characterized as moist and brown to black. Soil samples were retrieved from the upper fill material (depth interval 0.0 to 0.3 m bgs) at test pit locations TP9, TP19, and TP25 for the analysis of metals and inorganics parameters and PAHs.

Silt and/or Clayey Silt Fill – was identified across the Site at the surface or beneath the topsoil of BH1/MW, BH2/MW, BH3, BH4/MW, BH5, TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP17, TP18, TP19, TP20, TP21, TP23, TP24, TP25, TP26, and TP27 to a depth of 0.3 to 2.7 m bgs. The silt and/or clayey silt fill material was characterized as moist and brown with various components of sand, gravel, and topsoil. Trace glass was encountered in this layer in BH2/MW, trace plastic in TP23, trace garbage in TP2, trace concrete in TP20, and trace asphalt was encountered in BH2/MW, BH3, TP2, TP14, TP17, TP18, TP19, TP20, and TP23. Soil samples were retrieved from the depth interval 0.6 to 0.9 m bgs at TP1, 0.0 to 0.4 at TP3 and TP17, 0.0 to 0.5 at TP5 and TP15, 0.2 to 0.8 at TP7, 0.0 to 0.9 at TP11, and 0.0 to 0.8 at TP13 for the analysis of metals and inorganics parameters and PAHs.

Sand Fill – was identified in the centre of the northern section of the Site near the slope beneath the topsoil or underlying the silt and/or clayey silt Fill materials of BH5, BH6/MW and TP22 to a depth of 1.4 to 2.5 m bgs. The sand fill material was characterized as fine to medium grained, moist to wet, and brown with some gravel. Soil samples were retrieved from a depth interval 1.2 to 2.3 m bgs at TP22 for the analysis of metals and inorganics parameters and PAHs, and from a depth of 1.1 to 1.5 m bgs at Borehole Location BH6/MW for the analysis of PHCs and VOCs.

- TP1 had an exceedance of cyanide at a depth interval of 0.6 to 0.9 m bgs. It was noted that some black colouration was found at this interval depth. Further investigative work was completed wherein four (4) test holes were advanced in all cardinal directions within 1 m of the Test Pit (i.e., TP1 – 1 m North, TP1 – 1 m East, TP1 – Adjacent South, and TP1 – 1 m West). Soil samples retrieved from the depth interval of 0.5 to 0.7 m bgs at TP1 – 1 m North, 0.4 to 0.6 m bgs at TP1 – 1 m East, 0.5 to 0.6 m bgs at TP1 – 1 m West, and 0.3 to 0.5 m bgs at TP1 – Adjacent South were analyzed for cyanide. No black colouration was found at this interval depth in any of the Test Holes.
- No cyanide was detected in any of the four (4) test holes. An average cyanide concentration of 0.036 ug/g was calculated using TP1 and the four (4) test holes (assigned values of reported detection limit, 0.01 ug/g) which is below the MECP 2011 Table 2 SCSs.
- PAH parameters were detected in all sampling locations except for TP19. None of these PAHs were detected at concentrations in excess of the MECP 2011 Table 2 SCSs.
- TP9 and TP25 had exceedances for lead at a depth interval of 0.0 to 0.4 m bgs and 0.0 to 0.3 m bgs, respectively. TP25 had an exceedance for arsenic. Both impacted areas were attributed to former railway lines operation and/or discard rather than poor fill quality (as noted below in APEC 2 discussion).

ASSESSMENT OF APEC 2

APEC 2 – Former railway lines on-Site and adjacent to the Site, and possible use of Site as a Rail Yard

- During the Phase Two ESA completed by EXP in 2021, six (6) boreholes (BH1/MW, BH2/MW, BH3, BH4/MW, BH5, and BH6/MW), four (4) monitoring wells (BH1/MW, BH2/MW, BH4/MW, and BH6/MW), and twenty-seven (27) test pits (TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8, TP9, TP10, TP11, TP12, TP13, TP14, TP15, TP16, TP17, TP18, TP19, TP20, TP21, TP22, TP23, TP24, TP25, TP26, and TP27) were advanced within the area covered by APEC 2. Samples were submitted from a total of twelve (12) locations across the Site for the analysis of metals and inorganics and PAHs (TP1, TP3, TP5, TP7, TP9, TP11, TP13, TP15, TP17, TP19, TP22, and TP25). In addition, samples from eight (8) locations were submitted for analysis of PHCs and VOCs (BH1/MW, BH2/MW, BH3, BH4/MW, BH5, BH6/MW, TP26, and TP27).
- TP1 had an exceedance of cyanide at a depth interval of 0.6 to 0.9 m bgs. This impact was attributed to poor fill quality rather than former railway lines operations and/or use of the Site as a rail yard.

- PAH parameters were detected in all sampling locations except for TP19. None of these PAHs were detected at concentrations in excess of the MECP 2011 Table 2 SCSs.
- Low concentrations of PHC parameter PHC Fraction 2 was detected in BH3 at a depth of 1.5 to 2.3 m bgs. Elevated concentrations of PHC parameters were detected in BH6/MW at a depth of 1.1 to 1.4 m bgs. It is noted that although the PHC parameters did not exceed the MECP 2011 Table 2 SCSs, however, further investigative work was completed to determine if soils in the vicinity of BH6/MW were impacted with higher concentrations of PHCs.
- No PHC parameters were detected at TP26 which was 7 m east of BH6/MW or TP27 which was 5 m west of BH6/MW. It is noted that TP26 could not be advanced closer to BH6/MW due to an underground clay tile water drain. Further investigative work was completed wherein two (2) test holes were advanced to the north and south of BH6/MW (i.e., BH6/MW – 1 m North and BH6/MW – 1 m South) to determine if elevated concentrations were present in surrounding soils. Low concentrations of PHC parameters PHC Fraction F3 and F4 were present in both of the test holes, which were well below the BH6/MW concentrations, and hence, the MECP 2011 Table 2 SCSs. It is noted that BH6/MW is located within the fill materials surrounding a clay tile water drain and the elevated levels of PHC parameters may be transported through this drain.
- TP9 and TP25 had exceedances for lead concentrations at a depth interval of 0.0 to 0.4 m bgs and 0.0 to 0.3 m bgs, respectively. TP25 also had an exceedance for arsenic. To date, this area was remediated to a depth of 0.3 to 1.2 m bgs. A total of thirty-five (35) confirmatory samples, including four (4) duplicate samples, seventeen (17) base samples, and fourteen (14) wall samples, were recovered from the excavation area and submitted for analysis of metals. Five (5) base (Base 201, Base 202, Base 203, Base 204, and Base 405) and eight (8) wall samples (W1, W2, W3, W4, W405, W406, W7, and W8) are from the current limit of the excavation area. Three (3) of the excavation walls (i.e., North Wall, East Wall, and South Wall) extend to the Site property limit and account for five (5) wall samples (W1, W2, W3, W7, and W8). These wall samples exceed the MECP 2011 Table 2 SCSs for lead. No metal concentrations exceeded the MECP 2011 Table 2 SCSs from any of the five (5) base samples (Base 201, Base 202, Base 203, Base 204, and Base 405) or remaining three (3) wall samples (W4, W405, and W406).

ASSESSMENT OF APEC 3

APEC 3 – Former operations of gasoline service stations, automotive repair and maintenance garages, a dry cleaner, and a car sales facility to the north of the Site.

- During the Phase Two ESA completed by EXP in 2021, five (5) boreholes (BH2/MW, BH3, BH4/MW, BH5, and BH6/MW), three (3) monitoring wells (BH2/MW, BH4/MW, and BH6/MW), and nine (9) test pits (TP19, TP20, TP21, TP22, TP23, TP24, TP25, TP26, and TP27) were advanced within the area covered by APEC 3. Samples from seven (7) locations were submitted for analysis of PHCs and VOCs (BH2/MW, BH3, BH4/MW, BH5, BH6/MW, TP26, and TP27).
- Low concentrations of PHC parameter PHC Fraction 2 was detected in BH3 at a depth of 1.5 to 2.3 m bgs. Elevated concentrations of PHC parameters were detected in BH6/MW at a depth

of 1.1 to 1.4 m bgs. It is noted that the PHC parameters did not exceed the MECP 2011 Table 2 SCSs. The elevated PHC concentrations were attributed to railway lines operations and/or use of the Site as a rail yard rather than former operations of gasoline service stations, automotive repair and maintenance garages, a dry cleaner, and a car sales facility to the north of the Site.

ASSESSMENT OF APEC 4

APEC 4 – Current and former operations of a commercial trucking company and automotive repair and maintenance garage to the southwest of the Site.

- During the Phase Two ESA completed by EXP in 2021, one (1) borehole (BH1/MW) and two (2) (TP1 and TP18) were advanced within the area covered by APEC 4. A sample from BH1/MW was submitted for analysis of PHCs and VOCs. All PHC and VOC parameters were below the reported detection limit and, hence, the MECP 2011 Table 2 SCSs.

6.5.2 Assessment of Groundwater COCs

Groundwater at the Site was assessed for the potential presence of COCs that may be associated with PCA's on-Site. During the Phase Two ESA, groundwater samples were collected from four (4) monitoring wells (BH1/MW, BH2/MW, BH4/MW, and BH6/MW) that were screened within water table/first water bearing unit. It is noted that BH6/MW was advanced through wet fill materials surrounding a cracked clay tile water drain which was not representative of Site groundwater conditions. Thus, the screen was advanced below this wet fill layer. Five (5) groundwater samples, including a duplicate, were collected for the analysis of VOCs and PHCs from BH1/MW, BH2/MW, BH4/MW and BH6/MW. Groundwater samples were collected on October 11, 2021.

- BH1/MW, BH2/MW, BH4/MW and BH6/MW were installed within APEC 2.
- BH2/MW, BH4/MW and BH6/MW were installed within APEC 3
- BH1/MW was installed within APEC 4

All groundwater samples analyzed had concentrations of PHC and VOC parameters below the reported detection limit, and hence, the 2011 MECP Table 2 SCSs. No groundwater COCs were retained.

7.0 Conclusions and Recommendations

The Phase Two ESA, Supplementary Subsurface Investigation, and Remedial Works programs were completed to identify potential chemicals of concern in relation to the four (4) APECs identified in the Phase One ESA program. The results from the Phase Two ESA identified three (3) areas for further investigation and/or remediation including supplementary subsurface investigations in the vicinity of a cyanide exceedance and elevated PHC concentrations, and a remedial excavation in the eastern portion of the Site where two (2) lead impacts and an arsenic impact were identified.

The observations and analytical results for representative soil samples recovered from the two (2) areas of supplementary subsurface investigations (i.e., the cyanide concentrations in the vicinity of exceedance identified and potential PHC impacts in the vicinity of elevated concentrations identified) indicated that the objectives of the supplementary subsurface investigation and remedial works in these areas had been achieved. The analytical results for the parameters evaluated satisfy the “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act” (“the SGWS Standards”), Ministry of the Environment, Conservation and Parks (MECP), July 1, 2011 – Table 2 Full Depth Background Site Condition Standards (SCS) in a Potable Groundwater Condition for Residential/Parkland/Institutional Property Use with fine/medium textured soils.

In addition, at the time of this report, the observations and analytical results for the representative soil samples recovered from the remedial excavation surrounding lead and arsenic impacts is completed. All impacted soils to date have been excavated and transported to a portion of the property within the project area but outside of the RSC boundary. The limits of the excavation to the north, east, and south have been extended to the property boundary while the limits to the west extended between 17.0 and 33.5 m west of the eastern property boundary. The depth of the excavation ranges from 0.3 to 1.2 m bgs.

At the time of this report, the excavation remains open. Any movement of soils and fill materials brought on-Site must be completed in accordance with Ontario Regulation 347 (as amended), Soil Management Regulation (O. Reg. 406/19)) which will affect the transportation and use of excess soils on-Site and all other applicable regulations.

8.0 References

This study was conducted in accordance with the applicable Regulations, Guidelines, Policies, Standards, Protocols and Objectives administered by the Ministry of the Environment. Specific reference is made to the following:

- “Guideline on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario”, Ministry of the Environment of Ontario, December 1996;
- *The Ontario Water Resources Act - R.R.O. 1990, Regulation 903 - Amended to O. Reg. 128/03*, August 2003;
- “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act”, 2011;
- “Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act”, March 2004;
- *Ontario Regulation 153/04 (made under the Environmental Protection Act)*, May 2004 (MECP) amended by Regulation 511/09;
- *Environmental Protection Act*, R.S.O. 1990, Chapter E.19, as amended, September 2004.
- *Phase II Environmental Site Assessment, CSA Group, Document No. Z769-00, November 2001 (Re-affirmed 2018)*;

9.0 General Limitations

The information presented in this report is based on a limited investigation designed to provide information to support an assessment of the current environmental conditions within the subject property. The conclusions and recommendations presented in this report reflect Site conditions existing at the time of the investigation.

More specific information with respect to the conditions between samples, or the lateral and vertical extent of materials may become apparent during excavation operations. The interpretation of the borehole information must, therefore, be validated during any such excavation operations. Consequently, during the future development of the property, conditions not observed during this investigation may become apparent. Should this occur, exp Services Inc. should be contacted to assess the situation, and the need for additional testing and reporting. EXP has qualified personnel to provide assistance in regards to any future geotechnical and environmental issues related to this property.

The environmental investigation was carried out to address the intent of applicable provincial Regulations, Guidelines, Policies, Standards, Protocols and Objectives administered by the MECP. It should also be noted that current environmental Regulations, Guidelines, Policies, Standards, Protocols and Objectives are subject to change, and such changes, when put into effect, could alter the conclusions and recommendations noted throughout this report. Achieving the study objectives stated in this report has required us to arrive at conclusions based upon the best information presently known to us. No investigative method can completely eliminate the possibility of obtaining partially imprecise or incomplete information; it can only reduce the possibility to an acceptable level. Professional judgment was exercised in gathering and analyzing the information obtained and in the formulation of the conclusions. Like all professional persons rendering advice we do not act as absolute insurers of the conclusions we reach, but we commit ourselves to care and competence in reaching those conclusions.

Our undertaking at EXP Services Inc, therefore, is to perform our work within limits prescribed by our clients, with the usual thoroughness and competence of the engineering profession. It is intended that the outcome of this investigation assist in reducing the client's risk associated with environmental impairment. Our work should not be considered 'risk mitigation'. No other warranty or representation, either expressed or implied, is included or intended in this report.

This report was prepared for the exclusive use of **North Shore Farming Co. Ltd.** and may not be reproduced in whole or in part, without the prior written consent of EXP, or used or relied upon in whole or in part by other parties for any purposes whatsoever. Any use which a third party makes of this report, or any part thereof, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. EXP accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

10.0 Closure

We trust this report satisfies your immediate requirements. If you have any questions regarding the information in this report, please do not hesitate to contact this office.

EXP Services Inc.



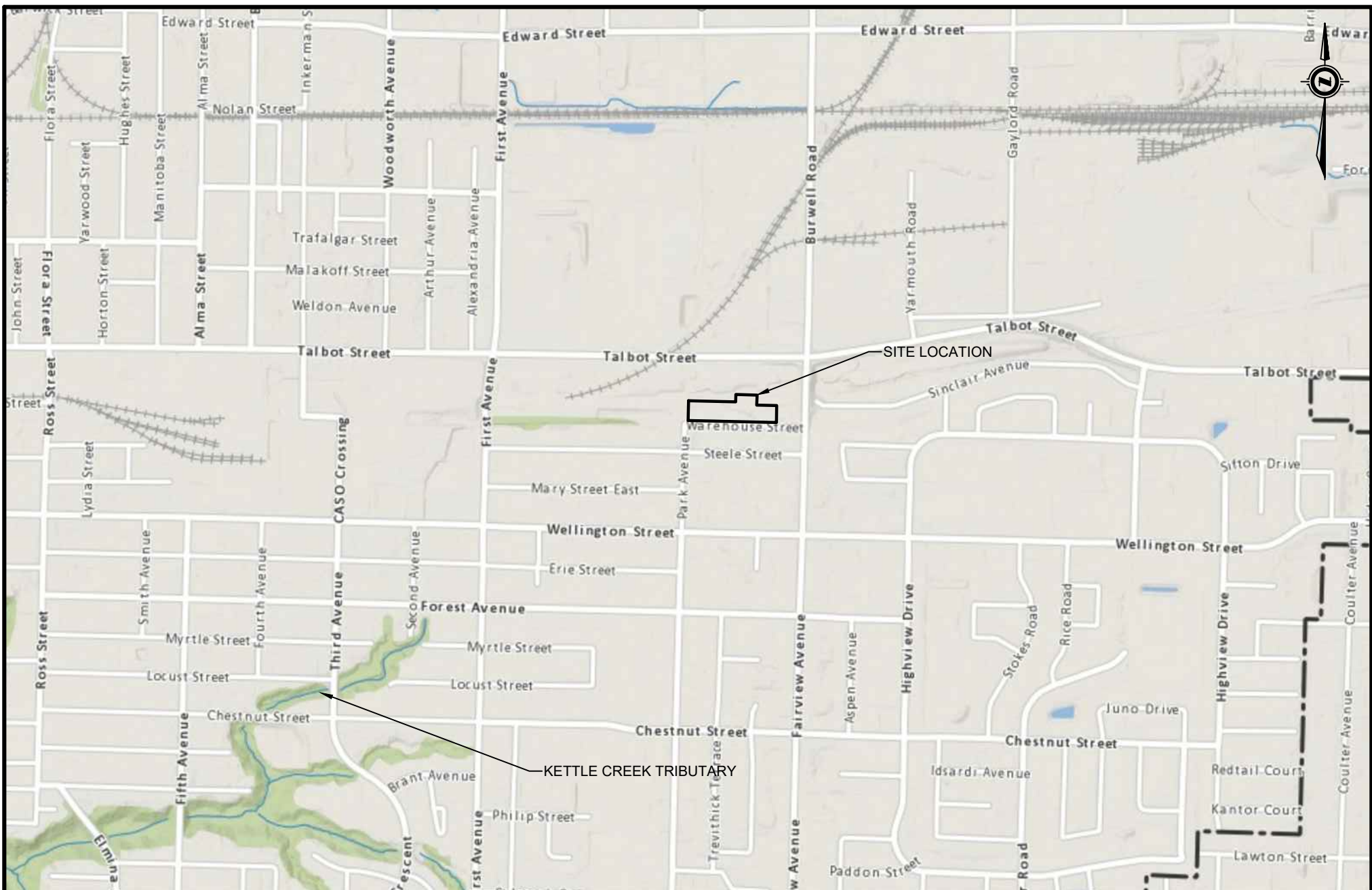
Kevin De Haan, M.Sc, EP_t
Environmental Scientist
Environmental Division



Scott Aziz, P.Eng.
Senior Project Manager, Team Leader
Environmental Division

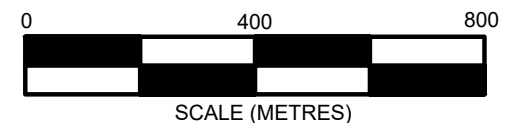


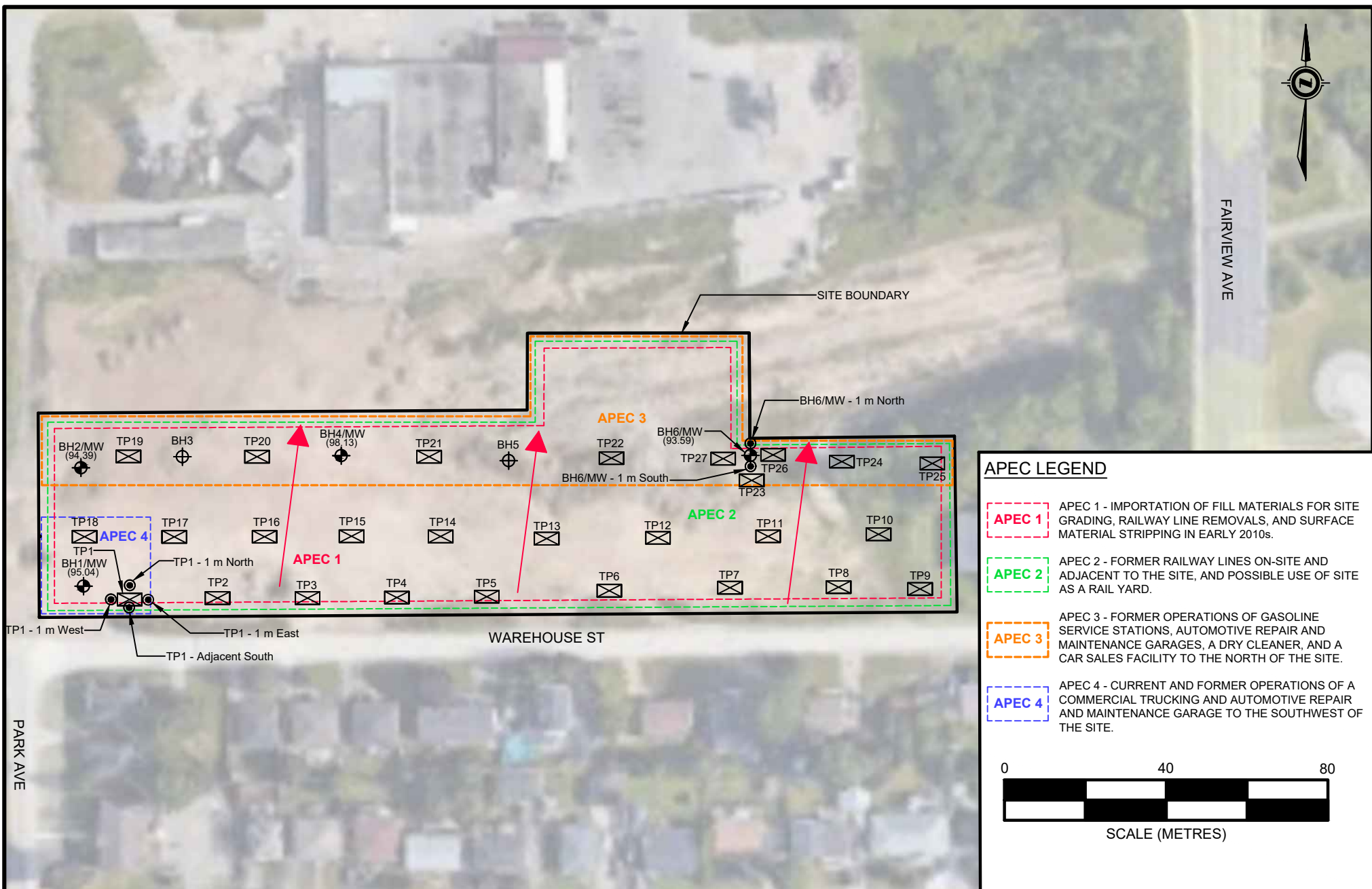
Figures



Exp Services Inc.
15701 Robin's Hill Rd
London, Ontario
N5V 0A5

CLIENT: NORTH SHORE FARMING CO. LTD.		
SITE: WAREHOUSE STREET, ST. THOMAS, ONTARIO		
TITLE: PHASE TWO ESA & PRELIMINARY REMEDIAL WORKS - SITE LOCATION PLAN		
Date: JANUARY 2023	PROJECT No: LON-21016021-A0	FIG 1





APEC LEGEND

APEC 1

APEC 1 - IMPORTATION OF FILL MATERIALS FOR SITE GRADING, RAILWAY LINE REMOVALS, AND SURFACE MATERIAL STRIPPING IN EARLY 2010s.

APEC 2

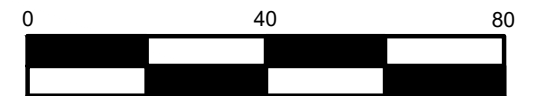
APEC 2 - FORMER RAILWAY LINES ON-SITE AND ADJACENT TO THE SITE, AND POSSIBLE USE OF SITE AS A RAIL YARD.

APEC 3

APEC 3 - FORMER OPERATIONS OF GASOLINE SERVICE STATIONS, AUTOMOTIVE REPAIR AND MAINTENANCE GARAGES, A DRY CLEANER, AND A CAR SALES FACILITY TO THE NORTH OF THE SITE.

APEC 4

APEC 4 - CURRENT AND FORMER OPERATIONS OF A COMMERCIAL TRUCKING AND AUTOMOTIVE REPAIR AND MAINTENANCE GARAGE TO THE SOUTHWEST OF THE SITE.



SCALE (METRES)



Exp Services Inc.
15701 Robin's Hill Rd
London, Ontario
N5V 0A5

CLIENT:

NORTH SHORE FARMING CO. LTD.

SITE:

WAREHOUSE STREET, ST. THOMAS, ONTARIO

TITLE: PHASE TWO ESA & PRELIMINARY REMEDIAL WORKS - BOREHOLE, TEST PIT, TEST HOLE, AND MONITORING WELL LOCATION PLAN

Date:

JANUARY 2023

PROJECT No:

LON-21016021-A0

FIG

2

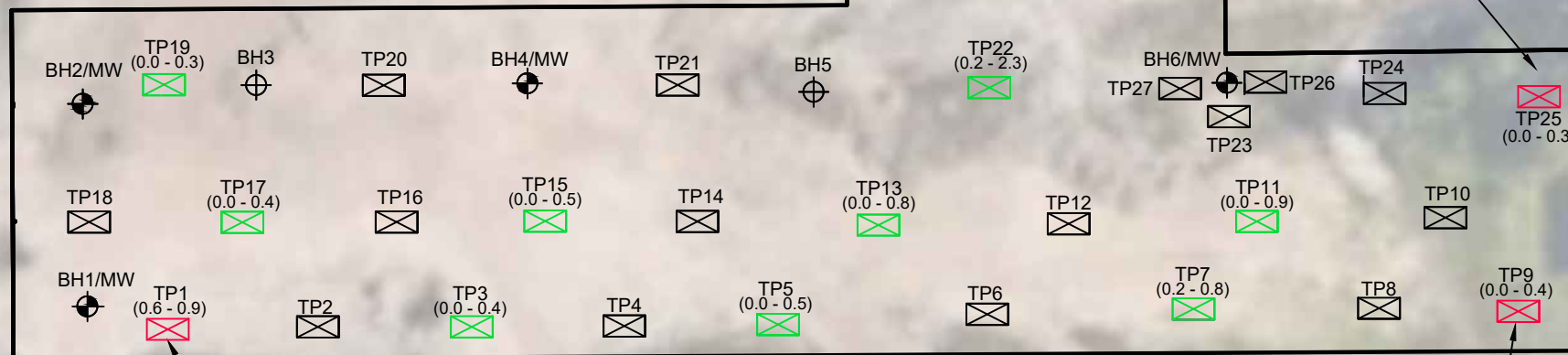
LEGEND

- MONITORING WELL LOCATION (AUG 19, 2021)
- BOREHOLE LOCATION (AUG 19, 2021)
- TEST PIT (SEPT 27 & 30, 2021)
- TEST HOLE (APRIL 11, 2022)
- GROUNDWATER ELEVATION (METRES): (95.04) OCTOBER 11, 2021
- INFERRED SHALLOW GROUNDWATER FLOW



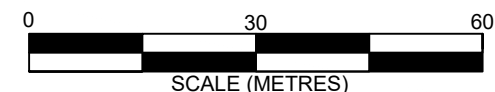
SITE BOUNDARY

TP25 (0.0 - 0.4 m bgs)	
30/09/2021	
Arsenic	25 ug/g
Lead	800 ug/g



TP1 (0.6 - 0.9 m bgs)	
27/09/2021	
Cyanide (Free)	0.14 ug/g

TP9 (0.0 - 0.4 m bgs)	
27/09/2021	
Lead	270 ug/g



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London, Ontario
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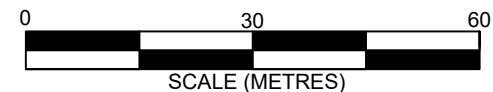
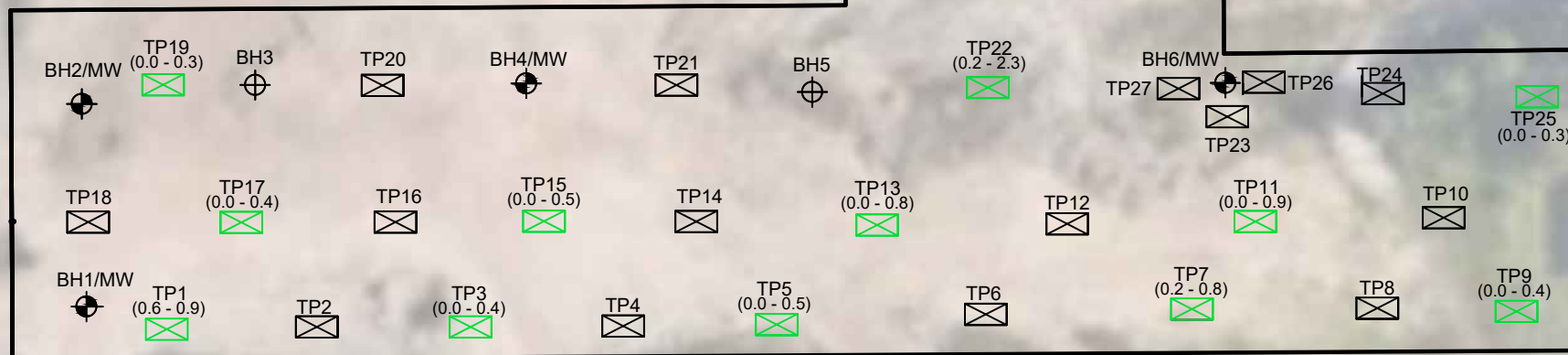
CLIENT:	NORTH SHORE FARMING CO. LTD.		
SITE:	WAREHOUSE STREET, ST. THOMAS, ONTARIO		
TITLE:	PHASE TWO ESA & PRELIMINARY REMEDIAL WORKS - SOIL METALS AND INORGANICS SAMPLING PLAN VIEW		
Date:	JANUARY 2023	PROJECT No:	LON-21016021-A0
		FIG	3a

LEGEND

- MONITORING WELL LOCATION (AUG 19, 2021)
- BOREHOLE LOCATION (AUG 19, 2021)
- TEST PIT LOCATION (SEPT 27 & 30, 2021)
- SAMPLING LOCATION WHERE METALS AND INORGANICS WERE BELOW MECP (2011) TABLE 2 SCSs
- SAMPLING LOCATION WHERE METALS AND INORGANICS EXCEEDED MECP (2011) TABLE 2 SCSs
- SOIL SAMPLING DEPTH IN METRES BELOW GROUND SURFACE (BGS)
(0.0-0.4)



SITE BOUNDARY



Exp Services Inc.
15701 Robin's Hill Rd
London, Ontario
N5V 0A5

CLIENT: NORTH SHORE FARMING CO. LTD.

SITE: WAREHOUSE STREET, ST. THOMAS, ONTARIO

TITLE: PHASE TWO ESA & PRELIMINARY REMEDIAL WORKS -
SOIL PAHs SAMPLING PLAN VIEW

Date: JANUARY 2023

PROJECT No:
LON-21016021-A0

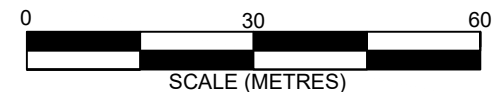
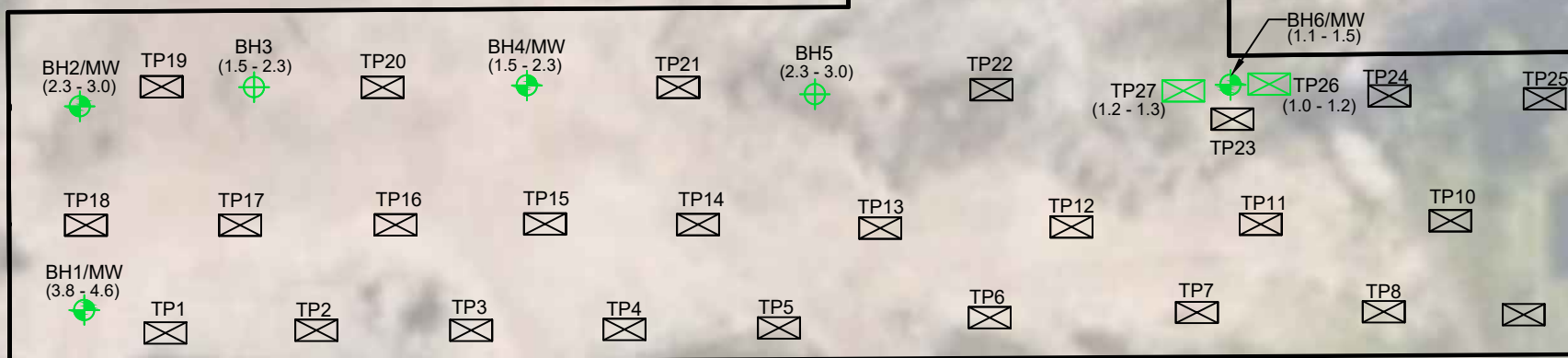
FIG 3b

LEGEND

- MONITORING WELL LOCATION (AUG 19, 2021)
- BOREHOLE LOCATION (AUG 19, 2021)
- TEST PIT LOCATION (SEPT 27 & 30, 2021)
- SAMPLING LOCATION WHERE PAHs WERE BELOW MECPS (2011) TABLE 2 SCSs
- SOIL SAMPLING DEPTH IN METRES BELOW GROUND SURFACE (BGS)
(0.0-0.4)



SITE BOUNDARY



Exp Services Inc.
15701 Robin's Hill Rd
London, Ontario
N5V 0A5

CLIENT: NORTH SHORE FARMING CO. LTD.

SITE: WAREHOUSE STREET, ST. THOMAS, ONTARIO

TITLE: PHASE TWO ESA & PRELIMINARY REMEDIAL WORKS -
SOIL PHCs & VOCs SAMPLING PLAN VIEW

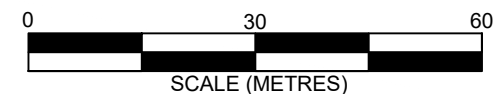
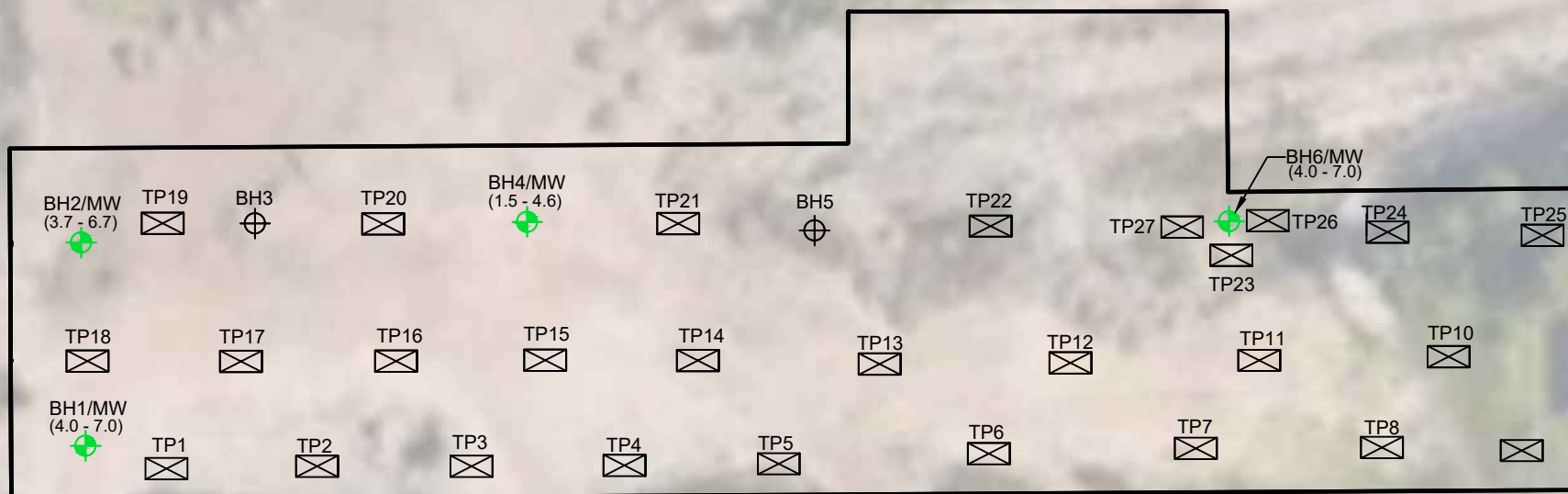
Date: JANUARY 2023

PROJECT No:
LON-21016021-A0

FIG 3c

LEGEND

- MONITORING WELL LOCATION (AUG 19, 2021)
- BOREHOLE LOCATION (AUG 19, 2021)
- TEST PIT LOCATION (SEPT 27 & 30, 2021)
- SAMPLING LOCATION WHERE PHCs & VOCs WERE BELOW MECs (2011) TABLE 2 SCSs
- SOIL SAMPLING DEPTH IN METRES BELOW GROUND SURFACE (BGS)



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CLIENT: NORTH SHORE FARMING CO. LTD.

SITE: WAREHOUSE STREET, ST. THOMAS, ONTARIO

TITLE: PHASE TWO ESA & PRELIMINARY REMEDIAL WORKS -
GROUNDWATER PHCs & VOCs SAMPLING PLAN VIEW

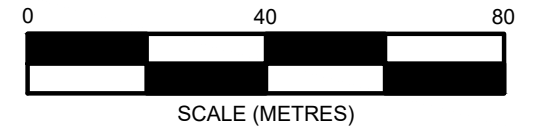
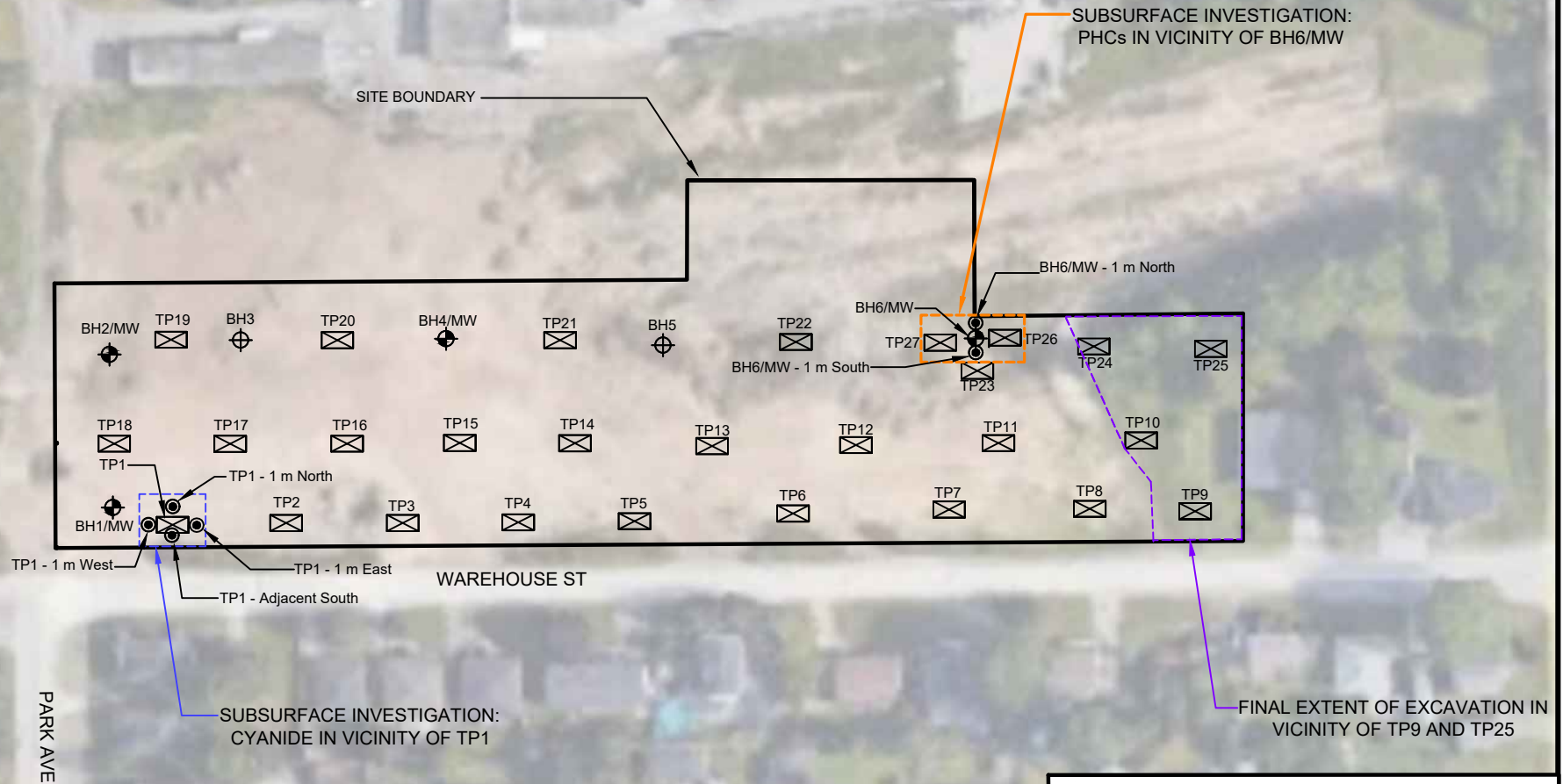
Date: JANUARY 2023

PROJECT No:
LON-21016021-A0

FIG 4

LEGEND

- MONITORING WELL LOCATION (AUG 19, 2021)
- BOREHOLE LOCATION (AUG 19, 2021)
- TEST PIT LOCATION (SEPT 27 & 30, 2021)
- SAMPLING LOCATION WHERE PHCs & VOCs WERE
BELOW MECP (2011) TABLE 2 SCSs
- WELL SCREEN DEPTH IN METRES BELOW GROUND
SURFACE (BGS)



Exp Services Inc.
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N5V 0A5

CLIENT: NORTH SHORE FARMING CO. LTD.		
SITE: WAREHOUSE STREET, ST. THOMAS, ONTARIO		
TITLE: PHASE TWO ESA & PRELIMINARY REMEDIAL WORKS - SUPPLEMENTARY SUBSURFACE INVESTIGATION AND REMEDIAL EXCAVATION PLAN		
Date: JANUARY 2023	PROJECT No: LON-21016021-A0	FIG 5

LEGEND

- MONITORING WELL LOCATION (AUG 19, 2021)
- BOREHOLE LOCATION (AUG 19, 2021)
- TEST PIT (SEPT 27 & 30, 2021)
- TEST HOLE (APRIL 11, 2022)



TP1
(0.6 - 0.9)

SUBSURFACE INVESTIGATION:
CYANIDE IN VICINITY OF TP1

TP1 - 1 m West
(0.5 - 0.6)

TP1 - 1 m North
(0.5 - 0.7)

TP1 - 1 m East
(0.4 - 0.6)

TP1 - Adjacent South
(0.3 - 0.5)

SITE BOUNDARY

WAREHOUSE ST

TP1 (0.6 - 0.9 m bgs)

27/09/2021

Cyanide (Free) 0.14 ug/g



SCALE (METRES)



Exp Services Inc.
15701 Robin's Hill Rd
London, Ontario
N5V 0A5

CLIENT: NORTH SHORE FARMING CO. LTD.		
SITE: WAREHOUSE STREET, ST. THOMAS, ONTARIO		
TITLE: PHASE TWO ESA & PRELIMINARY REMEDIAL WORKS - CYANIDE SUPPLEMENTARY SUBSURFACE INVESTIGATION SAMPLING PLAN		
Date: JANUARY 2023	PROJECT No: LON-21016021-A0	FIG 6a

LEGEND

- MONITORING WELL LOCATION (AUG 19, 2021)
- TEST PIT LOCATION (SEPT 27 & 30, 2021)
- TEST HOLE (APRIL 11, 2022)
- SAMPLING LOCATION WHERE CYANIDE WAS BELOW MECP (2011) TABLE 2 SCSs
- SAMPLING LOCATION WHERE CYANIDE EXCEEDED MECP (2011) TABLE 2 SCSs
- SOIL SAMPLING DEPTH IN METRES BELOW GROUND SURFACE (BGS)
(0.0-0.4)

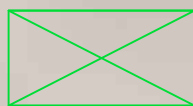
SUBSURFACE INVESTIGATION:
CYANIDE IN VICINITY OF TP1

SITE BOUNDARY

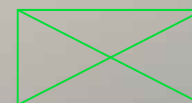


BH6/MW - 1 m North
(0.7 to 0.8)

BH6/MW
(1.1 - 1.5)

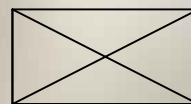


TP27
(1.2 - 1.3)

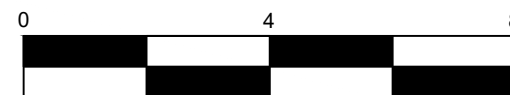


TP27
(1.0 - 1.2)

BH6/MW - 1 m South
(0.6 to 0.9)



TP23



SCALE (METRES)



Exp Services Inc.
15701 Robin's Hill Rd
London, Ontario
N5V 0A5

CLIENT:
NORTH SHORE FARMING CO. LTD.

SITE:
WAREHOUSE STREET, ST. THOMAS, ONTARIO

TITLE:
PHASE TWO ESA & PRELIMINARY REMEDIAL WORKS - PHCs
SUPPLEMENTARY SUBSURFACE INVESTIGATION SAMPLING PLAN

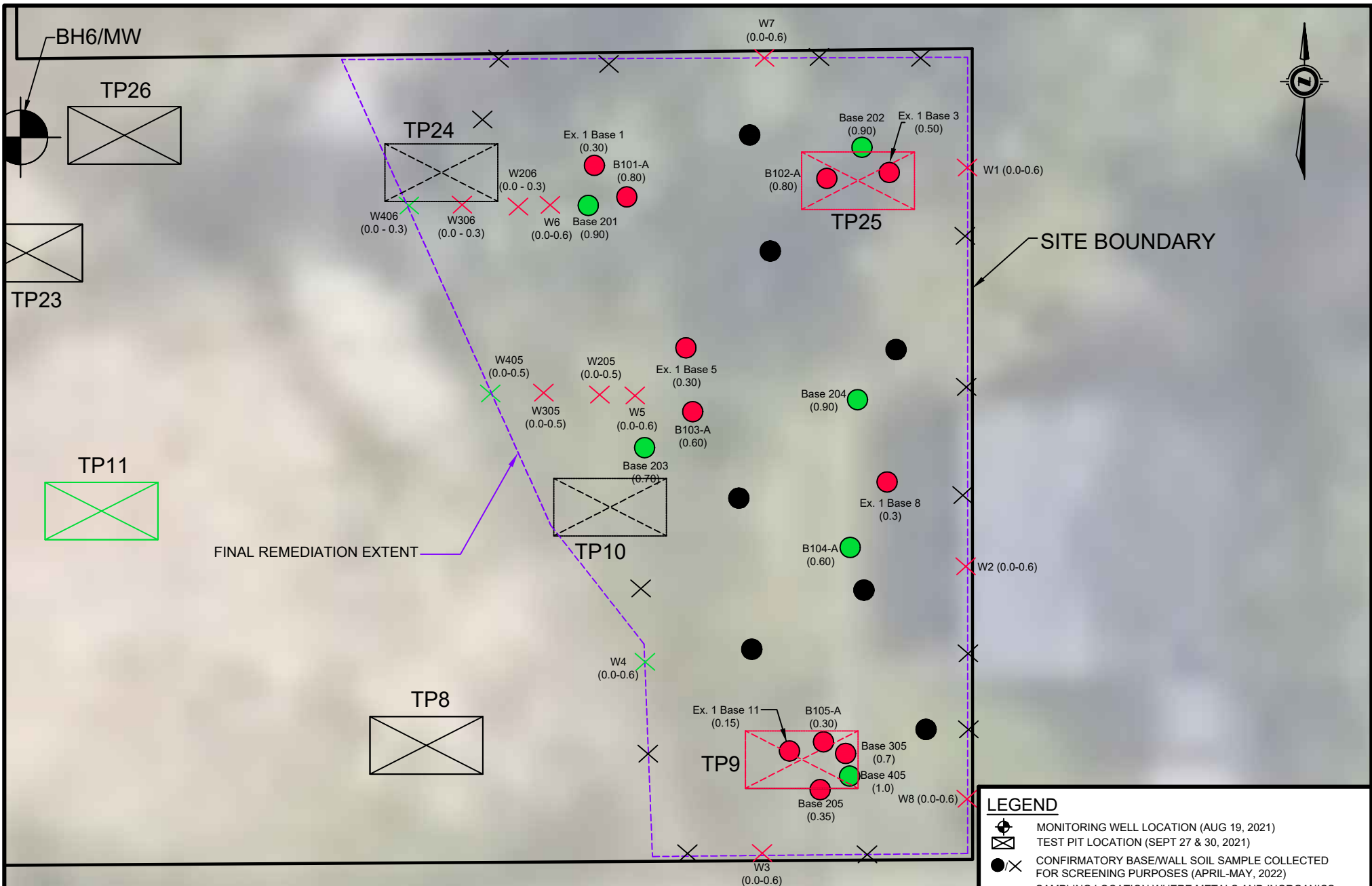
Date:
JANUARY 2023

PROJECT No:
LON-21016021-A0

FIG
6b

LEGEND

- MONITORING WELL LOCATION (AUG 19, 2021)
- TEST PIT LOCATION (SEPT 27 & 30, 2021)
- TEST HOLE (APRIL 11, 2022)
- SAMPLING LOCATION WHERE PHCs WERE BELOW MECp (2011) TABLE 2 SCSs
- SOIL SAMPLING DEPTH IN METRES BELOW GROUND SURFACE (BGS)



LEGEND

- MONITORING WELL LOCATION (AUG 19, 2021)
- TEST PIT LOCATION (SEPT 27 & 30, 2021)
- CONFIRMATORY BASE/WALL SOIL SAMPLE COLLECTED FOR SCREENING PURPOSES (APRIL-MAY, 2022)
- SAMPLING LOCATION WHERE METALS AND INORGANICS EXCEEDED MEC (2011) TABLE 2 SCSs
- SAMPLING LOCATION WHERE METALS AND INORGANICS PASSED MEC (2011) TABLE 2 SCSs
- CONFIRMATORY BASE / WALL SAMPLING LOCATION WHERE METALS AND INORGANICS EXCEEDED MEC (2011) TABLE 2 SCSs
- CONFIRMATORY BASE / WALL SAMPLING LOCATION WHERE METALS AND INORGANICS PASSED MEC (2011) TABLE 2 SCSs
- FINAL EXTENT OF EXCAVATION



Exp Services Inc.
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London, Ontario
N5V 0A5

CLIENT:			NORTH SHORE FARMING CO. LTD.		
SITE:			WAREHOUSE STREET, ST. THOMAS, ONTARIO		
TITLE:			PHASE TWO ESA & PRELIMINARY REMEDIAL WORKS - METALS REMEDIAL EXCAVATION SAMPLING PLAN		
Date:	JANUARY 2023	PROJECT No:	LON-21016021-A0	FIG	6c



Appendix A:
Borehole Logs

BH1/MW

Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum 99.21
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date August 19, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	99.21	FILL - silt, brown, some gravel, trace sand, compact, moist			DP	SA1	0	
1	98.0	CLAYEY SILT TILL - brown, trace gravel, stiff, moist - turning brown and grey mottled at 1.4m bgs			DP	SA2	0	
2					DP	SA3	0	
3					DP	SA4	0	
4		- turning grey 4.1m bgs			DP	SA5	0	
5					DP	SA6	0	Soil - PHCs, VOCs
6					DP	SA7	0	
7	92.2				DP	SA8	0	Groundwater - PHCs, VOCs
		End of Borehole at 7.0m bgs.						

NOTES

- 1) Borehole interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Borehole opened to 7.0 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) DP - Direct Push
- 6) VOCs = Volatile Organic Compounds; PHCs = Petroleum Hydrocarbons

Bentonite Seal From (m): 0.3 - 3.7 m
 Monitoring Well Screened From (m): 4.0
 Monitoring Well Screened To (m): 7.0
 Water Level in Well (m): 4.17 m bgs (Elev: 95.04 m)
 Date of Measurement: October 11, 2021
 Site Supervisor: Kevin De Haan & Michael Dqyer

Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum 98.96
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date August 19, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	98.96							
0	98.9	TOPSOIL: 100 mm - brown, moist			DP	SA1	0	
		FILL - silt, brown, some gravel, some clay, trace organics, trace sand, trace glass, trace asphalt, compact, moist						
1	98.2	CLAYEY SILT TILL - brown, trace gravel, very stiff, moist			DP	SA2	0	
2		- turning brown and grey mottled at 1.8m bgs			DP	SA3	0	
		- turning grey at 2.3m bgs			DP	SA4	0	Soil - PHCs, VOCs
3					DP	SA5	0	
4					DP	SA6	0	Groundwater - PHCs, VOCs
5								
6								
7	92.3	End of Borehole at 6.7m bgs.						

NOTES

- 1) Borehole interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Borehole opened to 6.7 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) DP - Direct Push
- 6) VOCs = Volatile Organic Compounds; PHCs = Petroleum Hydrocarbons

Bentonite Seal From (m): 0.3 - 3.4 m
 Monitoring Well Screened From (m): 3.7
 Monitoring Well Screened To (m): 6.7
 Water Level in Well (m): 4.57 m bgs (Elev: 94.39 m)
 Date of Measurement: October 11, 2021
 Site Supervisor: Kevin De Haan & Michael Dqyer

BH3

Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date August 19, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A							
	0.1	TOPSOIL: 120 mm - brown, moist FILL - silt and clayey silt, brown, some gravel, trace asphalt, compact, moist			DP	SA1	0	Soil - PHCs, VOCs
1					DP	SA2	0	
	1.5	SAND AND GRAVEL brown, some cobbles, wet			DP	SA3	0	
2					DP	SA4	0	
3	3.2	CLAYEY SILT TILL - grey, trace gravel, very stiff, moist			DP	SA5	0	
4					DP	SA6	0	
5					DP	SA7	0	
6	6.1				DP	SA8	0	
		End of Borehole at 6.1m bgs.						
7								

NOTES

- 1) Borehole interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Borehole opened to 6.1 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) DP - Direct Push
- 6) VOCs = Volatile Organic Compounds; PHCs = Petroleum Hydrocarbons

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

Client North Shore Farming Co. Ltd.Project No. LON-21016021-A0Project Name Phase II Environmental Site AssessmentDatum 99.65Site Location Warehouse Street, St. Thomas, OntarioBoring Date August 19, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	99.65							
	99.6	TOPSOIL: 100 mm - brown, moist			DP	SA1	30	Soil - PHCs, VOCs Groundwater - PHCs, VOCs
		FILL - silt and clayey silt, brown, some gravel, trace sand, trace organics, compact, moist						
-1		- becoming soft with black crushed organics at 0.9 m bgs			DP	SA2	20	
	97.8							
-2		SAND AND GRAVEL - brown, wet			DP	SA3	25	
					DP	SA4	20	
-3	96.6							Groundwater - PHCs, VOCs
		CLAYEY SILT TILL - grey, trace gravel, stiff, moist			DP	SA5	25	
-4					DP	SA6	10	
	95.1							
		End of Borehole at 4.6m bgs.						
-5								
-6								
-7								

NOTES

- 1) Borehole interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Borehole opened to 4.6 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) DP - Direct Push
- 6) VOCs = Volatile Organic Compounds; PHCs = Petroleum Hydrocarbons

Bentonite Seal From (m): 0.3 - 1.2 m
 Monitoring Well Screened From (m): 1.5
 Monitoring Well Screened To (m): 4.6
 Water Level in Well (m): 1.52 m bgs (Elev: 98.13 m)
 Date of Measurement: October 11, 2021
 Site Supervisor: Kevin De Haan & Michael Dqyer

BH5

Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date August 19, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A							
	0.2	TOPSOIL: 150 mm - brown, moist			DP	SA1	0	Soil - PHCs, VOCs, pH
		FILL - silt, brown, some gravel, some clay, trace organics, trace tile, compact, moist						
-1					DP	SA2	20	
	1.5	FILL - sand, medium grained, brown, some gravel, moist			DP	SA3	0	
-2								
	2.3	SAND AND GRAVEL - brown, some cobbles, wet			DP	SA4	0	
-3								
					DP	SA5	0	
-4								
	4.0	CLAYEY SILT TILL - brown, trace gravel, stiff, moist			DP	SA6	0	
-5								
		- turning grey at 5.0m bgs			DP	SA7	0	
-6								
	6.1	End of Borehole at 6.1m bgs.						
-7								

NOTES

- 1) Borehole interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Borehole opened to 6.1 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) DP - Direct Push
- 6) VOCs = Volatile Organic Compounds; PHCs = Petroleum Hydrocarbons

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

BH6/MW

Sheet 1 of 1

BOREHOLE LOG

Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum 98.81
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date August 19, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	98.81							
	98.6	TOPSOIL - 220 mm - brown, moist			DP	SA1	0	Soil - PHCs, VOCs
		FILL - sand, fine grained, brown, some gravel, moist						
-1		- becoming wet at 1.1m bgs			DP	SA2	25	
	97.4	CLAYEY SILT TILL - grey, trace gravel, very stiff, moist			DP	SA3	20	
-2					DP	SA4	20	Groundwater - PHCs, VOCs
					DP	SA5	10	
-3					DP	SA6	0	
-4					DP	SA7	0	
-5					DP	SA8	0	Groundwater - PHCs, VOCs
-6								
-7	91.8	End of Borehole at 7.0m bgs.						

NOTES

- 1) Borehole interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Borehole opened to 7.0 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) DP - Direct Push
- 6) VOCs = Volatile Organic Compounds; PHCs = Petroleum Hydrocarbons

Bentonite Seal From (m): 0.3 - 3.7 m
 Monitoring Well Screened From (m): 4.0
 Monitoring Well Screened To (m): 7.0
 Water Level in Well (m): 5.22 m bgs (93.59 m)
 Date of Measurement: October 11, 2021
 Site Supervisor: Kevin De Haan & Michael Dqyer



Appendix B: Test Pit Logs

TP1

Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A							
0.1		TOPSOIL: 50 mm - brown, moist			COMP	SA1	0	Soil - Metals and Inorganics, PAHs
		FILL - silt and clayey silt, brown, some clay, some rootlets, trace gravel, moist			COMP	SA2	0	
		- some black colouration noted from 0.6 - 0.9m bgs			COMP	SA3	0	
0.9		CLAYEY SILT TILL - brown, trace gravel, stiff, moist						
		- turning grey at 2.5m bgs			GRAB	SA4	0	
2.7		End of Test Pit at 2.7m bgs.						
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 2.7 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample
- 6) PAHs = Polycyclic Aromatic Hydrocarbons

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

TP2

Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A	FILL - clayey silt, brown, trace topsoil, trace gravel, trace rootlets, moist - trace asphalt, trace garbage, and some cobbles from 0.4 - 1.0m bgs			COMP	SA1	0	
					COMP	SA2	0	
1	1.0	CLAYEY SILT TILL - brown and grey mottled, trace gravel, stiff, moist			COMP	SA3	0	
	1.6	End of Test Pit at 1.6m bgs.						
2								
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 1.6 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

TP3

Sheet 1 of 1

BOREHOLE LOG

Client North Shore Farming Co. Ltd.Project No. LON-21016021-A0Project Name Phase II Environmental Site AssessmentDatum N/ASite Location Warehouse Street, St. Thomas, OntarioBoring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A	FILL - silt and clayey silt, brown, trace rootlets, moist			COMP	SA1	0	Soil - Metals and Inorganics, PAHs
		- turning brown and grey with trace gravel at 0.4 m bgs			COMP	SA2	0	
		- turning dark grey at 0.8 m bgs						
1	1.0	CLAYEY SILT TILL - brown and grey mottled, trace gravel, stiff, moist						
2					GRAB	SA3	0	
3								
		- turning grey at 3.7 m bgs						
		End of Test Pit at 3.8 m bgs.						
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 3.8 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample
- 6) PAHs = Polycyclic Aromatic Hydrocarbons

Bentonite Seal From (m): N/A

Monitoring Well Screened From (m): N/A

Monitoring Well Screened To (m): N/A

Water Level in Well (m): N/A

Date of Measurement: N/A

Site Supervisor: Kevin De Haan & Michael Dqyer

TP4

Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A	FILL - silt, brown, trace topsoil, trace rootlets, moist			COMP	SA1	0	
0.6		SAND AND GRAVEL - brown and grey, some silt, moist			COMP	SA2	0	
0.8		CLAYEY SILT TILL - brown, trace gravel, stiff, moist			COMP	SA3	0	
1		- turning brown and grey mottled at 1.5m bgs						
1.8		End of Test Pit at 1.8m bgs.						
2								
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 1.8 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

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BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A	FILL - silt and clayey silt mixed with topsoil, brown and black, trace gravel, some rootlets, moist			COMP	SA1	0	Soil - Metals and Inorganics, PAHs
0.5		CLAYEY SILT TILL - brown, trace gravel, stiff, moist			COMP	SA2	0	
1		- turning brown and grey mottled at 1.0 m bgs			COMP	SA3	0	
2					GRAB	SA4	0	
3		- turning grey at 3.4 m bgs						
3.6		End of Test Pit at 3.6m bgs.						
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 3.6 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample
- 6) PAHs = Polycyclic Aromatic Hydrocarbons

Bentonite Seal From (m): N/A

Monitoring Well Screened From (m): N/A

Monitoring Well Screened To (m): N/A

Water Level in Well (m): N/A

Date of Measurement: N/A

Site Supervisor: Kevin De Haan & Michael Dqyer

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Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A							
0.2		TOPSOIL: 150 mm - black, moist FILL - silt and clayey silt, brown and grey, some sand, trace gravel, moist - turning brown at 0.5 m bgs			COMP	SA1	0	
1					COMP	SA2	0	
1.5								
1.6		CLAYEY SILT TILL - brown, trace gravel, stiff, moist End of Test Pit at 1.6m bgs.			GRAB	SA3	0	
2								
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 1.6 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

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BOREHOLE LOG

Client North Shore Farming Co. Ltd.Project No. LON-21016021-A0Project Name Phase II Environmental Site AssessmentDatum N/ASite Location Warehouse Street, St. Thomas, OntarioBoring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m) N/A	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0		TOPSOIL: 200 mm - brown, moist			COMP	SA1	0	Soil - Metals and Inorganics, PAHs
0.2		FILL - silt and clayey silt, brown, some sand, moist			COMP	SA2	0	
0.8		CLAYEY SILT TILL - brown and grey mottled, trace sand, trace gravel, stiff, moist						
1								
1.6		End of Test Pit at 1.6m bgs.			GRAB	SA3	0	
2								
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 1.6 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample
- 6) PAHs = Polycyclic Aromatic Hydrocarbons

Bentonite Seal From (m): N/A

Monitoring Well Screened From (m): N/A

Monitoring Well Screened To (m): N/A

Water Level in Well (m): N/A

Date of Measurement: N/A

Site Supervisor: Kevin De Haan & Michael Dqyer

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Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m) N/A	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0		TOPSOIL: 200 mm - brown, moist			 COMP	SA1	0	
0.2		FILL - silt and clayey silt mixed with topsoil, brown and black, trace to some sand, moist			 COMP	SA2	0	
0.8		CLAYEY SILT TILL - brown and grey mottled, trace gravel, stiff, moist						
1.5		End of Test Pit at 1.5m bgs.			 GRAB	SA3	0	
2								
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 1.5 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

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Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m) N/A	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0		TOPSOIL: 200 mm - black, moist						
0.2		FILL - silt mixed with topsoil, brown, trace to some sand, moist - no topsoil beginning at 0.4 m bgs			COMP	SA1	0	Soil - Metals and Inorganics, PAHs
					COMP	SA2	0	
1.0		CLAYEY SILT TILL - brown and grey mottled, trace gravel, stiff, moist			COMP	SA3	0	
					GRAB	SA4	0	
					GRAB	SA5	0	
2.8		- sand and gravel seam, brown and grey, wet at 2.2 to 2.4 m bgs - turning grey at 2.4 m bgs - standing water in test pit at 2.7m bgs						
3		End of Test Pit at 2.8m bgs.						
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 2.8 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample
- 6) PAHs = Polycyclic Aromatic Hydrocarbons

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

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Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m) N/A	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0		TOPSOIL: 300 mm - black, moist			COMP	SA1	0	
0.3		FILL - silt and and clayey silt, brown, moist			COMP	SA2	0	
0.6		FILL - sandy silt, brown, trace clay, some gravel, moist			COMP	SA3	0	
1					COMP	SA4	0	
1.7		SAND AND GRAVEL - brown and grey, some silt, wet			GRAB	SA5	0	
2		- standing water in test pit at 2.3m bgs						
2.4		End of Test Pit at 2.4m bgs.						
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 2.4 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

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BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A							
	0.1	TOPSOIL: 75 mm - brown, moist			COMP	SA1	0	Soil - Metals and Inorganics, PAHs
		FILL - silt and clayey silt, brown, trace gravel, moist						
		- turning grey at 0.9 m bgs			COMP	SA2	0	
	1.4	CLAYEY SILT TILL - brown, trace gravel, stiff, moist			COMP	SA3	0	
	1.9	End of Test Pit at 1.9m bgs.						
-2								
-3								
-4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 1.9 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample
- 6) PAHs = Polycyclic Aromatic Hydrocarbons

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

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BOREHOLE LOG



Client <u>North Shore Farming Co. Ltd.</u>	Project No. <u>LON-21016021-A0</u>
Project Name <u>Phase II Environmental Site Assessment</u>	Datum <u>N/A</u>
Site Location <u>Warehouse Street, St. Thomas, Ontario</u>	Boring Date <u>September 27, 2021</u>

DEPTH (m bgs)	ELEVATION (m) N/A	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	0.1	TOPSOIL: 75 mm - brown, moist FILL - silt, brown, moist			COMP	SA1	0	
	0.5	FILL - clayey silt, brown, trace gravel, stiff, moist						
-1	1.6	- turning grey with some black (organics) at 1.5 m bgs			COMP	SA2	0	
	1.7	CLAYEY SILT TILL - grey, trace gravel, stiff, moist			GRAB	SA3	0	
		End of Test Pit at 1.7m bgs.						
-2								
-3								
-4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 1.7 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

Client	North Shore Farming Co. Ltd.	Project No.	LON-21016021-A0
Project Name	Phase II Environmental Site Assessment	Datum	N/A
Site Location	Warehouse Street, St. Thomas, Ontario	Boring Date	September 27, 2021

DEPTH (m bgs)	ELEVATION (m) N/A	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	0.1	TOPSOIL: 50 mm - brown, moist FILL - clayey silt, brown, trace gravel, moist			 COMP	SA1	0	Soil - Metals and Inorganics, PAHs
-1					 COMP	SA2	0	
-2	2.1	- turning grey at 2.0m bgs, hit clay tile drain End of Test Pit at 2.1m bgs.			 GRAB	SA3	0	
-3								
-4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 2.1 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample
- 6) PAHs = Polycyclic Aromatic Hydrocarbons

Bentonite Seal From (m): N/A
Monitoring Well Screened From (m): N/A
Monitoring Well Screened To (m): N/A
Water Level in Well (m): N/A
Date of Measurement: N/A
Site Supervisor: Kevin De Haan & Michael Dwyer

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Project No. LON-21016021-A0

Datum **N/A**

Boring Date **September 27, 2021**

[illegible]

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 1.7 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample

Bentonite Seal From (m): N/A
Monitoring Well Screened From (m): N/A
Monitoring Well Screened To (m): N/A
Water Level in Well (m): N/A
Date of Measurement: N/A
Site Supervisor: Kevin De Haan & Michael Dwyer

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BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A	FILL - silt and clayey silt, brown and grey, trace topsoil, some gravel, moist			COMP	SA1	0	Soil - Metals and Inorganics, PAHs
0.5		CLAYEY SILT TILL - brown and grey, trace gravel, stiff, moist			COMP	SA2	0	
1		- turning grey at 1.5m bgs			GRAB	SA3	0	
1.7		End of Test Pit at 1.7m bgs.						
2								
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 1.7 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample
- 6) PAHs = Polycyclic Aromatic Hydrocarbons

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

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BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A	FILL - silt and clayey silt, brown and grey, trace to some gravel, moist			COMP	SA1	0	
1					COMP	SA2	0	
1.6		- turning grey at 1.5m bgs						
		SAND AND GRAVEL - brown and grey, some cobbles, moist			COMP	SA3	0	
2								
2.1		CLAYEY SILT TILL - brown, trace gravel, stiff, moist						
3		- thin sand layers from 2.9 - 3.0m bgs, brown and grey, wet			GRAB	SA4	0	
3.3		- turning grey at 3.0m bgs						
		End of Test Pit at 3.3m bgs.						
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 3.3 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

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BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A	FILL - silt and clayey silt, brown and grey, some gravel, moist			COMP	SA1	0	Soil - Metals and Inorganics, PAHs
		- trace asphalt beginnning at 0.4 m bgs			COMP	SA2	0	
1.3		CLAYEY SILT TILL - grey, trace gravel, stiff, moist			GRAB	SA3	0	
1.6		End of Test Pit at 1.6m bgs.						
2								
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 1.6 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample
- 6) PAHs = Polycyclic Aromatic Hydrocarbons

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

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Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A	FILL - silt and clayey silt, brown, some gravel, trace asphalt, moist			COMP	SA1	0	
-		- some black topsoil intermixed beginning at 0.5 m bgs			COMP	SA2	0	
-1	1.2	CLAYEY SILT TILL - brown and grey, trace gravel, stiff, moist			COMP	SA3	0	
-1.5		End of Test Pit at 1.5m bgs.						
-2								
-3								
-4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 1.5 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

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BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis		
					TYPE	NUMBER				
0	N/A									
0.1		TOPSOIL: 75 mm - brown, moist				COMP	SA1	0	Soil - Metals and Inorganics, PAHs	
0.3		FILL - silt and clayey silt, brown and grey, some gravel, some sand, trace asphalt, moist								
		CLAYEY SILT TILL - brown and grey, trace gravel, stiff, moist				COMP	SA2	0		
1.5		SAND AND GRAVEL - brown and grey, some silt, wet								
							GRAB	SA3		0
2										
						GRAB	SA4	0		
2.5		- standing water in test pit at 2.4m bgs								
		End of Test Pit at 2.5m bgs.								
3										
4										

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 2.5 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample
- 6) PAHs = Polycyclic Aromatic Hydrocarbons

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

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BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A							
0.1		TOPSOIL: 50 mm - brown, moist FILL - clayey silt, brown and grey, some gravel, some sand, trace asphalt, moist			COMP	SA1	20	
1		- concrete fragments discovered at 1.0 m bgs			COMP	SA2	30	
1.7		FILL - sand and gravel, grey, wet, some clayey silt inclusions, brown and grey, moist			COMP	SA3	25	
2								
2.5		SAND AND GRAVEL - brown, wet - standing water in test pit at 2.5m bgs			GRAB	SA4	25	
2.7		End of Test Pit at 2.7m bgs.						
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 2.7 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

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BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m) N/A	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	0.1	TOPSOIL: 50 mm - brown, moist FILL - silt and clayey silt, brown, moist			COMP	SA1	0	
	0.5	CLAYEY SILT TILL - brown and grey mottled, trace gravel, stiff, moist			COMP	SA2	15	
-1		- turning grey at 1.7m bgs with intermittent thin sand layers from 1.7 - 2.3m bgs			COMP	SA3	10	
-2	2.3	SAND AND GRAVEL - grey, wet - standing water in test pit at 2.4m bgs			GRAB	SA4	0	
	2.7	End of Test Pit at 2.7m bgs.						
-3								
-4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 2.7 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

TP22

Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A	FILL: - silt and clayey silt mixed with topsoil, brown, moist						
1								
1.3		FILL - sand, medium grained, brown, some gravel, moist			COMP	SA1	0	
2					COMP	SA2	0	Soil - Metals and Inorganics, PAHs
2.5		- becoming wet at 2.3 m bgs - standing water in test pit at 2.3 m bgs			GRAB	SA3	0	
		End of Test Pit at 2.5m bgs.						
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 2.5 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample
- 6) PAHs = Polycyclic Aromatic Hydrocarbons

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

TP23

Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A							
	0.1	TOPSOIL: 75 mm - brown, moist FILL - silt and clayey silt, brown, some sand, some clay, trace to some gravel, moist - some asphalt and trace plastic beginning at 0.6 m bgs			COMP	SA1	0	
					COMP	SA2	0	
	2.7	SAND AND GRAVEL - brown, some silt, wet - standing water in test pit at 2.7m bgs			GRAB	SA3	0	
3	3.0	End of Test Pit at 3.0m bgs.						
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 3.0 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

TP24

Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m) N/A	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0		TOPSOIL: 300 mm - black, moist						
0.3		FILL - silt mixed with topsoil, brown and grey, some gravel, some sand, some clayey silt inclusions, moist - no topsoil beginning at 0.6 m bgs			COMP	SA1	0	
1					COMP	SA2	0	
1.5		CLAYEY SILT TILL - grey, trace gravel, stiff, moist			GRAB	SA3	0	
1.8		End of Test Pit at 1.8m bgs.						
2								
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 1.8 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

TP25

Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m) N/A	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0		TOPSOIL: 300 mm - black, moist			COMP	SA1	0	Soil - Metals and Inorganics, PAHs
0.3		FILL - silt, brown, some gravel, some sand, moist			COMP	SA2	0	
0.9		SAND AND GRAVEL - brown, some silt, moist						
1								
2		- becoming wet at 2.3m bgs			GRAB	SA3	0	
2.5		CLAYEY SILT TILL - grey, trace gravel, stiff, moist			GRAB	SA4	0	
2.7		End of Test Pit at 2.7m bgs.						
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 2.7 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample
- 6) PAHs = Polycyclic Aromatic Hydrocarbons
- 7) Duplicate Sample Taken for Metals and Inorganics, PAHs (DUP02) at TP25 SA1

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

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Sheet 1 of 1

BOREHOLE LOG



Client North Shore Farming Co. Ltd. Project No. LON-21016021-A0
 Project Name Phase II Environmental Site Assessment Datum N/A
 Site Location Warehouse Street, St. Thomas, Ontario Boring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m)	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0	N/A							
0.1		TOPSOIL: 50 mm - brown, moist			COMP	SA1	0	Soil - VOCs, PHCs
0.2		FILL - silt, brown, some clay, moist						
		CLAYEY SILT TILL - grey, trace gravel, stiff, moist						
1					COMP	SA2	0	
1.7		End of Test Pit at 1.7m bgs.			GRAB	SA3	0	
2								
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 1.7 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample
- 6) VOCs = Volatile Organic Compounds; PHCs = Petroleum Hydrocarbons

Bentonite Seal From (m): N/A
 Monitoring Well Screened From (m): N/A
 Monitoring Well Screened To (m): N/A
 Water Level in Well (m): N/A
 Date of Measurement: N/A
 Site Supervisor: Kevin De Haan & Michael Dqyer

TP27

Sheet 1 of 1

BOREHOLE LOG

Client North Shore Farming Co. Ltd.Project No. LON-21016021-A0Project Name Phase II Environmental Site AssessmentDatum N/ASite Location Warehouse Street, St. Thomas, OntarioBoring Date September 27, 2021

DEPTH (m bgs)	ELEVATION (m) N/A	STRATA DESCRIPTION	STRATA PLOT	WELL LOG	SAMPLES		TCV (ppm)	Lab Analysis
					TYPE	NUMBER		
0		FILL - silt, brown, some clay, moist			COMP	SA1	0	Soil - VOCs, PHCs
0.4		FILL - sand, medium grained, brown, moist			COMP	SA2	0	
1.2		SAND AND GRAVEL - brown, wet - standing water in test pit at 1.2 m bgs			GRAB	SA3	0	
1.5		End of Test Pit at 1.5m bgs.						
2								
3								
4								

NOTES

- 1) Test Pit interpretation requires assistance by EXP before use by others. Borehole Logs must be read in conjunction with EXP report LON-21016021-A0
- 2) Test Pit opened to 1.5 m bgs.
- 3) bgs denotes: below ground surface
- 4) Soil sample headspace: TCV=total combustible vapour level
- 5) COMP = composite sample; GRAB = discrete grab sample
- 6) VOCs = Volatile Organic Compounds; PHCs = Petroleum Hydrocarbons
- 7) Duplicate Sample Taken for VOCs, PHCs (DUP01) at TP27 SA3

Bentonite Seal From (m): N/A

Monitoring Well Screened From (m): N/A

Monitoring Well Screened To (m): N/A

Water Level in Well (m): N/A

Date of Measurement: N/A

Site Supervisor: Kevin De Haan & Michael Dqyer



Appendix C:
Laboratory Certificate of Analysis Sheets – Soil (Boreholes)



Your Project #: LON-21016021-A0
Site Location: WAREHOUSE ST, ST. THOMAS
Your C.O.C. #: 752298-02-01

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/11
Report #: R7336436
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C100127

Received: 2021/08/23, 14:20

Sample Matrix: Soil
Samples Received: 6

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
1,3-Dichloropropene Sum	6	N/A	2021/08/30		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Soil (1)	6	2021/08/25	2021/08/26	CAM SOP-00316	CCME CWS m
F4G (CCME Hydrocarbons Gravimetric)	1	2021/08/27	2021/08/27	CAM SOP-00316	CCME PHC-CWS m
Moisture	6	N/A	2021/08/24	CAM SOP-00445	Carter 2nd ed 51.2 m
pH CaCl2 EXTRACT	1	2021/08/26	2021/08/26	CAM SOP-00413	EPA 9045 D m
Volatile Organic Compounds and F1 PHCs	6	N/A	2021/08/30	CAM SOP-00230	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003".



Your Project #: LON-21016021-A0
Site Location: WAREHOUSE ST,ST.THOMAS
Your C.O.C. #: 752298-02-01

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/11
Report #: R7336436
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C100127

Received: 2021/08/23, 14:20

Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Christine Gipton, Senior Project Manager
Email: Christine.Gipton@bureauveritas.com
Phone# (519)652-9444

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



BUREAU
VERITAS

Bureau Veritas Job #: C100127

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: KD

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Bureau Veritas ID				QLM130		QLM131	QLM132		
Sampling Date				2021/08/19		2021/08/19	2021/08/19		
COC Number				752298-02-01		752298-02-01	752298-02-01		
	UNITS	Criteria	Criteria-2	BH1/MW SA6	QC Batch	BH2/MW SA4	BH3 SA3	RDL	QC Batch
Inorganics									
Moisture	%	-	-	18	7537825	20	16	1.0	7537825
Calculated Parameters									
1,3-Dichloropropene (cis+trans)	ug/g	0.081	0.083	<0.050	7537580	<0.050	<0.050	0.050	7537580
Volatile Organics									
Acetone (2-Propanone)	ug/g	28	28	<0.49	7542452	<0.49	<0.49	0.49	7541847
Benzene	ug/g	0.17	0.17	<0.0060	7542452	<0.0060	<0.0060	0.0060	7541847
Bromodichloromethane	ug/g	1.9	13	<0.040	7542452	<0.040	<0.040	0.040	7541847
Bromoform	ug/g	0.26	0.26	<0.040	7542452	<0.040	<0.040	0.040	7541847
Bromomethane	ug/g	0.05	0.05	<0.040	7542452	<0.040	<0.040	0.040	7541847
Carbon Tetrachloride	ug/g	0.12	0.12	<0.040	7542452	<0.040	<0.040	0.040	7541847
Chlorobenzene	ug/g	2.7	2.7	<0.040	7542452	<0.040	<0.040	0.040	7541847
Chloroform	ug/g	0.17	0.17	<0.040	7542452	<0.040	<0.040	0.040	7541847
Dibromochloromethane	ug/g	2.9	9.4	<0.040	7542452	<0.040	<0.040	0.040	7541847
1,2-Dichlorobenzene	ug/g	1.7	4.3	<0.040	7542452	<0.040	<0.040	0.040	7541847
1,3-Dichlorobenzene	ug/g	6	6	<0.040	7542452	<0.040	<0.040	0.040	7541847
1,4-Dichlorobenzene	ug/g	0.097	0.097	<0.040	7542452	<0.040	<0.040	0.040	7541847
Dichlorodifluoromethane (FREON 12)	ug/g	25	25	<0.040	7542452	<0.040	<0.040	0.040	7541847
1,1-Dichloroethane	ug/g	0.6	11	<0.040	7542452	<0.040	<0.040	0.040	7541847
1,2-Dichloroethane	ug/g	0.05	0.05	<0.049	7542452	<0.049	<0.049	0.049	7541847
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.040	7542452	<0.040	<0.040	0.040	7541847
cis-1,2-Dichloroethylene	ug/g	2.5	30	<0.040	7542452	<0.040	<0.040	0.040	7541847
trans-1,2-Dichloroethylene	ug/g	0.75	0.75	<0.040	7542452	<0.040	<0.040	0.040	7541847
1,2-Dichloropropane	ug/g	0.085	0.085	<0.040	7542452	<0.040	<0.040	0.040	7541847
cis-1,3-Dichloropropene	ug/g	0.081	0.083	<0.030	7542452	<0.030	<0.030	0.030	7541847
trans-1,3-Dichloropropene	ug/g	0.081	0.083	<0.040	7542452	<0.040	<0.040	0.040	7541847
Ethylbenzene	ug/g	1.6	15	<0.010	7542452	<0.010	<0.010	0.010	7541847
Ethylene Dibromide	ug/g	0.05	0.05	<0.040	7542452	<0.040	<0.040	0.040	7541847
Hexane	ug/g	34	34	<0.040	7542452	<0.040	<0.040	0.040	7541847
Methylene Chloride(Dichloromethane)	ug/g	0.96	0.96	<0.049	7542452	<0.049	<0.049	0.049	7541847
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition									
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil									
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition									
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil									



BUREAU
VERITAS

Bureau Veritas Job #: C100127

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE ST, ST. THOMAS

Sampler Initials: KD

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Bureau Veritas ID				QLM130		QLM131	QLM132		
Sampling Date				2021/08/19		2021/08/19	2021/08/19		
COC Number				752298-02-01		752298-02-01	752298-02-01		
	UNITS	Criteria	Criteria-2	BH1/MW SA6	QC Batch	BH2/MW SA4	BH3 SA3	RDL	QC Batch
Methyl Ethyl Ketone (2-Butanone)	ug/g	44	44	<0.40	7542452	<0.40	<0.40	0.40	7541847
Methyl Isobutyl Ketone	ug/g	4.3	4.3	<0.40	7542452	<0.40	<0.40	0.40	7541847
Methyl t-butyl ether (MTBE)	ug/g	1.4	1.4	<0.040	7542452	<0.040	<0.040	0.040	7541847
Styrene	ug/g	2.2	2.2	<0.040	7542452	<0.040	<0.040	0.040	7541847
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	7542452	<0.040	<0.040	0.040	7541847
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	7542452	<0.040	<0.040	0.040	7541847
Tetrachloroethylene	ug/g	2.3	2.3	<0.040	7542452	<0.040	<0.040	0.040	7541847
Toluene	ug/g	6	6	<0.020	7542452	<0.020	<0.020	0.020	7541847
1,1,1-Trichloroethane	ug/g	3.4	3.4	<0.040	7542452	<0.040	<0.040	0.040	7541847
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.040	7542452	<0.040	<0.040	0.040	7541847
Trichloroethylene	ug/g	0.52	0.52	<0.010	7542452	<0.010	<0.010	0.010	7541847
Trichlorofluoromethane (FREON 11)	ug/g	5.8	5.8	<0.040	7542452	<0.040	<0.040	0.040	7541847
Vinyl Chloride	ug/g	0.022	0.022	<0.019	7542452	<0.019	<0.019	0.019	7541847
p+m-Xylene	ug/g	-	-	<0.020	7542452	<0.020	<0.020	0.020	7541847
o-Xylene	ug/g	-	-	<0.020	7542452	<0.020	<0.020	0.020	7541847
Total Xylenes	ug/g	25	25	<0.020	7542452	<0.020	<0.020	0.020	7541847
F1 (C6-C10)	ug/g	65	65	<10	7542452	<10	<10	10	7541847
F1 (C6-C10) - BTEX	ug/g	65	65	<10	7542452	<10	<10	10	7541847
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	150	150	<10	7541098	<10	<10	10	7541098
F3 (C16-C34 Hydrocarbons)	ug/g	1300	1300	<50	7541098	<50	56	50	7541098
F4 (C34-C50 Hydrocarbons)	ug/g	5600	5600	<50	7541098	<50	<50	50	7541098
Reached Baseline at C50	ug/g	-	-	Yes	7541098	Yes	Yes		7541098
Surrogate Recovery (%)									
o-Terphenyl	%	-	-	97	7541098	97	95		7541098
4-Bromofluorobenzene	%	-	-	97	7542452	89	84		7541847
D10-o-Xylene	%	-	-	115	7542452	87	90		7541847
D4-1,2-Dichloroethane	%	-	-	100	7542452	103	103		7541847
D8-Toluene	%	-	-	101	7542452	101	104		7541847
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil									



BUREAU
VERITAS

Bureau Veritas Job #: C100127

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: KD

O.REG 153 VOCS BY HS & F1-F4 (SOIL)

Bureau Veritas ID				QLM133	QLM134		QLM135		
Sampling Date				2021/08/19	2021/08/19		2021/08/19		
COC Number				752298-02-01	752298-02-01		752298-02-01		
	UNITS	Criteria	Criteria-2	BH4/MW SA3	BH5 SA4	QC Batch	BH6/MW SA2	RDL	QC Batch
Inorganics									
Moisture	%	-	-	12	10	7537825	13	1.0	7537825
Calculated Parameters									
1,3-Dichloropropene (cis+trans)	ug/g	0.081	0.083	<0.050	<0.050	7537580	<0.050	0.050	7537580
Volatile Organics									
Acetone (2-Propanone)	ug/g	28	28	<0.49	<0.49	7541847	<0.49	0.49	7542452
Benzene	ug/g	0.17	0.17	<0.0060	<0.0060	7541847	<0.0060	0.0060	7542452
Bromodichloromethane	ug/g	1.9	13	<0.040	<0.040	7541847	<0.040	0.040	7542452
Bromoform	ug/g	0.26	0.26	<0.040	<0.040	7541847	<0.040	0.040	7542452
Bromomethane	ug/g	0.05	0.05	<0.040	<0.040	7541847	<0.040	0.040	7542452
Carbon Tetrachloride	ug/g	0.12	0.12	<0.040	<0.040	7541847	<0.040	0.040	7542452
Chlorobenzene	ug/g	2.7	2.7	<0.040	<0.040	7541847	<0.040	0.040	7542452
Chloroform	ug/g	0.17	0.17	<0.040	<0.040	7541847	<0.040	0.040	7542452
Dibromochloromethane	ug/g	2.9	9.4	<0.040	<0.040	7541847	<0.040	0.040	7542452
1,2-Dichlorobenzene	ug/g	1.7	4.3	<0.040	<0.040	7541847	<0.040	0.040	7542452
1,3-Dichlorobenzene	ug/g	6	6	<0.040	<0.040	7541847	<0.040	0.040	7542452
1,4-Dichlorobenzene	ug/g	0.097	0.097	<0.040	<0.040	7541847	<0.040	0.040	7542452
Dichlorodifluoromethane (FREON 12)	ug/g	25	25	<0.040	<0.040	7541847	<0.040	0.040	7542452
1,1-Dichloroethane	ug/g	0.6	11	<0.040	<0.040	7541847	<0.040	0.040	7542452
1,2-Dichloroethane	ug/g	0.05	0.05	<0.049	<0.049	7541847	<0.049	0.049	7542452
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.040	<0.040	7541847	<0.040	0.040	7542452
cis-1,2-Dichloroethylene	ug/g	2.5	30	<0.040	<0.040	7541847	<0.040	0.040	7542452
trans-1,2-Dichloroethylene	ug/g	0.75	0.75	<0.040	<0.040	7541847	<0.040	0.040	7542452
1,2-Dichloropropane	ug/g	0.085	0.085	<0.040	<0.040	7541847	<0.040	0.040	7542452
cis-1,3-Dichloropropene	ug/g	0.081	0.083	<0.030	<0.030	7541847	<0.030	0.030	7542452
trans-1,3-Dichloropropene	ug/g	0.081	0.083	<0.040	<0.040	7541847	<0.040	0.040	7542452
Ethylbenzene	ug/g	1.6	15	<0.010	<0.010	7541847	<0.010	0.010	7542452
Ethylene Dibromide	ug/g	0.05	0.05	<0.040	<0.040	7541847	<0.040	0.040	7542452
Hexane	ug/g	34	34	<0.040	<0.040	7541847	<0.040	0.040	7542452
Methylene Chloride(Dichloromethane)	ug/g	0.96	0.96	<0.049	<0.049	7541847	<0.049	0.049	7542452
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition									
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil									
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition									
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil									

BUREAU
VERITAS

Bureau Veritas Job #: C100127

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: KD

O.REG 153 VOCs BY HS & F1-F4 (SOIL)

Bureau Veritas ID				QLM133	QLM134		QLM135		
Sampling Date				2021/08/19	2021/08/19		2021/08/19		
COC Number				752298-02-01	752298-02-01		752298-02-01		
	UNITS	Criteria	Criteria-2	BH4/MW SA3	BH5 SA4	QC Batch	BH6/MW SA2	RDL	QC Batch
Methyl Ethyl Ketone (2-Butanone)	ug/g	44	44	<0.40	<0.40	7541847	<0.40	0.40	7542452
Methyl Isobutyl Ketone	ug/g	4.3	4.3	<0.40	<0.40	7541847	<0.40	0.40	7542452
Methyl t-butyl ether (MTBE)	ug/g	1.4	1.4	<0.040	<0.040	7541847	<0.040	0.040	7542452
Styrene	ug/g	2.2	2.2	<0.040	<0.040	7541847	<0.040	0.040	7542452
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	<0.040	7541847	<0.040	0.040	7542452
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	<0.040	7541847	<0.040	0.040	7542452
Tetrachloroethylene	ug/g	2.3	2.3	<0.040	<0.040	7541847	<0.040	0.040	7542452
Toluene	ug/g	6	6	<0.020	<0.020	7541847	<0.020	0.020	7542452
1,1,1-Trichloroethane	ug/g	3.4	3.4	<0.040	<0.040	7541847	<0.040	0.040	7542452
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.040	<0.040	7541847	<0.040	0.040	7542452
Trichloroethylene	ug/g	0.52	0.52	<0.010	<0.010	7541847	<0.010	0.010	7542452
Trichlorofluoromethane (FREON 11)	ug/g	5.8	5.8	<0.040	<0.040	7541847	<0.040	0.040	7542452
Vinyl Chloride	ug/g	0.022	0.022	<0.019	<0.019	7541847	<0.019	0.019	7542452
p+m-Xylene	ug/g	-	-	<0.020	<0.020	7541847	<0.020	0.020	7542452
o-Xylene	ug/g	-	-	<0.020	<0.020	7541847	<0.020	0.020	7542452
Total Xylenes	ug/g	25	25	<0.020	<0.020	7541847	<0.020	0.020	7542452
F1 (C6-C10)	ug/g	65	65	<10	<10	7541847	<10	10	7542452
F1 (C6-C10) - BTEX	ug/g	65	65	<10	<10	7541847	<10	10	7542452
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	150	150	<10	<10	7541098	83	10	7541098
F3 (C16-C34 Hydrocarbons)	ug/g	1300	1300	<50	<50	7541098	520	50	7541098
F4 (C34-C50 Hydrocarbons)	ug/g	5600	5600	<50	<50	7541098	360	50	7541098
Reached Baseline at C50	ug/g	-	-	Yes	Yes	7541098	No		7541098
Surrogate Recovery (%)									
o-Terphenyl	%	-	-	93	98	7541098	98		7541098
4-Bromofluorobenzene	%	-	-	83	83	7541847	97		7542452
D10-o-Xylene	%	-	-	91	105	7541847	121		7542452
D4-1,2-Dichloroethane	%	-	-	103	105	7541847	103		7542452
D8-Toluene	%	-	-	104	103	7541847	100		7542452
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition									
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil									
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition									
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil									



BUREAU
VERITAS

Bureau Veritas Job #: C1O0127

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: KD

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		QLM134	
Sampling Date		2021/08/19	
COC Number		752298-02-01	
	UNITS	BH5 SA4	QC Batch
Inorganics			
Available (CaCl2) pH	pH	7.90	7542559
QC Batch = Quality Control Batch			



BUREAU
VERITAS

Bureau Veritas Job #: C100127

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE ST, ST. THOMAS

Sampler Initials: KD

PETROLEUM HYDROCARBONS (CCME)

Bureau Veritas ID				QLM135		
Sampling Date				2021/08/19		
COC Number				752298-02-01		
	UNITS	Criteria	Criteria-2	BH6/MW SA2	RDL	QC Batch
F2-F4 Hydrocarbons						
F4G-sg (Grav. Heavy Hydrocarbons)	ug/g	5600	5600	1900	100	7544900
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil						



BUREAU
VERITAS

Bureau Veritas Job #: C100127
Report Date: 2022/10/11

exp Services Inc
Client Project #: LON-21016021-A0
Site Location: WAREHOUSE ST, ST. THOMAS
Sampler Initials: KD

TEST SUMMARY

Bureau Veritas ID: QLM130
Sample ID: BH1/MW SA6
Matrix: Soil

Collected: 2021/08/19
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7537580	N/A	2021/08/30	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7541098	2021/08/25	2021/08/26	Ravinder Gaidhu
Moisture	BAL	7537825	N/A	2021/08/24	Prgya Panchal
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7542452	N/A	2021/08/30	Blair Gannon

Bureau Veritas ID: QLM130 Dup
Sample ID: BH1/MW SA6
Matrix: Soil

Collected: 2021/08/19
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	7537825	N/A	2021/08/24	Prgya Panchal

Bureau Veritas ID: QLM131
Sample ID: BH2/MW SA4
Matrix: Soil

Collected: 2021/08/19
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7537580	N/A	2021/08/30	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7541098	2021/08/25	2021/08/26	Ravinder Gaidhu
Moisture	BAL	7537825	N/A	2021/08/24	Prgya Panchal
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7541847	N/A	2021/08/30	Xueming Jiang

Bureau Veritas ID: QLM132
Sample ID: BH3 SA3
Matrix: Soil

Collected: 2021/08/19
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7537580	N/A	2021/08/30	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7541098	2021/08/25	2021/08/26	Ravinder Gaidhu
Moisture	BAL	7537825	N/A	2021/08/24	Prgya Panchal
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7541847	N/A	2021/08/30	Xueming Jiang

Bureau Veritas ID: QLM133
Sample ID: BH4/MW SA3
Matrix: Soil

Collected: 2021/08/19
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7537580	N/A	2021/08/30	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7541098	2021/08/25	2021/08/26	Ravinder Gaidhu
Moisture	BAL	7537825	N/A	2021/08/24	Prgya Panchal
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7541847	N/A	2021/08/30	Xueming Jiang



BUREAU
VERITAS

Bureau Veritas Job #: C100127

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: KD

TEST SUMMARY

Bureau Veritas ID: QLM134
Sample ID: BH5 SA4
Matrix: Soil

Collected: 2021/08/19
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7537580	N/A	2021/08/30	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7541098	2021/08/25	2021/08/26	Ravinder Gaidhu
Moisture	BAL	7537825	N/A	2021/08/24	Prgya Panchal
pH CaCl2 EXTRACT	AT	7542559	2021/08/26	2021/08/26	Surinder Rai
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7541847	N/A	2021/08/30	Xueming Jiang

Bureau Veritas ID: QLM135
Sample ID: BH6/MW SA2
Matrix: Soil

Collected: 2021/08/19
Shipped:
Received: 2021/08/23

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7537580	N/A	2021/08/30	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7541098	2021/08/25	2021/08/26	Ravinder Gaidhu
F4G (CCME Hydrocarbons Gravimetric)	BAL	7544900	2021/08/27	2021/08/27	Jignakumari Mistry
Moisture	BAL	7537825	N/A	2021/08/24	Prgya Panchal
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7542452	N/A	2021/08/30	Blair Gannon



GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	9.7°C
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Revised report (2022/10/11): Includes amended Reg 153 criteria as requested.

Sample QLM131 [BH2/MW SA4] : VOC Analysis: Soil weight exceeds the protocol specification of approximately 5g in the field preserved vial. Additional methanol was added to the vial to ensure extraction efficiency

Sample QLM132 [BH3 SA3] : VOC Analysis: Soil weight exceeds the protocol specification of approximately 5g in the field preserved vial. Additional methanol was added to the vial to ensure extraction efficiency

Sample QLM133 [BH4/MW SA3] : VOC Analysis: Soil weight exceeds the protocol specification of approximately 5g in the field preserved vial. Additional methanol was added to the vial to ensure extraction efficiency

Sample QLM134 [BH5 SA4] : VOC Analysis: Soil weight exceeds the protocol specification of approximately 5g in the field preserved vial. Additional methanol was added to the vial to ensure extraction efficiency

Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C100127

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: KD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7541098	o-Terphenyl	2021/08/25	93	60 - 130	95	60 - 130	97	%		
7541847	4-Bromofluorobenzene	2021/08/30	102	60 - 140	102	60 - 140	87	%		
7541847	D10-o-Xylene	2021/08/30	97	60 - 130	93	60 - 130	86	%		
7541847	D4-1,2-Dichloroethane	2021/08/30	102	60 - 140	101	60 - 140	102	%		
7541847	D8-Toluene	2021/08/30	100	60 - 140	101	60 - 140	102	%		
7542452	4-Bromofluorobenzene	2021/08/30	106	60 - 140	105	60 - 140	97	%		
7542452	D10-o-Xylene	2021/08/30	119	60 - 130	113	60 - 130	115	%		
7542452	D4-1,2-Dichloroethane	2021/08/30	104	60 - 140	104	60 - 140	99	%		
7542452	D8-Toluene	2021/08/30	101	60 - 140	101	60 - 140	101	%		
7537825	Moisture	2021/08/24							0.55	20
7541098	F2 (C10-C16 Hydrocarbons)	2021/08/26	82	60 - 130	99	80 - 120	<10	ug/g	3.1	30
7541098	F3 (C16-C34 Hydrocarbons)	2021/08/26	103	60 - 130	103	80 - 120	<50	ug/g	8.1	30
7541098	F4 (C34-C50 Hydrocarbons)	2021/08/26	106	60 - 130	103	80 - 120	<50	ug/g	NC	30
7541847	1,1,1,2-Tetrachloroethane	2021/08/30	99	60 - 140	102	60 - 130	<0.040	ug/g		
7541847	1,1,1-Trichloroethane	2021/08/30	96	60 - 140	99	60 - 130	<0.040	ug/g		
7541847	1,1,2,2-Tetrachloroethane	2021/08/30	95	60 - 140	95	60 - 130	<0.040	ug/g		
7541847	1,1,2-Trichloroethane	2021/08/30	101	60 - 140	102	60 - 130	<0.040	ug/g		
7541847	1,1-Dichloroethane	2021/08/30	87	60 - 140	90	60 - 130	<0.040	ug/g		
7541847	1,1-Dichloroethylene	2021/08/30	87	60 - 140	92	60 - 130	<0.040	ug/g		
7541847	1,2-Dichlorobenzene	2021/08/30	105	60 - 140	109	60 - 130	<0.040	ug/g		
7541847	1,2-Dichloroethane	2021/08/30	90	60 - 140	93	60 - 130	<0.049	ug/g		
7541847	1,2-Dichloropropane	2021/08/30	87	60 - 140	90	60 - 130	<0.040	ug/g		
7541847	1,3-Dichlorobenzene	2021/08/30	113	60 - 140	118	60 - 130	<0.040	ug/g		
7541847	1,4-Dichlorobenzene	2021/08/30	99	60 - 140	102	60 - 130	<0.040	ug/g		
7541847	Acetone (2-Propanone)	2021/08/30	85	60 - 140	85	60 - 140	<0.49	ug/g		
7541847	Benzene	2021/08/30	82	60 - 140	85	60 - 130	<0.0060	ug/g	NC	50
7541847	Bromodichloromethane	2021/08/30	94	60 - 140	96	60 - 130	<0.040	ug/g		
7541847	Bromoform	2021/08/30	95	60 - 140	96	60 - 130	<0.040	ug/g		
7541847	Bromomethane	2021/08/30	86	60 - 140	90	60 - 140	<0.040	ug/g		
7541847	Carbon Tetrachloride	2021/08/30	95	60 - 140	99	60 - 130	<0.040	ug/g		
7541847	Chlorobenzene	2021/08/30	100	60 - 140	104	60 - 130	<0.040	ug/g		

BUREAU
VERITAS

Bureau Veritas Job #: C100127

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: KD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7541847	Chloroform	2021/08/30	92	60 - 140	95	60 - 130	<0.040	ug/g		
7541847	cis-1,2-Dichloroethylene	2021/08/30	89	60 - 140	93	60 - 130	<0.040	ug/g		
7541847	cis-1,3-Dichloropropene	2021/08/30	84	60 - 140	88	60 - 130	<0.030	ug/g		
7541847	Dibromochloromethane	2021/08/30	95	60 - 140	97	60 - 130	<0.040	ug/g		
7541847	Dichlorodifluoromethane (FREON 12)	2021/08/30	73	60 - 140	78	60 - 140	<0.040	ug/g		
7541847	Ethylbenzene	2021/08/30	86	60 - 140	91	60 - 130	<0.010	ug/g	NC	50
7541847	Ethylene Dibromide	2021/08/30	95	60 - 140	96	60 - 130	<0.040	ug/g		
7541847	F1 (C6-C10) - BTEX	2021/08/30					<10	ug/g	NC	30
7541847	F1 (C6-C10)	2021/08/30	77	60 - 140	90	80 - 120	<10	ug/g	NC	30
7541847	Hexane	2021/08/30	77	60 - 140	87	60 - 130	<0.040	ug/g		
7541847	Methyl Ethyl Ketone (2-Butanone)	2021/08/30	85	60 - 140	85	60 - 140	<0.40	ug/g		
7541847	Methyl Isobutyl Ketone	2021/08/30	85	60 - 140	85	60 - 130	<0.40	ug/g		
7541847	Methyl t-butyl ether (MTBE)	2021/08/30	82	60 - 140	85	60 - 130	<0.040	ug/g		
7541847	Methylene Chloride(Dichloromethane)	2021/08/30	93	60 - 140	95	60 - 130	<0.049	ug/g		
7541847	o-Xylene	2021/08/30	86	60 - 140	90	60 - 130	<0.020	ug/g	NC	50
7541847	p+m-Xylene	2021/08/30	90	60 - 140	95	60 - 130	<0.020	ug/g	NC	50
7541847	Styrene	2021/08/30	97	60 - 140	102	60 - 130	<0.040	ug/g		
7541847	Tetrachloroethylene	2021/08/30	97	60 - 140	100	60 - 130	<0.040	ug/g		
7541847	Toluene	2021/08/30	93	60 - 140	98	60 - 130	<0.020	ug/g	NC	50
7541847	Total Xylenes	2021/08/30					<0.020	ug/g	NC	50
7541847	trans-1,2-Dichloroethylene	2021/08/30	88	60 - 140	92	60 - 130	<0.040	ug/g		
7541847	trans-1,3-Dichloropropene	2021/08/30	86	60 - 140	90	60 - 130	<0.040	ug/g		
7541847	Trichloroethylene	2021/08/30	101	60 - 140	105	60 - 130	<0.010	ug/g		
7541847	Trichlorofluoromethane (FREON 11)	2021/08/30	93	60 - 140	97	60 - 130	<0.040	ug/g		
7541847	Vinyl Chloride	2021/08/30	81	60 - 140	84	60 - 130	<0.019	ug/g		
7542452	1,1,1,2-Tetrachloroethane	2021/08/30	103	60 - 140	102	60 - 130	<0.040	ug/g	NC	50
7542452	1,1,1-Trichloroethane	2021/08/30	107	60 - 140	106	60 - 130	<0.040	ug/g	NC	50
7542452	1,1,2,2-Tetrachloroethane	2021/08/30	97	60 - 140	97	60 - 130	<0.040	ug/g	NC	50
7542452	1,1,2-Trichloroethane	2021/08/30	107	60 - 140	106	60 - 130	<0.040	ug/g	NC	50
7542452	1,1-Dichloroethane	2021/08/30	96	60 - 140	95	60 - 130	<0.040	ug/g	NC	50
7542452	1,1-Dichloroethylene	2021/08/30	98	60 - 140	97	60 - 130	<0.040	ug/g	NC	50



**BUREAU
VERITAS**

Bureau Veritas Job #: C100127

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: KD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7542452	1,2-Dichlorobenzene	2021/08/30	103	60 - 140	103	60 - 130	<0.040	ug/g	NC	50
7542452	1,2-Dichloroethane	2021/08/30	100	60 - 140	99	60 - 130	<0.049	ug/g	NC	50
7542452	1,2-Dichloropropane	2021/08/30	98	60 - 140	97	60 - 130	<0.040	ug/g	NC	50
7542452	1,3-Dichlorobenzene	2021/08/30	109	60 - 140	110	60 - 130	<0.040	ug/g	NC	50
7542452	1,4-Dichlorobenzene	2021/08/30	113	60 - 140	114	60 - 130	<0.040	ug/g	NC	50
7542452	Acetone (2-Propanone)	2021/08/30	92	60 - 140	92	60 - 140	<0.49	ug/g	NC	50
7542452	Benzene	2021/08/30	91	60 - 140	90	60 - 130	<0.0060	ug/g	NC	50
7542452	Bromodichloromethane	2021/08/30	105	60 - 140	104	60 - 130	<0.040	ug/g	NC	50
7542452	Bromoform	2021/08/30	98	60 - 140	97	60 - 130	<0.040	ug/g	NC	50
7542452	Bromomethane	2021/08/30	92	60 - 140	91	60 - 140	<0.040	ug/g	NC	50
7542452	Carbon Tetrachloride	2021/08/30	103	60 - 140	102	60 - 130	<0.040	ug/g	NC	50
7542452	Chlorobenzene	2021/08/30	103	60 - 140	101	60 - 130	<0.040	ug/g	NC	50
7542452	Chloroform	2021/08/30	102	60 - 140	101	60 - 130	<0.040	ug/g	NC	50
7542452	cis-1,2-Dichloroethylene	2021/08/30	101	60 - 140	100	60 - 130	<0.040	ug/g	NC	50
7542452	cis-1,3-Dichloropropene	2021/08/30	98	60 - 140	94	60 - 130	<0.030	ug/g	NC	50
7542452	Dibromochloromethane	2021/08/30	101	60 - 140	100	60 - 130	<0.040	ug/g	NC	50
7542452	Dichlorodifluoromethane (FREON 12)	2021/08/30	77	60 - 140	80	60 - 140	<0.040	ug/g	NC	50
7542452	Ethylbenzene	2021/08/30	98	60 - 140	95	60 - 130	<0.010	ug/g	NC	50
7542452	Ethylene Dibromide	2021/08/30	99	60 - 140	98	60 - 130	<0.040	ug/g	NC	50
7542452	F1 (C6-C10) - BTEX	2021/08/30					<10	ug/g	NC	30
7542452	F1 (C6-C10)	2021/08/30	101	60 - 140	94	80 - 120	<10	ug/g	NC	30
7542452	Hexane	2021/08/30	95	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
7542452	Methyl Ethyl Ketone (2-Butanone)	2021/08/30	96	60 - 140	97	60 - 140	<0.40	ug/g	NC	50
7542452	Methyl Isobutyl Ketone	2021/08/30	93	60 - 140	94	60 - 130	<0.40	ug/g	NC	50
7542452	Methyl t-butyl ether (MTBE)	2021/08/30	93	60 - 140	93	60 - 130	<0.040	ug/g	NC	50
7542452	Methylene Chloride(Dichloromethane)	2021/08/30	96	60 - 140	95	60 - 130	<0.049	ug/g	NC	50
7542452	o-Xylene	2021/08/30	95	60 - 140	93	60 - 130	<0.020	ug/g	NC	50
7542452	p+m-Xylene	2021/08/30	99	60 - 140	97	60 - 130	<0.020	ug/g	NC	50
7542452	Styrene	2021/08/30	106	60 - 140	104	60 - 130	<0.040	ug/g	NC	50
7542452	Tetrachloroethylene	2021/08/30	100	60 - 140	98	60 - 130	<0.040	ug/g	NC	50
7542452	Toluene	2021/08/30	106	60 - 140	105	60 - 130	<0.020	ug/g	NC	50

BUREAU
VERITAS

Bureau Veritas Job #: C100127

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: KD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7542452	Total Xylenes	2021/08/30					<0.020	ug/g	NC	50
7542452	trans-1,2-Dichloroethylene	2021/08/30	103	60 - 140	102	60 - 130	<0.040	ug/g	NC	50
7542452	trans-1,3-Dichloropropene	2021/08/30	97	60 - 140	92	60 - 130	<0.040	ug/g	NC	50
7542452	Trichloroethylene	2021/08/30	111	60 - 140	109	60 - 130	<0.010	ug/g	NC	50
7542452	Trichlorofluoromethane (FREON 11)	2021/08/30	97	60 - 140	96	60 - 130	<0.040	ug/g	NC	50
7542452	Vinyl Chloride	2021/08/30	82	60 - 140	84	60 - 130	<0.019	ug/g	NC	50
7542559	Available (CaCl ₂) pH	2021/08/26			100	97 - 103			0.27	N/A
7544900	F4G-sg (Grav. Heavy Hydrocarbons)	2021/08/27	75	65 - 135	100	65 - 135	<100	ug/g	13	50

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



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Bureau Veritas Job #: C100127

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE ST, ST. THOMAS

Sampler Initials: KD

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Brad Newman, B.Sc., C.Chem., Scientific Service Specialist

Eva Pranjić, M.Sc., C.Chem, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas Laboratories
109 & 110, 4023 Meadowbrook Drive, London, Ontario Canada N6L 1E7 Tel (519) 652-9444 Toll-free 800-563-6266 Fax (519) 652-8189 www.bvlabs.com

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23-Aug-21 14:20

Page 1 of 1

Christine Gripton

C100127

Order #: 752298



Project Manager: Christine Gripton

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name: #28124 exp Services Inc	Company Name: Scott A212	Quotation #: B91748			
Attention: Jennifer Ellison	Attention: Scott A212	P.O. #:			
Address: 15701 Robin's Hill Rd Unit 2	Address:	Project: LON-21016021-AP			
London ON N5V 0A5		Project Name: WAREHOUSE ST, ST. THOMAS			
Tel: (519) 963-3000	Fax: (519) 963-1152	Site #:			
Email: Jennifer.Ellison@exp.com	Scott.A212@exp.com	Sampled By: Kevin DeHann			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BV LABS DRINKING WATER CHAIN OF CUSTODY					
Regulation 153 (2011)			Other Regulations		
☐ Table 1	☒ Res/Park	☒ Medium/Fine	☐ CCME	☐ Sanitary Sewer Bylaw	
☐ Table 2	☐ Ind/Comm	☒ Coarse	☐ Reg 558	☐ Storm Sewer Bylaw	
☒ Table 3	☐ Agri/Other	☒ For RSC	☐ MISA	Municipality	
☐ Table			☐ PWGO		
☐ Other			☐ Other		
Special Instructions					
Include Criteria on Certificate of Analysis (Y/N)?					
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	
1	BH1/MW SA6	19 Aug 2021	AM	Soil	
2	BH2/MW SA4		AM		
3	BH3/MW SA3		PM		
4	BH4/MW SA3		PM		
5	BH5 SA4		PM		
6	BH6/MW SA2		PM		
7					
8					
9					
10					

* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# Jars used and not submitted	Laboratory Use Only		
KEVIN DEHANN		21/08/21	14:20	A. DeHann		21/08/21	14:20		Time Sensitive	Temperature (°C) on Receipt	Custody Seal
										9, 10, 10	Present
											Intact
											Yes
											No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BV LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVLABS.COM/TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

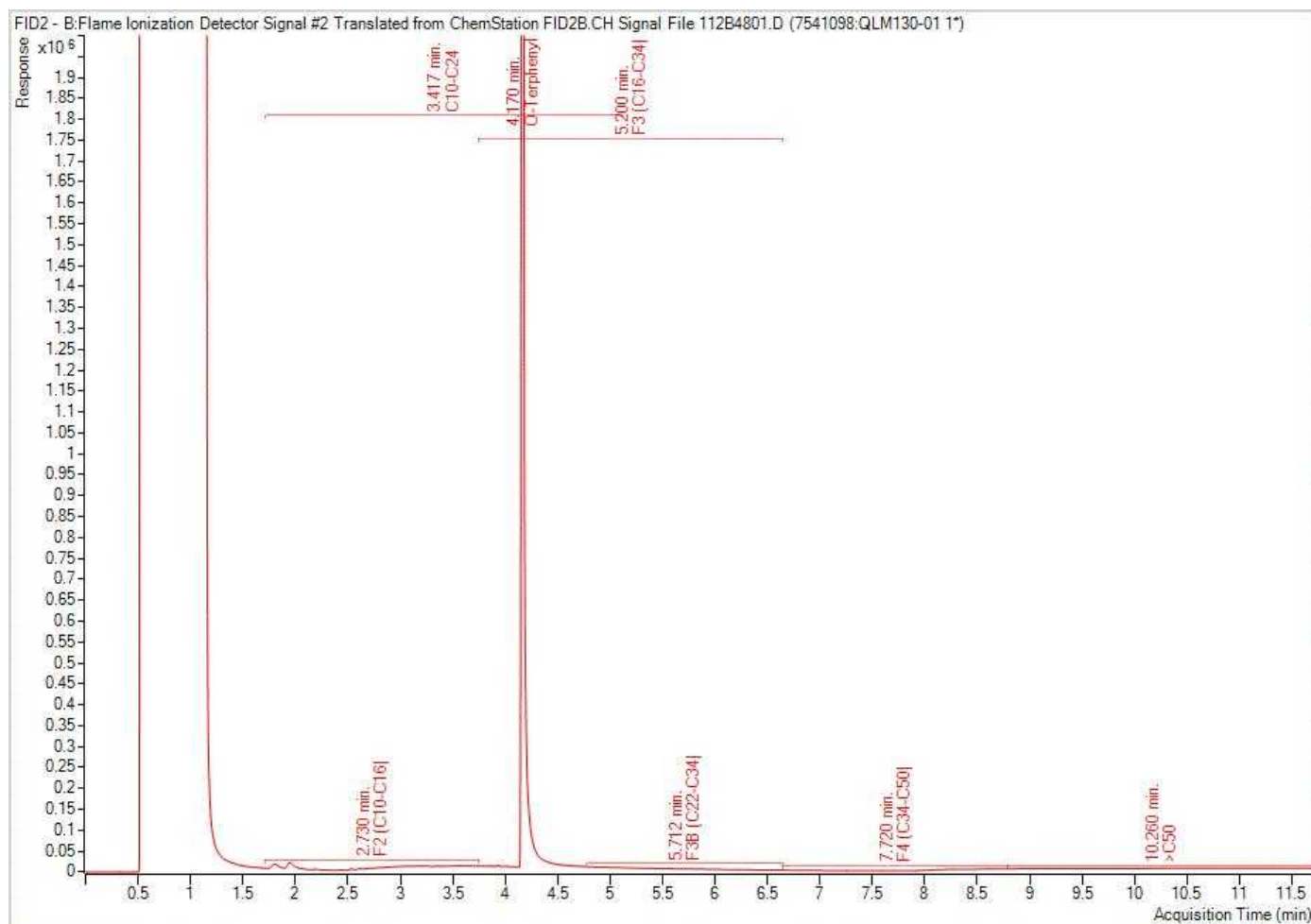
** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVLABS.COM/RESOURCES/CHAIN-OF-CUSTODY-FORMS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LABS

White: BV Labs
Yellow: Client

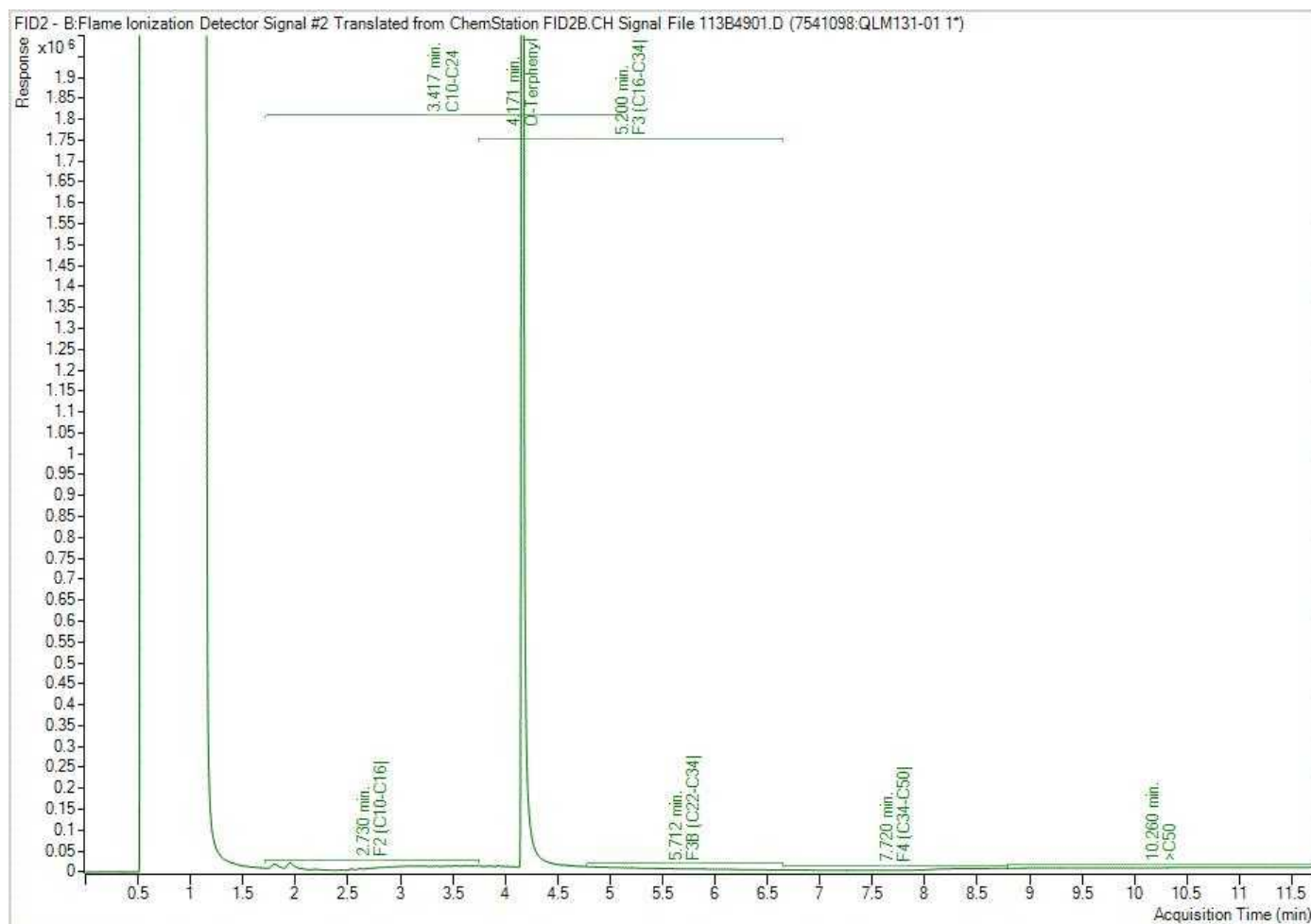
10/11/20
418522

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



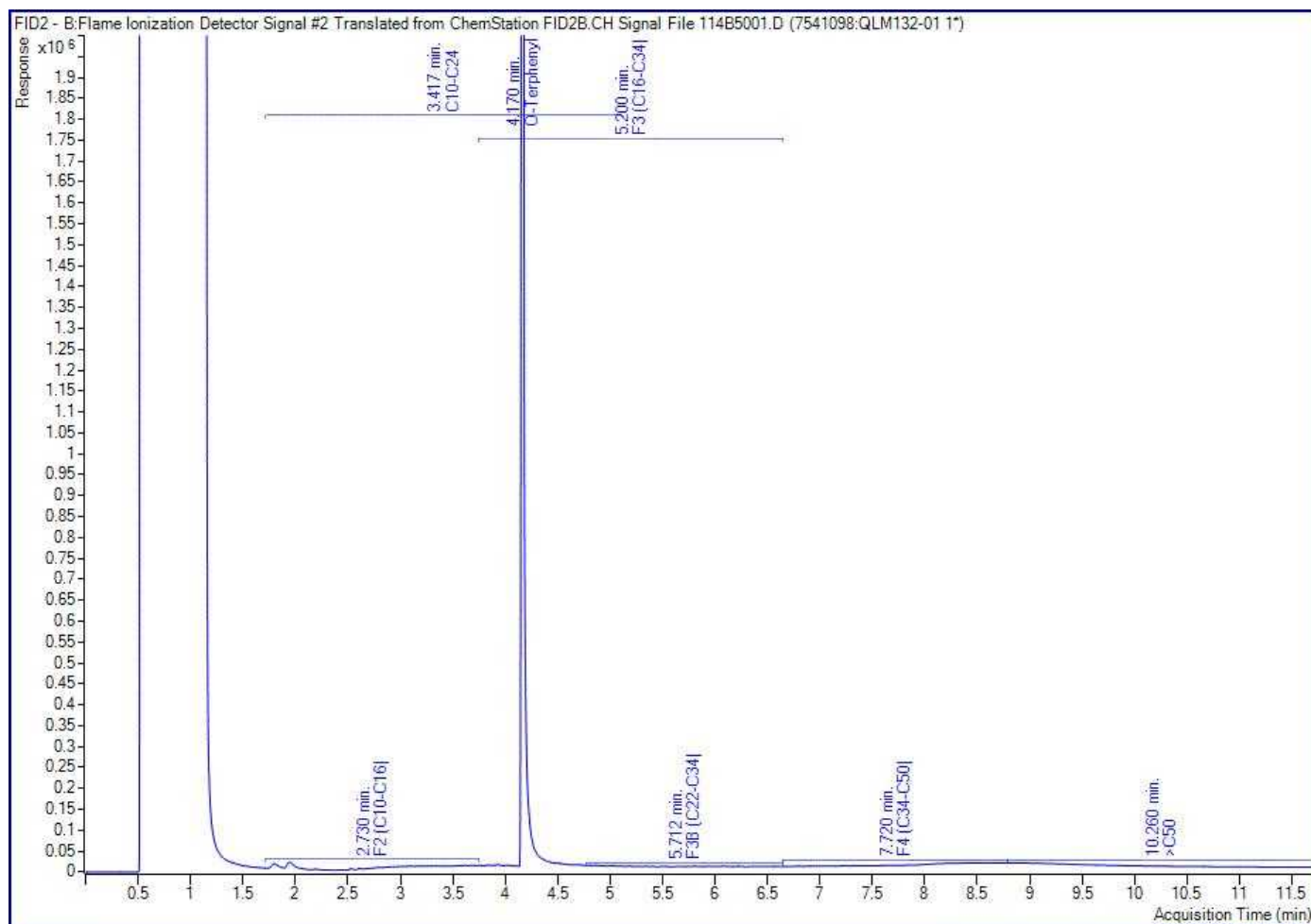
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



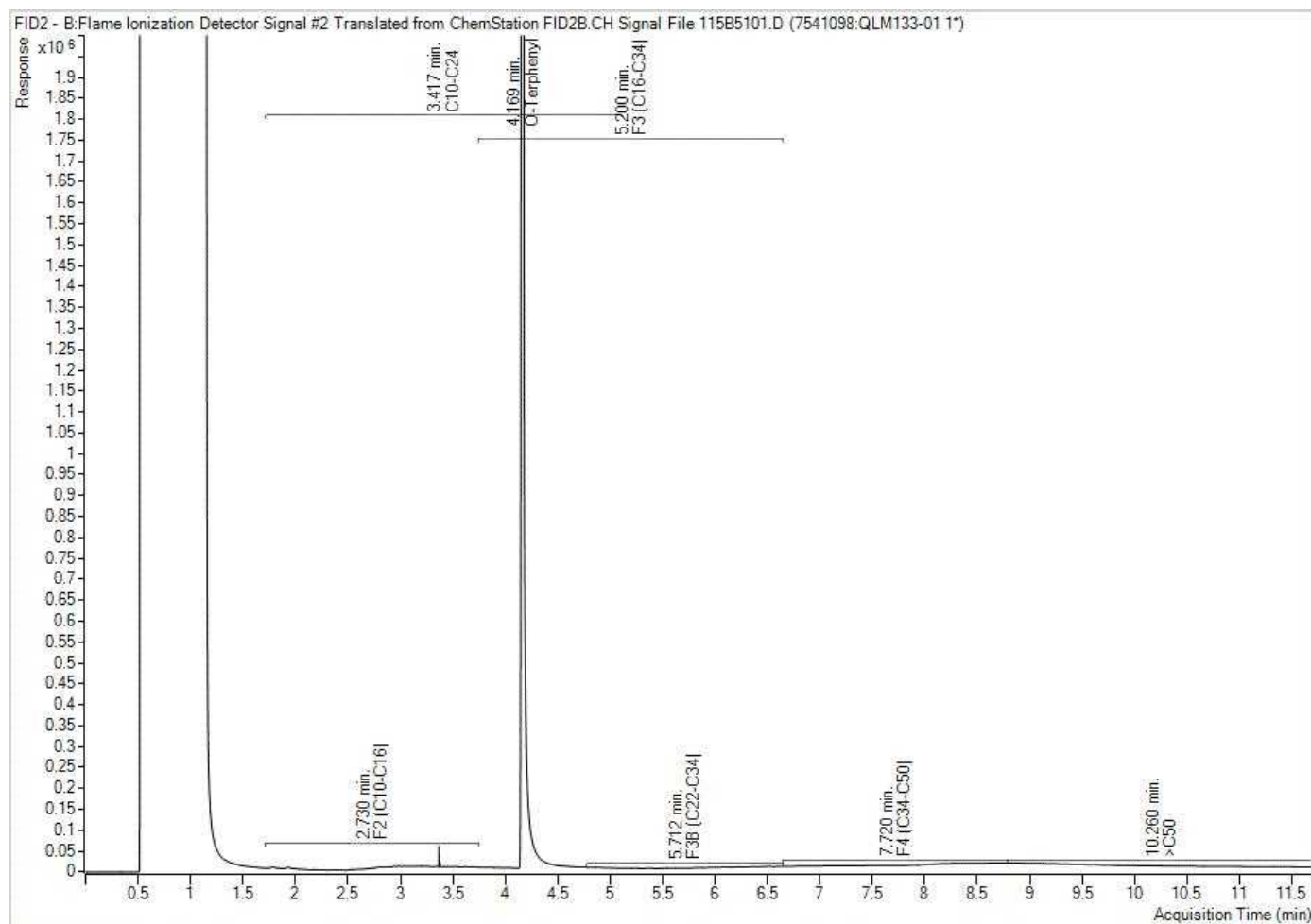
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



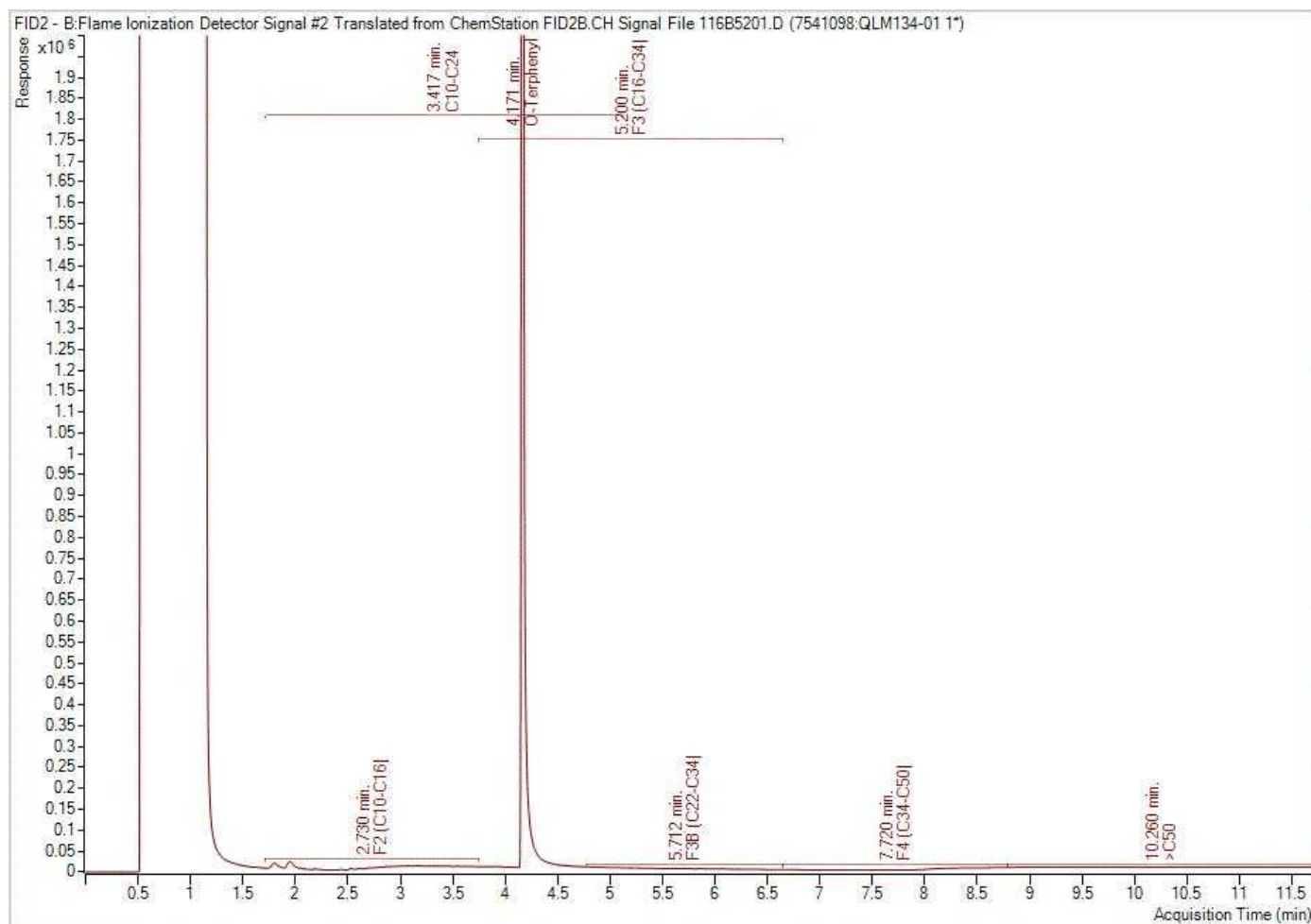
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

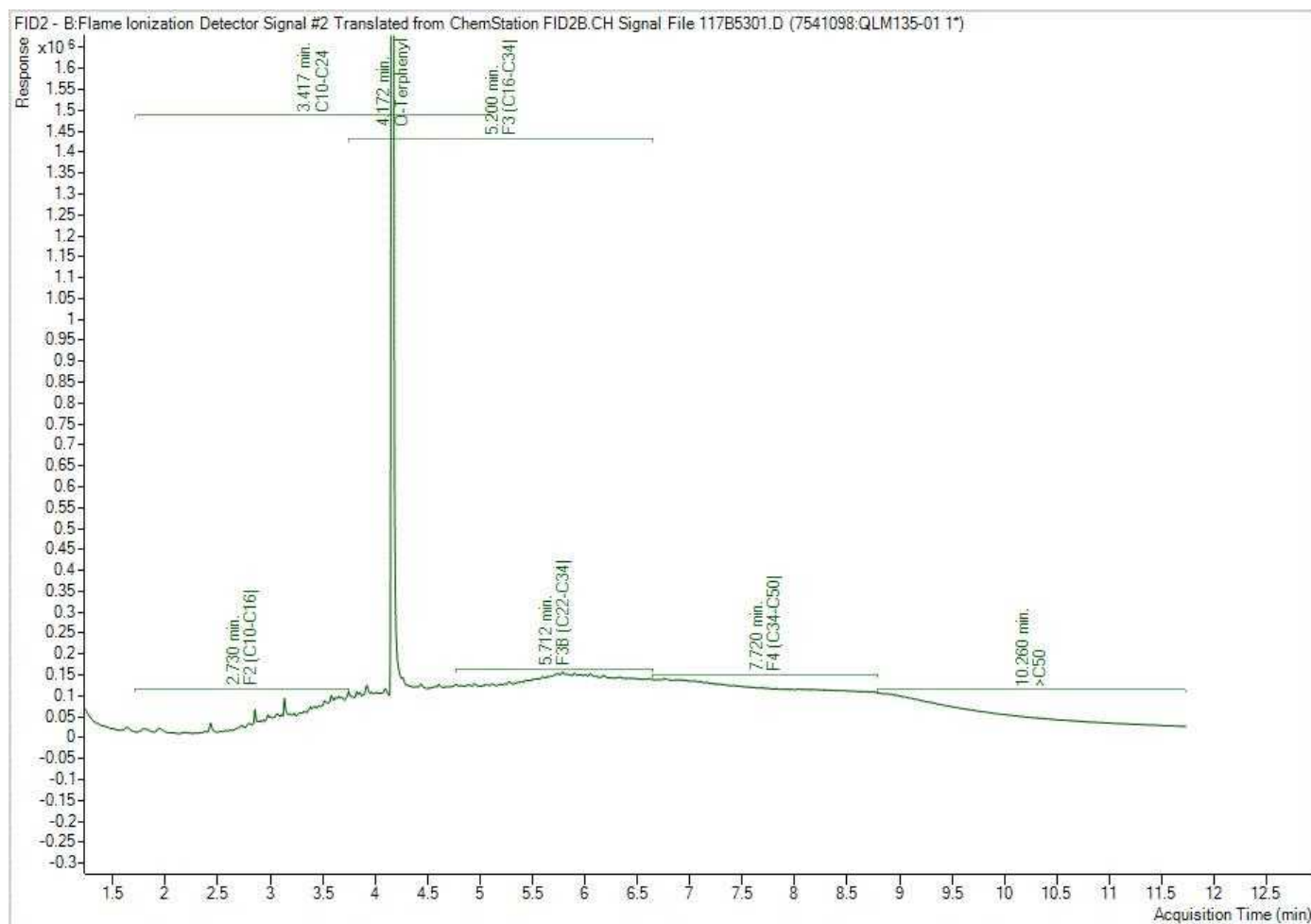


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Bureau Veritas Job #: C100127
Report Date: 2022/10/11
Bureau Veritas Sample: QLM135

exp Services Inc
Client Project #: LON-21016021-A0
Project name: WAREHOUSE ST,ST.THOMAS
Client ID: BH6/MW SA2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



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Bureau Veritas Job #: C100127

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: KD

Exceedance Summary Table – Reg153/04 T2-Soil/Res-F/M

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						
The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.						

Exceedance Summary Table – Reg153/04 T3-Soil/Res-F/M

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						
The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.						



Appendix D:
Laboratory Certificate of Analysis Sheets – Soil (Test Pits)



Your Project #: LON-21016021-A0
 Site Location: WAREHOUSE SR,ST.THOMAS
 Your C.O.C. #: 763132-01-01, C#763132-01-01

Attention: Scott Aziz

exp Services Inc
 London Branch
 15701 Robin's Hill Rd
 Unit 2
 London, ON
 CANADA N5V 0A5

Report Date: 2022/10/11
 Report #: R7336447
 Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C1T0736

Received: 2021/10/06, 08:30

Sample Matrix: Soil
 # Samples Received: 16

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum	8	N/A	2021/10/12	CAM SOP-00301	EPA 8270D m
Methylnaphthalene Sum	5	N/A	2021/10/13	CAM SOP-00301	EPA 8270D m
Hot Water Extractable Boron	8	2021/10/08	2021/10/14	CAM SOP-00408	R153 Ana. Prot. 2011
Hot Water Extractable Boron	5	2021/10/09	2021/10/14	CAM SOP-00408	R153 Ana. Prot. 2011
1,3-Dichloropropene Sum	3	N/A	2021/10/13		EPA 8260C m
Free (WAD) Cyanide	2	2021/10/12	2021/10/12	CAM SOP-00457	OMOE E3015 m
Free (WAD) Cyanide	2	2021/10/08	2021/10/12	CAM SOP-00457	OMOE E3015 m
Free (WAD) Cyanide	7	2021/10/08	2021/10/13	CAM SOP-00457	OMOE E3015 m
Free (WAD) Cyanide	2	2021/10/08	2021/10/08	CAM SOP-00457	OMOE E3015 m
Conductivity	13	2021/10/12	2021/10/12	CAM SOP-00414	OMOE E3530 v1 m
Hexavalent Chromium in Soil by IC (1)	9	2021/10/08	2021/10/12	CAM SOP-00436	EPA 3060/7199 m
Hexavalent Chromium in Soil by IC (1)	4	2021/10/08	2021/10/08	CAM SOP-00436	EPA 3060/7199 m
Petroleum Hydrocarbons F2-F4 in Soil (2)	3	2021/10/08	2021/10/09	CAM SOP-00316	CCME CWS m
Acid Extractable Metals by ICPMS	8	2021/10/08	2021/10/12	CAM SOP-00447	EPA 6020B m
Acid Extractable Metals by ICPMS	5	2021/10/09	2021/10/13	CAM SOP-00447	EPA 6020B m
Moisture	16	N/A	2021/10/07	CAM SOP-00445	Carter 2nd ed 51.2 m
PAH Compounds in Soil by GC/MS (SIM)	5	2021/10/12	2021/10/13	CAM SOP-00318	EPA 8270D m
PAH Compounds in Soil by GC/MS (SIM)	8	2021/10/09	2021/10/09	CAM SOP-00318	EPA 8270D m
pH CaCl2 EXTRACT	4	2021/10/12	2021/10/12	CAM SOP-00413	EPA 9045 D m
pH CaCl2 EXTRACT	10	2021/10/08	2021/10/08	CAM SOP-00413	EPA 9045 D m
Sodium Adsorption Ratio (SAR)	13	N/A	2021/10/13	CAM SOP-00102	EPA 6010C
Volatile Organic Compounds and F1 PHCs	3	N/A	2021/10/12	CAM SOP-00230	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are



Your Project #: LON-21016021-A0
Site Location: WAREHOUSE SR, ST. THOMAS
Your C.O.C. #: 763132-01-01, C#763132-01-01

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/11
Report #: R7336447
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C1T0736

Received: 2021/10/06, 08:30

reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Soils are reported on a dry weight basis unless otherwise specified.

(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Christine Gipton, Senior Project Manager
Email: Christine.Gipton@bureauveritas.com
Phone# (519)652-9444

=====

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Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

O.REG 153 METALS & INORGANICS PKG (SOIL)

Bureau Veritas ID				QWE087		QWE088	QWE089		
Sampling Date				2021/09/27		2021/09/27	2021/09/27		
COC Number				763132-01-01		763132-01-01	763132-01-01		
	UNITS	Criteria	Criteria-2	TP1 SA3	QC Batch	TP3 SA1	TP5 SA1	RDL	QC Batch
Calculated Parameters									
Sodium Adsorption Ratio	N/A	5.0	5.0	1.2	7623712	0.29 (1)	0.57		7623712
Inorganics									
Conductivity	mS/cm	0.7	0.7	0.23	7631220	0.12	0.17	0.002	7631220
Available (CaCl ₂) pH	pH	-	-	7.60	7631314	7.61	7.60		7626450
WAD Cyanide (Free)	ug/g	0.051	0.051	0.14	7627438	<0.01	0.05	0.01	7626258
Chromium (VI)	ug/g	10	10	<0.18	7627471	<0.18	<0.18	0.18	7626405
Metals									
Hot Water Ext. Boron (B)	ug/g	1.5	1.5	0.24	7628112	0.11	0.39	0.050	7628112
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	0.30	7629102	<0.20	0.27	0.20	7627906
Acid Extractable Arsenic (As)	ug/g	18	18	4.6	7629102	3.9	5.3	1.0	7627906
Acid Extractable Barium (Ba)	ug/g	390	390	81	7629102	77	120	0.50	7627906
Acid Extractable Beryllium (Be)	ug/g	5	5	0.63	7629102	0.60	0.95	0.20	7627906
Acid Extractable Boron (B)	ug/g	120	120	8.3	7629102	8.7	12	5.0	7627906
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	0.20	7629102	0.13	0.17	0.10	7627906
Acid Extractable Chromium (Cr)	ug/g	160	160	20	7629102	20	29	1.0	7627906
Acid Extractable Cobalt (Co)	ug/g	22	22	9.5	7629102	8.9	11	0.10	7627906
Acid Extractable Copper (Cu)	ug/g	180	180	23	7629102	19	25	0.50	7627906
Acid Extractable Lead (Pb)	ug/g	120	120	17	7629102	9.9	22	1.0	7627906
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	0.51	7629102	<0.50	<0.50	0.50	7627906
Acid Extractable Nickel (Ni)	ug/g	130	130	20	7629102	20	26	0.50	7627906
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	<0.50	7629102	<0.50	<0.50	0.50	7627906
Acid Extractable Silver (Ag)	ug/g	25	25	<0.20	7629102	<0.20	<0.20	0.20	7627906
Acid Extractable Thallium (Tl)	ug/g	1	1	0.16	7629102	0.15	0.21	0.050	7627906
Acid Extractable Uranium (U)	ug/g	23	23	0.63	7629102	0.71	0.75	0.050	7627906
Acid Extractable Vanadium (V)	ug/g	86	86	31	7629102	31	43	5.0	7627906
Acid Extractable Zinc (Zn)	ug/g	340	340	57	7629102	50	84	5.0	7627906
Acid Extractable Mercury (Hg)	ug/g	1.8	1.8	<0.050	7629102	<0.050	<0.050	0.050	7627906
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition									
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil									
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition									
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil									
(1) Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.									



BUREAU
VERITAS

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

O.REG 153 METALS & INORGANICS PKG (SOIL)

Bureau Veritas ID				QWE090		QWE091		QWE092		
Sampling Date				2021/09/27		2021/09/27		2021/09/27		
COC Number				763132-01-01		763132-01-01		763132-01-01		
	UNITS	Criteria	Criteria-2	TP7 SA2	QC Batch	TP9 SA1	QC Batch	TP11 SA1	RDL	QC Batch

Calculated Parameters

Sodium Adsorption Ratio	N/A	5.0	5.0	0.46	7623712	0.19 (1)	7623712	0.76		7623712
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Inorganics

Conductivity	mS/cm	0.7	0.7	0.19	7630937	0.25	7631220	0.21	0.002	7631220
Available (CaCl ₂) pH	pH	-	-	7.60	7627456	7.50	7626450	7.68		7627456
WAD Cyanide (Free)	ug/g	0.051	0.051	<0.01	7627438	<0.01	7626258	<0.01	0.01	7627438
Chromium (VI)	ug/g	10	10	<0.18	7627471	<0.18	7626405	<0.18	0.18	7627471

Metals

Hot Water Ext. Boron (B)	ug/g	1.5	1.5	0.26	7629019	0.60	7628112	0.19	0.050	7628112
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	0.24	7627906	0.38	7627906	<0.20	0.20	7627906
Acid Extractable Arsenic (As)	ug/g	18	18	3.5	7627906	5.2	7627906	3.7	1.0	7627906
Acid Extractable Barium (Ba)	ug/g	390	390	61	7627906	75	7627906	92	0.50	7627906
Acid Extractable Beryllium (Be)	ug/g	5	5	0.52	7627906	0.52	7627906	0.62	0.20	7627906
Acid Extractable Boron (B)	ug/g	120	120	7.2	7627906	8.2	7627906	9.4	5.0	7627906
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	0.12	7627906	0.18	7627906	0.15	0.10	7627906
Acid Extractable Chromium (Cr)	ug/g	160	160	17	7627906	17	7627906	21	1.0	7627906
Acid Extractable Cobalt (Co)	ug/g	22	22	7.8	7627906	7.3	7627906	8.9	0.10	7627906
Acid Extractable Copper (Cu)	ug/g	180	180	17	7627906	21	7627906	20	0.50	7627906
Acid Extractable Lead (Pb)	ug/g	120	120	18	7627906	270	7627906	11	1.0	7627906
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	<0.50	7627906	0.61	7627906	<0.50	0.50	7627906
Acid Extractable Nickel (Ni)	ug/g	130	130	17	7627906	18	7627906	21	0.50	7627906
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	<0.50	7627906	<0.50	7627906	<0.50	0.50	7627906
Acid Extractable Silver (Ag)	ug/g	25	25	<0.20	7627906	<0.20	7627906	<0.20	0.20	7627906
Acid Extractable Thallium (Tl)	ug/g	1	1	0.12	7627906	0.15	7627906	0.15	0.050	7627906
Acid Extractable Uranium (U)	ug/g	23	23	0.62	7627906	0.52	7627906	0.69	0.050	7627906
Acid Extractable Vanadium (V)	ug/g	86	86	28	7627906	26	7627906	31	5.0	7627906
Acid Extractable Zinc (Zn)	ug/g	340	340	49	7627906	76	7627906	66	5.0	7627906
Acid Extractable Mercury (Hg)	ug/g	1.8	1.8	0.051	7627906	<0.050	7627906	<0.050	0.050	7627906

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition

Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil

Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition

Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil

(1) Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

BUREAU
VERITAS

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

O.REG 153 METALS & INORGANICS PKG (SOIL)

Bureau Veritas ID				QWE093		QWE094		QWE095		
Sampling Date				2021/09/27		2021/09/30		2021/09/30		
COC Number				763132-01-01		763132-01-01		763132-01-01		
	UNITS	Criteria	Criteria-2	TP13 SA1	QC Batch	TP15 SA1	QC Batch	TP17 SA1	RDL	QC Batch

Calculated Parameters

Sodium Adsorption Ratio	N/A	5.0	5.0	0.60	7623712	2.0	7623712	1.5		7623712
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Inorganics

Conductivity	mS/cm	0.7	0.7	0.16	7631220	0.23	7630937	0.32	0.002	7631220
Available (CaCl ₂) pH	pH	-	-	7.67	7626450	7.70	7631314	7.81		7627456
WAD Cyanide (Free)	ug/g	0.051	0.051	0.01	7626258	<0.01	7630378	<0.01	0.01	7627438
Chromium (VI)	ug/g	10	10	<0.18	7626405	<0.18	7627471	<0.18	0.18	7627471

Metals

Hot Water Ext. Boron (B)	ug/g	1.5	1.5	0.15	7628112	0.20	7628112	0.098	0.050	7629019
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	0.29	7627906	0.22	7629102	<0.20	0.20	7629102
Acid Extractable Arsenic (As)	ug/g	18	18	4.4	7627906	4.2	7629102	3.2	1.0	7629102
Acid Extractable Barium (Ba)	ug/g	390	390	74	7627906	76	7629102	73	0.50	7629102
Acid Extractable Beryllium (Be)	ug/g	5	5	0.51	7627906	0.59	7629102	0.51	0.20	7629102
Acid Extractable Boron (B)	ug/g	120	120	9.0	7627906	7.2	7629102	9.1	5.0	7629102
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	0.11	7627906	0.20	7629102	0.12	0.10	7629102
Acid Extractable Chromium (Cr)	ug/g	160	160	18	7627906	19	7629102	19	1.0	7629102
Acid Extractable Cobalt (Co)	ug/g	22	22	8.3	7627906	8.6	7629102	8.4	0.10	7629102
Acid Extractable Copper (Cu)	ug/g	180	180	20	7627906	17	7629102	27	0.50	7629102
Acid Extractable Lead (Pb)	ug/g	120	120	13	7627906	12	7629102	9.3	1.0	7629102
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	0.55	7627906	<0.50	7629102	<0.50	0.50	7629102
Acid Extractable Nickel (Ni)	ug/g	130	130	19	7627906	17	7629102	18	0.50	7629102
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	<0.50	7627906	<0.50	7629102	<0.50	0.50	7629102
Acid Extractable Silver (Ag)	ug/g	25	25	<0.20	7627906	<0.20	7629102	<0.20	0.20	7629102
Acid Extractable Thallium (Tl)	ug/g	1	1	0.14	7627906	0.13	7629102	0.12	0.050	7629102
Acid Extractable Uranium (U)	ug/g	23	23	0.61	7627906	0.62	7629102	0.58	0.050	7629102
Acid Extractable Vanadium (V)	ug/g	86	86	27	7627906	31	7629102	30	5.0	7629102
Acid Extractable Zinc (Zn)	ug/g	340	340	48	7627906	51	7629102	49	5.0	7629102
Acid Extractable Mercury (Hg)	ug/g	1.8	1.8	<0.050	7627906	<0.050	7629102	<0.050	0.050	7629102

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition

Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil

Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition

Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil

BUREAU
VERITAS

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

O.REG 153 METALS & INORGANICS PKG (SOIL)

Bureau Veritas ID				QWE096		QWE097		
Sampling Date				2021/09/30		2021/09/30		
COC Number				763132-01-01		C#763132-01-01		
	UNITS	Criteria	Criteria-2	TP19 SA1	QC Batch	TP22 SA2	RDL	QC Batch
Calculated Parameters								
Sodium Adsorption Ratio	N/A	5.0	5.0	0.26 (1)	7623712	0.29 (1)		7623712
Inorganics								
Conductivity	mS/cm	0.7	0.7	0.14	7630937	0.13	0.002	7630937
Available (CaCl ₂) pH	pH	-	-	7.44	7631314	7.75		7631314
WAD Cyanide (Free)	ug/g	0.051	0.051	<0.01	7630378	<0.01	0.01	7627438
Chromium (VI)	ug/g	10	10	<0.18	7627745	<0.18	0.18	7627471
Metals								
Hot Water Ext. Boron (B)	ug/g	1.5	1.5	0.12	7629019	0.11	0.050	7629019
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	<0.20	7629102	1.3	0.20	7627906
Acid Extractable Arsenic (As)	ug/g	18	18	4.2	7629102	11	1.0	7627906
Acid Extractable Barium (Ba)	ug/g	390	390	93	7629102	47	0.50	7627906
Acid Extractable Beryllium (Be)	ug/g	5	5	0.71	7629102	0.47	0.20	7627906
Acid Extractable Boron (B)	ug/g	120	120	8.3	7629102	7.0	5.0	7627906
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	0.13	7629102	0.12	0.10	7627906
Acid Extractable Chromium (Cr)	ug/g	160	160	23	7629102	15	1.0	7627906
Acid Extractable Cobalt (Co)	ug/g	22	22	9.8	7629102	6.2	0.10	7627906
Acid Extractable Copper (Cu)	ug/g	180	180	21	7629102	25	0.50	7627906
Acid Extractable Lead (Pb)	ug/g	120	120	10	7629102	25	1.0	7627906
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	<0.50	7629102	0.53	0.50	7627906
Acid Extractable Nickel (Ni)	ug/g	130	130	21	7629102	15	0.50	7627906
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	<0.50	7629102	<0.50	0.50	7627906
Acid Extractable Silver (Ag)	ug/g	25	25	<0.20	7629102	<0.20	0.20	7627906
Acid Extractable Thallium (Tl)	ug/g	1	1	0.13	7629102	0.15	0.050	7627906
Acid Extractable Uranium (U)	ug/g	23	23	0.63	7629102	0.55	0.050	7627906
Acid Extractable Vanadium (V)	ug/g	86	86	35	7629102	23	5.0	7627906
Acid Extractable Zinc (Zn)	ug/g	340	340	55	7629102	52	5.0	7627906
Acid Extractable Mercury (Hg)	ug/g	1.8	1.8	<0.050	7629102	0.073	0.050	7627906
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil (1) Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.								



BUREAU
VERITAS

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

O.REG 153 METALS & INORGANICS PKG (SOIL)

Bureau Veritas ID				QWE098		QWE102		
Sampling Date				2021/09/30		2021/09/30		
COC Number				C#763132-01-01		C#763132-01-01		
	UNITS	Criteria	Criteria-2	TP25 SA1	QC Batch	DUP02	RDL	QC Batch
Calculated Parameters								
Sodium Adsorption Ratio	N/A	5.0	5.0	0.23 (1)	7623712	0.23 (1)		7623712
Inorganics								
Conductivity	mS/cm	0.7	0.7	0.17	7630937	0.17	0.002	7631220
Available (CaCl2) pH	pH	-	-	7.37	7627456	7.35		7627456
WAD Cyanide (Free)	ug/g	0.051	0.051	<0.01	7627438	<0.01	0.01	7627438
Chromium (VI)	ug/g	10	10	<0.18	7627471	<0.18	0.18	7627471
Metals								
Hot Water Ext. Boron (B)	ug/g	1.5	1.5	1.3	7629019	1.3	0.050	7628112
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	1.0	7629102	0.88	0.20	7627906
Acid Extractable Arsenic (As)	ug/g	18	18	25	7629102	21	1.0	7627906
Acid Extractable Barium (Ba)	ug/g	390	390	240	7629102	200	0.50	7627906
Acid Extractable Beryllium (Be)	ug/g	5	5	0.73	7629102	0.71	0.20	7627906
Acid Extractable Boron (B)	ug/g	120	120	9.1	7629102	9.0	5.0	7627906
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	0.71	7629102	0.62	0.10	7627906
Acid Extractable Chromium (Cr)	ug/g	160	160	19	7629102	18	1.0	7627906
Acid Extractable Cobalt (Co)	ug/g	22	22	8.8	7629102	8.5	0.10	7627906
Acid Extractable Copper (Cu)	ug/g	180	180	28	7629102	26	0.50	7627906
Acid Extractable Lead (Pb)	ug/g	120	120	800	7629102	650	1.0	7627906
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	0.93	7629102	0.94	0.50	7627906
Acid Extractable Nickel (Ni)	ug/g	130	130	18	7629102	18	0.50	7627906
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	1.1	7629102	1.1	0.50	7627906
Acid Extractable Silver (Ag)	ug/g	25	25	<0.20	7629102	<0.20	0.20	7627906
Acid Extractable Thallium (Tl)	ug/g	1	1	0.30	7629102	0.30	0.050	7627906
Acid Extractable Uranium (U)	ug/g	23	23	0.79	7629102	0.76	0.050	7627906
Acid Extractable Vanadium (V)	ug/g	86	86	30	7629102	30	5.0	7627906
Acid Extractable Zinc (Zn)	ug/g	340	340	330	7629102	320	5.0	7627906
Acid Extractable Mercury (Hg)	ug/g	1.8	1.8	0.10	7629102	0.092	0.050	7627906
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil (1) Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.								



BUREAU
VERITAS

Bureau Veritas Job #: C1T0736
Report Date: 2022/10/11

exp Services Inc
Client Project #: LON-21016021-A0
Site Location: WAREHOUSE SR,ST.THOMAS
Sampler Initials: KD

O.REG 153 PAHS (SOIL)

Bureau Veritas ID				QWE087	QWE088		QWE089	QWE090		
Sampling Date				2021/09/27	2021/09/27		2021/09/27	2021/09/27		
COC Number				763132-01-01	763132-01-01		763132-01-01	763132-01-01		
	UNITS	Criteria	Criteria-2	TP1 SA3	TP3 SA1	QC Batch	TP5 SA1	TP7 SA2	RDL	QC Batch
Inorganics										
Moisture	%	-	-	14	10	7624061	18	13	1.0	7624061
Calculated Parameters										
Methylnaphthalene, 2-(1-)	ug/g	-	3.4	<0.0071	<0.0071	7623708	<0.0071	0.0081	0.0071	7623708
Polyaromatic Hydrocarbons										
Acenaphthene	ug/g	29	58	<0.0050	<0.0050	7630381	<0.0050	<0.0050	0.0050	7629014
Acenaphthylene	ug/g	0.17	0.17	<0.0050	<0.0050	7630381	<0.0050	0.016	0.0050	7629014
Anthracene	ug/g	0.74	0.74	<0.0050	<0.0050	7630381	<0.0050	0.016	0.0050	7629014
Benzo(a)anthracene	ug/g	0.63	0.63	<0.0050	0.012	7630381	0.0082	0.073	0.0050	7629014
Benzo(a)pyrene	ug/g	0.3	0.3	<0.0050	0.017	7630381	0.012	0.13	0.0050	7629014
Benzo(b,j)fluoranthene	ug/g	0.78	0.78	0.0078	0.027	7630381	0.021	0.22	0.0050	7629014
Benzo(g,h,i)perylene	ug/g	7.8	7.8	0.0062	0.015	7630381	0.011	0.050	0.0050	7629014
Benzo(k)fluoranthene	ug/g	0.78	0.78	<0.0050	0.0091	7630381	0.0065	0.077	0.0050	7629014
Chrysene	ug/g	7.8	7.8	<0.0050	0.011	7630381	0.0092	0.052	0.0050	7629014
Dibenzo(a,h)anthracene	ug/g	0.1	0.1	<0.0050	<0.0050	7630381	<0.0050	0.017	0.0050	7629014
Fluoranthene	ug/g	0.69	0.69	0.0069	0.022	7630381	0.017	0.090	0.0050	7629014
Fluorene	ug/g	69	69	<0.0050	<0.0050	7630381	<0.0050	<0.0050	0.0050	7629014
Indeno(1,2,3-cd)pyrene	ug/g	0.48	0.48	<0.0050	0.015	7630381	0.0098	0.057	0.0050	7629014
1-Methylnaphthalene	ug/g	3.4	3.4	<0.0050	<0.0050	7630381	<0.0050	<0.0050	0.0050	7629014
2-Methylnaphthalene	ug/g	3.4	3.4	<0.0050	<0.0050	7630381	<0.0050	0.0081	0.0050	7629014
Naphthalene	ug/g	0.75	0.75	<0.0050	<0.0050	7630381	<0.0050	0.013	0.0050	7629014
Phenanthrene	ug/g	7.8	7.8	<0.0050	0.0087	7630381	0.0069	0.0091	0.0050	7629014
Pyrene	ug/g	78	78	0.0058	0.018	7630381	0.015	0.42	0.0050	7629014
Surrogate Recovery (%)										
D10-Anthracene	%	-	-	93	89	7630381	88	85		7629014
D14-Terphenyl (FS)	%	-	-	92	88	7630381	83	79		7629014
D8-Acenaphthylene	%	-	-	82	75	7630381	75	72		7629014
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil										



BUREAU
VERITAS

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

O.REG 153 PAHS (SOIL)

Bureau Veritas ID				QWE091	QWE092		QWE093		QWE094		
Sampling Date				2021/09/27	2021/09/27		2021/09/27		2021/09/30		
COC Number				763132-01-01	763132-01-01		763132-01-01		763132-01-01		
	UNITS	Criteria	Criteria-2	TP9 SA1	TP11 SA1	RDL	TP13 SA1	RDL	TP15 SA1	RDL	QC Batch

Inorganics											
Moisture	%	-	-	15	14	1.0	10	1.0	9.4	1.0	7624061

Calculated Parameters

Methylnaphthalene, 2-(1-)	ug/g	-	3.4	0.014	<0.0071	0.0071	<0.071	0.071	<0.0071	0.0071	7623708
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Polyaromatic Hydrocarbons

Acenaphthene	ug/g	29	58	<0.0050	<0.0050	0.0050	<0.050	0.050	<0.0050	0.0050	7629014
Acenaphthylene	ug/g	0.17	0.17	0.0086	<0.0050	0.0050	<0.050	0.050	<0.0050	0.0050	7629014
Anthracene	ug/g	0.74	0.74	0.0061	<0.0050	0.0050	<0.050	0.050	<0.0050	0.0050	7629014
Benzo(a)anthracene	ug/g	0.63	0.63	0.028	<0.0050	0.0050	<0.050	0.050	<0.0050	0.0050	7629014
Benzo(a)pyrene	ug/g	0.3	0.3	0.037	<0.0050	0.0050	<0.050	0.050	0.0057	0.0050	7629014
Benzo(b,j)fluoranthene	ug/g	0.78	0.78	0.062	0.0074	0.0050	0.062	0.050	0.0095	0.0050	7629014
Benzo(g,h,i)perylene	ug/g	7.8	7.8	0.036	0.0051	0.0050	<0.050	0.050	0.0070	0.0050	7629014
Benzo(k)fluoranthene	ug/g	0.78	0.78	0.021	<0.0050	0.0050	<0.050	0.050	<0.0050	0.0050	7629014
Chrysene	ug/g	7.8	7.8	0.033	<0.0050	0.0050	<0.050	0.050	<0.0050	0.0050	7629014
Dibenzo(a,h)anthracene	ug/g	0.1	0.1	0.0078	<0.0050	0.0050	<0.050	0.050	<0.0050	0.0050	7629014
Fluoranthene	ug/g	0.69	0.69	0.074	0.0078	0.0050	<0.050	0.050	0.0099	0.0050	7629014
Fluorene	ug/g	69	69	<0.0050	<0.0050	0.0050	<0.050	0.050	<0.0050	0.0050	7629014
Indeno(1,2,3-cd)pyrene	ug/g	0.48	0.48	0.033	<0.0050	0.0050	<0.050	0.050	0.0051	0.0050	7629014
1-Methylnaphthalene	ug/g	3.4	3.4	0.0070	<0.0050	0.0050	<0.050	0.050	<0.0050	0.0050	7629014
2-Methylnaphthalene	ug/g	3.4	3.4	0.0072	<0.0050	0.0050	<0.050	0.050	<0.0050	0.0050	7629014
Naphthalene	ug/g	0.75	0.75	<0.0050	<0.0050	0.0050	<0.050	0.050	<0.0050	0.0050	7629014
Phenanthrene	ug/g	7.8	7.8	0.031	<0.0050	0.0050	<0.050	0.050	<0.0050	0.0050	7629014
Pyrene	ug/g	78	78	0.058	0.0068	0.0050	<0.050	0.050	0.0084	0.0050	7629014

Surrogate Recovery (%)

D10-Anthracene	%	-	-	84	97		112		89		7629014
D14-Terphenyl (FS)	%	-	-	78	91		77		83		7629014
D8-Acenaphthylene	%	-	-	69	83		69		70		7629014

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition

Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil

Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition

Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil



BUREAU
VERITAS

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

O.REG 153 PAHS (SOIL)

Bureau Veritas ID				QWE095		QWE096		QWE097		
Sampling Date				2021/09/30		2021/09/30		2021/09/30		
COC Number				763132-01-01		763132-01-01		C#763132-01-01		
	UNITS	Criteria	Criteria-2	TP17 SA1	QC Batch	TP19 SA1	QC Batch	TP22 SA2	RDL	QC Batch
Inorganics										
Moisture	%	-	-	6.6	7624061	14	7624061	7.4	1.0	7624061
Calculated Parameters										
Methylnaphthalene, 2-(1-)	ug/g	-	3.4	<0.0071	7623708	<0.0071	7623708	0.052	0.0071	7623708
Polyaromatic Hydrocarbons										
Acenaphthene	ug/g	29	58	0.0080	7630381	<0.0050	7629014	<0.0050	0.0050	7630381
Acenaphthylene	ug/g	0.17	0.17	0.023	7630381	<0.0050	7629014	0.050	0.0050	7630381
Anthracene	ug/g	0.74	0.74	0.023	7630381	<0.0050	7629014	0.028	0.0050	7630381
Benzo(a)anthracene	ug/g	0.63	0.63	0.057	7630381	<0.0050	7629014	0.066	0.0050	7630381
Benzo(a)pyrene	ug/g	0.3	0.3	0.096	7630381	<0.0050	7629014	0.13	0.0050	7630381
Benzo(b,j)fluoranthene	ug/g	0.78	0.78	0.13	7630381	<0.0050	7629014	0.21	0.0050	7630381
Benzo(g,h,i)perylene	ug/g	7.8	7.8	0.075	7630381	<0.0050	7629014	0.11	0.0050	7630381
Benzo(k)fluoranthene	ug/g	0.78	0.78	0.046	7630381	<0.0050	7629014	0.064	0.0050	7630381
Chrysene	ug/g	7.8	7.8	0.049	7630381	<0.0050	7629014	0.058	0.0050	7630381
Dibenzo(a,h)anthracene	ug/g	0.1	0.1	0.019	7630381	<0.0050	7629014	0.028	0.0050	7630381
Fluoranthene	ug/g	0.69	0.69	0.11	7630381	<0.0050	7629014	0.074	0.0050	7630381
Fluorene	ug/g	69	69	0.012	7630381	<0.0050	7629014	<0.0050	0.0050	7630381
Indeno(1,2,3-cd)pyrene	ug/g	0.48	0.48	0.078	7630381	<0.0050	7629014	0.11	0.0050	7630381
1-Methylnaphthalene	ug/g	3.4	3.4	<0.0050	7630381	<0.0050	7629014	0.025	0.0050	7630381
2-Methylnaphthalene	ug/g	3.4	3.4	<0.0050	7630381	<0.0050	7629014	0.028	0.0050	7630381
Naphthalene	ug/g	0.75	0.75	0.011	7630381	<0.0050	7629014	0.018	0.0050	7630381
Phenanthrene	ug/g	7.8	7.8	0.060	7630381	<0.0050	7629014	0.031	0.0050	7630381
Pyrene	ug/g	78	78	0.080	7630381	<0.0050	7629014	0.078	0.0050	7630381
Surrogate Recovery (%)										
D10-Anthracene	%	-	-	90	7630381	82	7629014	85		7630381
D14-Terphenyl (FS)	%	-	-	89	7630381	78	7629014	84		7630381
D8-Acenaphthylene	%	-	-	78	7630381	67	7629014	73		7630381
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil										

BUREAU
VERITAS

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

O.REG 153 PAHS (SOIL)

Bureau Veritas ID				QWE098		QWE102		
Sampling Date				2021/09/30		2021/09/30		
COC Number				C#763132-01-01		C#763132-01-01		
	UNITS	Criteria	Criteria-2	TP25 SA1	QC Batch	DUP02	RDL	QC Batch
Inorganics								
Moisture	%	-	-	21	7624061	21	1.0	7624061
Calculated Parameters								
Methylnaphthalene, 2-(1-)	ug/g	-	3.4	0.24	7623708	0.24	0.0071	7623708
Polyaromatic Hydrocarbons								
Acenaphthene	ug/g	29	58	0.0056	7630381	<0.0050	0.0050	7629014
Acenaphthylene	ug/g	0.17	0.17	0.017	7630381	0.016	0.0050	7629014
Anthracene	ug/g	0.74	0.74	0.027	7630381	0.025	0.0050	7629014
Benzo(a)anthracene	ug/g	0.63	0.63	0.10	7630381	0.092	0.0050	7629014
Benzo(a)pyrene	ug/g	0.3	0.3	0.10	7630381	0.092	0.0050	7629014
Benzo(b/j)fluoranthene	ug/g	0.78	0.78	0.17	7630381	0.15	0.0050	7629014
Benzo(g,h,i)perylene	ug/g	7.8	7.8	0.080	7630381	0.072	0.0050	7629014
Benzo(k)fluoranthene	ug/g	0.78	0.78	0.054	7630381	0.053	0.0050	7629014
Chrysene	ug/g	7.8	7.8	0.10	7630381	0.090	0.0050	7629014
Dibenzo(a,h)anthracene	ug/g	0.1	0.1	0.021	7630381	0.022	0.0050	7629014
Fluoranthene	ug/g	0.69	0.69	0.18	7630381	0.16	0.0050	7629014
Fluorene	ug/g	69	69	0.0066	7630381	<0.0050	0.0050	7629014
Indeno(1,2,3-cd)pyrene	ug/g	0.48	0.48	0.080	7630381	0.069	0.0050	7629014
1-Methylnaphthalene	ug/g	3.4	3.4	0.12	7630381	0.12	0.0050	7629014
2-Methylnaphthalene	ug/g	3.4	3.4	0.12	7630381	0.12	0.0050	7629014
Naphthalene	ug/g	0.75	0.75	0.061	7630381	0.063	0.0050	7629014
Phenanthrene	ug/g	7.8	7.8	0.14	7630381	0.13	0.0050	7629014
Pyrene	ug/g	78	78	0.15	7630381	0.14	0.0050	7629014
Surrogate Recovery (%)								
D10-Anthracene	%	-	-	88	7630381	85		7629014
D14-Terphenyl (FS)	%	-	-	93	7630381	83		7629014
D8-Acenaphthylene	%	-	-	82	7630381	70		7629014
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)								
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition								
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil								
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)								
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition								
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil								

BUREAU
VERITAS

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

O.REG 153 VOCs BY HS & F1-F4 (SOIL)

Bureau Veritas ID				QWE099	QWE100	QWE101		
Sampling Date				2021/09/30	2021/09/30	2021/09/30		
COC Number				C#763132-01-01	C#763132-01-01	C#763132-01-01		
	UNITS	Criteria	Criteria-2	TP26 SA2	TP27 SA3	DUP01	RDL	QC Batch
Inorganics								
Moisture	%	-	-	14	13	17	1.0	7624061
Calculated Parameters								
1,3-Dichloropropene (cis+trans)	ug/g	0.081	0.083	<0.050	<0.050	<0.050	0.050	7623710
Volatile Organics								
Acetone (2-Propanone)	ug/g	28	28	<0.49	<0.49	<0.49	0.49	7629293
Benzene	ug/g	0.17	0.17	<0.0060	<0.0060	<0.0060	0.0060	7629293
Bromodichloromethane	ug/g	1.9	13	<0.040	<0.040	<0.040	0.040	7629293
Bromoform	ug/g	0.26	0.26	<0.040	<0.040	<0.040	0.040	7629293
Bromomethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	7629293
Carbon Tetrachloride	ug/g	0.12	0.12	<0.040	<0.040	<0.040	0.040	7629293
Chlorobenzene	ug/g	2.7	2.7	<0.040	<0.040	<0.040	0.040	7629293
Chloroform	ug/g	0.17	0.17	<0.040	<0.040	<0.040	0.040	7629293
Dibromochloromethane	ug/g	2.9	9.4	<0.040	<0.040	<0.040	0.040	7629293
1,2-Dichlorobenzene	ug/g	1.7	4.3	<0.040	<0.040	<0.040	0.040	7629293
1,3-Dichlorobenzene	ug/g	6	6	<0.040	<0.040	<0.040	0.040	7629293
1,4-Dichlorobenzene	ug/g	0.097	0.097	<0.040	<0.040	<0.040	0.040	7629293
Dichlorodifluoromethane (FREON 12)	ug/g	25	25	<0.040	<0.040	<0.040	0.040	7629293
1,1-Dichloroethane	ug/g	0.6	11	<0.040	<0.040	<0.040	0.040	7629293
1,2-Dichloroethane	ug/g	0.05	0.05	<0.049	<0.049	<0.049	0.049	7629293
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	7629293
cis-1,2-Dichloroethylene	ug/g	2.5	30	<0.040	<0.040	<0.040	0.040	7629293
trans-1,2-Dichloroethylene	ug/g	0.75	0.75	<0.040	<0.040	<0.040	0.040	7629293
1,2-Dichloropropane	ug/g	0.085	0.085	<0.040	<0.040	<0.040	0.040	7629293
cis-1,3-Dichloropropene	ug/g	0.081	0.083	<0.030	<0.030	<0.030	0.030	7629293
trans-1,3-Dichloropropene	ug/g	0.081	0.083	<0.040	<0.040	<0.040	0.040	7629293
Ethylbenzene	ug/g	1.6	15	<0.010	<0.010	<0.010	0.010	7629293
Ethylene Dibromide	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	7629293
Hexane	ug/g	34	34	<0.040	<0.040	<0.040	0.040	7629293
Methylene Chloride(Dichloromethane)	ug/g	0.96	0.96	<0.049	<0.049	<0.049	0.049	7629293
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)								
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition								
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil								
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)								
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition								
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil								

BUREAU
VERITAS

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

O.REG 153 VOCs BY HS & F1-F4 (SOIL)

Bureau Veritas ID				QWE099	QWE100	QWE101		
Sampling Date				2021/09/30	2021/09/30	2021/09/30		
COC Number				C#763132-01-01	C#763132-01-01	C#763132-01-01		
	UNITS	Criteria	Criteria-2	TP26 SA2	TP27 SA3	DUP01	RDL	QC Batch
Methyl Ethyl Ketone (2-Butanone)	ug/g	44	44	<0.40	<0.40	<0.40	0.40	7629293
Methyl Isobutyl Ketone	ug/g	4.3	4.3	<0.40	<0.40	<0.40	0.40	7629293
Methyl t-butyl ether (MTBE)	ug/g	1.4	1.4	<0.040	<0.040	<0.040	0.040	7629293
Styrene	ug/g	2.2	2.2	<0.040	<0.040	<0.040	0.040	7629293
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	7629293
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	7629293
Tetrachloroethylene	ug/g	2.3	2.3	<0.040	<0.040	<0.040	0.040	7629293
Toluene	ug/g	6	6	<0.020	<0.020	<0.020	0.020	7629293
1,1,1-Trichloroethane	ug/g	3.4	3.4	<0.040	<0.040	<0.040	0.040	7629293
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	7629293
Trichloroethylene	ug/g	0.52	0.52	<0.010	<0.010	<0.010	0.010	7629293
Trichlorofluoromethane (FREON 11)	ug/g	5.8	5.8	<0.040	<0.040	<0.040	0.040	7629293
Vinyl Chloride	ug/g	0.022	0.022	<0.019	<0.019	<0.019	0.019	7629293
p+m-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	0.020	7629293
o-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	0.020	7629293
Total Xylenes	ug/g	25	25	<0.020	<0.020	<0.020	0.020	7629293
F1 (C6-C10)	ug/g	65	65	<10	<10	<10	10	7629293
F1 (C6-C10) - BTEX	ug/g	65	65	<10	<10	<10	10	7629293
F2-F4 Hydrocarbons								
F2 (C10-C16 Hydrocarbons)	ug/g	150	150	<10	<10	<10	10	7627406
F3 (C16-C34 Hydrocarbons)	ug/g	1300	1300	<50	<50	<50	50	7627406
F4 (C34-C50 Hydrocarbons)	ug/g	5600	5600	<50	<50	<50	50	7627406
Reached Baseline at C50	ug/g	-	-	Yes	Yes	Yes		7627406
Surrogate Recovery (%)								
o-Terphenyl	%	-	-	100	102	97		7627406
4-Bromofluorobenzene	%	-	-	97	97	96		7629293
D10-o-Xylene	%	-	-	94	88	89		7629293
D4-1,2-Dichloroethane	%	-	-	112	113	114		7629293
D8-Toluene	%	-	-	97	97	96		7629293
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)								
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition								
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil								
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)								
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition								
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil								



BUREAU
VERITAS

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		QWE100	
Sampling Date		2021/09/30	
COC Number		C#763132-01-01	
	UNITS	TP27 SA3	QC Batch
Inorganics			
Available (CaCl2) pH	pH	7.97	7627456
QC Batch = Quality Control Batch			



**BUREAU
VERITAS**

Bureau Veritas Job #: C1T0736
Report Date: 2022/10/11

exp Services Inc
Client Project #: LON-21016021-A0
Site Location: WAREHOUSE SR,ST.THOMAS
Sampler Initials: KD

TEST SUMMARY

Bureau Veritas ID: QWE087
Sample ID: TP1 SA3
Matrix: Soil

Collected: 2021/09/27
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7623708	N/A	2021/10/13	Automated Statchk
Hot Water Extractable Boron	ICP	7628112	2021/10/08	2021/10/14	Suban Kanapathipplai
Free (WAD) Cyanide	TECH	7627438	2021/10/08	2021/10/13	Aditiben Patel
Conductivity	AT	7631220	2021/10/12	2021/10/12	Massarat Jan
Hexavalent Chromium in Soil by IC	IC/SPEC	7627471	2021/10/08	2021/10/12	Lusine Khachatryan
Acid Extractable Metals by ICPMS	ICP/MS	7629102	2021/10/09	2021/10/13	Viviana Canzonieri
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7630381	2021/10/12	2021/10/13	Mitesh Raj
pH CaCl2 EXTRACT	AT	7631314	2021/10/12	2021/10/12	Taslina Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	7623712	N/A	2021/10/13	Automated Statchk

Bureau Veritas ID: QWE088
Sample ID: TP3 SA1
Matrix: Soil

Collected: 2021/09/27
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7623708	N/A	2021/10/13	Automated Statchk
Hot Water Extractable Boron	ICP	7628112	2021/10/08	2021/10/14	Suban Kanapathipplai
Free (WAD) Cyanide	TECH	7626258	2021/10/08	2021/10/12	Nimarta Singh
Conductivity	AT	7631220	2021/10/12	2021/10/12	Massarat Jan
Hexavalent Chromium in Soil by IC	IC/SPEC	7626405	2021/10/08	2021/10/08	Lusine Khachatryan
Acid Extractable Metals by ICPMS	ICP/MS	7627906	2021/10/08	2021/10/12	Daniel Teclu
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7630381	2021/10/12	2021/10/13	Mitesh Raj
pH CaCl2 EXTRACT	AT	7626450	2021/10/08	2021/10/08	Taslina Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	7623712	N/A	2021/10/13	Automated Statchk

Bureau Veritas ID: QWE089
Sample ID: TP5 SA1
Matrix: Soil

Collected: 2021/09/27
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7623708	N/A	2021/10/12	Automated Statchk
Hot Water Extractable Boron	ICP	7628112	2021/10/08	2021/10/14	Suban Kanapathipplai
Free (WAD) Cyanide	TECH	7626258	2021/10/08	2021/10/08	Nimarta Singh
Conductivity	AT	7631220	2021/10/12	2021/10/12	Massarat Jan
Hexavalent Chromium in Soil by IC	IC/SPEC	7626405	2021/10/08	2021/10/08	Lusine Khachatryan
Acid Extractable Metals by ICPMS	ICP/MS	7627906	2021/10/08	2021/10/12	Daniel Teclu
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7629014	2021/10/09	2021/10/09	Jett Wu
pH CaCl2 EXTRACT	AT	7626450	2021/10/08	2021/10/08	Taslina Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	7623712	N/A	2021/10/13	Automated Statchk



**BUREAU
VERITAS**

Bureau Veritas Job #: C1T0736
Report Date: 2022/10/11

exp Services Inc
Client Project #: LON-21016021-A0
Site Location: WAREHOUSE SR,ST.THOMAS
Sampler Initials: KD

TEST SUMMARY

Bureau Veritas ID: QWE090
Sample ID: TP7 SA2
Matrix: Soil

Collected: 2021/09/27
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7623708	N/A	2021/10/12	Automated Statchk
Hot Water Extractable Boron	ICP	7629019	2021/10/09	2021/10/14	Medhat Nasr
Free (WAD) Cyanide	TECH	7627438	2021/10/08	2021/10/13	Aditiben Patel
Conductivity	AT	7630937	2021/10/12	2021/10/12	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	7627471	2021/10/08	2021/10/12	Lusine Khachatryan
Acid Extractable Metals by ICPMS	ICP/MS	7627906	2021/10/08	2021/10/12	Daniel Teclu
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7629014	2021/10/09	2021/10/09	Jett Wu
pH CaCl2 EXTRACT	AT	7627456	2021/10/08	2021/10/08	Taslina Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	7623712	N/A	2021/10/13	Automated Statchk

Bureau Veritas ID: QWE091
Sample ID: TP9 SA1
Matrix: Soil

Collected: 2021/09/27
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7623708	N/A	2021/10/12	Automated Statchk
Hot Water Extractable Boron	ICP	7628112	2021/10/08	2021/10/14	Suban Kanapathipplai
Free (WAD) Cyanide	TECH	7626258	2021/10/08	2021/10/12	Nimarta Singh
Conductivity	AT	7631220	2021/10/12	2021/10/12	Massarat Jan
Hexavalent Chromium in Soil by IC	IC/SPEC	7626405	2021/10/08	2021/10/08	Lusine Khachatryan
Acid Extractable Metals by ICPMS	ICP/MS	7627906	2021/10/08	2021/10/12	Daniel Teclu
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7629014	2021/10/09	2021/10/09	Jett Wu
pH CaCl2 EXTRACT	AT	7626450	2021/10/08	2021/10/08	Taslina Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	7623712	N/A	2021/10/13	Automated Statchk

Bureau Veritas ID: QWE092
Sample ID: TP11 SA1
Matrix: Soil

Collected: 2021/09/27
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7623708	N/A	2021/10/12	Automated Statchk
Hot Water Extractable Boron	ICP	7628112	2021/10/08	2021/10/14	Suban Kanapathipplai
Free (WAD) Cyanide	TECH	7627438	2021/10/08	2021/10/13	Aditiben Patel
Conductivity	AT	7631220	2021/10/12	2021/10/12	Massarat Jan
Hexavalent Chromium in Soil by IC	IC/SPEC	7627471	2021/10/08	2021/10/12	Lusine Khachatryan
Acid Extractable Metals by ICPMS	ICP/MS	7627906	2021/10/08	2021/10/12	Daniel Teclu
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7629014	2021/10/09	2021/10/09	Jett Wu
pH CaCl2 EXTRACT	AT	7627456	2021/10/08	2021/10/08	Taslina Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	7623712	N/A	2021/10/13	Automated Statchk



**BUREAU
VERITAS**

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

TEST SUMMARY

Bureau Veritas ID: QWE093
Sample ID: TP13 SA1
Matrix: Soil

Collected: 2021/09/27
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7623708	N/A	2021/10/12	Automated Statchk
Hot Water Extractable Boron	ICP	7628112	2021/10/08	2021/10/14	Suban Kanapathippilai
Free (WAD) Cyanide	TECH	7626258	2021/10/08	2021/10/08	Nimarta Singh
Conductivity	AT	7631220	2021/10/12	2021/10/12	Massarat Jan
Hexavalent Chromium in Soil by IC	IC/SPEC	7626405	2021/10/08	2021/10/08	Lusine Khachatryan
Acid Extractable Metals by ICPMS	ICP/MS	7627906	2021/10/08	2021/10/12	Daniel Teclu
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7629014	2021/10/09	2021/10/09	Jett Wu
pH CaCl2 EXTRACT	AT	7626450	2021/10/08	2021/10/08	Taslina Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	7623712	N/A	2021/10/13	Automated Statchk

Bureau Veritas ID: QWE094
Sample ID: TP15 SA1
Matrix: Soil

Collected: 2021/09/30
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7623708	N/A	2021/10/12	Automated Statchk
Hot Water Extractable Boron	ICP	7628112	2021/10/08	2021/10/14	Suban Kanapathippilai
Free (WAD) Cyanide	TECH	7630378	2021/10/12	2021/10/12	Aditiben Patel
Conductivity	AT	7630937	2021/10/12	2021/10/12	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	7627471	2021/10/08	2021/10/12	Lusine Khachatryan
Acid Extractable Metals by ICPMS	ICP/MS	7629102	2021/10/09	2021/10/13	Viviana Canzonieri
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7629014	2021/10/09	2021/10/09	Jett Wu
pH CaCl2 EXTRACT	AT	7631314	2021/10/12	2021/10/12	Taslina Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	7623712	N/A	2021/10/13	Automated Statchk

Bureau Veritas ID: QWE095
Sample ID: TP17 SA1
Matrix: Soil

Collected: 2021/09/30
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7623708	N/A	2021/10/13	Automated Statchk
Hot Water Extractable Boron	ICP	7629019	2021/10/09	2021/10/14	Medhat Nasr
Free (WAD) Cyanide	TECH	7627438	2021/10/08	2021/10/13	Aditiben Patel
Conductivity	AT	7631220	2021/10/12	2021/10/12	Massarat Jan
Hexavalent Chromium in Soil by IC	IC/SPEC	7627471	2021/10/08	2021/10/12	Lusine Khachatryan
Acid Extractable Metals by ICPMS	ICP/MS	7629102	2021/10/09	2021/10/13	Viviana Canzonieri
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7630381	2021/10/12	2021/10/13	Mitesh Raj
pH CaCl2 EXTRACT	AT	7627456	2021/10/08	2021/10/08	Taslina Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	7623712	N/A	2021/10/13	Automated Statchk



**BUREAU
VERITAS**

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

TEST SUMMARY

Bureau Veritas ID: QWE096
Sample ID: TP19 SA1
Matrix: Soil

Collected: 2021/09/30
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7623708	N/A	2021/10/12	Automated Statchk
Hot Water Extractable Boron	ICP	7629019	2021/10/09	2021/10/14	Medhat Nasr
Free (WAD) Cyanide	TECH	7630378	2021/10/12	2021/10/12	Aditiben Patel
Conductivity	AT	7630937	2021/10/12	2021/10/12	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	7627745	2021/10/08	2021/10/12	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	7629102	2021/10/09	2021/10/13	Viviana Canzonieri
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7629014	2021/10/09	2021/10/09	Jett Wu
pH CaCl2 EXTRACT	AT	7631314	2021/10/12	2021/10/12	Taslina Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	7623712	N/A	2021/10/13	Automated Statchk

Bureau Veritas ID: QWE096 Dup
Sample ID: TP19 SA1
Matrix: Soil

Collected: 2021/09/30
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	7630378	2021/10/12	2021/10/12	Aditiben Patel
pH CaCl2 EXTRACT	AT	7631314	2021/10/12	2021/10/12	Taslina Aktar

Bureau Veritas ID: QWE097
Sample ID: TP22 SA2
Matrix: Soil

Collected: 2021/09/30
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7623708	N/A	2021/10/13	Automated Statchk
Hot Water Extractable Boron	ICP	7629019	2021/10/09	2021/10/14	Medhat Nasr
Free (WAD) Cyanide	TECH	7627438	2021/10/08	2021/10/13	Aditiben Patel
Conductivity	AT	7630937	2021/10/12	2021/10/12	Neil Dassanayake
Hexavalent Chromium in Soil by IC	IC/SPEC	7627471	2021/10/08	2021/10/12	Lusine Khachatryan
Acid Extractable Metals by ICPMS	ICP/MS	7627906	2021/10/08	2021/10/12	Daniel Teclu
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7630381	2021/10/12	2021/10/13	Mitesh Raj
pH CaCl2 EXTRACT	AT	7631314	2021/10/12	2021/10/12	Taslina Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	7623712	N/A	2021/10/13	Automated Statchk

Bureau Veritas ID: QWE098
Sample ID: TP25 SA1
Matrix: Soil

Collected: 2021/09/30
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7623708	N/A	2021/10/13	Automated Statchk
Hot Water Extractable Boron	ICP	7629019	2021/10/09	2021/10/14	Medhat Nasr
Free (WAD) Cyanide	TECH	7627438	2021/10/08	2021/10/13	Aditiben Patel
Conductivity	AT	7630937	2021/10/12	2021/10/12	Neil Dassanayake



BUREAU
VERITAS

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

TEST SUMMARY

Bureau Veritas ID: QWE098
Sample ID: TP25 SA1
Matrix: Soil

Collected: 2021/09/30
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hexavalent Chromium in Soil by IC	IC/SPEC	7627471	2021/10/08	2021/10/12	Lusine Khachatryan
Acid Extractable Metals by ICPMS	ICP/MS	7629102	2021/10/09	2021/10/13	Viviana Canzonieri
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7630381	2021/10/12	2021/10/13	Mitesh Raj
pH CaCl2 EXTRACT	AT	7627456	2021/10/08	2021/10/08	Taslina Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	7623712	N/A	2021/10/13	Automated Statchk

Bureau Veritas ID: QWE099
Sample ID: TP26 SA2
Matrix: Soil

Collected: 2021/09/30
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7623710	N/A	2021/10/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7627406	2021/10/08	2021/10/09	Anna Stuglik-Rolland
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7629293	N/A	2021/10/12	Rebecca McClean

Bureau Veritas ID: QWE099 Dup
Sample ID: TP26 SA2
Matrix: Soil

Collected: 2021/09/30
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel

Bureau Veritas ID: QWE100
Sample ID: TP27 SA3
Matrix: Soil

Collected: 2021/09/30
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7623710	N/A	2021/10/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7627406	2021/10/08	2021/10/09	Anna Stuglik-Rolland
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
pH CaCl2 EXTRACT	AT	7627456	2021/10/08	2021/10/08	Taslina Aktar
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7629293	N/A	2021/10/12	Rebecca McClean

Bureau Veritas ID: QWE101
Sample ID: DUP01
Matrix: Soil

Collected: 2021/09/30
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7623710	N/A	2021/10/13	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7627406	2021/10/08	2021/10/09	Anna Stuglik-Rolland
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7629293	N/A	2021/10/12	Rebecca McClean



BUREAU
VERITAS

Bureau Veritas Job #: C1T0736
Report Date: 2022/10/11

exp Services Inc
Client Project #: LON-21016021-A0
Site Location: WAREHOUSE SR,ST.THOMAS
Sampler Initials: KD

TEST SUMMARY

Bureau Veritas ID: QWE102
Sample ID: DUP02
Matrix: Soil

Collected: 2021/09/30
Shipped:
Received: 2021/10/06

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	7623708	N/A	2021/10/12	Automated Statchk
Hot Water Extractable Boron	ICP	7628112	2021/10/08	2021/10/14	Suban Kanapathippilai
Free (WAD) Cyanide	TECH	7627438	2021/10/08	2021/10/13	Aditiben Patel
Conductivity	AT	7631220	2021/10/12	2021/10/12	Massarat Jan
Hexavalent Chromium in Soil by IC	IC/SPEC	7627471	2021/10/08	2021/10/12	Lusine Khachatryan
Acid Extractable Metals by ICPMS	ICP/MS	7627906	2021/10/08	2021/10/12	Daniel Teclu
Moisture	BAL	7624061	N/A	2021/10/07	Kruti Jitesh Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	7629014	2021/10/09	2021/10/09	Jett Wu
pH CaCl ₂ EXTRACT	AT	7627456	2021/10/08	2021/10/08	Taslina Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	7623712	N/A	2021/10/13	Automated Statchk



GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.0°C
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Revised report (2022/10/11): Includes amended Reg 153 criteria as requested.

Sample QWE093 [TP13 SA1] : PAH ANALYSIS: Due to the sample matrix, sample required dilution. Detection limits were adjusted accordingly.

Results relate only to the items tested.

BUREAU
VERITAS

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7627406	o-Terphenyl	2021/10/09	94	60 - 130	94	60 - 130	98	%		
7629014	D10-Anthracene	2021/10/09	89	50 - 130	93	50 - 130	93	%		
7629014	D14-Terphenyl (FS)	2021/10/09	87	50 - 130	85	50 - 130	82	%		
7629014	D8-Acenaphthylene	2021/10/09	84	50 - 130	88	50 - 130	82	%		
7629293	4-Bromofluorobenzene	2021/10/12	102	60 - 140	103	60 - 140	98	%		
7629293	D10-o-Xylene	2021/10/12	94	60 - 130	97	60 - 130	97	%		
7629293	D4-1,2-Dichloroethane	2021/10/12	116	60 - 140	116	60 - 140	113	%		
7629293	D8-Toluene	2021/10/12	99	60 - 140	100	60 - 140	97	%		
7630381	D10-Anthracene	2021/10/12	95	50 - 130	95	50 - 130	97	%		
7630381	D14-Terphenyl (FS)	2021/10/12	81	50 - 130	97	50 - 130	97	%		
7630381	D8-Acenaphthylene	2021/10/12	74	50 - 130	91	50 - 130	86	%		
7624061	Moisture	2021/10/07							0	20
7626258	WAD Cyanide (Free)	2021/10/08	91	75 - 125	97	80 - 120	<0.01	ug/g	NC	35
7626405	Chromium (VI)	2021/10/08	40 (1)	70 - 130	91 (2)	80 - 120	<0.18	ug/g	NC	35
7626450	Available (CaCl ₂) pH	2021/10/08			100	97 - 103			0.75	N/A
7627406	F2 (C10-C16 Hydrocarbons)	2021/10/09	106	60 - 130	102	80 - 120	<10	ug/g	NC	30
7627406	F3 (C16-C34 Hydrocarbons)	2021/10/09	104	60 - 130	101	80 - 120	<50	ug/g	NC	30
7627406	F4 (C34-C50 Hydrocarbons)	2021/10/09	109	60 - 130	105	80 - 120	<50	ug/g	NC	30
7627438	WAD Cyanide (Free)	2021/10/12	91	75 - 125	97	80 - 120	<0.01	ug/g	NC	35
7627456	Available (CaCl ₂) pH	2021/10/08			100	97 - 103			0.27	N/A
7627471	Chromium (VI)	2021/10/12	25 (2)	70 - 130	90	80 - 120	<0.18	ug/g	NC	35
7627745	Chromium (VI)	2021/10/12	173 (1)	70 - 130	91	80 - 120	<0.18	ug/g	NC	35
7627906	Acid Extractable Antimony (Sb)	2021/10/12	101	75 - 125	95	80 - 120	<0.20	ug/g	NC	30
7627906	Acid Extractable Arsenic (As)	2021/10/12	100	75 - 125	102	80 - 120	<1.0	ug/g	NC	30
7627906	Acid Extractable Barium (Ba)	2021/10/12	100	75 - 125	99	80 - 120	<0.50	ug/g	2.8	30
7627906	Acid Extractable Beryllium (Be)	2021/10/12	102	75 - 125	98	80 - 120	<0.20	ug/g	NC	30
7627906	Acid Extractable Boron (B)	2021/10/12	98	75 - 125	100	80 - 120	<5.0	ug/g	NC	30
7627906	Acid Extractable Cadmium (Cd)	2021/10/12	99	75 - 125	96	80 - 120	<0.10	ug/g	NC	30
7627906	Acid Extractable Chromium (Cr)	2021/10/12	98	75 - 125	97	80 - 120	<1.0	ug/g	1.7	30
7627906	Acid Extractable Cobalt (Co)	2021/10/12	99	75 - 125	97	80 - 120	<0.10	ug/g	0.57	30
7627906	Acid Extractable Copper (Cu)	2021/10/12	93	75 - 125	94	80 - 120	<0.50	ug/g	4.0	30

BUREAU
VERITAS

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7627906	Acid Extractable Lead (Pb)	2021/10/12	102	75 - 125	102	80 - 120	<1.0	ug/g	0.90	30
7627906	Acid Extractable Mercury (Hg)	2021/10/12	90	75 - 125	91	80 - 120	<0.050	ug/g	NC	30
7627906	Acid Extractable Molybdenum (Mo)	2021/10/12	99	75 - 125	97	80 - 120	<0.50	ug/g	NC	30
7627906	Acid Extractable Nickel (Ni)	2021/10/12	99	75 - 125	99	80 - 120	<0.50	ug/g	0.24	30
7627906	Acid Extractable Selenium (Se)	2021/10/12	102	75 - 125	102	80 - 120	<0.50	ug/g	NC	30
7627906	Acid Extractable Silver (Ag)	2021/10/12	101	75 - 125	98	80 - 120	<0.20	ug/g	NC	30
7627906	Acid Extractable Thallium (Tl)	2021/10/12	103	75 - 125	103	80 - 120	<0.050	ug/g	NC	30
7627906	Acid Extractable Uranium (U)	2021/10/12	104	75 - 125	103	80 - 120	<0.050	ug/g	4.5	30
7627906	Acid Extractable Vanadium (V)	2021/10/12	108	75 - 125	102	80 - 120	<5.0	ug/g	2.8	30
7627906	Acid Extractable Zinc (Zn)	2021/10/12	98	75 - 125	98	80 - 120	<5.0	ug/g	0.69	30
7628112	Hot Water Ext. Boron (B)	2021/10/14	97	75 - 125	97	75 - 125	<0.050	ug/g	NC	40
7629014	1-Methylnaphthalene	2021/10/09	100	50 - 130	101	50 - 130	<0.0050	ug/g	NC	40
7629014	2-Methylnaphthalene	2021/10/09	96	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
7629014	Acenaphthene	2021/10/09	92	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
7629014	Acenaphthylene	2021/10/09	87	50 - 130	89	50 - 130	<0.0050	ug/g	NC	40
7629014	Anthracene	2021/10/09	93	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
7629014	Benzo(a)anthracene	2021/10/09	96	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
7629014	Benzo(a)pyrene	2021/10/09	81	50 - 130	83	50 - 130	<0.0050	ug/g	NC	40
7629014	Benzo(b,j)fluoranthene	2021/10/09	90	50 - 130	90	50 - 130	<0.0050	ug/g	NC	40
7629014	Benzo(g,h,i)perylene	2021/10/09	95	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
7629014	Benzo(k)fluoranthene	2021/10/09	95	50 - 130	103	50 - 130	<0.0050	ug/g	NC	40
7629014	Chrysene	2021/10/09	95	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
7629014	Dibenzo(a,h)anthracene	2021/10/09	107	50 - 130	106	50 - 130	<0.0050	ug/g	NC	40
7629014	Fluoranthene	2021/10/09	95	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40
7629014	Fluorene	2021/10/09	94	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
7629014	Indeno(1,2,3-cd)pyrene	2021/10/09	92	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
7629014	Naphthalene	2021/10/09	86	50 - 130	88	50 - 130	<0.0050	ug/g	NC	40
7629014	Phenanthrene	2021/10/09	93	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
7629014	Pyrene	2021/10/09	96	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
7629019	Hot Water Ext. Boron (B)	2021/10/14	98	75 - 125	94	75 - 125	<0.050	ug/g	6.2	40
7629102	Acid Extractable Antimony (Sb)	2021/10/13	101	75 - 125	100	80 - 120	<0.20	ug/g	NC	30

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Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7629102	Acid Extractable Arsenic (As)	2021/10/13	106	75 - 125	106	80 - 120	<1.0	ug/g	NC	30
7629102	Acid Extractable Barium (Ba)	2021/10/13	87	75 - 125	104	80 - 120	<0.50	ug/g	20	30
7629102	Acid Extractable Beryllium (Be)	2021/10/13	102	75 - 125	103	80 - 120	<0.20	ug/g	NC	30
7629102	Acid Extractable Boron (B)	2021/10/13	96	75 - 125	102	80 - 120	<5.0	ug/g	NC	30
7629102	Acid Extractable Cadmium (Cd)	2021/10/13	100	75 - 125	97	80 - 120	<0.10	ug/g	NC	30
7629102	Acid Extractable Chromium (Cr)	2021/10/13	98	75 - 125	103	80 - 120	<1.0	ug/g	2.6	30
7629102	Acid Extractable Cobalt (Co)	2021/10/13	100	75 - 125	102	80 - 120	<0.10	ug/g	1.0	30
7629102	Acid Extractable Copper (Cu)	2021/10/13	97	75 - 125	100	80 - 120	<0.50	ug/g	10	30
7629102	Acid Extractable Lead (Pb)	2021/10/13	100	75 - 125	107	80 - 120	<1.0	ug/g	4.6	30
7629102	Acid Extractable Mercury (Hg)	2021/10/13	86	75 - 125	91	80 - 120	<0.050	ug/g	NC	30
7629102	Acid Extractable Molybdenum (Mo)	2021/10/13	103	75 - 125	99	80 - 120	<0.50	ug/g	NC	30
7629102	Acid Extractable Nickel (Ni)	2021/10/13	99	75 - 125	102	80 - 120	<0.50	ug/g	7.9	30
7629102	Acid Extractable Selenium (Se)	2021/10/13	105	75 - 125	105	80 - 120	<0.50	ug/g	NC	30
7629102	Acid Extractable Silver (Ag)	2021/10/13	103	75 - 125	106	80 - 120	<0.20	ug/g	NC	30
7629102	Acid Extractable Thallium (Tl)	2021/10/13	102	75 - 125	106	80 - 120	<0.050	ug/g	NC	30
7629102	Acid Extractable Uranium (U)	2021/10/13	103	75 - 125	107	80 - 120	<0.050	ug/g	9.7	30
7629102	Acid Extractable Vanadium (V)	2021/10/13	108	75 - 125	106	80 - 120	<5.0	ug/g	6.6	30
7629102	Acid Extractable Zinc (Zn)	2021/10/13	97	75 - 125	96	80 - 120	<5.0	ug/g	5.7	30
7629293	1,1,1,2-Tetrachloroethane	2021/10/12	98	60 - 140	101	60 - 130	<0.040	ug/g	NC	50
7629293	1,1,1-Trichloroethane	2021/10/12	109	60 - 140	110	60 - 130	<0.040	ug/g	NC	50
7629293	1,1,2,2-Tetrachloroethane	2021/10/12	91	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
7629293	1,1,2-Trichloroethane	2021/10/12	110	60 - 140	113	60 - 130	<0.040	ug/g	NC	50
7629293	1,1-Dichloroethane	2021/10/12	101	60 - 140	101	60 - 130	<0.040	ug/g	NC	50
7629293	1,1-Dichloroethylene	2021/10/12	110	60 - 140	110	60 - 130	<0.040	ug/g	NC	50
7629293	1,2-Dichlorobenzene	2021/10/12	99	60 - 140	100	60 - 130	<0.040	ug/g	NC	50
7629293	1,2-Dichloroethane	2021/10/12	113	60 - 140	113	60 - 130	<0.049	ug/g	NC	50
7629293	1,2-Dichloropropane	2021/10/12	104	60 - 140	103	60 - 130	<0.040	ug/g	NC	50
7629293	1,3-Dichlorobenzene	2021/10/12	95	60 - 140	96	60 - 130	<0.040	ug/g	NC	50
7629293	1,4-Dichlorobenzene	2021/10/12	112	60 - 140	113	60 - 130	<0.040	ug/g	NC	50
7629293	Acetone (2-Propanone)	2021/10/12	94	60 - 140	93	60 - 140	<0.49	ug/g	NC	50
7629293	Benzene	2021/10/12	93	60 - 140	92	60 - 130	<0.0060	ug/g	0.66	50

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QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7629293	Bromodichloromethane	2021/10/12	109	60 - 140	110	60 - 130	<0.040	ug/g	NC	50
7629293	Bromoform	2021/10/12	95	60 - 140	98	60 - 130	<0.040	ug/g	NC	50
7629293	Bromomethane	2021/10/12	95	60 - 140	86	60 - 140	<0.040	ug/g	NC	50
7629293	Carbon Tetrachloride	2021/10/12	110	60 - 140	111	60 - 130	<0.040	ug/g	NC	50
7629293	Chlorobenzene	2021/10/12	95	60 - 140	97	60 - 130	<0.040	ug/g	NC	50
7629293	Chloroform	2021/10/12	103	60 - 140	103	60 - 130	<0.040	ug/g	NC	50
7629293	cis-1,2-Dichloroethylene	2021/10/12	101	60 - 140	101	60 - 130	<0.040	ug/g	NC	50
7629293	cis-1,3-Dichloropropene	2021/10/12	98	60 - 140	85	60 - 130	<0.030	ug/g	NC	50
7629293	Dibromochloromethane	2021/10/12	96	60 - 140	98	60 - 130	<0.040	ug/g	NC	50
7629293	Dichlorodifluoromethane (FREON 12)	2021/10/12	98	60 - 140	105	60 - 140	<0.040	ug/g	NC	50
7629293	Ethylbenzene	2021/10/12	92	60 - 140	94	60 - 130	<0.010	ug/g	1.8	50
7629293	Ethylene Dibromide	2021/10/12	92	60 - 140	93	60 - 130	<0.040	ug/g	NC	50
7629293	F1 (C6-C10) - BTEX	2021/10/12					<10	ug/g	2.3	30
7629293	F1 (C6-C10)	2021/10/12	98	60 - 140	93	80 - 120	<10	ug/g	1.6	30
7629293	Hexane	2021/10/12	101	60 - 140	102	60 - 130	<0.040	ug/g	2.3	50
7629293	Methyl Ethyl Ketone (2-Butanone)	2021/10/12	82	60 - 140	82	60 - 140	<0.40	ug/g	NC	50
7629293	Methyl Isobutyl Ketone	2021/10/12	113	60 - 140	115	60 - 130	<0.40	ug/g	NC	50
7629293	Methyl t-butyl ether (MTBE)	2021/10/12	99	60 - 140	99	60 - 130	<0.040	ug/g	NC	50
7629293	Methylene Chloride(Dichloromethane)	2021/10/12	111	60 - 140	109	60 - 130	<0.049	ug/g	NC	50
7629293	o-Xylene	2021/10/12	90	60 - 140	92	60 - 130	<0.020	ug/g	2.1	50
7629293	p+m-Xylene	2021/10/12	97	60 - 140	98	60 - 130	<0.020	ug/g	1.1	50
7629293	Styrene	2021/10/12	99	60 - 140	101	60 - 130	<0.040	ug/g	NC (3)	50
7629293	Tetrachloroethylene	2021/10/12	91	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
7629293	Toluene	2021/10/12	91	60 - 140	92	60 - 130	<0.020	ug/g	1.3	50
7629293	Total Xylenes	2021/10/12					<0.020	ug/g	1.5	50
7629293	trans-1,2-Dichloroethylene	2021/10/12	98	60 - 140	97	60 - 130	<0.040	ug/g	NC	50
7629293	trans-1,3-Dichloropropene	2021/10/12	103	60 - 140	83	60 - 130	<0.040	ug/g	NC	50
7629293	Trichloroethylene	2021/10/12	106	60 - 140	106	60 - 130	<0.010	ug/g	NC	50
7629293	Trichlorofluoromethane (FREON 11)	2021/10/12	112	60 - 140	113	60 - 130	<0.040	ug/g	NC	50
7629293	Vinyl Chloride	2021/10/12	106	60 - 140	107	60 - 130	<0.019	ug/g	NC	50
7630378	WAD Cyanide (Free)	2021/10/12	100	75 - 125	100	80 - 120	<0.01	ug/g	NC	35



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QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7630381	1-Methylnaphthalene	2021/10/12	90	50 - 130	101	50 - 130	<0.0050	ug/g	NC	40
7630381	2-Methylnaphthalene	2021/10/12	91	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
7630381	Acenaphthene	2021/10/12	102	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40
7630381	Acenaphthylene	2021/10/12	104	50 - 130	92	50 - 130	<0.0050	ug/g	40	40
7630381	Anthracene	2021/10/12	123	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
7630381	Benzo(a)anthracene	2021/10/12	NC	50 - 130	101	50 - 130	<0.0050	ug/g	37	40
7630381	Benzo(a)pyrene	2021/10/12	NC	50 - 130	85	50 - 130	<0.0050	ug/g	37	40
7630381	Benzo(b/j)fluoranthene	2021/10/12	NC	50 - 130	97	50 - 130	<0.0050	ug/g	32	40
7630381	Benzo(g,h,i)perylene	2021/10/12	NC	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
7630381	Benzo(k)fluoranthene	2021/10/12	NC	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40
7630381	Chrysene	2021/10/12	NC	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
7630381	Dibenzo(a,h)anthracene	2021/10/12	115	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
7630381	Fluoranthene	2021/10/12	NC	50 - 130	101	50 - 130	<0.0050	ug/g	44 (1)	40
7630381	Fluorene	2021/10/12	102	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
7630381	Indeno(1,2,3-cd)pyrene	2021/10/12	NC	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
7630381	Naphthalene	2021/10/12	100	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
7630381	Phenanthrene	2021/10/12	NC	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
7630381	Pyrene	2021/10/12	NC	50 - 130	101	50 - 130	<0.0050	ug/g	38	40
7630937	Conductivity	2021/10/12			99	90 - 110	<0.002	mS/cm	0.58	10
7631220	Conductivity	2021/10/12			100	90 - 110	<0.002	mS/cm	0.60	10

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QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7631314	Available (CaCl ₂) pH	2021/10/12			100	97 - 103			2.5	N/A
N/A = Not Applicable Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement. Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference. Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy. Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination. Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency. NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration) NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$). (1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria. (2) The matrix spike recovery was below the lower control limit. This may be due in part to the reducing environment of the sample. The matrix spike was reanalyzed to confirm result. (3) The detection limit was raised due to interference from coeluting benzene.										



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Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



CHAIN OF CUSTODY RECORD

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Bureau Veritas Canada (2019) Inc.

BV # 418554

315/4



Bureau Veritas Laboratories
109 & 110, 4023 Meadowbrook Drive, London, Ontario Canada N6L 1E7 Tel: (519) 652-9444 Toll-free 800-563-6266 Fax: (519) 652-8189 www.bvlabs.com

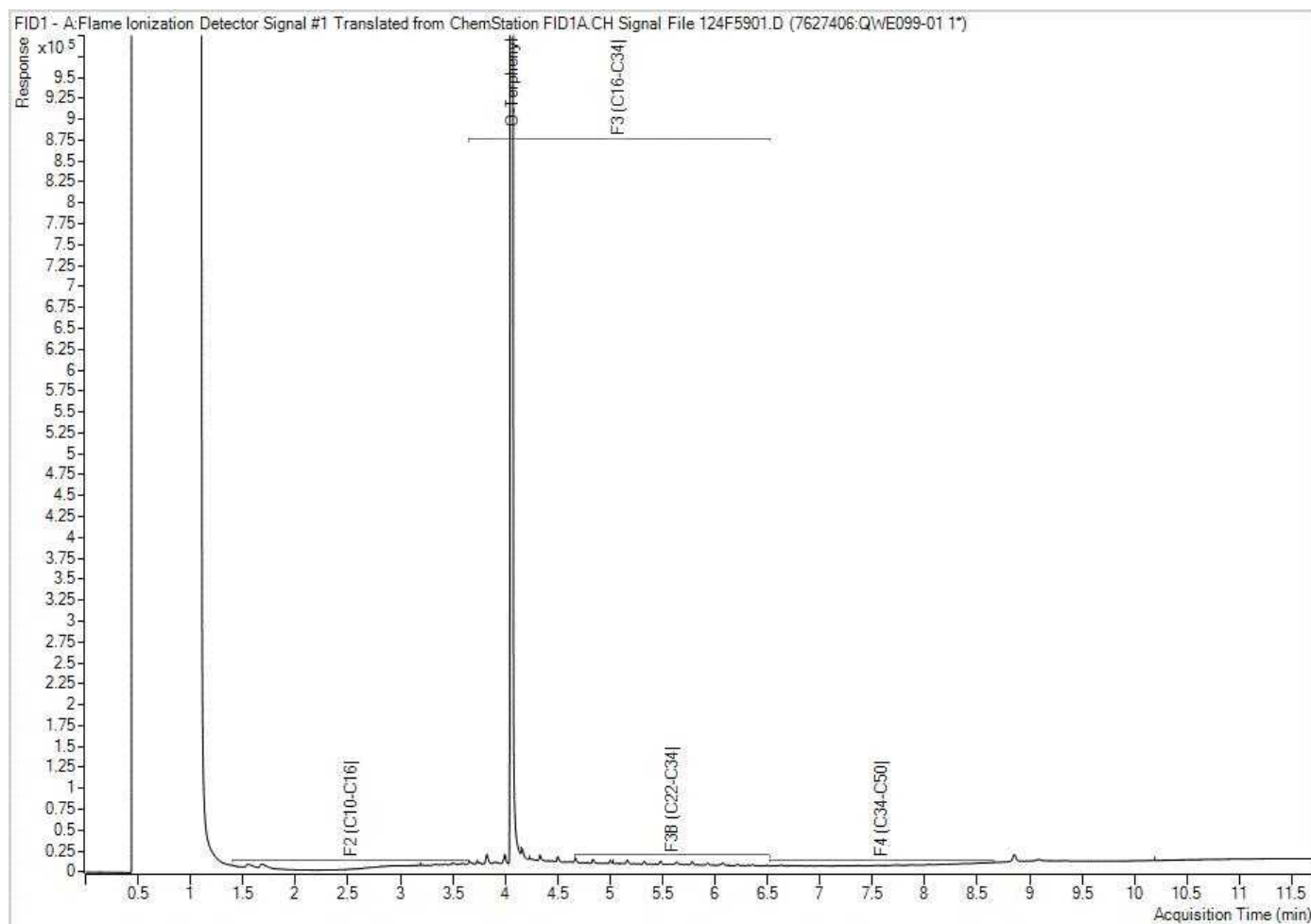
REC'D IN LONDON

CHAIN OF CUSTODY RECORD

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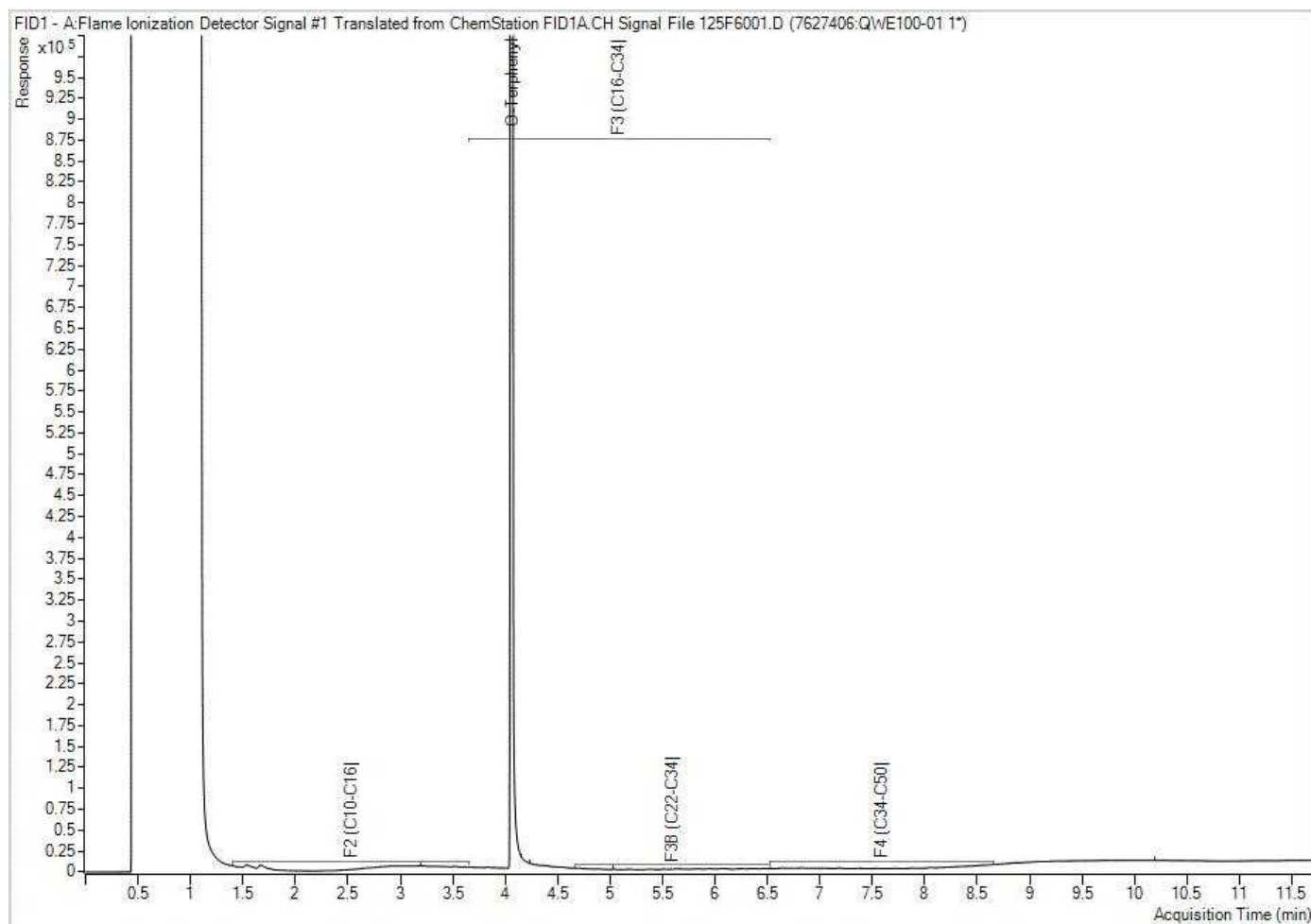
INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:															
Company Name: #28124 exp Services Inc	Company Name: Jenny Soudamors SCOT A212	Quotation #: B91718	BV Labs Job #:	Bottle Order #:																	
Attention: Accounts Payable	Attention: Jenny Soudamors SCOT A212	P.O. #:	763132		COC #:		Project Manager:														
Address: 15701 Robin's Hill Rd Unit 2	Address:	Project: LON-21016021-AD	WAREHOUSE ST, ST. THOMAS, ON		C#763132-01-01		Christine Gipton														
Tel: (519) 963-3000 Fax: (519) 963-1152	Tel: Jenny Soudamors@exp.com SCOT A212@exp.com	Site #:	Sampled by: Kevin Dehaan@exp.com / 1 KD																		
Email: AP@exp.com, karen.Burke@exp.com	Email: Jenny Soudamors@exp.com SCOT A212@exp.com																				
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BV LABS DRINKING WATER CHAIN OF CUSTODY				ANALYSIS REQUESTED (PLEASE BE SPECIFIC)																	
<table border="1"><thead><tr><th>Regulation 153 (2011)</th><th>Other Regulations</th><th>Special Instructions</th></tr></thead><tbody><tr><td>☐ Table 1 ☒ Res/Park ☐ Medium/Fine</td><td>☐ CCME ☐ Sanitary Sewer Bylaw</td><td rowspan="5"></td></tr><tr><td>☐ Table 2 ☐ Ind/Comm ☒ Coarse</td><td>☐ Reg 558 ☐ Storm Sewer Bylaw</td></tr><tr><td>☒ Table 3 ☐ Agri/Other ☒ For RSC</td><td>☐ MISA Municipality</td></tr><tr><td>☐ Table</td><td>☐ PWQO</td></tr><tr><td></td><td>☐ Other</td></tr></tbody></table>				Regulation 153 (2011)	Other Regulations	Special Instructions	☐ Table 1 ☒ Res/Park ☐ Medium/Fine	☐ CCME ☐ Sanitary Sewer Bylaw		☐ Table 2 ☐ Ind/Comm ☒ Coarse	☐ Reg 558 ☐ Storm Sewer Bylaw	☒ Table 3 ☐ Agri/Other ☒ For RSC	☐ MISA Municipality	☐ Table	☐ PWQO		☐ Other	Field Filtered (please circle): Metals / Hg / Cr / VI			
Regulation 153 (2011)	Other Regulations	Special Instructions																			
☐ Table 1 ☒ Res/Park ☐ Medium/Fine	☐ CCME ☐ Sanitary Sewer Bylaw																				
☐ Table 2 ☐ Ind/Comm ☒ Coarse	☐ Reg 558 ☐ Storm Sewer Bylaw																				
☒ Table 3 ☐ Agri/Other ☒ For RSC	☐ MISA Municipality																				
☐ Table	☐ PWQO																				
	☐ Other																				
Include Criteria on Certificate of Analysis (Y/N)? Y				Soil Corrosivity Package																	
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	London Table 1	Metals (including Hg, Cr, Pb, Ni, Cu, Zn, Fe, Mn, Al, K, Na, Ca, Mg, S, P, Cl, F, Br, I, B, Ba, Sr, Mo, V, Ti, Zr, Hf, Nb, Ta, Sn, Sb, Bi, As, Se, Te, Ge, Si, Ga, In, Tl, Pb, Bi, Po, At, Rn, Fr, Ac, Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, Lr)	PAHs	VOCS	PHCs (F1-F4)	PH	Heavy Metals										
1	TP22 SA2	30 Sept 2011	Am	Soil		X	X														
2	TP25 SA1		Pm			X	X														
3	TP26 SA2		Pm					X	X												
4	TP27 SA3		Pm					X	X	X											
5	DUP01							X	X												
6	DUP02					X	X														
7																					
8																					
9																					
10																					
* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only												
Kevin Dehaan		21/10/05	10:30	Jenny Soudamors		21/10/06	8:50		Time Sensitive	Temperature (°C) on Receipt	Custody Seal	Yes	No								
										3.2, 1	Present										
											Intact										
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BV LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVLABS.COM/TERMS-AND-CONDITIONS.								White: BV Labs Yellow: Client													
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.								SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LABS													
** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVLABS.COM/RESOURCES/CHAIN-OF-CUSTODY-FORMS.																					

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



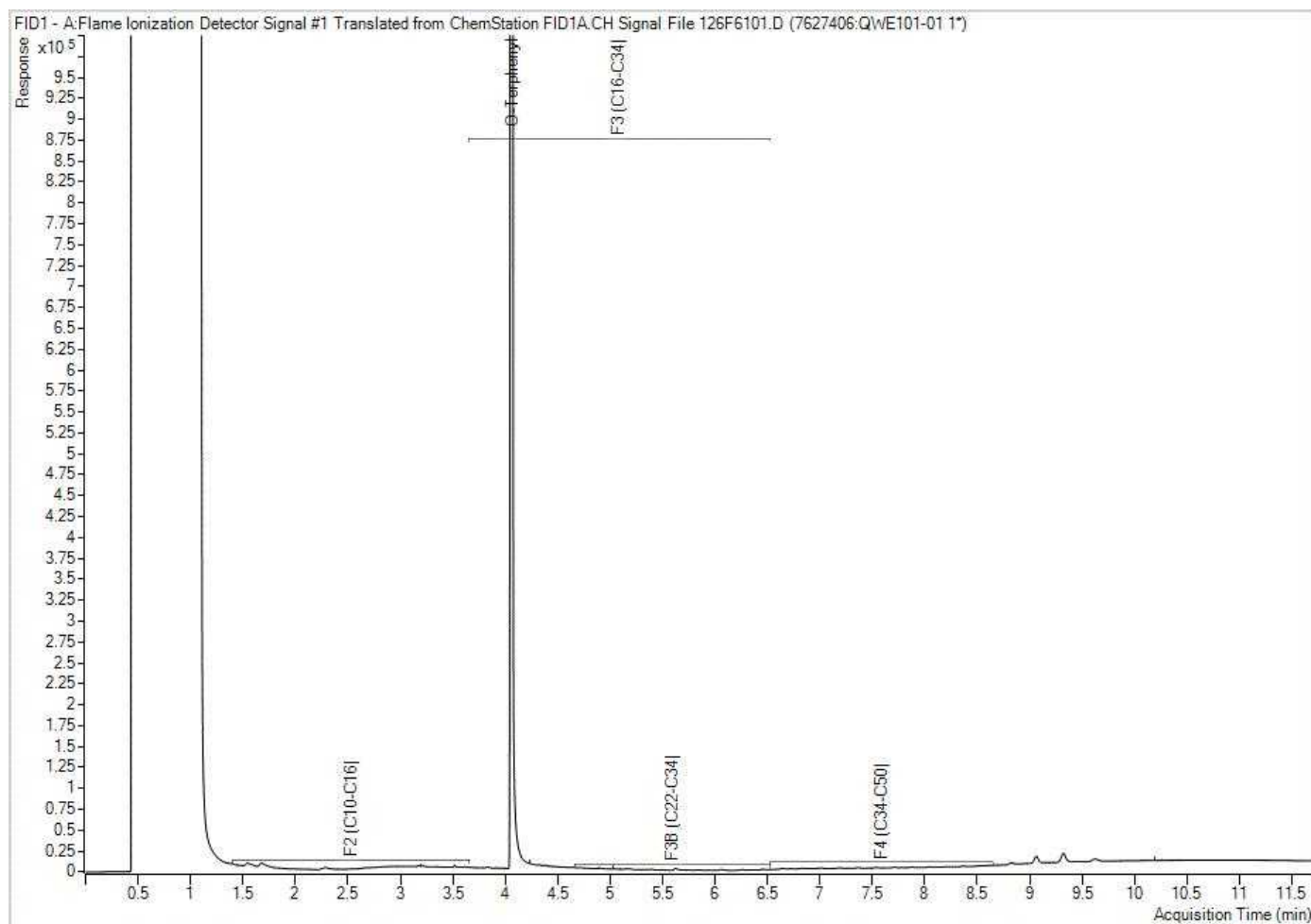
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



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Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



**BUREAU
VERITAS**

Bureau Veritas Job #: C1T0736

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021-A0

Site Location: WAREHOUSE SR,ST.THOMAS

Sampler Initials: KD

Exceedance Summary Table – Reg153/04 T2-Soil/Res-F/M
Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
TP1 SA3	QWE087-01	WAD Cyanide (Free)	0.051	0.14	0.01	ug/g
TP9 SA1	QWE091-01	Acid Extractable Lead (Pb)	120	270	1.0	ug/g
TP25 SA1	QWE098-01	Acid Extractable Arsenic (As)	18	25	1.0	ug/g
TP25 SA1	QWE098-01	Acid Extractable Lead (Pb)	120	800	1.0	ug/g
DUP02	QWE102-01	Acid Extractable Arsenic (As)	18	21	1.0	ug/g
DUP02	QWE102-01	Acid Extractable Lead (Pb)	120	650	1.0	ug/g

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Exceedance Summary Table – Reg153/04 T3-Soil/Res-F/M
Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
TP1 SA3	QWE087-01	WAD Cyanide (Free)	0.051	0.14	0.01	ug/g
TP9 SA1	QWE091-01	Acid Extractable Lead (Pb)	120	270	1.0	ug/g
TP25 SA1	QWE098-01	Acid Extractable Arsenic (As)	18	25	1.0	ug/g
TP25 SA1	QWE098-01	Acid Extractable Lead (Pb)	120	800	1.0	ug/g
DUP02	QWE102-01	Acid Extractable Arsenic (As)	18	21	1.0	ug/g
DUP02	QWE102-01	Acid Extractable Lead (Pb)	120	650	1.0	ug/g

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.



Appendix E:
Laboratory Certificate of Analysis Sheets – Groundwater



Your Project #: LON-21016021
Site Location: WAREHOUSE ST, ST. THOMAS
Your C.O.C. #: 850441-01-01

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/11
Report #: R7336445
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C1T7677

Received: 2021/10/13, 14:44

Sample Matrix: Water
Samples Received: 7

Analyses	Date		Date		Laboratory Method	Analytical Method
	Quantity	Extracted	Analyzed			
1,3-Dichloropropene Sum	7	N/A	2021/10/19			EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Water (1)	5	2021/10/18	2021/10/19	CAM SOP-00316		CCME PHC-CWS m
Volatile Organic Compounds and F1 PHCs	5	N/A	2021/10/18	CAM SOP-00230		EPA 8260C m
Volatile Organic Compounds in Water	2	N/A	2021/10/18	CAM SOP-00228		EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.



Your Project #: LON-21016021
Site Location: WAREHOUSE ST,ST.THOMAS
Your C.O.C. #: 850441-01-01

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/11
Report #: R7336445
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C1T7677

Received: 2021/10/13, 14:44

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Christine Gipton, Senior Project Manager
Email: Christine.Gipton@bureauveritas.com
Phone# (519)652-9444

=====

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



BUREAU
VERITAS

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: MD

O.REG 153 VOCs BY HS & F1-F4 (WATER)

Bureau Veritas ID				QXQ507	QXQ508	QXQ509	QXQ510		
Sampling Date				2021/10/11	2021/10/11	2021/10/11	2021/10/11		
COC Number				850441-01-01	850441-01-01	850441-01-01	850441-01-01		
	UNITS	Criteria	Criteria-2	BH1/MW	BH2/MW	BH4/MW	BH6/MW	RDL	QC Batch
Calculated Parameters									
1,3-Dichloropropene (cis+trans)	ug/L	0.5	45	<0.50	<0.50	<0.50	<0.50	0.50	7636443
Volatile Organics									
Acetone (2-Propanone)	ug/L	2700	130000	<10	<10	<10	<10	10	7639694
Benzene	ug/L	5.0	430	<0.17	<0.17	<0.17	<0.17	0.17	7639694
Bromodichloromethane	ug/L	16.0	85000	<0.50	<0.50	<0.50	<0.50	0.50	7639694
Bromoform	ug/L	25.0	770	<1.0	<1.0	<1.0	<1.0	1.0	7639694
Bromomethane	ug/L	0.89	56	<0.50	<0.50	<0.50	<0.50	0.50	7639694
Carbon Tetrachloride	ug/L	5.0	8.4	<0.20	<0.20	<0.20	<0.20	0.20	7639694
Chlorobenzene	ug/L	30	630	<0.20	<0.20	<0.20	<0.20	0.20	7639694
Chloroform	ug/L	22	22	<0.20	<0.20	<0.20	<0.20	0.20	7639694
Dibromochloromethane	ug/L	25.0	82000	<0.50	<0.50	<0.50	<0.50	0.50	7639694
1,2-Dichlorobenzene	ug/L	3.0	9600	<0.50	<0.50	<0.50	<0.50	0.50	7639694
1,3-Dichlorobenzene	ug/L	59	9600	<0.50	<0.50	<0.50	<0.50	0.50	7639694
1,4-Dichlorobenzene	ug/L	1.0	67	<0.50	<0.50	<0.50	<0.50	0.50	7639694
Dichlorodifluoromethane (FREON 12)	ug/L	590	4400	<1.0	<1.0	<1.0	<1.0	1.0	7639694
1,1-Dichloroethane	ug/L	5	3100	<0.20	<0.20	<0.20	<0.20	0.20	7639694
1,2-Dichloroethane	ug/L	5	12	<0.50	<0.50	<0.50	<0.50	0.50	7639694
1,1-Dichloroethylene	ug/L	14	17	<0.20	<0.20	<0.20	<0.20	0.20	7639694
cis-1,2-Dichloroethylene	ug/L	17	17	<0.50	<0.50	<0.50	<0.50	0.50	7639694
trans-1,2-Dichloroethylene	ug/L	17	17	<0.50	<0.50	<0.50	<0.50	0.50	7639694
1,2-Dichloropropane	ug/L	5.0	140	<0.20	<0.20	<0.20	<0.20	0.20	7639694
cis-1,3-Dichloropropene	ug/L	0.5	45	<0.30	<0.30	<0.30	<0.30	0.30	7639694
trans-1,3-Dichloropropene	ug/L	0.5	45	<0.40	<0.40	<0.40	<0.40	0.40	7639694
Ethylbenzene	ug/L	2.4	2300	<0.20	<0.20	<0.20	<0.20	0.20	7639694
Ethylene Dibromide	ug/L	0.2	0.83	<0.20	<0.20	<0.20	<0.20	0.20	7639694
Hexane	ug/L	520	520	<1.0	<1.0	<1.0	<1.0	1.0	7639694
Methylene Chloride(Dichloromethane)	ug/L	50	5500	<2.0	<2.0	<2.0	<2.0	2.0	7639694
Methyl Ethyl Ketone (2-Butanone)	ug/L	1800	1500000	<10	<10	<10	<10	10	7639694
Methyl Isobutyl Ketone	ug/L	640	580000	<5.0	<5.0	<5.0	<5.0	5.0	7639694
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition									
Potable Ground Water- All Types of Property Uses - Medium and Fine Textured Soil									
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition									
Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soil									

BUREAU
VERITAS

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: MD

O.REG 153 VOCs BY HS & F1-F4 (WATER)

Bureau Veritas ID				QXQ507	QXQ508	QXQ509	QXQ510		
Sampling Date				2021/10/11	2021/10/11	2021/10/11	2021/10/11		
COC Number				850441-01-01	850441-01-01	850441-01-01	850441-01-01		
	UNITS	Criteria	Criteria-2	BH1/MW	BH2/MW	BH4/MW	BH6/MW	RDL	QC Batch
Methyl t-butyl ether (MTBE)	ug/L	15	1400	<0.50	<0.50	<0.50	<0.50	0.50	7639694
Styrene	ug/L	5.4	9100	<0.50	<0.50	<0.50	<0.50	0.50	7639694
1,1,1,2-Tetrachloroethane	ug/L	1.1	28	<0.50	<0.50	<0.50	<0.50	0.50	7639694
1,1,2,2-Tetrachloroethane	ug/L	1.0	15	<0.50	<0.50	<0.50	<0.50	0.50	7639694
Tetrachloroethylene	ug/L	17	17	<0.20	<0.20	<0.20	<0.20	0.20	7639694
Toluene	ug/L	24	18000	<0.20	<0.20	<0.20	<0.20	0.20	7639694
1,1,1-Trichloroethane	ug/L	200	6700	<0.20	<0.20	<0.20	<0.20	0.20	7639694
1,1,2-Trichloroethane	ug/L	5	30	<0.50	<0.50	<0.50	<0.50	0.50	7639694
Trichloroethylene	ug/L	5	17	<0.20	<0.20	<0.20	<0.20	0.20	7639694
Trichlorofluoromethane (FREON 11)	ug/L	150	2500	<0.50	<0.50	<0.50	<0.50	0.50	7639694
Vinyl Chloride	ug/L	1.7	1.7	<0.20	<0.20	<0.20	<0.20	0.20	7639694
p+m-Xylene	ug/L	-	-	<0.20	<0.20	<0.20	<0.20	0.20	7639694
o-Xylene	ug/L	-	-	<0.20	<0.20	<0.20	<0.20	0.20	7639694
Total Xylenes	ug/L	300	4200	<0.20	<0.20	<0.20	<0.20	0.20	7639694
F1 (C6-C10)	ug/L	750	750	<25	<25	<25	<25	25	7639694
F1 (C6-C10) - BTEX	ug/L	750	750	<25	<25	<25	<25	25	7639694
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/L	150	150	<100	<100	<100	<100	100	7642380
F3 (C16-C34 Hydrocarbons)	ug/L	500	500	<200	<200	<200	<200	200	7642380
F4 (C34-C50 Hydrocarbons)	ug/L	500	500	<200	<200	<200	<200	200	7642380
Reached Baseline at C50	ug/L	-	-	Yes	Yes	Yes	Yes		7642380
Surrogate Recovery (%)									
o-Terphenyl	%	-	-	96	92	92	92		7642380
4-Bromofluorobenzene	%	-	-	84	87	83	88		7639694
D4-1,2-Dichloroethane	%	-	-	100	102	103	102		7639694
D8-Toluene	%	-	-	103	103	103	100		7639694
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Potable Ground Water- All Types of Property Uses - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soil									



BUREAU
VERITAS

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST, ST. THOMAS

Sampler Initials: MD

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID				QXQ511		
Sampling Date				2021/10/11		
COC Number				850441-01-01		
	UNITS	Criteria	Criteria-2	DUP-01	RDL	QC Batch
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/L	0.5	45	<0.50	0.50	7636443
Volatile Organics						
Acetone (2-Propanone)	ug/L	2700	130000	<10	10	7639694
Benzene	ug/L	5.0	430	<0.17	0.17	7639694
Bromodichloromethane	ug/L	16.0	85000	<0.50	0.50	7639694
Bromoform	ug/L	25.0	770	<1.0	1.0	7639694
Bromomethane	ug/L	0.89	56	<0.50	0.50	7639694
Carbon Tetrachloride	ug/L	5.0	8.4	<0.20	0.20	7639694
Chlorobenzene	ug/L	30	630	<0.20	0.20	7639694
Chloroform	ug/L	22	22	<0.20	0.20	7639694
Dibromochloromethane	ug/L	25.0	82000	<0.50	0.50	7639694
1,2-Dichlorobenzene	ug/L	3.0	9600	<0.50	0.50	7639694
1,3-Dichlorobenzene	ug/L	59	9600	<0.50	0.50	7639694
1,4-Dichlorobenzene	ug/L	1.0	67	<0.50	0.50	7639694
Dichlorodifluoromethane (FREON 12)	ug/L	590	4400	<1.0	1.0	7639694
1,1-Dichloroethane	ug/L	5	3100	<0.20	0.20	7639694
1,2-Dichloroethane	ug/L	5	12	<0.50	0.50	7639694
1,1-Dichloroethylene	ug/L	14	17	<0.20	0.20	7639694
cis-1,2-Dichloroethylene	ug/L	17	17	<0.50	0.50	7639694
trans-1,2-Dichloroethylene	ug/L	17	17	<0.50	0.50	7639694
1,2-Dichloropropane	ug/L	5.0	140	<0.20	0.20	7639694
cis-1,3-Dichloropropene	ug/L	0.5	45	<0.30	0.30	7639694
trans-1,3-Dichloropropene	ug/L	0.5	45	<0.40	0.40	7639694
Ethylbenzene	ug/L	2.4	2300	<0.20	0.20	7639694
Ethylene Dibromide	ug/L	0.2	0.83	<0.20	0.20	7639694
Hexane	ug/L	520	520	<1.0	1.0	7639694
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Potable Ground Water- All Types of Property Uses - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soil						



BUREAU
VERITAS

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: MD

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID				QXQ511		
Sampling Date				2021/10/11		
COC Number				850441-01-01		
	UNITS	Criteria	Criteria-2	DUP-01	RDL	QC Batch
Methylene Chloride(Dichloromethane)	ug/L	50	5500	<2.0	2.0	7639694
Methyl Ethyl Ketone (2-Butanone)	ug/L	1800	1500000	<10	10	7639694
Methyl Isobutyl Ketone	ug/L	640	580000	<5.0	5.0	7639694
Methyl t-butyl ether (MTBE)	ug/L	15	1400	<0.50	0.50	7639694
Styrene	ug/L	5.4	9100	<0.50	0.50	7639694
1,1,1,2-Tetrachloroethane	ug/L	1.1	28	<0.50	0.50	7639694
1,1,2,2-Tetrachloroethane	ug/L	1.0	15	<0.50	0.50	7639694
Tetrachloroethylene	ug/L	17	17	<0.20	0.20	7639694
Toluene	ug/L	24	18000	<0.20	0.20	7639694
1,1,1-Trichloroethane	ug/L	200	6700	<0.20	0.20	7639694
1,1,2-Trichloroethane	ug/L	5	30	<0.50	0.50	7639694
Trichloroethylene	ug/L	5	17	<0.20	0.20	7639694
Trichlorofluoromethane (FREON 11)	ug/L	150	2500	<0.50	0.50	7639694
Vinyl Chloride	ug/L	1.7	1.7	<0.20	0.20	7639694
p+m-Xylene	ug/L	-	-	<0.20	0.20	7639694
o-Xylene	ug/L	-	-	<0.20	0.20	7639694
Total Xylenes	ug/L	300	4200	<0.20	0.20	7639694
F1 (C6-C10)	ug/L	750	750	<25	25	7639694
F1 (C6-C10) - BTEX	ug/L	750	750	<25	25	7639694
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/L	150	150	<100	100	7642380
F3 (C16-C34 Hydrocarbons)	ug/L	500	500	<200	200	7642380
F4 (C34-C50 Hydrocarbons)	ug/L	500	500	<200	200	7642380
Reached Baseline at C50	ug/L	-	-	Yes		7642380
Surrogate Recovery (%)						
o-Terphenyl	%	-	-	92		7642380
4-Bromofluorobenzene	%	-	-	87		7639694
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Potable Ground Water- All Types of Property Uses - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soil						



**BUREAU
VERITAS**

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: MD

O.REG 153 VOCS BY HS & F1-F4 (WATER)

Bureau Veritas ID				QXQ511		
Sampling Date				2021/10/11		
COC Number				850441-01-01		
	UNITS	Criteria	Criteria-2	DUP-01	RDL	QC Batch
D4-1,2-Dichloroethane	%	-	-	101		7639694
D8-Toluene	%	-	-	101		7639694
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Potable Ground Water- All Types of Property Uses - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soil						

BUREAU
VERITAS

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: MD

O.REG 153 VOCs BY HS (WATER)

Bureau Veritas ID				QXQ512	QXQ513		
Sampling Date				2021/10/11	2021/10/11		
COC Number				850441-01-01	850441-01-01		
	UNITS	Criteria	Criteria-2	FIELD BLANK	TRIP BLANK	RDL	QC Batch
Calculated Parameters							
1,3-Dichloropropene (cis+trans)	ug/L	0.5	45	<0.50	<0.50	0.50	7636443
Volatile Organics							
Acetone (2-Propanone)	ug/L	2700	130000	<10	<10	10	7639109
Benzene	ug/L	5.0	430	<0.20	<0.20	0.20	7639109
Bromodichloromethane	ug/L	16.0	85000	<0.50	<0.50	0.50	7639109
Bromoform	ug/L	25.0	770	<1.0	<1.0	1.0	7639109
Bromomethane	ug/L	0.89	56	<0.50	<0.50	0.50	7639109
Carbon Tetrachloride	ug/L	5.0	8.4	<0.19	<0.19	0.19	7639109
Chlorobenzene	ug/L	30	630	<0.20	<0.20	0.20	7639109
Chloroform	ug/L	22	22	<0.20	<0.20	0.20	7639109
Dibromochloromethane	ug/L	25.0	82000	<0.50	<0.50	0.50	7639109
1,2-Dichlorobenzene	ug/L	3.0	9600	<0.40	<0.40	0.40	7639109
1,3-Dichlorobenzene	ug/L	59	9600	<0.40	<0.40	0.40	7639109
1,4-Dichlorobenzene	ug/L	1.0	67	<0.40	<0.40	0.40	7639109
Dichlorodifluoromethane (FREON 12)	ug/L	590	4400	<1.0	<1.0	1.0	7639109
1,1-Dichloroethane	ug/L	5	3100	<0.20	<0.20	0.20	7639109
1,2-Dichloroethane	ug/L	5	12	<0.49	<0.49	0.49	7639109
1,1-Dichloroethylene	ug/L	14	17	<0.20	<0.20	0.20	7639109
cis-1,2-Dichloroethylene	ug/L	17	17	<0.50	<0.50	0.50	7639109
trans-1,2-Dichloroethylene	ug/L	17	17	<0.50	<0.50	0.50	7639109
1,2-Dichloropropane	ug/L	5.0	140	<0.20	<0.20	0.20	7639109
cis-1,3-Dichloropropene	ug/L	0.5	45	<0.30	<0.30	0.30	7639109
trans-1,3-Dichloropropene	ug/L	0.5	45	<0.40	<0.40	0.40	7639109
Ethylbenzene	ug/L	2.4	2300	<0.20	<0.20	0.20	7639109
Ethylene Dibromide	ug/L	0.2	0.83	<0.19	<0.19	0.19	7639109
Hexane	ug/L	520	520	<1.0	<1.0	1.0	7639109
Methylene Chloride(Dichloromethane)	ug/L	50	5500	<2.0	<2.0	2.0	7639109
Methyl Ethyl Ketone (2-Butanone)	ug/L	1800	1500000	<10	<10	10	7639109
Methyl Isobutyl Ketone	ug/L	640	580000	<5.0	<5.0	5.0	7639109
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)							
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition							
Potable Ground Water- All Types of Property Uses - Medium and Fine Textured Soil							
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)							
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition							
Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soil							



O.REG 153 VOCs BY HS (WATER)

Bureau Veritas ID				QXQ512	QXQ513		
Sampling Date				2021/10/11	2021/10/11		
COC Number				850441-01-01	850441-01-01		
	UNITS	Criteria	Criteria-2	FIELD BLANK	TRIP BLANK	RDL	QC Batch
Methyl t-butyl ether (MTBE)	ug/L	15	1400	<0.50	<0.50	0.50	7639109
Styrene	ug/L	5.4	9100	<0.40	<0.40	0.40	7639109
1,1,1,2-Tetrachloroethane	ug/L	1.1	28	<0.50	<0.50	0.50	7639109
1,1,2,2-Tetrachloroethane	ug/L	1.0	15	<0.40	<0.40	0.40	7639109
Tetrachloroethylene	ug/L	17	17	<0.20	<0.20	0.20	7639109
Toluene	ug/L	24	18000	<0.20	<0.20	0.20	7639109
1,1,1-Trichloroethane	ug/L	200	6700	<0.20	<0.20	0.20	7639109
1,1,2-Trichloroethane	ug/L	5	30	<0.40	<0.40	0.40	7639109
Trichloroethylene	ug/L	5	17	<0.20	<0.20	0.20	7639109
Trichlorofluoromethane (FREON 11)	ug/L	150	2500	<0.50	<0.50	0.50	7639109
Vinyl Chloride	ug/L	1.7	1.7	<0.20	<0.20	0.20	7639109
p+m-Xylene	ug/L	-	-	<0.20	<0.20	0.20	7639109
o-Xylene	ug/L	-	-	<0.20	<0.20	0.20	7639109
Total Xylenes	ug/L	300	4200	<0.20	<0.20	0.20	7639109
Surrogate Recovery (%)							
4-Bromofluorobenzene	%	-	-	98	96		7639109
D4-1,2-Dichloroethane	%	-	-	103	104		7639109
D8-Toluene	%	-	-	100	99		7639109
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Potable Ground Water- All Types of Property Uses - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Non-Potable Ground Water - All Types of Property Uses - Medium and Fine Textured Soil							



**BUREAU
VERITAS**

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST, ST. THOMAS

Sampler Initials: MD

TEST SUMMARY

Bureau Veritas ID: QXQ507
Sample ID: BH1/MW
Matrix: Water

Collected: 2021/10/11
Shipped:
Received: 2021/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7636443	N/A	2021/10/19	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	7642380	2021/10/18	2021/10/19	Suleeqa Nurr
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7639694	N/A	2021/10/18	Xueming Jiang

Bureau Veritas ID: QXQ508
Sample ID: BH2/MW
Matrix: Water

Collected: 2021/10/11
Shipped:
Received: 2021/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7636443	N/A	2021/10/19	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	7642380	2021/10/18	2021/10/19	Suleeqa Nurr
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7639694	N/A	2021/10/18	Xueming Jiang

Bureau Veritas ID: QXQ509
Sample ID: BH4/MW
Matrix: Water

Collected: 2021/10/11
Shipped:
Received: 2021/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7636443	N/A	2021/10/19	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	7642380	2021/10/18	2021/10/19	Suleeqa Nurr
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7639694	N/A	2021/10/18	Xueming Jiang

Bureau Veritas ID: QXQ510
Sample ID: BH6/MW
Matrix: Water

Collected: 2021/10/11
Shipped:
Received: 2021/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7636443	N/A	2021/10/19	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	7642380	2021/10/18	2021/10/19	Suleeqa Nurr
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7639694	N/A	2021/10/18	Xueming Jiang

Bureau Veritas ID: QXQ511
Sample ID: DUP-01
Matrix: Water

Collected: 2021/10/11
Shipped:
Received: 2021/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7636443	N/A	2021/10/19	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Water	GC/FID	7642380	2021/10/18	2021/10/19	Suleeqa Nurr
Volatile Organic Compounds and F1 PHCs	GC/MSFD	7639694	N/A	2021/10/18	Xueming Jiang



BUREAU
VERITAS

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: MD

TEST SUMMARY

Bureau Veritas ID: QXQ512
Sample ID: FIELD BLANK
Matrix: Water

Collected: 2021/10/11
Shipped:
Received: 2021/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7636443	N/A	2021/10/19	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	7639109	N/A	2021/10/18	Dina Wang

Bureau Veritas ID: QXQ513
Sample ID: TRIP BLANK
Matrix: Water

Collected: 2021/10/11
Shipped:
Received: 2021/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	7636443	N/A	2021/10/19	Automated Statchk
Volatile Organic Compounds in Water	GC/MS	7639109	N/A	2021/10/18	Dina Wang



BUREAU
VERITAS

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: MD

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.3°C
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Revised report (2022/10/11): Includes amended Reg 153 criteria as requested.

Results relate only to the items tested.

BUREAU
VERITAS

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: MD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7639109	4-Bromofluorobenzene	2021/10/18	101	70 - 130	101	70 - 130	98	%		
7639109	D4-1,2-Dichloroethane	2021/10/18	106	70 - 130	99	70 - 130	102	%		
7639109	D8-Toluene	2021/10/18	99	70 - 130	99	70 - 130	97	%		
7639694	4-Bromofluorobenzene	2021/10/18	109	70 - 130	108	70 - 130	89	%		
7639694	D4-1,2-Dichloroethane	2021/10/18	101	70 - 130	101	70 - 130	98	%		
7639694	D8-Toluene	2021/10/18	98	70 - 130	98	70 - 130	101	%		
7642380	o-Terphenyl	2021/10/19	94	60 - 130	92	60 - 130	91	%		
7639109	1,1,1,2-Tetrachloroethane	2021/10/18	93	70 - 130	90	70 - 130	<0.50	ug/L	NC	30
7639109	1,1,1-Trichloroethane	2021/10/18	94	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
7639109	1,1,2,2-Tetrachloroethane	2021/10/18	96	70 - 130	88	70 - 130	<0.40	ug/L	NC	30
7639109	1,1,2-Trichloroethane	2021/10/18	103	70 - 130	94	70 - 130	<0.40	ug/L	NC	30
7639109	1,1-Dichloroethane	2021/10/18	90	70 - 130	88	70 - 130	<0.20	ug/L	NC	30
7639109	1,1-Dichloroethylene	2021/10/18	91	70 - 130	90	70 - 130	<0.20	ug/L	NC	30
7639109	1,2-Dichlorobenzene	2021/10/18	90	70 - 130	87	70 - 130	<0.40	ug/L	NC	30
7639109	1,2-Dichloroethane	2021/10/18	95	70 - 130	88	70 - 130	<0.49	ug/L	NC	30
7639109	1,2-Dichloropropane	2021/10/18	96	70 - 130	92	70 - 130	<0.20	ug/L	NC	30
7639109	1,3-Dichlorobenzene	2021/10/18	89	70 - 130	88	70 - 130	<0.40	ug/L	NC	30
7639109	1,4-Dichlorobenzene	2021/10/18	101	70 - 130	99	70 - 130	<0.40	ug/L	NC	30
7639109	Acetone (2-Propanone)	2021/10/18	98	60 - 140	88	60 - 140	<10	ug/L	NC	30
7639109	Benzene	2021/10/18	87	70 - 130	86	70 - 130	<0.20	ug/L	NC	30
7639109	Bromodichloromethane	2021/10/18	97	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
7639109	Bromoform	2021/10/18	95	70 - 130	89	70 - 130	<1.0	ug/L	NC	30
7639109	Bromomethane	2021/10/18	84	60 - 140	86	60 - 140	<0.50	ug/L	NC	30
7639109	Carbon Tetrachloride	2021/10/18	92	70 - 130	91	70 - 130	<0.19	ug/L	NC	30
7639109	Chlorobenzene	2021/10/18	91	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
7639109	Chloroform	2021/10/18	92	70 - 130	90	70 - 130	<0.20	ug/L	6.0	30
7639109	cis-1,2-Dichloroethylene	2021/10/18	95	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
7639109	cis-1,3-Dichloropropene	2021/10/18	100	70 - 130	89	70 - 130	<0.30	ug/L	NC	30
7639109	Dibromochloromethane	2021/10/18	93	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
7639109	Dichlorodifluoromethane (FREON 12)	2021/10/18	62	60 - 140	67	60 - 140	<1.0	ug/L	NC	30
7639109	Ethylbenzene	2021/10/18	86	70 - 130	84	70 - 130	<0.20	ug/L	NC	30

BUREAU
VERITAS

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: MD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7639109	Ethylene Dibromide	2021/10/18	92	70 - 130	87	70 - 130	<0.19	ug/L	NC	30
7639109	Hexane	2021/10/18	89	70 - 130	89	70 - 130	<1.0	ug/L	NC	30
7639109	Methyl Ethyl Ketone (2-Butanone)	2021/10/18	105	60 - 140	94	60 - 140	<10	ug/L	NC	30
7639109	Methyl Isobutyl Ketone	2021/10/18	103	70 - 130	92	70 - 130	<5.0	ug/L	NC	30
7639109	Methyl t-butyl ether (MTBE)	2021/10/18	88	70 - 130	86	70 - 130	<0.50	ug/L	NC	30
7639109	Methylene Chloride(Dichloromethane)	2021/10/18	88	70 - 130	86	70 - 130	<2.0	ug/L	NC	30
7639109	o-Xylene	2021/10/18	86	70 - 130	84	70 - 130	<0.20	ug/L	NC	30
7639109	p+m-Xylene	2021/10/18	88	70 - 130	87	70 - 130	<0.20	ug/L	NC	30
7639109	Styrene	2021/10/18	95	70 - 130	93	70 - 130	<0.40	ug/L	NC	30
7639109	Tetrachloroethylene	2021/10/18	84	70 - 130	84	70 - 130	<0.20	ug/L	0.31	30
7639109	Toluene	2021/10/18	88	70 - 130	86	70 - 130	<0.20	ug/L	NC	30
7639109	Total Xylenes	2021/10/18					<0.20	ug/L	NC	30
7639109	trans-1,2-Dichloroethylene	2021/10/18	92	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
7639109	trans-1,3-Dichloropropene	2021/10/18	106	70 - 130	90	70 - 130	<0.40	ug/L	NC	30
7639109	Trichloroethylene	2021/10/18	95	70 - 130	96	70 - 130	<0.20	ug/L	5.2	30
7639109	Trichlorofluoromethane (FREON 11)	2021/10/18	87	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
7639109	Vinyl Chloride	2021/10/18	83	70 - 130	85	70 - 130	<0.20	ug/L	NC	30
7639694	1,1,1,2-Tetrachloroethane	2021/10/18	93	70 - 130	95	70 - 130	<0.50	ug/L	NC	30
7639694	1,1,1-Trichloroethane	2021/10/18	102	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
7639694	1,1,2,2-Tetrachloroethane	2021/10/18	91	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
7639694	1,1,2-Trichloroethane	2021/10/18	95	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
7639694	1,1-Dichloroethane	2021/10/18	89	70 - 130	91	70 - 130	<0.20	ug/L	NC	30
7639694	1,1-Dichloroethylene	2021/10/18	93	70 - 130	97	70 - 130	<0.20	ug/L	NC	30
7639694	1,2-Dichlorobenzene	2021/10/18	96	70 - 130	97	70 - 130	<0.50	ug/L	NC	30
7639694	1,2-Dichloroethane	2021/10/18	91	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
7639694	1,2-Dichloropropane	2021/10/18	87	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
7639694	1,3-Dichlorobenzene	2021/10/18	102	70 - 130	103	70 - 130	<0.50	ug/L	NC	30
7639694	1,4-Dichlorobenzene	2021/10/18	101	70 - 130	101	70 - 130	<0.50	ug/L	NC	30
7639694	Acetone (2-Propanone)	2021/10/18	92	60 - 140	95	60 - 140	<10	ug/L	NC	30
7639694	Benzene	2021/10/18	87	70 - 130	89	70 - 130	<0.17	ug/L	NC	30
7639694	Bromodichloromethane	2021/10/18	96	70 - 130	98	70 - 130	<0.50	ug/L	NC	30

BUREAU
VERITAS

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: MD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7639694	Bromoform	2021/10/18	95	70 - 130	97	70 - 130	<1.0	ug/L	NC	30
7639694	Bromomethane	2021/10/18	95	60 - 140	98	60 - 140	<0.50	ug/L	NC	30
7639694	Carbon Tetrachloride	2021/10/18	97	70 - 130	99	70 - 130	<0.20	ug/L	NC	30
7639694	Chlorobenzene	2021/10/18	94	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
7639694	Chloroform	2021/10/18	95	70 - 130	96	70 - 130	<0.20	ug/L	NC	30
7639694	cis-1,2-Dichloroethylene	2021/10/18	95	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
7639694	cis-1,3-Dichloropropene	2021/10/18	89	70 - 130	86	70 - 130	<0.30	ug/L	NC	30
7639694	Dibromochloromethane	2021/10/18	92	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
7639694	Dichlorodifluoromethane (FREON 12)	2021/10/18	70	60 - 140	97	60 - 140	<1.0	ug/L	NC	30
7639694	Ethylbenzene	2021/10/18	86	70 - 130	87	70 - 130	<0.20	ug/L	NC	30
7639694	Ethylene Dibromide	2021/10/18	89	70 - 130	91	70 - 130	<0.20	ug/L	NC	30
7639694	F1 (C6-C10) - BTEX	2021/10/18					<25	ug/L	NC	30
7639694	F1 (C6-C10)	2021/10/18	97	60 - 140	99	60 - 140	<25	ug/L	NC	30
7639694	Hexane	2021/10/18	89	70 - 130	93	70 - 130	<1.0	ug/L	NC	30
7639694	Methyl Ethyl Ketone (2-Butanone)	2021/10/18	90	60 - 140	93	60 - 140	<10	ug/L	NC	30
7639694	Methyl Isobutyl Ketone	2021/10/18	88	70 - 130	91	70 - 130	<5.0	ug/L	NC	30
7639694	Methyl t-butyl ether (MTBE)	2021/10/18	86	70 - 130	88	70 - 130	<0.50	ug/L	NC	30
7639694	Methylene Chloride(Dichloromethane)	2021/10/18	95	70 - 130	96	70 - 130	<2.0	ug/L	NC	30
7639694	o-Xylene	2021/10/18	86	70 - 130	87	70 - 130	<0.20	ug/L	1.3	30
7639694	p+m-Xylene	2021/10/18	91	70 - 130	94	70 - 130	<0.20	ug/L	3.7	30
7639694	Styrene	2021/10/18	100	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
7639694	Tetrachloroethylene	2021/10/18	92	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
7639694	Toluene	2021/10/18	82	70 - 130	85	70 - 130	<0.20	ug/L	2.3	30
7639694	Total Xylenes	2021/10/18					<0.20	ug/L	1.9	30
7639694	trans-1,2-Dichloroethylene	2021/10/18	96	70 - 130	98	70 - 130	<0.50	ug/L	NC	30
7639694	trans-1,3-Dichloropropene	2021/10/18	95	70 - 130	91	70 - 130	<0.40	ug/L	NC	30
7639694	Trichloroethylene	2021/10/18	100	70 - 130	102	70 - 130	<0.20	ug/L	NC	30
7639694	Trichlorofluoromethane (FREON 11)	2021/10/18	98	70 - 130	102	70 - 130	<0.50	ug/L	NC	30
7639694	Vinyl Chloride	2021/10/18	84	70 - 130	93	70 - 130	<0.20	ug/L	NC	30
7642380	F2 (C10-C16 Hydrocarbons)	2021/10/19	101	60 - 130	99	60 - 130	<100	ug/L	NC	30
7642380	F3 (C16-C34 Hydrocarbons)	2021/10/19	105	60 - 130	102	60 - 130	<200	ug/L	5.3	30



BUREAU
VERITAS

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: MD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7642380	F4 (C34-C50 Hydrocarbons)	2021/10/19	114	60 - 130	109	60 - 130	<200	ug/L	24	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times$ RDL).



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VERITAS

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: MD

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Eva Pranjić

Ewa Pranjić, M.Sc., C.Chem, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



Bureau Veritas Laboratories
109 & 110, 4023 Meadowbrook Drive, London, Ontario Canada N6L 1E7 Tel: (519) 652-9444 Toll-free: 800-563-6266 Fax: (519) 652-8189 www.bvna.com

REC'D IN LONDON

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:			REPORT TO:			PROJECT INFORMATION:			Laboratory Use Only:		
Company Name: #28124 exp Services Inc			Company Name: Kevin DeHaan, Scott Aziz			Quotation #: B91718			BV Labs Job #:		
Attention: Accounts Payable			Attention: Kevin DeHaan, Scott Aziz			P.O. #:			Bottle Order #:		
Address: 15701 Robin's Hill Rd Unit 2			Address:			Project: LON-2101621-AP			COC #:		
London ON N5V 0A5			Tel:			Project Name: Warehouse St. St. Thomas			Project Manager:		
Tel: (519) 963-3000 Fax: (519) 963-1152			Tel:			Site #:			Christine Gipton		
Email: AP@exp.com, Karen.Burke@exp.com			Email: kevin.dehaan@exp.com, scott.aziz@exp.com			Sampled By: Michael Dwyer			C#850441-01-01		
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BV LABS DRINKING WATER CHAIN OF CUSTODY						ANALYSIS REQUESTED (PLEASE BE SPECIFIC)					
Regulation 153 (2011)			Other Regulations			Special Instructions			Turnaround Time (TAT) Required:		
☐ Table 1 ☒ Res/Park ☒ Medium/Fine			☐ CCME ☐ Sanitary Sewer Bylaw						Regular (Standard) TAT:		
☐ Table 2 ☐ Ind/Comm ☐ Coarse			☐ Reg 558 ☐ Storm Sewer Bylaw						(will be applied if Rush TAT is not specified):		
☒ Table 3 ☐ Agri/Other ☒ For RSC			☐ MISA Municipality						Standard TAT = 5-7 Working days for most tests.		
☐ Table			☐ PWDO ☐ Reg 405 Table						Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.		
			☐ Other						Job Specific Rush TAT (if applies to entire submission)		
Include Criteria on Certificate of Analysis (Y/N)? Y						Date Required: Time Required:					
						Rush Confirmation Number: (call lab for #)					
Sample Barcode Label						Sample (Location) Identification					
Date Sampled						Time Sampled					
Matrix											
Field Filtered (please circle):											
Metals / Hg / Cr / V											
O Reg 153 VOCs by HS & F1-F4											
1						X					
2						X					
3						X					
4						X					
5											
6											
7											
8											
9											
10											
RECEIVED BY: (Signature/Print)						Date: (YY/MM/DD)					
Time						Time					
# jars used and not submitted						Laboratory Use Only					
Time Sensitive						Temperature (°C) on Receipt					
Custody Seal Present						Yes					
Intact						No					
White: BV Labs						Yellow: Client					

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BV LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVLABS.COM/TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVLABS.COM/RESOURCES/CHAIN-OF-CUSTODY-FORMS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LABS

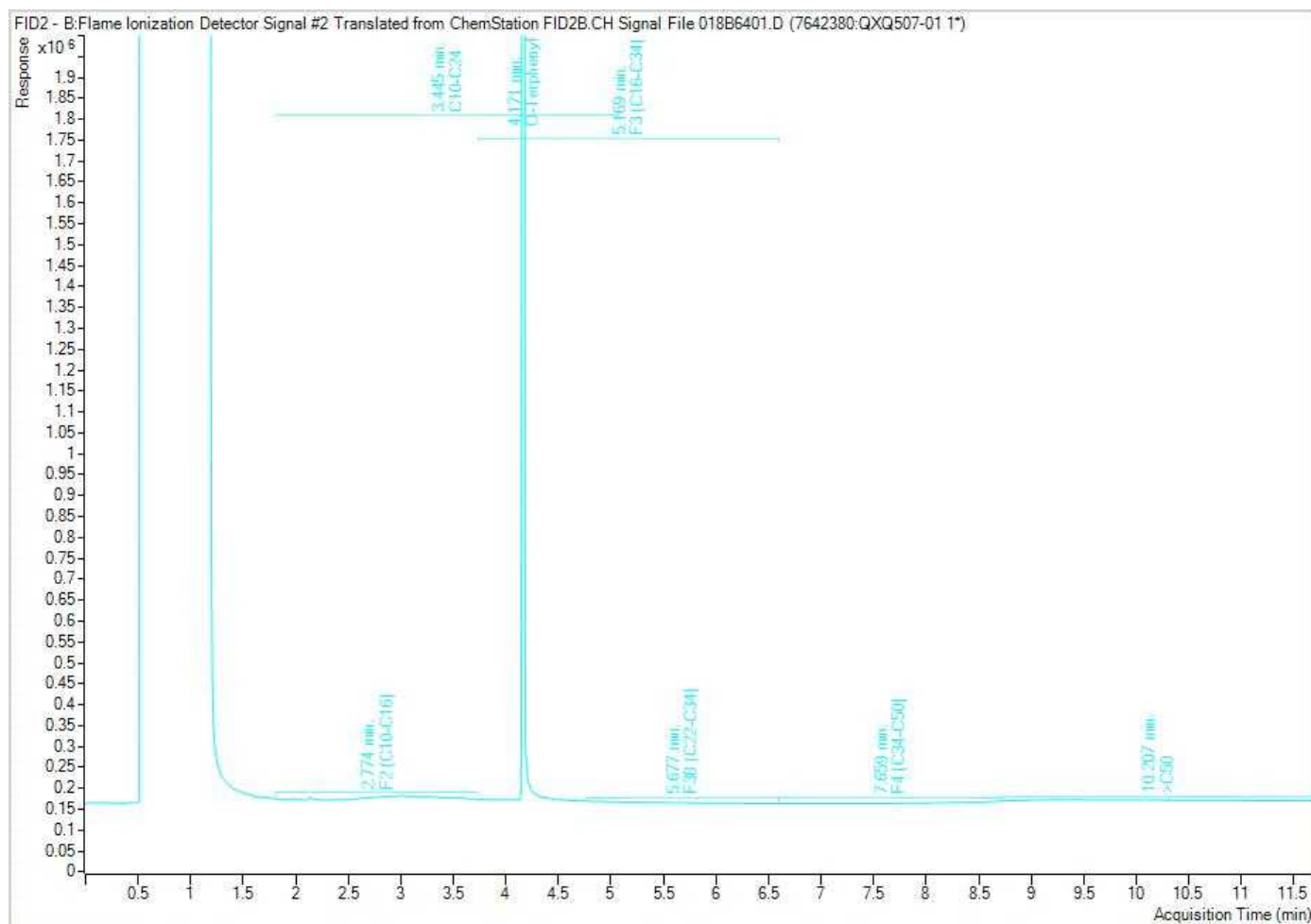
Bureau Veritas Canada (2019) Inc.

BV# 418559 8/19/10

Bureau Veritas Job #: C1T7677
Report Date: 2022/10/11
Bureau Veritas Sample: QXQ507

exp Services Inc
Client Project #: LON-21016021
Project name: WAREHOUSE ST,ST.THOMAS
Client ID: BH1/MW

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

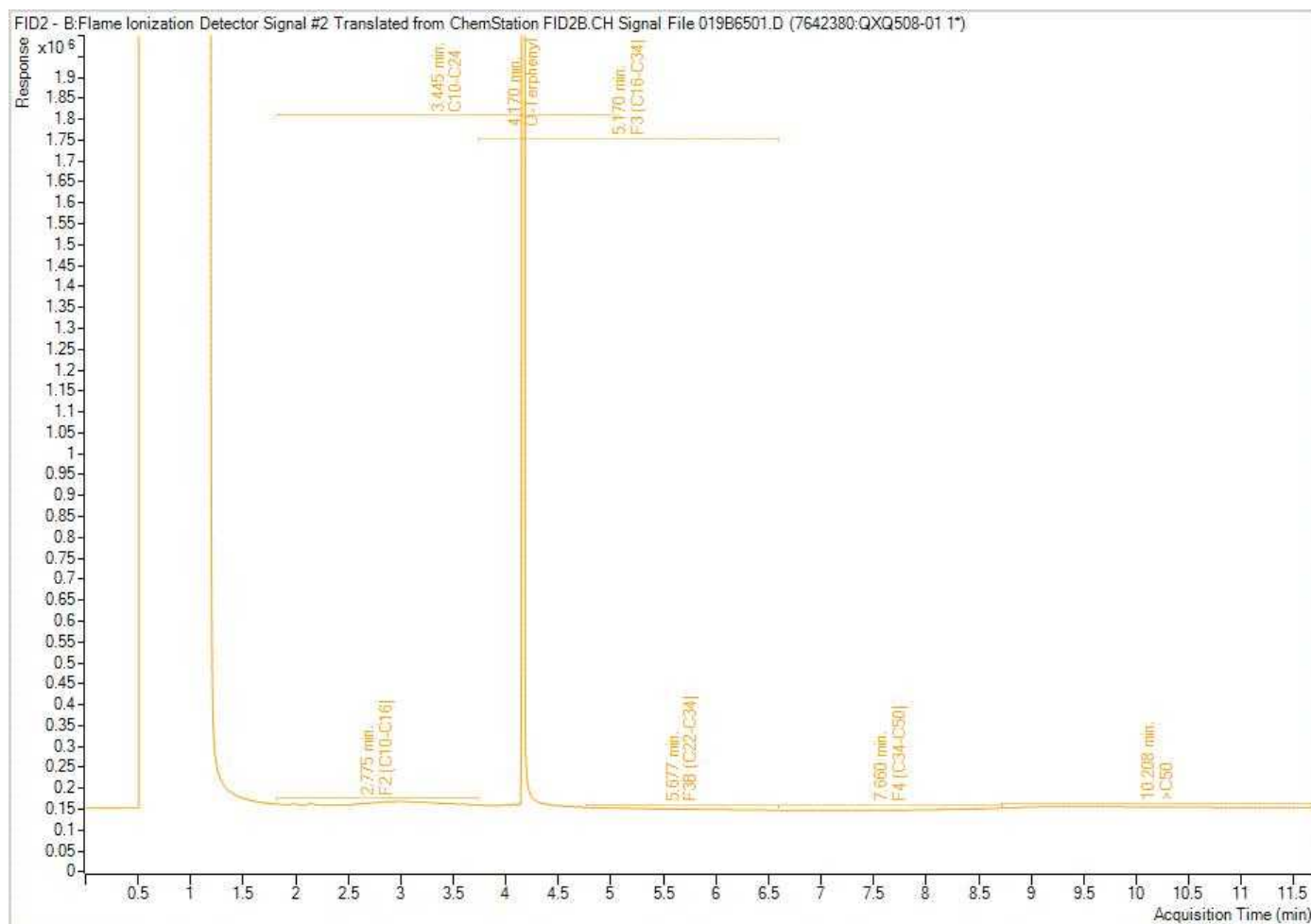


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C1T7677
Report Date: 2022/10/11
Bureau Veritas Sample: QXQ508

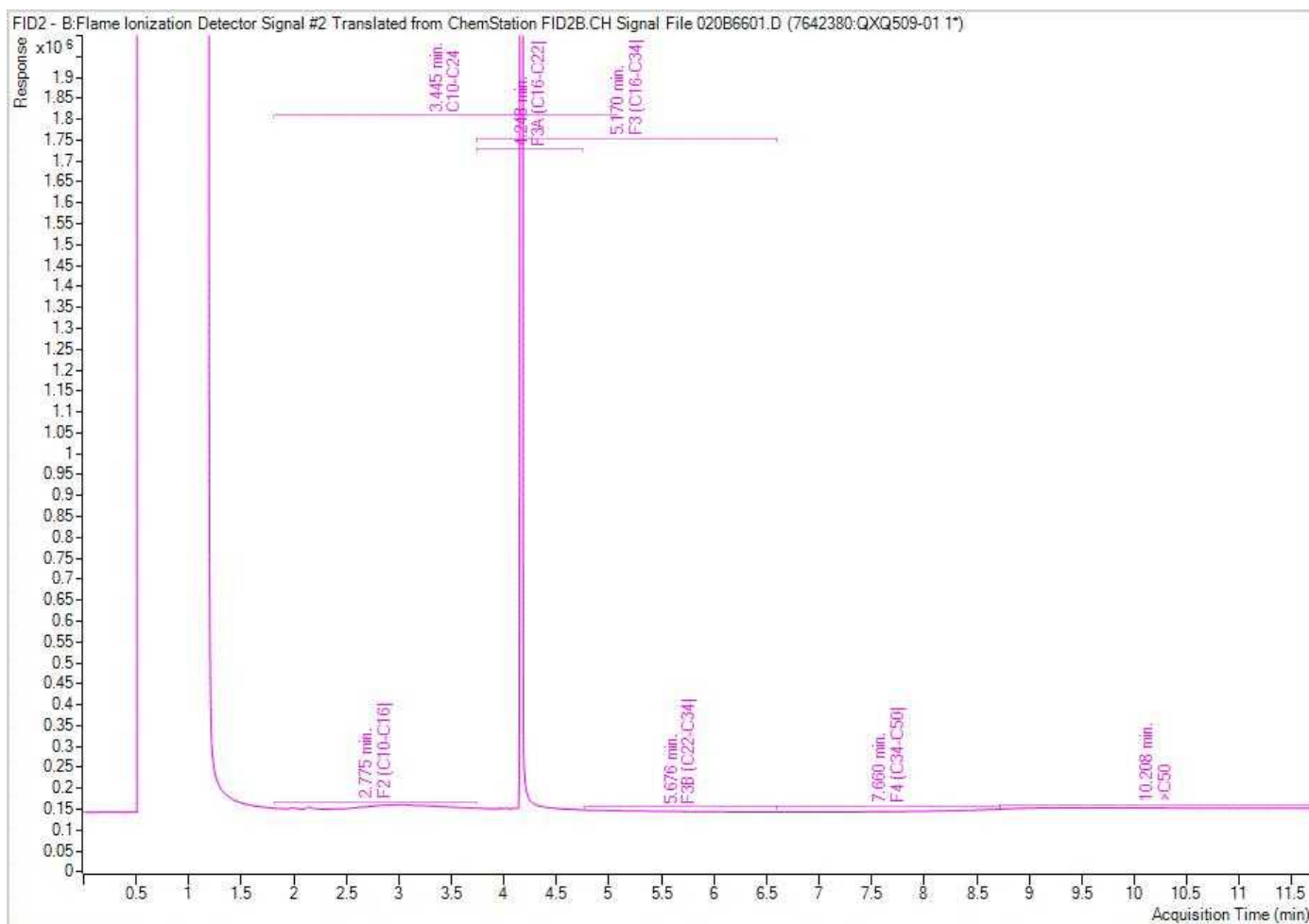
exp Services Inc
Client Project #: LON-21016021
Project name: WAREHOUSE ST,ST.THOMAS
Client ID: BH2/MW

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram

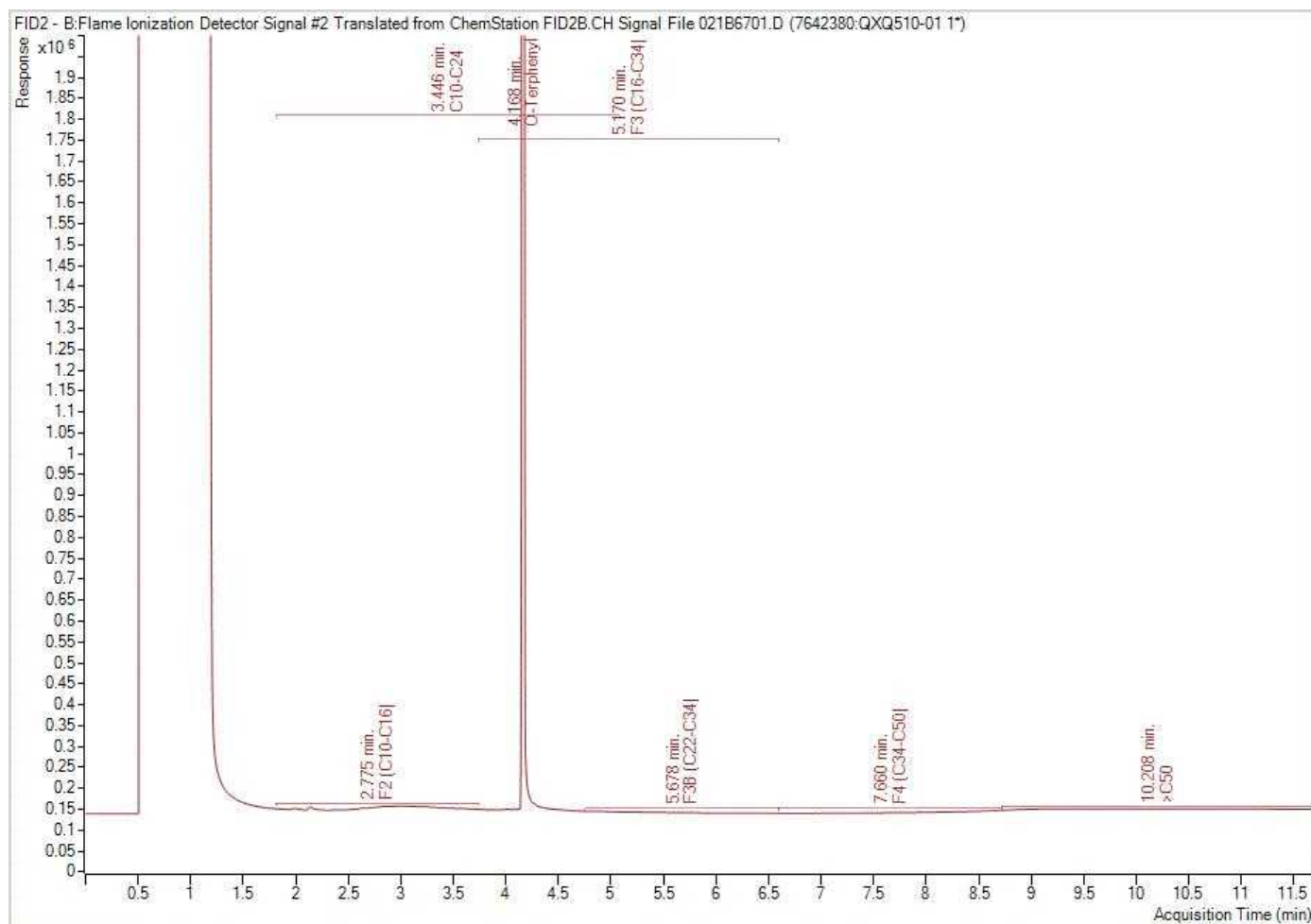


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C1T7677
Report Date: 2022/10/11
Bureau Veritas Sample: QXQ510

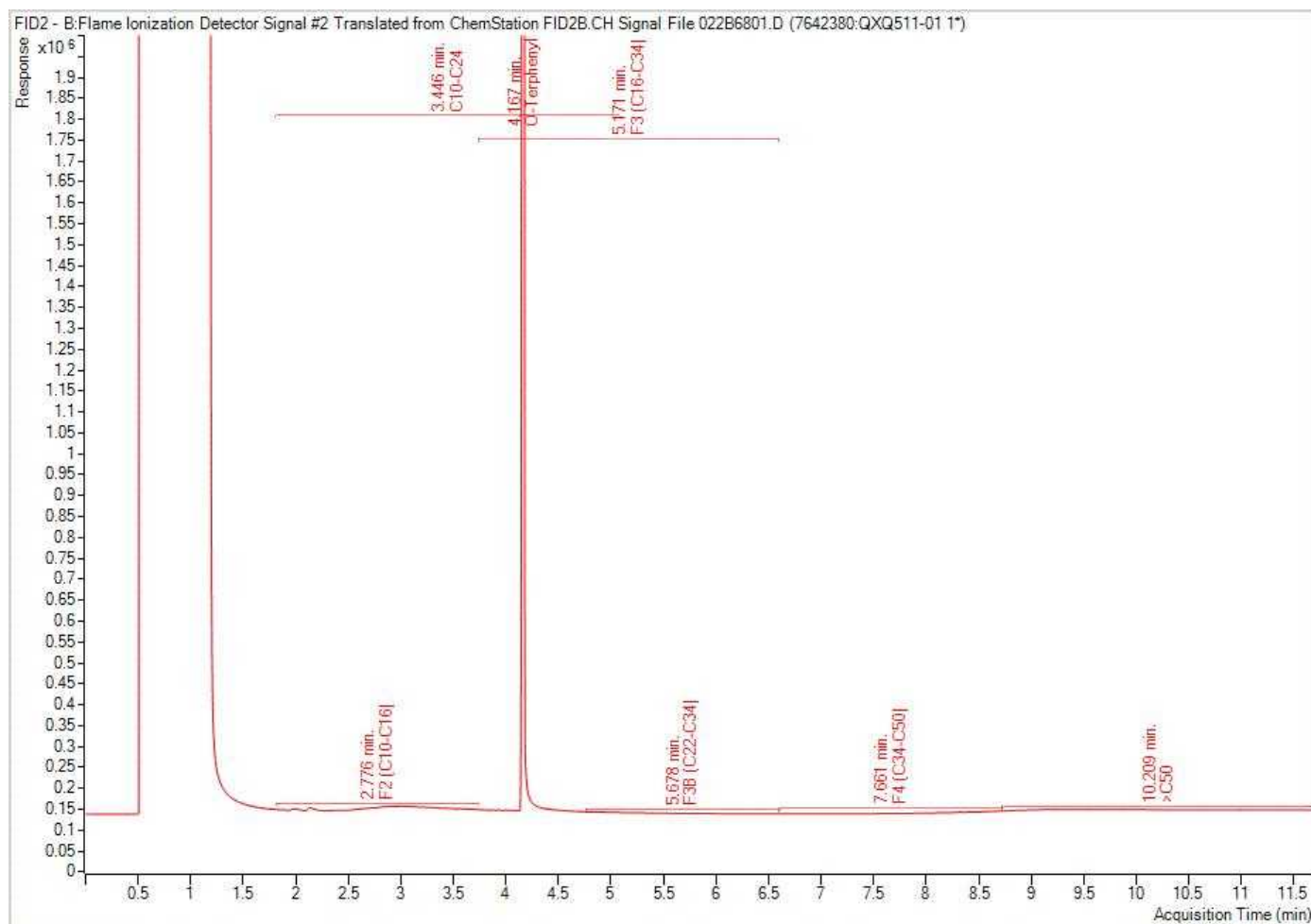
exp Services Inc
Client Project #: LON-21016021
Project name: WAREHOUSE ST,ST.THOMAS
Client ID: BH6/MW

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Water Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



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VERITAS

Bureau Veritas Job #: C1T7677

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST,ST.THOMAS

Sampler Initials: MD

Exceedance Summary Table – Reg153/04 T2-GW-F/M

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						
The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.						

Exceedance Summary Table – Reg153/04 T3-GW-F/M

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						
The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.						



Appendix F:
Laboratory Certificate of Analysis Sheets – Soil
(Test Holes and Remedial Verification Samples)



Your Project #: LON-21016021
Site Location: WAREHOUSE ST, ST. THOMAS, ON
Your C.O.C. #: 159481, 774552-04-01

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/11

Report #: R7336449

Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C2A4929

Received: 2022/04/20, 10:36

Sample Matrix: Soil
Samples Received: 11

Analyses	Quantity	Date	Date	Laboratory Method	Analytical Method
		Extracted	Analyzed		
Free (WAD) Cyanide	4	2022/04/22	2022/04/25	CAM SOP-00457	OMOE E3015 m
Petroleum Hydro. CCME F1 & BTEX in Soil (1)	2	N/A	2022/04/26	CAM SOP-00315	CCME PHC-CWS m
Petroleum Hydrocarbons F2-F4 in Soil (2)	2	2022/04/24	2022/04/24	CAM SOP-00316	CCME CWS m
Acid Extractable Metals by ICPMS	5	2022/04/26	2022/04/26	CAM SOP-00447	EPA 6020B m
Moisture	6	N/A	2022/04/21	CAM SOP-00445	Carter 2nd ed 51.2 m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) No lab extraction date is given for F1BTEX & VOC samples that are field preserved with methanol. Extraction date is the date sampled unless otherwise stated.

(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data



Your Project #: LON-21016021
Site Location: WAREHOUSE ST, ST. THOMAS, ON
Your C.O.C. #: 159481, 774552-04-01

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/11
Report #: R7336449
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C2A4929

Received: 2022/04/20, 10:36

reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Christine Gripton, Senior Project Manager
Email: Christine.Gripton@bureauveritas.com
Phone# (519)652-9444

=====

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For Service Group specific validation please refer to the Validation Signature Page.



BUREAU
VERITAS

Bureau Veritas Job #: C2A4929
Report Date: 2022/10/11

exp Services Inc
Client Project #: LON-21016021
Site Location: WAREHOUSE ST, ST. THOMAS, ON
Sampler Initials: KD

O.REG 153 ICPMS METALS (SOIL)

Bureau Veritas ID				SKH543	SKH544	SKH545	SKH546	SKH547		
Sampling Date				2022/04/11 16:00	2022/04/11 16:15	2022/04/11 16:30	2022/04/11 16:45	2022/04/11 17:00		
COC Number				159481	159481	159481	159481	159481		
	UNITS	Criteria	Criteria-2	EX.1 BASE1	EX.1 BASE3	EX.1 BASE5	EX.1 BASE8	EX.1 BASE11	RDL	QC Batch
Metals										
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	0.42	0.62	0.40	0.66	0.43	0.20	7959247
Acid Extractable Arsenic (As)	ug/g	18	18	7.4	6.9	5.6	9.0	5.6	1.0	7959247
Acid Extractable Barium (Ba)	ug/g	390	390	72	81	67	85	51	0.50	7959247
Acid Extractable Beryllium (Be)	ug/g	5	5	0.49	0.53	0.48	0.56	0.41	0.20	7959247
Acid Extractable Boron (B)	ug/g	120	120	<5.0	<5.0	<5.0	<5.0	<5.0	5.0	7959247
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	0.27	0.32	0.19	0.33	0.22	0.10	7959247
Acid Extractable Chromium (Cr)	ug/g	160	160	15	15	15	16	13	1.0	7959247
Acid Extractable Cobalt (Co)	ug/g	22	22	7.4	7.3	7.5	7.4	6.2	0.10	7959247
Acid Extractable Copper (Cu)	ug/g	180	180	20	19	22	25	24	0.50	7959247
Acid Extractable Lead (Pb)	ug/g	120	120	420	270	320	620	500	1.0	7959247
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	0.53	0.63	0.54	0.57	<0.50	0.50	7959247
Acid Extractable Nickel (Ni)	ug/g	130	130	16	14	17	16	14	0.50	7959247
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	<0.50	0.54	<0.50	0.55	<0.50	0.50	7959247
Acid Extractable Silver (Ag)	ug/g	25	25	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7959247
Acid Extractable Thallium (Tl)	ug/g	1	1	0.13	0.16	0.12	0.15	0.11	0.050	7959247
Acid Extractable Uranium (U)	ug/g	23	23	0.42	0.49	0.49	0.41	0.38	0.050	7959247
Acid Extractable Vanadium (V)	ug/g	86	86	23	26	24	23	21	5.0	7959247
Acid Extractable Zinc (Zn)	ug/g	340	340	90	130	61	110	58	5.0	7959247
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil										



BUREAU
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Bureau Veritas Job #: C2A4929

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST, ST. THOMAS, ON

Sampler Initials: KD

O.REG 153 PHCS, BTEX/F1-F4 (SOIL)

Bureau Veritas ID				SKH548	SKH549		
Sampling Date				2022/04/11 18:00	2022/04/11 18:00		
COC Number				159481	159481		
	UNITS	Criteria	Criteria-2	BH6/MW-1 M NORTH	BH6/MW-1 M SOUTH	RDL	QC Batch
Inorganics							
Moisture	%	-	-	9.5	12	1.0	7951231
BTEX & F1 Hydrocarbons							
F1 (C6-C10)	ug/g	65	65	<10	<10	10	7956767
F1 (C6-C10) - BTEX	ug/g	65	65	<10	<10	10	7956767
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	150	150	<10	<10	10	7956430
F3 (C16-C34 Hydrocarbons)	ug/g	1300	1300	81	150	50	7956430
F4 (C34-C50 Hydrocarbons)	ug/g	5600	5600	72	150	50	7956430
Reached Baseline at C50	ug/g	-	-	Yes	Yes		7956430
Surrogate Recovery (%)							
1,4-Difluorobenzene	%	-	-	102	104		7956767
4-Bromofluorobenzene	%	-	-	98	99		7956767
D10-o-Xylene	%	-	-	103	109		7956767
D4-1,2-Dichloroethane	%	-	-	108	102		7956767
o-Terphenyl	%	-	-	93	88		7956430
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil							



RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID				SKH550	SKH551	SKH552	SKH568		
Sampling Date				2022/04/11 18:30	2022/04/11 18:30	2022/04/11 18:30	2022/04/11 18:30		
COC Number				159481	159481	159481	774552-04-01		
	UNITS	Criteria	Criteria-2	TP1-1 M NORTH	TP1-1 M EAST	TP1-ADJACENT SOUTH	TP1-1 M WEST	RDL	QC Batch
Inorganics									
Moisture	%	-	-	10	11	16	10	1.0	7951231
WAD Cyanide (Free)	ug/g	0.051	0.051	<0.01	<0.01	<0.01	<0.01	0.01	7954468
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil									



**BUREAU
VERITAS**

Bureau Veritas Job #: C2A4929
Report Date: 2022/10/11

exp Services Inc
Client Project #: LON-21016021
Site Location: WAREHOUSE ST, ST. THOMAS, ON
Sampler Initials: KD

TEST SUMMARY

Bureau Veritas ID: SKH543
Sample ID: EX.1 BASE1
Matrix: Soil

Collected: 2022/04/11
Shipped:
Received: 2022/04/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7959247	2022/04/26	2022/04/26	Prempal Bhatti

Bureau Veritas ID: SKH544
Sample ID: EX.1 BASE3
Matrix: Soil

Collected: 2022/04/11
Shipped:
Received: 2022/04/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7959247	2022/04/26	2022/04/26	Prempal Bhatti

Bureau Veritas ID: SKH544 Dup
Sample ID: EX.1 BASE3
Matrix: Soil

Collected: 2022/04/11
Shipped:
Received: 2022/04/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7959247	2022/04/26	2022/04/26	Prempal Bhatti

Bureau Veritas ID: SKH545
Sample ID: EX.1 BASE5
Matrix: Soil

Collected: 2022/04/11
Shipped:
Received: 2022/04/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7959247	2022/04/26	2022/04/26	Prempal Bhatti

Bureau Veritas ID: SKH546
Sample ID: EX.1 BASE8
Matrix: Soil

Collected: 2022/04/11
Shipped:
Received: 2022/04/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7959247	2022/04/26	2022/04/26	Prempal Bhatti

Bureau Veritas ID: SKH547
Sample ID: EX.1 BASE11
Matrix: Soil

Collected: 2022/04/11
Shipped:
Received: 2022/04/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7959247	2022/04/26	2022/04/26	Prempal Bhatti

Bureau Veritas ID: SKH548
Sample ID: BH6/MW-1 M NORTH
Matrix: Soil

Collected: 2022/04/11
Shipped:
Received: 2022/04/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	7956767	N/A	2022/04/26	Lincoln Ramdahan
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7956430	2022/04/24	2022/04/24	Agnieszka Brzuzy-Snopko
Moisture	BAL	7951231	N/A	2022/04/21	Mathew Bowles



BUREAU
VERITAS

Bureau Veritas Job #: C2A4929
Report Date: 2022/10/11

exp Services Inc
Client Project #: LON-21016021
Site Location: WAREHOUSE ST, ST. THOMAS, ON
Sampler Initials: KD

TEST SUMMARY

Bureau Veritas ID: SKH548 Dup
Sample ID: BH6/MW-1 M NORTH
Matrix: Soil

Collected: 2022/04/11
Shipped:
Received: 2022/04/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7956430	2022/04/24	2022/04/24	Agnieszka Brzuzy-Snopko

Bureau Veritas ID: SKH549
Sample ID: BH6/MW-1 M SOUTH
Matrix: Soil

Collected: 2022/04/11
Shipped:
Received: 2022/04/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Petroleum Hydro. CCME F1 & BTEX in Soil	HSGC/MSFD	7956767	N/A	2022/04/26	Lincoln Ramdahin
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	7956430	2022/04/24	2022/04/24	Agnieszka Brzuzy-Snopko
Moisture	BAL	7951231	N/A	2022/04/21	Mathew Bowles

Bureau Veritas ID: SKH550
Sample ID: TP1-1 M NORTH
Matrix: Soil

Collected: 2022/04/11
Shipped:
Received: 2022/04/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	7954468	2022/04/22	2022/04/25	Aditiben Patel
Moisture	BAL	7951231	N/A	2022/04/21	Mathew Bowles

Bureau Veritas ID: SKH551
Sample ID: TP1-1 M EAST
Matrix: Soil

Collected: 2022/04/11
Shipped:
Received: 2022/04/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	7954468	2022/04/22	2022/04/25	Aditiben Patel
Moisture	BAL	7951231	N/A	2022/04/21	Mathew Bowles

Bureau Veritas ID: SKH552
Sample ID: TP1-ADJACENT SOUTH
Matrix: Soil

Collected: 2022/04/11
Shipped:
Received: 2022/04/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	7954468	2022/04/22	2022/04/25	Aditiben Patel
Moisture	BAL	7951231	N/A	2022/04/21	Mathew Bowles

Bureau Veritas ID: SKH568
Sample ID: TP1-1 M WEST
Matrix: Soil

Collected: 2022/04/11
Shipped:
Received: 2022/04/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	7954468	2022/04/22	2022/04/25	Aditiben Patel
Moisture	BAL	7951231	N/A	2022/04/21	Mathew Bowles



BUREAU
VERITAS

Bureau Veritas Job #: C2A4929

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST, ST. THOMAS, ON

Sampler Initials: KD

TEST SUMMARY

Bureau Veritas ID: SKH568 Dup
Sample ID: TP1-1 M WEST
Matrix: Soil

Collected: 2022/04/11
Shipped:
Received: 2022/04/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	7954468	2022/04/22	2022/04/25	Aditiben Patel



BUREAU
VERITAS

Bureau Veritas Job #: C2A4929

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST, ST. THOMAS, ON

Sampler Initials: KD

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	0.7°C
-----------	-------

Revised report (2022/10/11): Includes amended Reg 153 criteria as requested.

F1/BTEX Analysis: Soil weight exceeds the protocol specification of approximately 5g in the field preserved vial. Additional methanol was added to the vial to ensure extraction efficiency.

Results relate only to the items tested.



BUREAU
VERITAS

Bureau Veritas Job #: C2A4929

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST, ST. THOMAS, ON

Sampler Initials: KD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7956430	o-Terphenyl	2022/04/24	87	60 - 130	94	60 - 130	93	%		
7956767	1,4-Difluorobenzene	2022/04/26	99	60 - 140	99	60 - 140	102	%		
7956767	4-Bromofluorobenzene	2022/04/26	104	60 - 140	104	60 - 140	96	%		
7956767	D10-o-Xylene	2022/04/26	103	60 - 140	111	60 - 140	102	%		
7956767	D4-1,2-Dichloroethane	2022/04/26	100	60 - 140	100	60 - 140	106	%		
7951231	Moisture	2022/04/21							4.3	20
7954468	WAD Cyanide (Free)	2022/04/25	102	75 - 125	92	80 - 120	<0.01	ug/g	NC	35
7956430	F2 (C10-C16 Hydrocarbons)	2022/04/24	92	60 - 130	99	80 - 120	<10	ug/g	NC	30
7956430	F3 (C16-C34 Hydrocarbons)	2022/04/24	87	60 - 130	93	80 - 120	<50	ug/g	11	30
7956430	F4 (C34-C50 Hydrocarbons)	2022/04/24	91	60 - 130	98	80 - 120	<50	ug/g	8.8	30
7956767	F1 (C6-C10) - BTEX	2022/04/26					<10	ug/g	NC	30
7956767	F1 (C6-C10)	2022/04/26	73	60 - 140	90	80 - 120	<10	ug/g	NC	30
7959247	Acid Extractable Antimony (Sb)	2022/04/26	92	75 - 125	97	80 - 120	<0.20	ug/g	2.0	30
7959247	Acid Extractable Arsenic (As)	2022/04/26	99	75 - 125	96	80 - 120	<1.0	ug/g	7.4	30
7959247	Acid Extractable Barium (Ba)	2022/04/26	115	75 - 125	93	80 - 120	<0.50	ug/g	5.0	30
7959247	Acid Extractable Beryllium (Be)	2022/04/26	99	75 - 125	97	80 - 120	<0.20	ug/g	1.1	30
7959247	Acid Extractable Boron (B)	2022/04/26	88	75 - 125	89	80 - 120	<5.0	ug/g	NC	30
7959247	Acid Extractable Cadmium (Cd)	2022/04/26	99	75 - 125	95	80 - 120	<0.10	ug/g	18	30
7959247	Acid Extractable Chromium (Cr)	2022/04/26	100	75 - 125	95	80 - 120	<1.0	ug/g	3.2	30
7959247	Acid Extractable Cobalt (Co)	2022/04/26	99	75 - 125	94	80 - 120	<0.10	ug/g	0.73	30
7959247	Acid Extractable Copper (Cu)	2022/04/26	98	75 - 125	94	80 - 120	<0.50	ug/g	2.4	30
7959247	Acid Extractable Lead (Pb)	2022/04/26	107	75 - 125	94	80 - 120	<1.0	ug/g	2.1	30
7959247	Acid Extractable Molybdenum (Mo)	2022/04/26	98	75 - 125	91	80 - 120	<0.50	ug/g	0.90	30
7959247	Acid Extractable Nickel (Ni)	2022/04/26	102	75 - 125	96	80 - 120	<0.50	ug/g	0.91	30
7959247	Acid Extractable Selenium (Se)	2022/04/26	96	75 - 125	97	80 - 120	<0.50	ug/g	8.4	30
7959247	Acid Extractable Silver (Ag)	2022/04/26	102	75 - 125	94	80 - 120	<0.20	ug/g	NC	30
7959247	Acid Extractable Thallium (Tl)	2022/04/26	99	75 - 125	92	80 - 120	<0.050	ug/g	0.15	30
7959247	Acid Extractable Uranium (U)	2022/04/26	101	75 - 125	92	80 - 120	<0.050	ug/g	0.84	30
7959247	Acid Extractable Vanadium (V)	2022/04/26	97	75 - 125	96	80 - 120	<5.0	ug/g	1.0	30



BUREAU
VERITAS

Bureau Veritas Job #: C2A4929

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST, ST. THOMAS, ON

Sampler Initials: KD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7959247	Acid Extractable Zinc (Zn)	2022/04/26	122	75 - 125	98	80 - 120	<5.0	ug/g	2.4	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).



BUREAU
VERITAS

Bureau Veritas Job #: C2A4929

Report Date: 2022/10/11

exp Services Inc

Client Project #: LON-21016021

Site Location: WAREHOUSE ST, ST. THOMAS, ON

Sampler Initials: KD

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



6740 Campobello Road, Mississauga, Ontario L5N 2L8
 Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
 CAM FCD-01191/6

REC'D IN LONDON

CHAIN OF CUSTODY RECORD **159481** Page 1 of 2

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required							
Company Name: <u>EXP Services Inc</u>		Company Name: <u>Scott AZ12</u>		Quotation #:		☒ Regular TAT (5-7 days) Most analyses							
Contact Name: <u>Accounts Payable</u>		Contact Name:		P.O. #/ A/E#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS							
Address: <u>15701 Robin's Hill Rd, Unit 2, London, ON</u>		Address:		Project #: <u>LON-21016021-28</u>		Rush TAT (Surcharges will be applied)							
Phone: Fax:		Phone: Fax:		Site Location: <u>WAREHOUSE ST, ST. THOMAS, ON</u>		☐ 1 Day ☐ 2 Days ☐ 3-4 Days							
Email: <u>AP@exp.com; Karen.Burke@exp.com</u>		Email: <u>Scott.az12@exp.com; Kevin.deltac@exp.com</u>		Site #:		Date Required:							
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS LABORATORIES' DRINKING WATER CHAIN OF CUSTODY				Site Location Province:		Rush Confirmation #:							
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS LABORATORIES' DRINKING WATER CHAIN OF CUSTODY		MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS LABORATORIES' DRINKING WATER CHAIN OF CUSTODY		Sampled By: <u>Kevin Deltac</u>									
Regulation 153		Other Regulations		Analysis Requested		LABORATORY USE ONLY							
☐ Table 1 ☒ Res/Park ☒ Med/ Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☒ Table 3 ☐ Agri/ Other ☐ Table _____ FOR RSC (PLEASE CIRCLE) <u>(Y)</u> / N		☐ CCME ☐ Sanitary Sewer Bylaw ☐ MISA ☐ Storm Sewer Bylaw ☐ PWQO Region _____ ☐ Other (Specify) _____ ☐ REG 558 (MIN. 3 DAY TAT REQUIRED) ☐ REG 406 Table _____		Analysis Requested <u>Cyanide</u> <u>PHCS ONLY (FI-FU)</u>		CUSTODY SEAL Y / N Present Intact <u>Y</u> <u>Y</u> <u>15/20/21/4/20</u> COOLING MEDIA PRESENT: <u>(Y)</u> / N COMMENTS							
Include Criteria on Certificate of Analysis: <u>(Y)</u> / N		SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS											
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	PHCS F1	PHCS F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMAS METALS	REG 153 METALS (Hg, Cr VI, ICPMAS Metals, HWS - B)	HOLD - DO NOT ANALYZE
1	Ex.1 Base1	2022/04/11	4:00PM	SOIL	1								
2	Ex.1. Base3		4:15PM		1								
3	Ex.1. Base5		4:30PM		1								
4	Ex.1. Base8		4:45PM		1								
5	EX 1. Base11		5:00PM		1								
6	BH6/MW - 1m North		6:00PM		2							X	
7	BH6/MW - 1m South		6:00PM		2							X	
8	TPI - 1m North		6:30PM		1							X	
9	TPI - 1m East		6:30PM		1							X	
10	TPI - Adjacent South		6:30PM		1							X	
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	BV JOB #					
<u>Kevin Deltac</u>		<u>2022/04/20</u>	<u>10:00</u>	<u>in in Bar</u>		<u>2022/4/20</u>	<u>10:36</u>						
				<u>Rishi M. VEDHI BHASAR</u>		<u>2022/04/20</u>	<u>18:10</u>						

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at <http://www.bvlabs.com/terms-and-conditions>

COC-1004 (06/19)

418694 White: BV Labs - Yellow: Client



Bureau Veritas Laboratories
6740 Campbell Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-free 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

REC'D IN LONDON

CHAIN OF CUSTODY RECORD

Page 2 of 2

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name: #28124 exp Services Inc		Company Name: <u>Scott A212</u>		Quotation #: B91718		BV Labs Job #:	
Attention: Ron Davis		Attention: <u>Scott A212</u>		P.O. #:		Bottle Order #:	
Address: 15701 Robin's Hill Rd Unit 2		Address:		Project: <u>FULLERTON LON-21016021-AG</u>			
London ON N5V 0A5		Address:		Project Name: <u>WAREHOUSE ST, ST. THOMAS, ON</u>		COC #:	
Tel: (519) 963-3000 Fax: (519) 963-1152		Tel:		Site #:			
Email: Ron.Davis@exp.com		Email: <u>Ron.Davis@exp.com</u>		Sampled By: <u>Kevin Dehaan</u>		Project Manager: Christine Gipton	

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BV LABS DRINKING WATER CHAIN OF CUSTODY				ANALYSIS REQUESTED (PLEASE BE SPECIFIC)												Turnaround Time (TAT) Required:							
Regulation 153 (2011)				Other Regulations				Special Instructions				Regular (Standard) TAT:											
☐ Table 1 ☒ Res/Park ☒ Medium/Fine				☐ CCME ☐ Sanitary Sewer Bylaw								☒ (will be applied if Rush TAT is not specified):											
☐ Table 2 ☐ Ind/Comm ☐ Coarse				☐ Reg 558 ☐ Storm Sewer Bylaw								Standard TAT = 5-7 Working days for most tests.											
☒ Table 3 ☐ Agri/Other ☒ For RSC				☐ MISA Municipality								Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.											
☐ Table				☐ PWQO								Job Specific Rush TAT (if applies to entire submission)											
Include Criteria on Certificate of Analysis (Y/N)?												Date Required: Time Required: ☐											
												Rush Confirmation Number: (call lab for #)											
												# of Bottles											
												Comments											
1				TP 1 - 1m West				2022/04/20 6:30pm				SOL				1							
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)		Time		RECEIVED BY: (Signature/Print)		Date: (YY/MM/DD)		Time		# jars used and not submitted		Laboratory Use Only			
<u>Kevin Dehaan</u>		22/04/20		10:00		<u>In In Bari</u>		22/4/20		10:36				Time Sensitive			
						SEE pg. 1								Temperature (°C) on Reel			
														0, 2, 0			
														Custody Seal			
														Present			
														Intact			
														Yes			
														No			
														White: BV Labs			
														Yellow: Client			

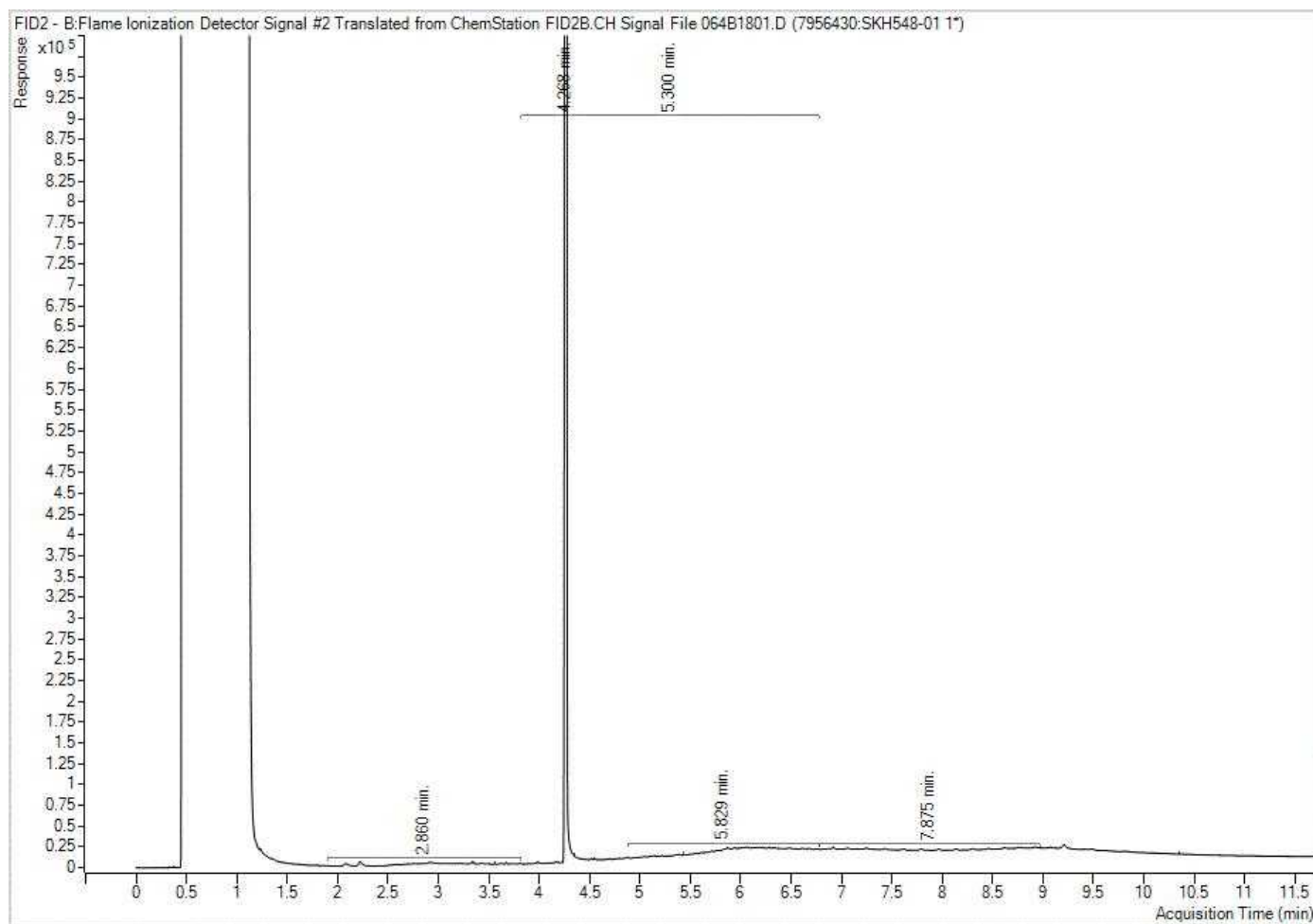
* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BV LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVLABS.COM/TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVLABS.COM/RESOURCES/CHAIN-OF-CUSTODY-FORMS.

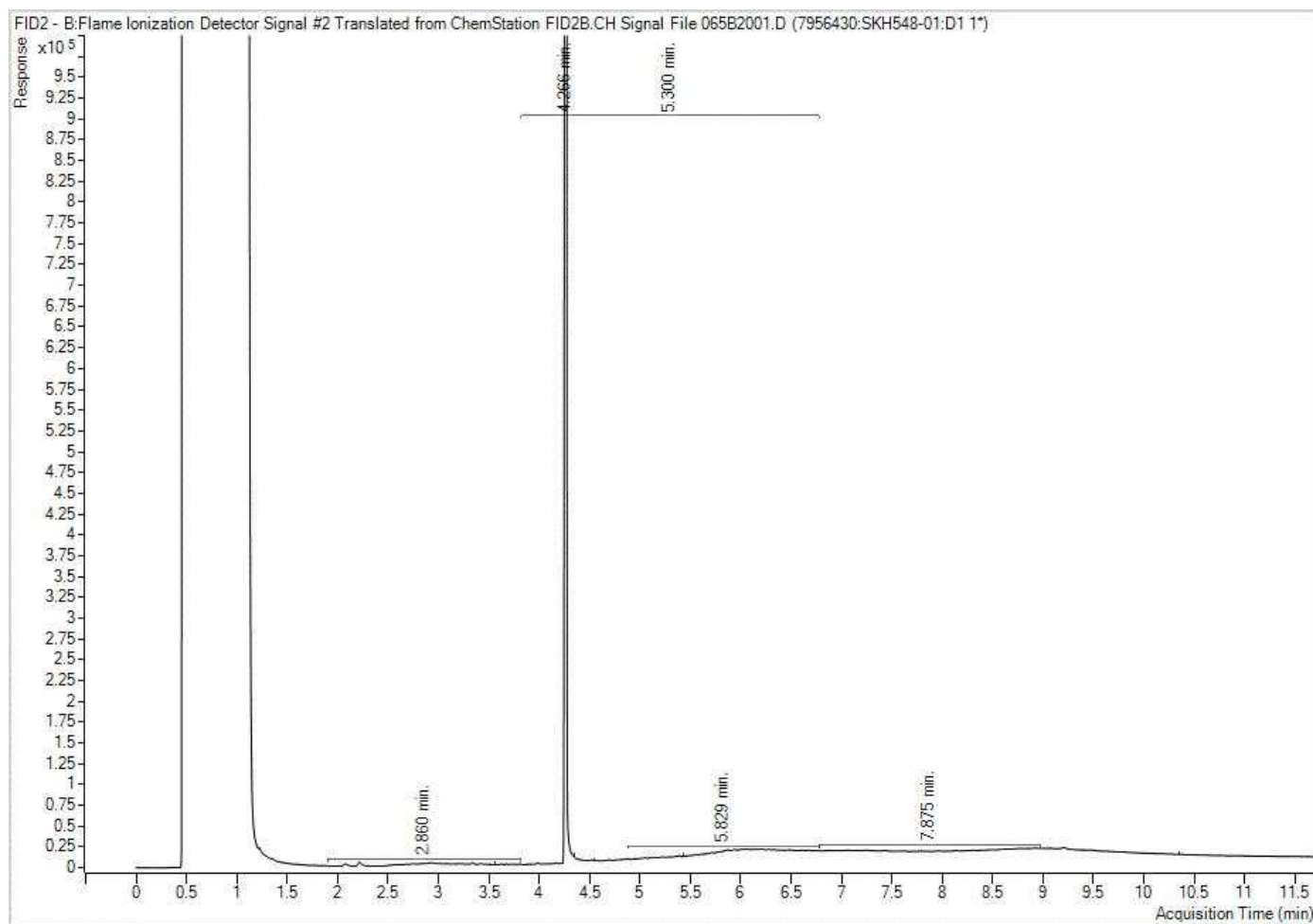
SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LABS

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

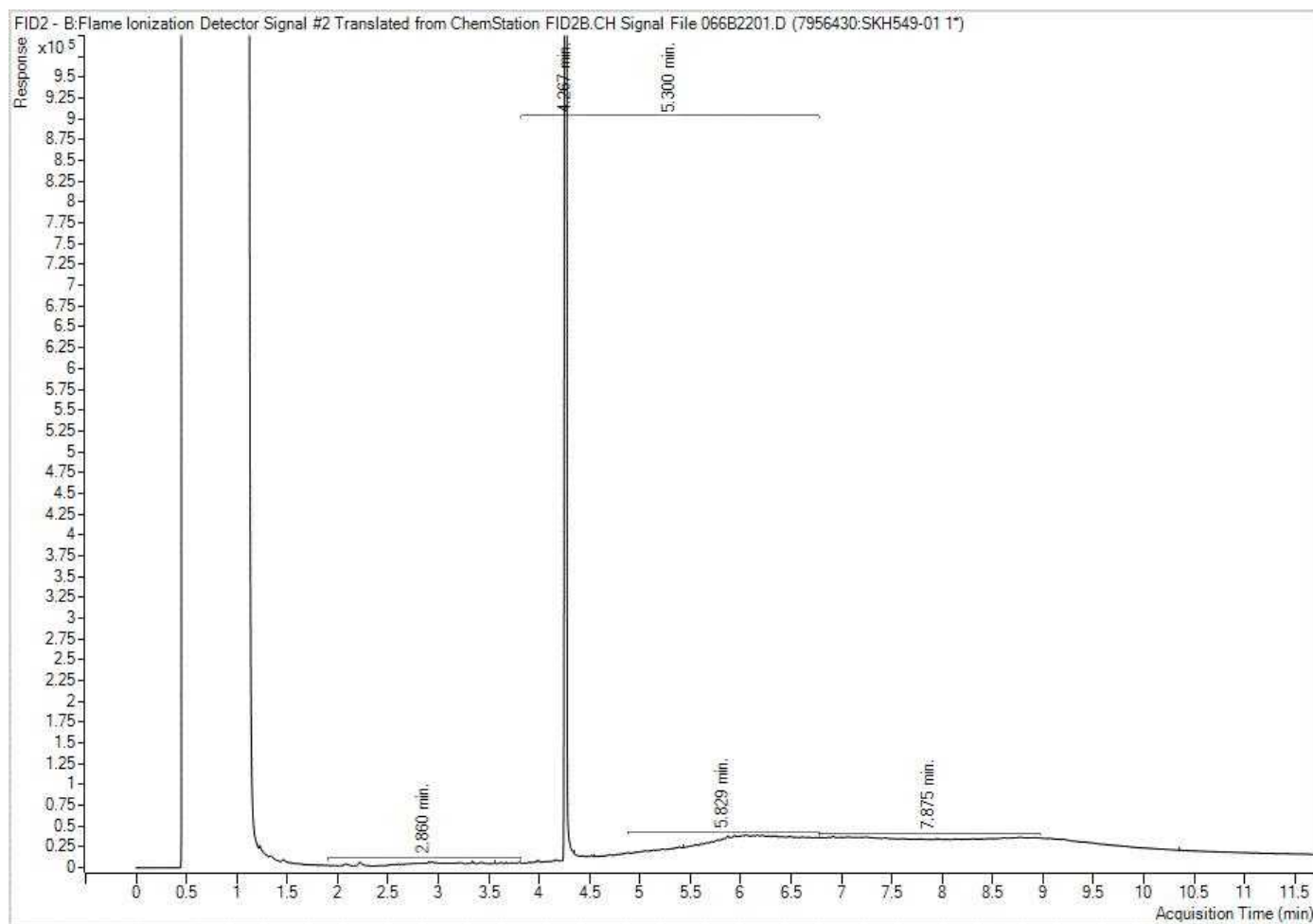


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C2A4929
Report Date: 2022/10/11
Bureau Veritas Sample: SKH549

exp Services Inc
Client Project #: LON-21016021
Project name: WAREHOUSE ST, ST. THOMAS, ON
Client ID: BH6/MW-1 M SOUTH

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.



Exceedance Summary Table – Reg153/04 T2-Soil/Res-F/M

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
EX.1 BASE1	SKH543-01	Acid Extractable Lead (Pb)	120	420	1.0	ug/g
EX.1 BASE3	SKH544-01	Acid Extractable Lead (Pb)	120	270	1.0	ug/g
EX.1 BASE3	SKH544-01-Lab Dup	Acid Extractable Lead (Pb)	120	270	1.0	ug/g
EX.1 BASE5	SKH545-01	Acid Extractable Lead (Pb)	120	320	1.0	ug/g
EX.1 BASE8	SKH546-01	Acid Extractable Lead (Pb)	120	620	1.0	ug/g
EX.1 BASE11	SKH547-01	Acid Extractable Lead (Pb)	120	500	1.0	ug/g

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Exceedance Summary Table – Reg153/04 T3-Soil/Res-F/M

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
EX.1 BASE1	SKH543-01	Acid Extractable Lead (Pb)	120	420	1.0	ug/g
EX.1 BASE3	SKH544-01	Acid Extractable Lead (Pb)	120	270	1.0	ug/g
EX.1 BASE3	SKH544-01-Lab Dup	Acid Extractable Lead (Pb)	120	270	1.0	ug/g
EX.1 BASE5	SKH545-01	Acid Extractable Lead (Pb)	120	320	1.0	ug/g
EX.1 BASE8	SKH546-01	Acid Extractable Lead (Pb)	120	620	1.0	ug/g
EX.1 BASE11	SKH547-01	Acid Extractable Lead (Pb)	120	500	1.0	ug/g

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.



Your C.O.C. #: 161952, 161953

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/11

Report #: R7336450

Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C2C0029

Received: 2022/05/04, 14:23

Sample Matrix: Soil
Samples Received: 15

Analyses	Date		Laboratory Method	Analytical Method
	Quantity	Date		
Acid Extractable Metals by ICPMS	15	2022/05/09	2022/05/10 CAM SOP-00447	EPA 6020B m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

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Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your C.O.C. #: 161952, 161953

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/11

Report #: R7336450

Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C2C0029

Received: 2022/05/04, 14:23

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Christine Gripton, Senior Project Manager

Email: Christine.Gripton@bureauveritas.com

Phone# (519)652-9444

=====

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For Service Group specific validation please refer to the Validation Signature Page.

Total Cover Pages : 2

Page 2 of 16

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.



BUREAU
VERITAS

Bureau Veritas Job #: C2C0029
Report Date: 2022/10/11

exp Services Inc
Sampler Initials: JE

O.REG 153 ICPMS METALS (SOIL)

Bureau Veritas ID				SNN060	SNN061		SNN062		
Sampling Date				2022/05/04	2022/05/04		2022/05/04		
COC Number				161952	161952		161952		
	UNITS	Criteria	Criteria-2	B101-A	B102-A	QC Batch	B103-A	RDL	QC Batch

Metals									
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	0.38	<0.20	7983929	0.41	0.20	7983678
Acid Extractable Arsenic (As)	ug/g	18	18	10	6.2	7983929	6.4	1.0	7983678
Acid Extractable Barium (Ba)	ug/g	390	390	63	100	7983929	57	0.50	7983678
Acid Extractable Beryllium (Be)	ug/g	5	5	0.47	0.56	7983929	0.51	0.20	7983678
Acid Extractable Boron (B)	ug/g	120	120	<5.0	5.9	7983929	<5.0	5.0	7983678
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	0.22	0.25	7983929	0.20	0.10	7983678
Acid Extractable Chromium (Cr)	ug/g	160	160	16	19	7983929	16	1.0	7983678
Acid Extractable Cobalt (Co)	ug/g	22	22	7.5	9.0	7983929	7.7	0.10	7983678
Acid Extractable Copper (Cu)	ug/g	180	180	17	17	7983929	12	0.50	7983678
Acid Extractable Lead (Pb)	ug/g	120	120	620	120	7983929	320	1.0	7983678
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	0.67	0.55	7983929	0.67	0.50	7983678
Acid Extractable Nickel (Ni)	ug/g	130	130	15	19	7983929	13	0.50	7983678
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	<0.50	<0.50	7983929	<0.50	0.50	7983678
Acid Extractable Silver (Ag)	ug/g	25	25	<0.20	<0.20	7983929	<0.20	0.20	7983678
Acid Extractable Thallium (Tl)	ug/g	1	1	0.23	0.14	7983929	0.19	0.050	7983678
Acid Extractable Uranium (U)	ug/g	23	23	0.49	0.49	7983929	0.50	0.050	7983678
Acid Extractable Vanadium (V)	ug/g	86	86	27	33	7983929	25	5.0	7983678
Acid Extractable Zinc (Zn)	ug/g	340	340	58	59	7983929	41	5.0	7983678

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition

Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil

Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition

Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil



BUREAU
VERITAS

Bureau Veritas Job #: C2C0029
Report Date: 2022/10/11

exp Services Inc
Sampler Initials: JE

O.REG 153 ICPMS METALS (SOIL)

Bureau Veritas ID				SNN063	SNN064	SNN065	SNN066	SNN067		
Sampling Date				2022/05/04	2022/05/04	2022/05/04	2022/05/04	2022/05/04		
COC Number				161952	161952	161952	161952	161952		
	UNITS	Criteria	Criteria-2	B104-A	B105-A	W1	W2	W3	RDL	QC Batch

Metals										
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	<0.20	0.24	0.44	0.76	0.41	0.20	7983929
Acid Extractable Arsenic (As)	ug/g	18	18	3.2	4.0	6.0	9.6	5.1	1.0	7983929
Acid Extractable Barium (Ba)	ug/g	390	390	47	74	150	88	60	0.50	7983929
Acid Extractable Beryllium (Be)	ug/g	5	5	0.34	0.55	0.58	0.57	0.47	0.20	7983929
Acid Extractable Boron (B)	ug/g	120	120	<5.0	6.5	<5.0	<5.0	6.8	5.0	7983929
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	<0.10	0.14	0.45	0.37	0.19	0.10	7983929
Acid Extractable Chromium (Cr)	ug/g	160	160	13	18	16	17	16	1.0	7983929
Acid Extractable Cobalt (Co)	ug/g	22	22	4.2	7.6	7.8	7.2	6.6	0.10	7983929
Acid Extractable Copper (Cu)	ug/g	180	180	11	19	15	21	22	0.50	7983929
Acid Extractable Lead (Pb)	ug/g	120	120	25	180	400	160	300	1.0	7983929
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	<0.50	<0.50	0.84	0.67	0.64	0.50	7983929
Acid Extractable Nickel (Ni)	ug/g	130	130	10	17	14	14	16	0.50	7983929
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	<0.50	<0.50	0.61	0.66	<0.50	0.50	7983929
Acid Extractable Silver (Ag)	ug/g	25	25	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7983929
Acid Extractable Thallium (Tl)	ug/g	1	1	0.086	0.15	0.22	0.20	0.17	0.050	7983929
Acid Extractable Uranium (U)	ug/g	23	23	0.33	0.52	0.60	0.48	0.44	0.050	7983929
Acid Extractable Vanadium (V)	ug/g	86	86	23	28	27	27	25	5.0	7983929
Acid Extractable Zinc (Zn)	ug/g	340	340	27	52	210	150	61	5.0	7983929

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition

Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil

Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition

Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil



BUREAU
VERITAS

Bureau Veritas Job #: C2C0029
Report Date: 2022/10/11

exp Services Inc
Sampler Initials: JE

O.REG 153 ICPMS METALS (SOIL)

Bureau Veritas ID				SNN068	SNN069	SNN070	SNN071	SNN072		
Sampling Date				2022/05/04	2022/05/04	2022/05/04	2022/05/04	2022/05/04		
COC Number				161952	161952	161953	161953	161953		
	UNITS	Criteria	Criteria-2	W4	W5	W6	W7	W8	RDL	QC Batch

Metals										
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	<0.20	0.42	0.65	1.2	0.36	0.20	7983929
Acid Extractable Arsenic (As)	ug/g	18	18	1.4	5.9	9.3	14	4.9	1.0	7983929
Acid Extractable Barium (Ba)	ug/g	390	390	21	73	81	99	80	0.50	7983929
Acid Extractable Beryllium (Be)	ug/g	5	5	<0.20	0.55	0.61	0.64	0.60	0.20	7983929
Acid Extractable Boron (B)	ug/g	120	120	<5.0	6.9	6.0	5.5	8.7	5.0	7983929
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	<0.10	0.19	0.29	0.32	0.18	0.10	7983929
Acid Extractable Chromium (Cr)	ug/g	160	160	7.6	18	18	19	18	1.0	7983929
Acid Extractable Cobalt (Co)	ug/g	22	22	2.9	7.7	7.8	8.7	8.7	0.10	7983929
Acid Extractable Copper (Cu)	ug/g	180	180	6.6	24	23	24	22	0.50	7983929
Acid Extractable Lead (Pb)	ug/g	120	120	26	390	730	2700	450	1.0	7983929
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	<0.50	0.54	0.64	0.82	0.52	0.50	7983929
Acid Extractable Nickel (Ni)	ug/g	130	130	6.2	17	17	18	18	0.50	7983929
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	7983929
Acid Extractable Silver (Ag)	ug/g	25	25	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7983929
Acid Extractable Thallium (Tl)	ug/g	1	1	<0.050	0.19	0.26	0.49	0.20	0.050	7983929
Acid Extractable Uranium (U)	ug/g	23	23	0.39	0.49	0.52	0.57	0.57	0.050	7983929
Acid Extractable Vanadium (V)	ug/g	86	86	14	26	29	30	27	5.0	7983929
Acid Extractable Zinc (Zn)	ug/g	340	340	20	71	85	130	77	5.0	7983929

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition

Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil

Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition

Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil



BUREAU
VERITAS

Bureau Veritas Job #: C2C0029

Report Date: 2022/10/11

exp Services Inc

Sampler Initials: JE

O.REG 153 ICPMS METALS (SOIL)

Bureau Veritas ID				SNN073	SNN074		
Sampling Date				2022/05/04	2022/05/04		
COC Number				161953	161953		
	UNITS	Criteria	Criteria-2	B100(DUP)	W100(DUP)	RDL	QC Batch
Metals							
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	<0.20	0.62	0.20	7983929
Acid Extractable Arsenic (As)	ug/g	18	18	8.2	9.2	1.0	7983929
Acid Extractable Barium (Ba)	ug/g	390	390	130	84	0.50	7983929
Acid Extractable Beryllium (Be)	ug/g	5	5	0.58	0.59	0.20	7983929
Acid Extractable Boron (B)	ug/g	120	120	5.3	5.8	5.0	7983929
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	0.29	0.22	0.10	7983929
Acid Extractable Chromium (Cr)	ug/g	160	160	20	18	1.0	7983929
Acid Extractable Cobalt (Co)	ug/g	22	22	10	8.2	0.10	7983929
Acid Extractable Copper (Cu)	ug/g	180	180	19	24	0.50	7983929
Acid Extractable Lead (Pb)	ug/g	120	120	39	720	1.0	7983929
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	0.67	0.65	0.50	7983929
Acid Extractable Nickel (Ni)	ug/g	130	130	21	18	0.50	7983929
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	<0.50	<0.50	0.50	7983929
Acid Extractable Silver (Ag)	ug/g	25	25	<0.20	<0.20	0.20	7983929
Acid Extractable Thallium (Tl)	ug/g	1	1	0.15	0.27	0.050	7983929
Acid Extractable Uranium (U)	ug/g	23	23	0.47	0.54	0.050	7983929
Acid Extractable Vanadium (V)	ug/g	86	86	35	28	5.0	7983929
Acid Extractable Zinc (Zn)	ug/g	340	340	58	83	5.0	7983929
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)							
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition							
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil							
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)							
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition							
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil							



BUREAU
VERITAS

Bureau Veritas Job #: C2C0029
Report Date: 2022/10/11

exp Services Inc
Sampler Initials: JE

TEST SUMMARY

Bureau Veritas ID: SNN060
Sample ID: B101-A
Matrix: Soil

Collected: 2022/05/04
Shipped:
Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli

Bureau Veritas ID: SNN061
Sample ID: B102-A
Matrix: Soil

Collected: 2022/05/04
Shipped:
Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli

Bureau Veritas ID: SNN062
Sample ID: B103-A
Matrix: Soil

Collected: 2022/05/04
Shipped:
Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983678	2022/05/09	2022/05/10	Azita Fazaeli

Bureau Veritas ID: SNN062 Dup
Sample ID: B103-A
Matrix: Soil

Collected: 2022/05/04
Shipped:
Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983678	2022/05/09	2022/05/10	Azita Fazaeli

Bureau Veritas ID: SNN063
Sample ID: B104-A
Matrix: Soil

Collected: 2022/05/04
Shipped:
Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli

Bureau Veritas ID: SNN064
Sample ID: B105-A
Matrix: Soil

Collected: 2022/05/04
Shipped:
Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli

Bureau Veritas ID: SNN065
Sample ID: W1
Matrix: Soil

Collected: 2022/05/04
Shipped:
Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli



BUREAU
VERITAS

Bureau Veritas Job #: C2C0029

Report Date: 2022/10/11

exp Services Inc

Sampler Initials: JE

TEST SUMMARY

Bureau Veritas ID: SNN066

Sample ID: W2

Matrix: Soil

Collected: 2022/05/04

Shipped:

Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli

Bureau Veritas ID: SNN067

Sample ID: W3

Matrix: Soil

Collected: 2022/05/04

Shipped:

Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli

Bureau Veritas ID: SNN068

Sample ID: W4

Matrix: Soil

Collected: 2022/05/04

Shipped:

Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli

Bureau Veritas ID: SNN068 Dup

Sample ID: W4

Matrix: Soil

Collected: 2022/05/04

Shipped:

Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli

Bureau Veritas ID: SNN069

Sample ID: W5

Matrix: Soil

Collected: 2022/05/04

Shipped:

Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli

Bureau Veritas ID: SNN070

Sample ID: W6

Matrix: Soil

Collected: 2022/05/04

Shipped:

Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli

Bureau Veritas ID: SNN071

Sample ID: W7

Matrix: Soil

Collected: 2022/05/04

Shipped:

Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli



BUREAU
VERITAS

Bureau Veritas Job #: C2C0029
Report Date: 2022/10/11

exp Services Inc
Sampler Initials: JE

TEST SUMMARY

Bureau Veritas ID: SNN072
Sample ID: W8
Matrix: Soil

Collected: 2022/05/04
Shipped:
Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli

Bureau Veritas ID: SNN073
Sample ID: B100(DUP)
Matrix: Soil

Collected: 2022/05/04
Shipped:
Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli

Bureau Veritas ID: SNN074
Sample ID: W100(DUP)
Matrix: Soil

Collected: 2022/05/04
Shipped:
Received: 2022/05/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	7983929	2022/05/09	2022/05/10	Azita Fazaeli



GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.0°C
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Revised report (2022/10/11): Includes amended Reg 153 criteria as requested.

Results relate only to the items tested.

BUREAU
VERITAS

Bureau Veritas Job #: C2C0029

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT

exp Services Inc
Sampler Initials: JE

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7983678	Acid Extractable Antimony (Sb)	2022/05/10	91	75 - 125	97	80 - 120	<0.20	ug/g	8.2	30
7983678	Acid Extractable Arsenic (As)	2022/05/10	104	75 - 125	97	80 - 120	<1.0	ug/g	0.18	30
7983678	Acid Extractable Barium (Ba)	2022/05/10	99	75 - 125	95	80 - 120	<0.50	ug/g	5.3	30
7983678	Acid Extractable Beryllium (Be)	2022/05/10	102	75 - 125	99	80 - 120	<0.20	ug/g	4.6	30
7983678	Acid Extractable Boron (B)	2022/05/10	92	75 - 125	95	80 - 120	<5.0	ug/g	NC	30
7983678	Acid Extractable Cadmium (Cd)	2022/05/10	95	75 - 125	95	80 - 120	<0.10	ug/g	14	30
7983678	Acid Extractable Chromium (Cr)	2022/05/10	102	75 - 125	102	80 - 120	<1.0	ug/g	0.60	30
7983678	Acid Extractable Cobalt (Co)	2022/05/10	97	75 - 125	96	80 - 120	<0.10	ug/g	1.4	30
7983678	Acid Extractable Copper (Cu)	2022/05/10	99	75 - 125	96	80 - 120	<0.50	ug/g	3.7	30
7983678	Acid Extractable Lead (Pb)	2022/05/10	139 (1)	75 - 125	95	80 - 120	<1.0	ug/g	5.3	30
7983678	Acid Extractable Molybdenum (Mo)	2022/05/10	99	75 - 125	97	80 - 120	<0.50	ug/g	11	30
7983678	Acid Extractable Nickel (Ni)	2022/05/10	103	75 - 125	97	80 - 120	<0.50	ug/g	2.0	30
7983678	Acid Extractable Selenium (Se)	2022/05/10	98	75 - 125	96	80 - 120	<0.50	ug/g	NC	30
7983678	Acid Extractable Silver (Ag)	2022/05/10	98	75 - 125	98	80 - 120	<0.20	ug/g	NC	30
7983678	Acid Extractable Thallium (Tl)	2022/05/10	98	75 - 125	97	80 - 120	<0.050	ug/g	0.072	30
7983678	Acid Extractable Uranium (U)	2022/05/10	97	75 - 125	96	80 - 120	<0.050	ug/g	0.32	30
7983678	Acid Extractable Vanadium (V)	2022/05/10	104	75 - 125	99	80 - 120	<5.0	ug/g	0.63	30
7983678	Acid Extractable Zinc (Zn)	2022/05/10	106	75 - 125	98	80 - 120	<5.0	ug/g	2.1	30
7983929	Acid Extractable Antimony (Sb)	2022/05/10	89	75 - 125	97	80 - 120	<0.20	ug/g	NC	30
7983929	Acid Extractable Arsenic (As)	2022/05/10	91	75 - 125	100	80 - 120	<1.0	ug/g	7.7	30
7983929	Acid Extractable Barium (Ba)	2022/05/10	79	75 - 125	98	80 - 120	<0.50	ug/g	4.0	30
7983929	Acid Extractable Beryllium (Be)	2022/05/10	95	75 - 125	99	80 - 120	<0.20	ug/g	NC	30
7983929	Acid Extractable Boron (B)	2022/05/10	88	75 - 125	95	80 - 120	<5.0	ug/g	NC	30
7983929	Acid Extractable Cadmium (Cd)	2022/05/10	86	75 - 125	93	80 - 120	<0.10	ug/g	NC	30
7983929	Acid Extractable Chromium (Cr)	2022/05/10	90	75 - 125	99	80 - 120	<1.0	ug/g	0.39	30
7983929	Acid Extractable Cobalt (Co)	2022/05/10	87	75 - 125	94	80 - 120	<0.10	ug/g	5.4	30
7983929	Acid Extractable Copper (Cu)	2022/05/10	85	75 - 125	96	80 - 120	<0.50	ug/g	8.8	30
7983929	Acid Extractable Lead (Pb)	2022/05/10	84	75 - 125	94	80 - 120	<1.0	ug/g	3.2	30
7983929	Acid Extractable Molybdenum (Mo)	2022/05/10	90	75 - 125	96	80 - 120	<0.50	ug/g	NC	30
7983929	Acid Extractable Nickel (Ni)	2022/05/10	88	75 - 125	96	80 - 120	<0.50	ug/g	6.0	30
7983929	Acid Extractable Selenium (Se)	2022/05/10	90	75 - 125	99	80 - 120	<0.50	ug/g	NC	30



BUREAU
VERITAS

Bureau Veritas Job #: C2C0029

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc
Sampler Initials: JE

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
7983929	Acid Extractable Silver (Ag)	2022/05/10	89	75 - 125	96	80 - 120	<0.20	ug/g	NC	30
7983929	Acid Extractable Thallium (Tl)	2022/05/10	87	75 - 125	96	80 - 120	<0.050	ug/g	NC	30
7983929	Acid Extractable Uranium (U)	2022/05/10	89	75 - 125	96	80 - 120	<0.050	ug/g	13	30
7983929	Acid Extractable Vanadium (V)	2022/05/10	86	75 - 125	98	80 - 120	<5.0	ug/g	5.4	30
7983929	Acid Extractable Zinc (Zn)	2022/05/10	87	75 - 125	97	80 - 120	<5.0	ug/g	2.7	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



BUREAU
VERITAS

Bureau Veritas Job #: C2C0029
Report Date: 2022/10/11

exp Services Inc
Sampler Initials: JE

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Brad Newman, B.Sc., C.Chem., Scientific Service Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



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 CAM FCD-01191/6

REC'D IN LONDON

CHAIN OF CUSTODY RECORD

161952

Page 1 of 2

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required	
Company Name: <u>Exp Services Inc</u>		Company Name:		Quotation #:		☒ Regular TAT (5-7 days) Most analyses	
Contact Name: <u>Scott Aziz</u>		Contact Name:		P.O. #/ AFE#:		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Address: <u>15701 Robins Hill Rd</u>		Address:		Project #:		Rush TAT (Surcharges will be applied)	
<u>London, ON</u>				Site Location:		☐ 1 Day ☐ 2 Days ☐ 3-4 Days	
Phone: <u>905-200-3000</u> Fax:		Phone: Fax:		Site #:		Date Required:	
Email: <u>Jennifer.Hill@exp.com</u>		Email: <u>Scott.Aziz@exp.com</u>		Site Location Province:		Rush Confirmation #:	
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS LABORATORIES' DRINKING WATER CHAIN OF CUSTODY							
Regulation 153		Other Regulations		Analysis Requested		LABORATORY USE ONLY	
☐ Table 1 ☒ Res/Park ☐ Med/ Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☒ Table 3 ☐ Agri/ Other FOR RSC (PLEASE CIRCLE) <u>N</u>		☐ CCME ☐ Sanitary Sewer Bylaw ☐ MISA ☐ Storm Sewer Bylaw ☐ PWQO Region ☐ Other (Specify) ☐ REG 558 (MIN. 3 DAY TAT REQUIRED) ☐ REG 406 Table		REG 153 METALS & INORGANICS REG 153 ICPMS METALS REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)		CUSTODY SEAL Y / N Present Intact <u>N</u> <u>N</u> COOLER TEMPERATURES <u>3.7.2</u> <u>21211</u> COOLING MEDIA PRESENT: <u>(Y)</u> / N COMMENTS	
Include Criteria on Certificate of Analysis: <u>N</u>		SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS					
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / Cr VI	DO NOT ANALYZE
1	B101-A	2022/04/04	pm	S			
2	B102-A						
3	B103-A						
4	B104-A						
5	B105-A						
6	W1						
7	W2						
8	W3						
9	W4						
10	WS						
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)
<u>Jennifer Hill</u>		<u>2022/05/04</u>	<u>14:23</u>	<u>In In Bai</u>		<u>2022/05/04</u>	<u>14:23</u>
				<u>Qidm m. VIDHI BHAKAR</u>		<u>2022/05/04</u>	<u>17:50</u>

04-May-22 14:23
 Christine Gripton
 C2C0029
 VBV ENV-1549

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at <http://www.bvlabs.com/terms-and-conditions>

COC-1004 (06/19)

418704

White: BV Labs - Yellow: Client



6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/6

REC'D IN LONDON

CHAIN OF CUSTODY RECORD 161953 Page 2 of 2

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required	
Company Name: <u>Exp Services Inc</u>		Company Name: _____		Quotation #: _____		☒ Regular TAT (5-7 days) Most analyses	
Contact Name: <u>Scott Ariz</u>		Contact Name: _____		P.O. #/ AFE#: _____		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Address: <u>15701 Robin's Hill Rd</u>		Address: _____		Project #: _____		Rush TAT (Surcharges will be applied)	
City: <u>London ON</u>		City: _____		Site Location: _____		☐ 1 Day ☐ 2 Days ☐ 3-4 Days	
Phone: <u>905-300-3000</u> Fax: _____		Phone: _____ Fax: _____		Site #: _____		Date Required: _____	
Email: <u>Jennifer.Ellison@exp.com</u>		Email: <u>Scott.Ariz@exp.com</u>		Site Location Province: _____		Rush Confirmation #: _____	
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS LABORATORIES' DRINKING WATER CHAIN OF CUSTODY							
Regulation 153		Other Regulations		Analysis Requested		LABORATORY USE ONLY	
☐ Table 1 ☒ Res/Park ☐ Med/ Fine		☐ CCME ☐ Sanitary Sewer Bylaw		# OF CONTAINERS SUBMITTED FIELD FILTERED (CIRCLE) Metals / Hg / CrVI BTX/ PHC F1 PHCs F2 - F4 VOCs REG 153 METALS & INORGANICS REG 153 ICPMS METALS REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)		CUSTODY SEAL Y / N	
☐ Table 2 ☐ Ind/Comm ☐ Coarse		☐ MISA ☐ Storm Sewer Bylaw				Present	Intact
☒ Table 3 ☐ Agri/ Other		☐ PWQO ☐ Region				N	N
☐ Table _____		☐ Other (Specify) _____				COOLER TEMPERATURES	
FOR RSC (PLEASE CIRCLE) (Y) / N		☐ REG 558 (MIN. 3 DAY TAT REQUIRED)				3, 7, 2	
☐ REG 406 Table _____		☐ REG 406 Table _____					
Include Criteria on Certificate of Analysis: <u>Y</u> / N						COOLING MEDIA PRESENT: (Y) / N	
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS							
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	COMMENTS		
1	W6	2022 05/04	PM	S			
2	W7	↓	↓	↓			
3	W8	↓	↓	↓			
4	B B100 (DUP)	↓	↓	↓			
5	W100 (DUP)	↓	↓	↓			
6							
7							
8							
9							
10							
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)
<u>Jennifer Ellison</u>		2022/05/04	14:23	<u>Lu Lu Bai</u>		2022/05/04	14:23
				See pg 1			

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at <http://www.bvlabs.com/terms-and-conditions>

COC-1004 (06/19)

White: BV Labs - Yellow: Client

**Exceedance Summary Table – Reg153/04 T2-Soil/Res-F/M****Result Exceedances**

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
B101-A	SNN060-01	Acid Extractable Lead (Pb)	120	620	1.0	ug/g
B103-A	SNN062-01	Acid Extractable Lead (Pb)	120	320	1.0	ug/g
B103-A	SNN062-01-Lab Dup	Acid Extractable Lead (Pb)	120	340	1.0	ug/g
B105-A	SNN064-01	Acid Extractable Lead (Pb)	120	180	1.0	ug/g
W1	SNN065-01	Acid Extractable Lead (Pb)	120	400	1.0	ug/g
W2	SNN066-01	Acid Extractable Lead (Pb)	120	160	1.0	ug/g
W3	SNN067-01	Acid Extractable Lead (Pb)	120	300	1.0	ug/g
W5	SNN069-01	Acid Extractable Lead (Pb)	120	390	1.0	ug/g
W6	SNN070-01	Acid Extractable Lead (Pb)	120	730	1.0	ug/g
W7	SNN071-01	Acid Extractable Lead (Pb)	120	2700	1.0	ug/g
W8	SNN072-01	Acid Extractable Lead (Pb)	120	450	1.0	ug/g
W100(DUP)	SNN074-01	Acid Extractable Lead (Pb)	120	720	1.0	ug/g

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Exceedance Summary Table – Reg153/04 T3-Soil/Res-F/M**Result Exceedances**

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
B101-A	SNN060-01	Acid Extractable Lead (Pb)	120	620	1.0	ug/g
B103-A	SNN062-01	Acid Extractable Lead (Pb)	120	320	1.0	ug/g
B103-A	SNN062-01-Lab Dup	Acid Extractable Lead (Pb)	120	340	1.0	ug/g
B105-A	SNN064-01	Acid Extractable Lead (Pb)	120	180	1.0	ug/g
W1	SNN065-01	Acid Extractable Lead (Pb)	120	400	1.0	ug/g
W2	SNN066-01	Acid Extractable Lead (Pb)	120	160	1.0	ug/g
W3	SNN067-01	Acid Extractable Lead (Pb)	120	300	1.0	ug/g
W5	SNN069-01	Acid Extractable Lead (Pb)	120	390	1.0	ug/g
W6	SNN070-01	Acid Extractable Lead (Pb)	120	730	1.0	ug/g
W7	SNN071-01	Acid Extractable Lead (Pb)	120	2700	1.0	ug/g
W8	SNN072-01	Acid Extractable Lead (Pb)	120	450	1.0	ug/g
W100(DUP)	SNN074-01	Acid Extractable Lead (Pb)	120	720	1.0	ug/g

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.



Your Project #: 21016021
Site Location: WAREHOUSE ST
Your C.O.C. #: na

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/11
Report #: R7336452
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C2K3562

Received: 2022/07/20, 08:30

Sample Matrix: Soil
Samples Received: 7

Analyses	Date		Date	Laboratory Method	Analytical Method
	Quantity	Extracted			
Acid Extractable Metals by ICPMS	7	2022/07/25	2022/07/25	CAM SOP-00447	EPA 6020B m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

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Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: 21016021
Site Location: WAREHOUSE ST
Your C.O.C. #: na

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/11
Report #: R7336452
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C2K3562

Received: 2022/07/20, 08:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Christine Gipton, Senior Project Manager
Email: Christine.Gipton@bureauveritas.com
Phone# (519)652-9444

=====

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



BUREAU
VERITAS

Bureau Veritas Job #: C2K3562

Report Date: 2022/10/11

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE ST

Sampler Initials: KDH

O.REG 153 ICPMS METALS (SOIL)

Bureau Veritas ID				TFO647	TFO648	TFO649	TFO650	TFO651		
Sampling Date				2022/07/14	2022/07/14	2022/07/14	2022/07/14	2022/07/14		
COC Number				na	na	na	na	na		
	UNITS	Criteria	Criteria-2	BASE 201	BASE 202	BASE 203	BASE 204	BASE 205	RDL	QC Batch

Metals

Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	<0.20	<0.20	<0.20	<0.20	0.35	0.20	8128503
Acid Extractable Arsenic (As)	ug/g	18	18	2.9	3.1	2.8	2.7	4.8	1.0	8128503
Acid Extractable Barium (Ba)	ug/g	390	390	39	51	39	42	49	0.50	8128503
Acid Extractable Beryllium (Be)	ug/g	5	5	0.43	0.49	0.46	0.47	0.41	0.20	8128503
Acid Extractable Boron (B)	ug/g	120	120	<5.0	6.8	5.7	6.3	5.3	5.0	8128503
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	0.12	<0.10	<0.10	0.11	0.18	0.10	8128503
Acid Extractable Chromium (Cr)	ug/g	160	160	15	18	16	17	14	1.0	8128503
Acid Extractable Cobalt (Co)	ug/g	22	22	6.9	8.5	7.1	7.9	6.7	0.10	8128503
Acid Extractable Copper (Cu)	ug/g	180	180	13	18	15	15	17	0.50	8128503
Acid Extractable Lead (Pb)	ug/g	120	120	13	23	13	8.8	340	1.0	8128503
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	8128503
Acid Extractable Nickel (Ni)	ug/g	130	130	15	18	15	16	13	0.50	8128503
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	<0.50	<0.50	<0.50	<0.50	<0.50	0.50	8128503
Acid Extractable Silver (Ag)	ug/g	25	25	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	8128503
Acid Extractable Thallium (Tl)	ug/g	1	1	0.093	0.12	0.094	0.10	0.11	0.050	8128503
Acid Extractable Uranium (U)	ug/g	23	23	0.44	0.47	0.49	0.45	0.45	0.050	8128503
Acid Extractable Vanadium (V)	ug/g	86	86	24	28	28	26	24	5.0	8128503
Acid Extractable Zinc (Zn)	ug/g	340	340	39	47	38	38	54	5.0	8128503

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition

Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil

Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition

Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil



BUREAU
VERITAS

Bureau Veritas Job #: C2K3562
Report Date: 2022/10/11

exp Services Inc
Client Project #: 21016021
Site Location: WAREHOUSE ST
Sampler Initials: KDH

O.REG 153 ICPMS METALS (SOIL)

Bureau Veritas ID				TFO652	TFO653		
Sampling Date				2022/07/14	2022/07/14		
COC Number				na	na		
	UNITS	Criteria	Criteria-2	W 205	W 206	RDL	QC Batch
Metals							
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	1.3	<0.20	0.20	8128503
Acid Extractable Arsenic (As)	ug/g	18	18	19	4.0	1.0	8128503
Acid Extractable Barium (Ba)	ug/g	390	390	200	48	0.50	8128503
Acid Extractable Beryllium (Be)	ug/g	5	5	0.59	0.37	0.20	8128503
Acid Extractable Boron (B)	ug/g	120	120	5.2	<5.0	5.0	8128503
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	0.45	0.18	0.10	8128503
Acid Extractable Chromium (Cr)	ug/g	160	160	18	13	1.0	8128503
Acid Extractable Cobalt (Co)	ug/g	22	22	8.1	6.2	0.10	8128503
Acid Extractable Copper (Cu)	ug/g	180	180	31	12	0.50	8128503
Acid Extractable Lead (Pb)	ug/g	120	120	2200	130	1.0	8128503
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	0.98	<0.50	0.50	8128503
Acid Extractable Nickel (Ni)	ug/g	130	130	19	12	0.50	8128503
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	0.62	<0.50	0.50	8128503
Acid Extractable Silver (Ag)	ug/g	25	25	<0.20	<0.20	0.20	8128503
Acid Extractable Thallium (Tl)	ug/g	1	1	0.25	0.13	0.050	8128503
Acid Extractable Uranium (U)	ug/g	23	23	0.53	0.52	0.050	8128503
Acid Extractable Vanadium (V)	ug/g	86	86	31	23	5.0	8128503
Acid Extractable Zinc (Zn)	ug/g	340	340	290	40	5.0	8128503
RDL = Reportable Detection Limit							
QC Batch = Quality Control Batch							
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)							
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition							
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil							
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)							
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition							
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil							



BUREAU
VERITAS

Bureau Veritas Job #: C2K3562
Report Date: 2022/10/11

exp Services Inc
Client Project #: 21016021
Site Location: WAREHOUSE ST
Sampler Initials: KDH

TEST SUMMARY

Bureau Veritas ID: TFO647
Sample ID: BASE 201
Matrix: Soil

Collected: 2022/07/14
Shipped:
Received: 2022/07/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8128503	2022/07/25	2022/07/25	Medhat Nasr

Bureau Veritas ID: TFO648
Sample ID: BASE 202
Matrix: Soil

Collected: 2022/07/14
Shipped:
Received: 2022/07/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8128503	2022/07/25	2022/07/25	Medhat Nasr

Bureau Veritas ID: TFO648 Dup
Sample ID: BASE 202
Matrix: Soil

Collected: 2022/07/14
Shipped:
Received: 2022/07/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8128503	2022/07/25	2022/07/25	Medhat Nasr

Bureau Veritas ID: TFO649
Sample ID: BASE 203
Matrix: Soil

Collected: 2022/07/14
Shipped:
Received: 2022/07/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8128503	2022/07/25	2022/07/25	Medhat Nasr

Bureau Veritas ID: TFO650
Sample ID: BASE 204
Matrix: Soil

Collected: 2022/07/14
Shipped:
Received: 2022/07/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8128503	2022/07/25	2022/07/25	Medhat Nasr

Bureau Veritas ID: TFO651
Sample ID: BASE 205
Matrix: Soil

Collected: 2022/07/14
Shipped:
Received: 2022/07/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8128503	2022/07/25	2022/07/25	Medhat Nasr

Bureau Veritas ID: TFO652
Sample ID: W 205
Matrix: Soil

Collected: 2022/07/14
Shipped:
Received: 2022/07/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8128503	2022/07/25	2022/07/25	Medhat Nasr



BUREAU
VERITAS

Bureau Veritas Job #: C2K3562
Report Date: 2022/10/11

exp Services Inc
Client Project #: 21016021
Site Location: WAREHOUSE ST
Sampler Initials: KDH

TEST SUMMARY

Bureau Veritas ID: TFO653
Sample ID: W 206
Matrix: Soil

Collected: 2022/07/14
Shipped:
Received: 2022/07/20

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8128503	2022/07/25	2022/07/25	Medhat Nasr



BUREAU
VERITAS

Bureau Veritas Job #: C2K3562
Report Date: 2022/10/11

exp Services Inc
Client Project #: 21016021
Site Location: WAREHOUSE ST
Sampler Initials: KDH

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.7°C
-----------	-------

Revised report (2022/10/11): Includes amended Reg 153 criteria as requested.

Results relate only to the items tested.

BUREAU
VERITAS

Bureau Veritas Job #: C2K3562

Report Date: 2022/10/11

QUALITY ASSURANCE REPORT

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE ST

Sampler Initials: KDH

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8128503	Acid Extractable Antimony (Sb)	2022/07/25	97	75 - 125	99	80 - 120	<0.20	ug/g	NC	30
8128503	Acid Extractable Arsenic (As)	2022/07/25	100	75 - 125	96	80 - 120	<1.0	ug/g	1.1	30
8128503	Acid Extractable Barium (Ba)	2022/07/25	105	75 - 125	97	80 - 120	<0.50	ug/g	0.60	30
8128503	Acid Extractable Beryllium (Be)	2022/07/25	103	75 - 125	96	80 - 120	<0.20	ug/g	3.6	30
8128503	Acid Extractable Boron (B)	2022/07/25	101	75 - 125	95	80 - 120	<5.0	ug/g	0.19	30
8128503	Acid Extractable Cadmium (Cd)	2022/07/25	104	75 - 125	99	80 - 120	<0.10	ug/g	5.2	30
8128503	Acid Extractable Chromium (Cr)	2022/07/25	106	75 - 125	99	80 - 120	<1.0	ug/g	0.53	30
8128503	Acid Extractable Cobalt (Co)	2022/07/25	104	75 - 125	100	80 - 120	<0.10	ug/g	1.2	30
8128503	Acid Extractable Copper (Cu)	2022/07/25	97	75 - 125	98	80 - 120	<0.50	ug/g	2.2	30
8128503	Acid Extractable Lead (Pb)	2022/07/25	96	75 - 125	96	80 - 120	<1.0	ug/g	4.0	30
8128503	Acid Extractable Molybdenum (Mo)	2022/07/25	105	75 - 125	98	80 - 120	<0.50	ug/g	NC	30
8128503	Acid Extractable Nickel (Ni)	2022/07/25	103	75 - 125	101	80 - 120	<0.50	ug/g	1.3	30
8128503	Acid Extractable Selenium (Se)	2022/07/25	99	75 - 125	98	80 - 120	<0.50	ug/g	NC	30
8128503	Acid Extractable Silver (Ag)	2022/07/25	103	75 - 125	99	80 - 120	<0.20	ug/g	NC	30
8128503	Acid Extractable Thallium (Tl)	2022/07/25	101	75 - 125	97	80 - 120	<0.050	ug/g	0.88	30
8128503	Acid Extractable Uranium (U)	2022/07/25	101	75 - 125	96	80 - 120	<0.050	ug/g	0.33	30
8128503	Acid Extractable Vanadium (V)	2022/07/25	106	75 - 125	100	80 - 120	<5.0	ug/g	3.4	30
8128503	Acid Extractable Zinc (Zn)	2022/07/25	113	75 - 125	97	80 - 120	<5.0	ug/g	1.6	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).



BUREAU
VERITAS

Bureau Veritas Job #: C2K3562

Report Date: 2022/10/11

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE ST

Sampler Initials: KDH

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere, Senior Scientific Specialist

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6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/6

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CHAIN OF CUSTODY RECORD

162044

Page 1 of 1

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required	
Company Name: <u>EXP Services Inc</u>		Company Name: <u>Scott A212</u>		Quotation #: <u>B91718</u>		☒ Regular TAT (5-7 days) Most analyses	
Contact Name: <u>Scott A212</u>		Contact Name: <u>Scott A212</u>		P.O. #/ AFE#: <u>21016021</u>		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS	
Address: <u>15701 Robin's Hill Rd</u> <u>Levin, ON</u>		Address: <u>WAREHOUSE ST</u>		Project #: <u>21016021</u>		Rush TAT (Surcharges will be applied)	
Phone: <u>508-222-0100</u>		Phone: <u>508-222-0100</u>		Site Location: <u>WAREHOUSE ST</u>		☐ 1 Day ☐ 2 Days ☐ 3-4 Days	
Fax: <u>508-222-0100</u>		Fax: <u>508-222-0100</u>		Site #: <u>WAREHOUSE ST</u>		Date Required: <u>2022/07/20</u>	
Email: <u>Scott.A212@exp.com</u>		Email: <u>Scott.A212@exp.com / Kevin.d@exp.com</u>		Site Location Provided: <u>WAREHOUSE ST</u>		Rush Confirmation #: <u>2022/07/20</u>	
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS LABORATORIES' DRINKING WATER CHAIN OF CUSTODY				Sampled By: <u>Kevin.d@exp.com</u>		LABORATORY USE ONLY	
Regulation 153		Other Regulations		Analysis Requested		CUSTODY SEAL Y / N	
☐ Table 1 ☒ Res/Park ☒ Med/ Fine		☐ CCME ☐ Sanitary Sewer Bylaw		☐ FIELD FILTERED (CIRCLE) Metals / Hg / CrVI		☐ Present ☐ Intact	
☒ Table 2 ☐ Ind/Comm ☐ Coarse		☐ MISA ☐ Storm Sewer Bylaw		☐ BTX / PHC F1		☐ Y ☐ Y	
☐ Table 3 ☐ Agri/ Other		☐ PWQO Region: <u> </u>		☐ PHCs F2 - F4		☐ Y ☐ Y	
☐ Table <u> </u>		☐ Other (Specify) <u> </u>		☐ VOCs		☐ Y ☐ Y	
FOR RSC (PLEASE CIRCLE) <u>Y</u> / N		☐ REG 558 (MIN. 3 DAY TAT REQUIRED)		☐ REG 153 METALS & INORGANICS		☐ Y ☐ Y	
Include Criteria on Certificate of Analysis: <u>Y</u> / N		☐ REG 406 Table <u> </u>		☐ REG 153 METALS (Hg, Cr VI, ICPMs Metals, HWS - B)		☐ Y ☐ Y	
SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS						COOLING MEDIA PRESENT: <u>Y</u> / N	
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	COMMENTS	
1	Base 201	2022/07/19	AM	Soil	1		
2	Base 202				1		
3	Base 203				1		
4	Base 204				1		
5	Base 205				1		
6	W 205				1		
7	W 206				1		
8							
9							
10							
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)
<u>Kevin.d@exp.com</u>		2022/07/19	6:00pm	<u>Kevin.d@exp.com</u>		2022/07/20	08:30
				<u>Ray Masara</u>		2022/07/20	18:10

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at <http://www.bvlabs.com/terms-and-conditions>

ENCLOSURE (M/R)

20-Jul-22 08:30

Christine Gipton
C2K3562

TPS ENV-1669

BR-418759



BUREAU
VERITAS

Bureau Veritas Job #: C2K3562

Report Date: 2022/10/11

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE ST

Sampler Initials: KDH

Exceedance Summary Table – Reg153/04 T2-Soil/Res-F/M
Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
BASE 205	TFO651-01	Acid Extractable Lead (Pb)	120	340	1.0	ug/g
W 205	TFO652-01	Acid Extractable Arsenic (As)	18	19	1.0	ug/g
W 205	TFO652-01	Acid Extractable Lead (Pb)	120	2200	1.0	ug/g
W 206	TFO653-01	Acid Extractable Lead (Pb)	120	130	1.0	ug/g

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Exceedance Summary Table – Reg153/04 T3-Soil/Res-F/M
Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
BASE 205	TFO651-01	Acid Extractable Lead (Pb)	120	340	1.0	ug/g
W 205	TFO652-01	Acid Extractable Arsenic (As)	18	19	1.0	ug/g
W 205	TFO652-01	Acid Extractable Lead (Pb)	120	2200	1.0	ug/g
W 206	TFO653-01	Acid Extractable Lead (Pb)	120	130	1.0	ug/g

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.



Your Project #: 21016021
Site Location: WAREHOUSE IT
Your C.O.C. #: n/a

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/12

Report #: R7337735

Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2S8267

Received: 2022/10/04, 14:58

Sample Matrix: Soil
Samples Received: 3

Analyses	Date		Date	Laboratory Method	Analytical Method
	Quantity	Extracted	Analyzed		
Acid Extractable Metals by ICPMS	3	2022/10/11	2022/10/11	CAM SOP-00447	EPA 6020B m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: 21016021
Site Location: WAREHOUSE IT
Your C.O.C. #: n/a

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/12
Report #: R7337735
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2S8267
Received: 2022/10/04, 14:58

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Christine Gipton, Senior Project Manager
Email: Christine.Gipton@bureauveritas.com
Phone# (519)652-9444

=====

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BUREAU
VERITAS

Bureau Veritas Job #: C2S8267
Report Date: 2022/10/12

exp Services Inc
Client Project #: 21016021
Site Location: WAREHOUSE IT
Sampler Initials: KD

O.REG 153 ICPMS METALS (SOIL)

Bureau Veritas ID			TXQ653	TXQ654		TXQ655		
Sampling Date			2022/10/01 13:30	2022/10/01 13:45		2022/10/01 14:00		
COC Number			n/a	n/a		n/a		
	UNITS	Criteria	W305	W306	QC Batch	BASE 305	RDL	QC Batch
Metals								
Acid Extractable Antimony (Sb)	ug/g	7.5	0.37	0.51	8274810	<0.20	0.20	8274894
Acid Extractable Arsenic (As)	ug/g	18	4.6	7.9	8274810	5.6	1.0	8274894
Acid Extractable Barium (Ba)	ug/g	390	79	70	8274810	71	0.50	8274894
Acid Extractable Beryllium (Be)	ug/g	5	0.53	0.54	8274810	0.56	0.20	8274894
Acid Extractable Boron (B)	ug/g	120	7.6	7.4	8274810	<5.0	5.0	8274894
Acid Extractable Cadmium (Cd)	ug/g	1.2	0.15	0.29	8274810	0.15	0.10	8274894
Acid Extractable Chromium (Cr)	ug/g	160	18	18	8274810	19	1.0	8274894
Acid Extractable Cobalt (Co)	ug/g	22	8.4	7.5	8274810	8.0	0.10	8274894
Acid Extractable Copper (Cu)	ug/g	180	25	23	8274810	14	0.50	8274894
Acid Extractable Lead (Pb)	ug/g	120	130	150	8274810	120	1.0	8274894
Acid Extractable Molybdenum (Mo)	ug/g	6.9	0.52	0.64	8274810	0.71	0.50	8274894
Acid Extractable Nickel (Ni)	ug/g	130	19	16	8274810	15	0.50	8274894
Acid Extractable Selenium (Se)	ug/g	2.4	<0.50	0.82	8274810	<0.50	0.50	8274894
Acid Extractable Silver (Ag)	ug/g	25	<0.20	<0.20	8274810	<0.20	0.20	8274894
Acid Extractable Thallium (Tl)	ug/g	1	0.14	0.22	8274810	0.12	0.050	8274894
Acid Extractable Uranium (U)	ug/g	23	0.53	0.56	8274810	0.58	0.050	8274894
Acid Extractable Vanadium (V)	ug/g	86	28	27	8274810	31	5.0	8274894
Acid Extractable Zinc (Zn)	ug/g	340	61	75	8274810	56	5.0	8274894
RDL = Reportable Detection Limit								
QC Batch = Quality Control Batch								
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)								
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition								
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil								



BUREAU
VERITAS

Bureau Veritas Job #: C2S8267
Report Date: 2022/10/12

exp Services Inc
Client Project #: 21016021
Site Location: WAREHOUSE IT
Sampler Initials: KD

TEST SUMMARY

Bureau Veritas ID: TXQ653
Sample ID: W305
Matrix: Soil

Collected: 2022/10/01
Shipped:
Received: 2022/10/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8274810	2022/10/11	2022/10/11	Viviana Canzonieri

Bureau Veritas ID: TXQ654
Sample ID: W306
Matrix: Soil

Collected: 2022/10/01
Shipped:
Received: 2022/10/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8274810	2022/10/11	2022/10/11	Viviana Canzonieri

Bureau Veritas ID: TXQ655
Sample ID: BASE 305
Matrix: Soil

Collected: 2022/10/01
Shipped:
Received: 2022/10/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8274894	2022/10/11	2022/10/11	Prempal Bhatti



BUREAU
VERITAS

Bureau Veritas Job #: C2S8267

Report Date: 2022/10/12

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE IT

Sampler Initials: KD

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	9.3°C
-----------	-------

Results relate only to the items tested.

BUREAU
VERITAS

Bureau Veritas Job #: C2S8267

Report Date: 2022/10/12

QUALITY ASSURANCE REPORT

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE IT

Sampler Initials: KD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8274810	Acid Extractable Antimony (Sb)	2022/10/11	95	75 - 125	102	80 - 120	<0.20	ug/g	NC	30
8274810	Acid Extractable Arsenic (As)	2022/10/11	107	75 - 125	100	80 - 120	<1.0	ug/g	9.4	30
8274810	Acid Extractable Barium (Ba)	2022/10/11	123	75 - 125	102	80 - 120	<0.50	ug/g	1.4	30
8274810	Acid Extractable Beryllium (Be)	2022/10/11	101	75 - 125	93	80 - 120	<0.20	ug/g	1.6	30
8274810	Acid Extractable Boron (B)	2022/10/11	105	75 - 125	90	80 - 120	<5.0	ug/g	0.57	30
8274810	Acid Extractable Cadmium (Cd)	2022/10/11	107	75 - 125	103	80 - 120	<0.10	ug/g	3.2	30
8274810	Acid Extractable Chromium (Cr)	2022/10/11	122	75 - 125	106	80 - 120	<1.0	ug/g	3.8	30
8274810	Acid Extractable Cobalt (Co)	2022/10/11	110	75 - 125	104	80 - 120	<0.10	ug/g	2.1	30
8274810	Acid Extractable Copper (Cu)	2022/10/11	108	75 - 125	105	80 - 120	<0.50	ug/g	0.28	30
8274810	Acid Extractable Lead (Pb)	2022/10/11	104	75 - 125	102	80 - 120	<1.0	ug/g	2.1	30
8274810	Acid Extractable Molybdenum (Mo)	2022/10/11	112	75 - 125	103	80 - 120	<0.50	ug/g	NC	30
8274810	Acid Extractable Nickel (Ni)	2022/10/11	111	75 - 125	103	80 - 120	<0.50	ug/g	2.9	30
8274810	Acid Extractable Selenium (Se)	2022/10/11	108	75 - 125	106	80 - 120	<0.50	ug/g	NC	30
8274810	Acid Extractable Silver (Ag)	2022/10/11	110	75 - 125	105	80 - 120	<0.20	ug/g	NC	30
8274810	Acid Extractable Thallium (Tl)	2022/10/11	102	75 - 125	103	80 - 120	<0.050	ug/g	2.0	30
8274810	Acid Extractable Uranium (U)	2022/10/11	106	75 - 125	100	80 - 120	<0.050	ug/g	1.7	30
8274810	Acid Extractable Vanadium (V)	2022/10/11	132 (1)	75 - 125	103	80 - 120	<5.0	ug/g	4.7	30
8274810	Acid Extractable Zinc (Zn)	2022/10/11	114	75 - 125	94	80 - 120	<5.0	ug/g	4.0	30
8274894	Acid Extractable Antimony (Sb)	2022/10/11	103	75 - 125	102	80 - 120	<0.20	ug/g	NC	30
8274894	Acid Extractable Arsenic (As)	2022/10/11	102	75 - 125	104	80 - 120	<1.0	ug/g	NC	30
8274894	Acid Extractable Barium (Ba)	2022/10/11	97	75 - 125	101	80 - 120	<0.50	ug/g	16	30
8274894	Acid Extractable Beryllium (Be)	2022/10/11	102	75 - 125	98	80 - 120	<0.20	ug/g	NC	30
8274894	Acid Extractable Boron (B)	2022/10/11	97	75 - 125	92	80 - 120	<5.0	ug/g	NC	30
8274894	Acid Extractable Cadmium (Cd)	2022/10/11	101	75 - 125	100	80 - 120	<0.10	ug/g	NC	30
8274894	Acid Extractable Chromium (Cr)	2022/10/11	100	75 - 125	99	80 - 120	<1.0	ug/g	9.8	30
8274894	Acid Extractable Cobalt (Co)	2022/10/11	99	75 - 125	99	80 - 120	<0.10	ug/g	7.9	30
8274894	Acid Extractable Copper (Cu)	2022/10/11	99	75 - 125	98	80 - 120	<0.50	ug/g	4.4	30
8274894	Acid Extractable Lead (Pb)	2022/10/11	93	75 - 125	93	80 - 120	<1.0	ug/g	6.8	30
8274894	Acid Extractable Molybdenum (Mo)	2022/10/11	98	75 - 125	97	80 - 120	<0.50	ug/g	NC	30
8274894	Acid Extractable Nickel (Ni)	2022/10/11	101	75 - 125	101	80 - 120	<0.50	ug/g	3.0	30
8274894	Acid Extractable Selenium (Se)	2022/10/11	102	75 - 125	101	80 - 120	<0.50	ug/g	NC	30



BUREAU
VERITAS

Bureau Veritas Job #: C2S8267

Report Date: 2022/10/12

QUALITY ASSURANCE REPORT(CONT'D)

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE IT

Sampler Initials: KD

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8274894	Acid Extractable Silver (Ag)	2022/10/11	96	75 - 125	98	80 - 120	<0.20	ug/g	NC	30
8274894	Acid Extractable Thallium (Tl)	2022/10/11	96	75 - 125	97	80 - 120	<0.050	ug/g	NC	30
8274894	Acid Extractable Uranium (U)	2022/10/11	95	75 - 125	95	80 - 120	<0.050	ug/g	17	30
8274894	Acid Extractable Vanadium (V)	2022/10/11	101	75 - 125	101	80 - 120	<5.0	ug/g	19	30
8274894	Acid Extractable Zinc (Zn)	2022/10/11	100	75 - 125	103	80 - 120	<5.0	ug/g	9.7	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.



BUREAU
VERITAS

Bureau Veritas Job #: C2S8267

Report Date: 2022/10/12

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE IT

Sampler Initials: KD

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere, Senior Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/6

REC'D IN LONDON

CHAIN OF CUSTODY RECORD 162104 Page ____ of ____

Invoice Information		Report Information (if differs from invoice)		Project Information (where applicable)		Turnaround Time (TAT) Required		
Company Name: <u>EXP Services Inc</u>	Company Name: <u>Scott Aziz</u>	Quotation #:	☒ Regular TAT (5-7 days) Most analyses		PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS			
Contact Name: <u>Account Payable</u>	Contact Name:	P.O. #/ A/E#:						
Address:	Address:	Project #:	<u>21016021</u>		Rush TAT (Surcharges will be applied)			
Phone:	Phone:	Site Location:	<u>WAREHOUSE IT</u>		☐ 1 Day ☐ 2 Days ☐ 3-4 Days			
Fax:	Fax:	Site #:			Date Required:			
Email: <u>APC@EXP.com; Karen.Burke@exp.com</u>	Email: <u>Scott.Aziz@exp.com; Karen.Burke@exp.com</u>	Site Location Province:			Rush Confirmation #:			
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS LABORATORIES' DRINKING WATER CHAIN OF CUSTODY		Sampled By: <u>KD</u>						
Regulation 153		Other Regulations		Analysis Requested		LABORATORY USE ONLY		
☐ Table 1 ☒ Res/Park ☒ Med/ Fine		☐ CCME ☐ Sanitary Sewer Bylaw		# OF CONTAINERS SUBMITTED		CUSTODY SEAL Y / N		
☒ Table 2 ☐ Ind/Comm ☐ Coarse		☐ MISA ☐ Storm Sewer Bylaw				Present	Intact	COOLER TEMPERATURES
☐ Table 3 ☐ Agri/ Other		☐ PWQO Region				<u>Y</u>	<u>Y</u>	<u>8, 10, 10</u>
☐ Table: _____		☐ Other (Specify) _____						
FOR RSC (PLEASE CIRCLE) <u>Y</u> / N		☐ REG 558 (MIN. 3 DAY TAT REQUIRED)		REG 153 METALS & INORGANICS		COOLING MEDIA PRESENT: <u>Y</u> / N		
☐ REG 406 Table _____		☐ REG 406 Table _____		REG 153 ICPMS METALS		COMMENTS		
Include Criteria on Certificate of Analysis: <u>Y</u> / N		SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS		REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)				
SAMPLE IDENTIFICATION		DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	HOLD-DO NOT ANALYZE			
1 <u>W305</u>	<u>2021/10/04</u>	<u>1:30</u>	<u>SM</u>	<u>1</u>				
2 <u>W306</u>	<u>↓</u>	<u>1:45</u>	<u>↓</u>	<u>1</u>				
3 <u>base 305</u>	<u>↓</u>	<u>2:00</u>	<u>↓</u>	<u>1</u>				
4								
5								
6								
7								
8								
9								
10								
RELINQUISHED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)		DATE: (YYYY/MM/DD)	TIME: (HH:MM)	
<u>[Signature]</u> <u>KEVIN BERTON</u>		<u>2021/10/04</u>	<u>2:57</u>	<u>[Signature]</u> <u>In In Ben</u>		<u>2021/10/04</u>	<u>14:58</u>	
				<u>[Signature]</u> <u>Annel</u>		<u>2022/10/04</u>	<u>18:00</u>	

Unless otherwise agreed to in writing, work submitted on this Chain of Custody is subject to Bureau Veritas Laboratories' Standard Terms and Conditions. Signing of this Chain of Custody document is acknowledgment and acceptance of our terms available at <http://www.bvlabs.com/terms-and-conditions>

COC-1004 (06/19)

8/10/10

418813

White: BV Labs - Yellow: Client



BUREAU
VERITAS

Bureau Veritas Job #: C2S8267

Report Date: 2022/10/12

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE IT

Sampler Initials: KD

Exceedance Summary Table – Reg153/04 T2-Soil/Res-F/M
Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
W305	TXQ653-01	Acid Extractable Lead (Pb)	120	130	1.0	ug/g
W306	TXQ654-01	Acid Extractable Lead (Pb)	120	150	1.0	ug/g

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.



Your Project #: 21016021
Site Location: WAREHOUSE ST., ST
Your C.O.C. #: 774552-14-01

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/19
Report #: R7348780
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2T8310

Received: 2022/10/13, 17:30

Sample Matrix: Soil
Samples Received: 5

Analyses	Date		Date	Laboratory Method	Analytical Method
	Quantity	Extracted			
Acid Extractable Metals by ICPMS	5	2022/10/19	2022/10/19	CAM SOP-00447	EPA 6020B m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.



Your Project #: 21016021
Site Location: WAREHOUSE ST., ST
Your C.O.C. #: 774552-14-01

Attention: Scott Aziz

exp Services Inc
London Branch
15701 Robin's Hill Rd
Unit 2
London, ON
CANADA N5V 0A5

Report Date: 2022/10/19
Report #: R7348780
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C2T8310

Received: 2022/10/13, 17:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Christine Gipton, Senior Project Manager
Email: Christine.Gipton@bureauveritas.com
Phone# (519)652-9444

=====

This report has been generated and distributed using a secure automated process.

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.



BUREAU
VERITAS

Bureau Veritas Job #: C2T8310

Report Date: 2022/10/19

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE ST., ST

Sampler Initials: KDH

O.REG 153 ICPMS METALS (SOIL)

Bureau Veritas ID				TZS353	TZS354	TZS355	TZS356		
Sampling Date				2022/10/12 14:05	2022/10/12 13:35	2022/10/12 13:50	2022/10/12		
COC Number				774552-14-01	774552-14-01	774552-14-01	774552-14-01		
	UNITS	Criteria	Criteria-2	BASE 405	W405	W406	DUP401	RDL	QC Batch
Metals									
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	<0.20	<0.20	<0.20	0.20	0.20	8292178
Acid Extractable Arsenic (As)	ug/g	18	18	4.8	2.4	2.1	2.2	1.0	8292178
Acid Extractable Barium (Ba)	ug/g	390	390	72	39	46	42	0.50	8292178
Acid Extractable Beryllium (Be)	ug/g	5	5	0.51	0.33	0.39	0.34	0.20	8292178
Acid Extractable Boron (B)	ug/g	120	120	<5.0	<5.0	5.3	<5.0	5.0	8292178
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	0.12	<0.10	0.13	<0.10	0.10	8292178
Acid Extractable Chromium (Cr)	ug/g	160	160	19	14	16	14	1.0	8292178
Acid Extractable Cobalt (Co)	ug/g	22	22	8.3	5.5	5.5	5.3	0.10	8292178
Acid Extractable Copper (Cu)	ug/g	180	180	16	11	11	11	0.50	8292178
Acid Extractable Lead (Pb)	ug/g	120	120	42	9.8	33	8.9	1.0	8292178
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	0.62	<0.50	<0.50	<0.50	0.50	8292178
Acid Extractable Nickel (Ni)	ug/g	130	130	17	11	11	12	0.50	8292178
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	<0.50	<0.50	<0.50	<0.50	0.50	8292178
Acid Extractable Silver (Ag)	ug/g	25	25	<0.20	<0.20	<0.20	<0.20	0.20	8292178
Acid Extractable Thallium (Tl)	ug/g	1	1	0.11	0.077	0.087	0.070	0.050	8292178
Acid Extractable Uranium (U)	ug/g	23	23	0.48	0.41	0.43	0.40	0.050	8292178
Acid Extractable Vanadium (V)	ug/g	86	86	32	26	21	25	5.0	8292178
Acid Extractable Zinc (Zn)	ug/g	340	340	44	29	43	29	5.0	8292178
RDL = Reportable Detection Limit									
QC Batch = Quality Control Batch									
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition									
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil									
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)									
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition									
Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil									



BUREAU
VERITAS

Bureau Veritas Job #: C2T8310

Report Date: 2022/10/19

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE ST., ST

Sampler Initials: KDH

O.REG 153 ICPMS METALS (SOIL)

Bureau Veritas ID				TZS357		
Sampling Date				2022/10/12		
COC Number				774552-14-01		
	UNITS	Criteria	Criteria-2	DUP402	RDL	QC Batch
Metals						
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	<0.20	0.20	8292178
Acid Extractable Arsenic (As)	ug/g	18	18	4.7	1.0	8292178
Acid Extractable Barium (Ba)	ug/g	390	390	79	0.50	8292178
Acid Extractable Beryllium (Be)	ug/g	5	5	0.52	0.20	8292178
Acid Extractable Boron (B)	ug/g	120	120	5.1	5.0	8292178
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	0.16	0.10	8292178
Acid Extractable Chromium (Cr)	ug/g	160	160	19	1.0	8292178
Acid Extractable Cobalt (Co)	ug/g	22	22	9.1	0.10	8292178
Acid Extractable Copper (Cu)	ug/g	180	180	17	0.50	8292178
Acid Extractable Lead (Pb)	ug/g	120	120	51	1.0	8292178
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	0.60	0.50	8292178
Acid Extractable Nickel (Ni)	ug/g	130	130	18	0.50	8292178
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	<0.50	0.50	8292178
Acid Extractable Silver (Ag)	ug/g	25	25	<0.20	0.20	8292178
Acid Extractable Thallium (Tl)	ug/g	1	1	0.12	0.050	8292178
Acid Extractable Uranium (U)	ug/g	23	23	0.52	0.050	8292178
Acid Extractable Vanadium (V)	ug/g	86	86	33	5.0	8292178
Acid Extractable Zinc (Zn)	ug/g	340	340	46	5.0	8292178
RDL = Reportable Detection Limit QC Batch = Quality Control Batch Criteria: Ontario Reg. 153/04 (Amended April 15, 2011) Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011) Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition Soil - Residential/Parkland/Institutional Property Use - Medium and Fine Textured Soil						



BUREAU
VERITAS

Bureau Veritas Job #: C2T8310

Report Date: 2022/10/19

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE ST., ST

Sampler Initials: KDH

TEST SUMMARY

Bureau Veritas ID: TZS353
Sample ID: BASE 405
Matrix: Soil

Collected: 2022/10/12
Shipped:
Received: 2022/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8292178	2022/10/19	2022/10/19	Daniel Teclu

Bureau Veritas ID: TZS354
Sample ID: W405
Matrix: Soil

Collected: 2022/10/12
Shipped:
Received: 2022/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8292178	2022/10/19	2022/10/19	Daniel Teclu

Bureau Veritas ID: TZS355
Sample ID: W406
Matrix: Soil

Collected: 2022/10/12
Shipped:
Received: 2022/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8292178	2022/10/19	2022/10/19	Daniel Teclu

Bureau Veritas ID: TZS356
Sample ID: DUP401
Matrix: Soil

Collected: 2022/10/12
Shipped:
Received: 2022/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8292178	2022/10/19	2022/10/19	Daniel Teclu

Bureau Veritas ID: TZS357
Sample ID: DUP402
Matrix: Soil

Collected: 2022/10/12
Shipped:
Received: 2022/10/13

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Acid Extractable Metals by ICPMS	ICP/MS	8292178	2022/10/19	2022/10/19	Daniel Teclu



BUREAU
VERITAS

Bureau Veritas Job #: C2T8310

Report Date: 2022/10/19

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE ST., ST

Sampler Initials: KDH

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	-3.7°C
-----------	--------

Results relate only to the items tested.

BUREAU
VERITAS

Bureau Veritas Job #: C2T8310

Report Date: 2022/10/19

QUALITY ASSURANCE REPORT

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE ST., ST

Sampler Initials: KDH

QC Batch	Parameter	Date	Matrix Spike		SPIKED BLANK		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
8292178	Acid Extractable Antimony (Sb)	2022/10/19	107	75 - 125	97	80 - 120	<0.20	ug/g	6.3	30
8292178	Acid Extractable Arsenic (As)	2022/10/19	106	75 - 125	98	80 - 120	<1.0	ug/g	3.6	30
8292178	Acid Extractable Barium (Ba)	2022/10/19	106	75 - 125	97	80 - 120	<0.50	ug/g	4.8	30
8292178	Acid Extractable Beryllium (Be)	2022/10/19	102	75 - 125	93	80 - 120	<0.20	ug/g	5.8	30
8292178	Acid Extractable Boron (B)	2022/10/19	97	75 - 125	89	80 - 120	<5.0	ug/g	0.56	30
8292178	Acid Extractable Cadmium (Cd)	2022/10/19	109	75 - 125	97	80 - 120	<0.10	ug/g	9.0	30
8292178	Acid Extractable Chromium (Cr)	2022/10/19	114	75 - 125	100	80 - 120	<1.0	ug/g	8.9	30
8292178	Acid Extractable Cobalt (Co)	2022/10/19	107	75 - 125	98	80 - 120	<0.10	ug/g	3.1	30
8292178	Acid Extractable Copper (Cu)	2022/10/19	106	75 - 125	99	80 - 120	<0.50	ug/g	1.2	30
8292178	Acid Extractable Lead (Pb)	2022/10/19	111	75 - 125	99	80 - 120	<1.0	ug/g	0.42	30
8292178	Acid Extractable Molybdenum (Mo)	2022/10/19	111	75 - 125	99	80 - 120	<0.50	ug/g	1.6	30
8292178	Acid Extractable Nickel (Ni)	2022/10/19	108	75 - 125	97	80 - 120	<0.50	ug/g	3.2	30
8292178	Acid Extractable Selenium (Se)	2022/10/19	108	75 - 125	98	80 - 120	<0.50	ug/g	NC	30
8292178	Acid Extractable Silver (Ag)	2022/10/19	110	75 - 125	97	80 - 120	<0.20	ug/g	NC	30
8292178	Acid Extractable Thallium (Tl)	2022/10/19	105	75 - 125	98	80 - 120	<0.050	ug/g	7.0	30
8292178	Acid Extractable Uranium (U)	2022/10/19	97	75 - 125	90	80 - 120	<0.050	ug/g	0.55	30
8292178	Acid Extractable Vanadium (V)	2022/10/19	112	75 - 125	96	80 - 120	<5.0	ug/g	5.0	30
8292178	Acid Extractable Zinc (Zn)	2022/10/19	105	75 - 125	96	80 - 120	<5.0	ug/g	2.9	30

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference $\leq 2 \times \text{RDL}$).



BUREAU
VERITAS

Bureau Veritas Job #: C2T8310

Report Date: 2022/10/19

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE ST., ST

Sampler Initials: KDH

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Eva Pranjić



Ewa Pranjić, M.Sc., C.Chem, Scientific Specialist

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Bureau Veritas Laboratories
6740 Campbell Road, Mississauga, Ontario Canada L5N 2L8 Tel: (905) 817-5700 Toll-free 800-563-6266 Fax: (905) 817-5777 www.bvlabs.com

REC'D IN LONDON

CHAIN

Page 1 of 1

13-Oct-22 17:30

Christine Gripton

C2T8310

Order #:

352

Manager:

Christine Gripton

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name: #28124 exp Services Inc	Company Name: Ron Davis Scott A212	Quotation #: B91718			
Attention: Ron Davis Accounts Payable	Attention: Ron Davis Scott A212	P.O. #: FULLERTON 21016021			
Address: 15701 Robin's Hill Rd Unit 2	Address:	Project: WAREHOUSE ST, ST AND			
London ON N5V 0A5		Project Name: WAREHOUSE ST, ST AND			
Tel: (519) 963-3000 Fax: (519) 963-1152	Tel: Ron Davis@exp.com Scott A212@exp.com	Site #: Kevin.Dharm@exp.com / Kevin			
Email: Ron.Davis@exp.com AP@exp.com	Email: Ron.Davis@exp.com Scott A212@exp.com	Sampled By: Kevin.Dharm@exp.com / Kevin			

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BV LABS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)			Other Regulations		Special Instructions
☐ Table 1	☒ Res/Park	☒ Medium/Fine	☐ CCME	☐ Sanitary Sewer Bylaw	
☒ Table 2	☐ Ind/Comm	☐ Coarse	☐ Reg 558	☐ Storm Sewer Bylaw	
☒ Table 3	☐ Agri/Other	☒ For RSC	☐ MISA	Municipality	
☐ Table			☐ PWQO		
			☐ Other		
Include Criteria on Certificate of Analysis (Y/N)?					
Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	
1	B408 Base 408 Oct 15/22	2:05	Soil		
2	W405	1:35			
3	W406	1:50			
4	DUP401				
5	DUP402				
6					
7					
8					
9					
10					

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: ☒ (will be applied if Rush TAT is not specified)

Standard TAT = 5-7 Working days for most tests.

Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)

Date Required: Time Required: ☐

Rush Confirmation Number: (call lab for #)

of Bottles: Comments:

* RELINQUISHED BY: (Signature/Print)		Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only	
KEVIN DHARM		22/10/22	17:30	Kevin Dharm	22/10/22	17:30		Time Sensitive	Temperature (°C) on Receipt
								Present	-3, -5, -3
								Intact	

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BV LABS' STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVLABS.COM/TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVLABS.COM/RESOURCES/CHAIN-OF-CUSTODY-FORMS.

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BV LABS

White: BV Labs Yellow: Client

Bureau Veritas Canada (2019) Inc.



BUREAU
VERITAS

Bureau Veritas Job #: C2T8310

Report Date: 2022/10/19

exp Services Inc

Client Project #: 21016021

Site Location: WAREHOUSE ST., ST

Sampler Initials: KDH

Exceedance Summary Table – Reg153/04 T2-Soil/Res-F/M

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						
The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.						

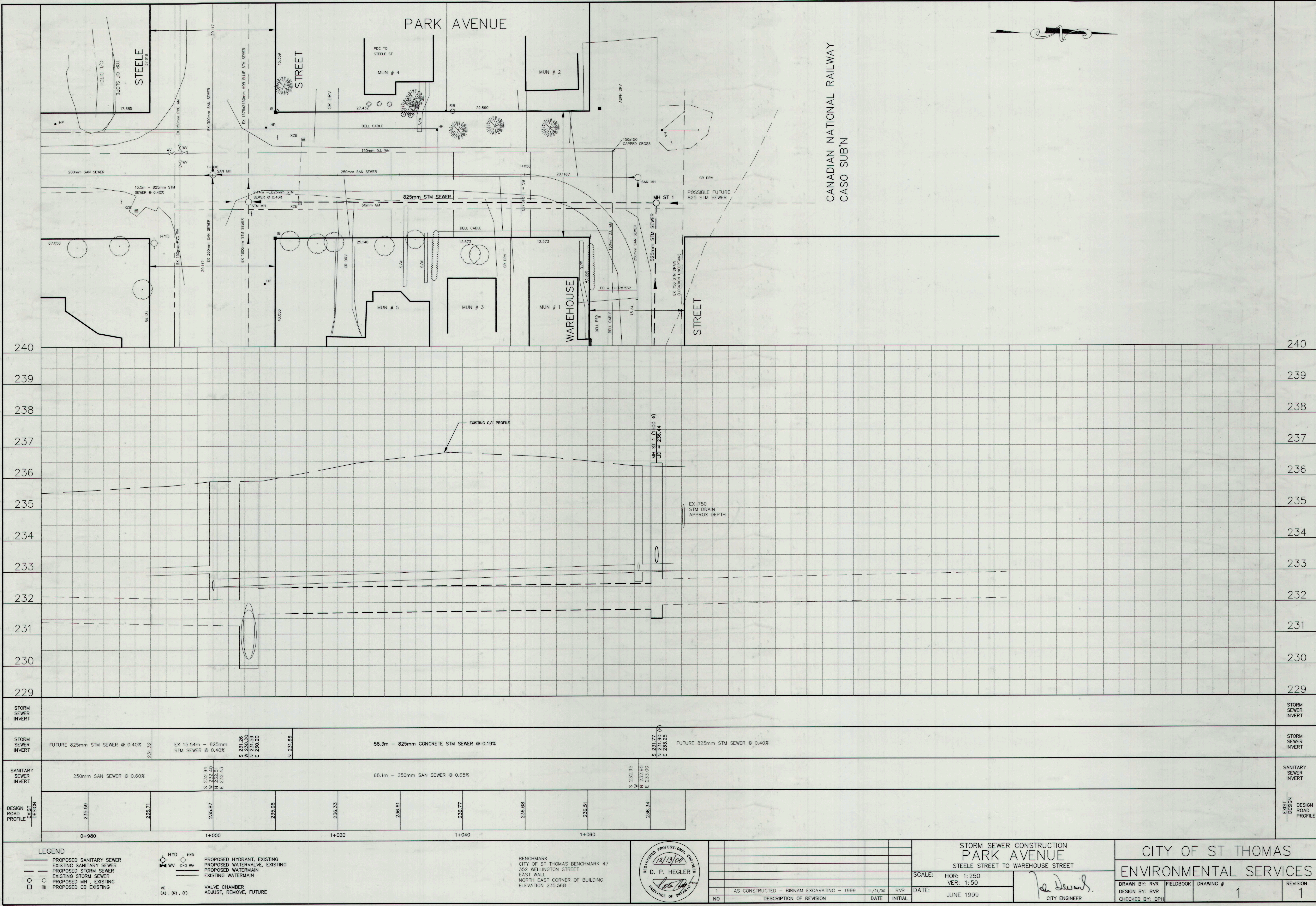
Exceedance Summary Table – Reg153/04 T3-Soil/Res-F/M

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						
The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.						

Appendix B

*As-Built Plans, Storm Drainage Area Plan,
and Fairview Avenue*



C:\SIS\KPRO\WAREHOUSE.dwg 1.dwg Wed Dec 13 09:57:22 2000

V:\Capital Projects\2025\25003 - Fairview Avenue Rehabilitation and Bridge Removal\Engineering Drawings\2-Contract Drawings\3. ISSUE FOR CONSTRUCTION\5 - 25003 - Fairview - Plan & Profile.dwg, 2025-06-02 10:02:23 AM, cpietrzk, 1/25.4

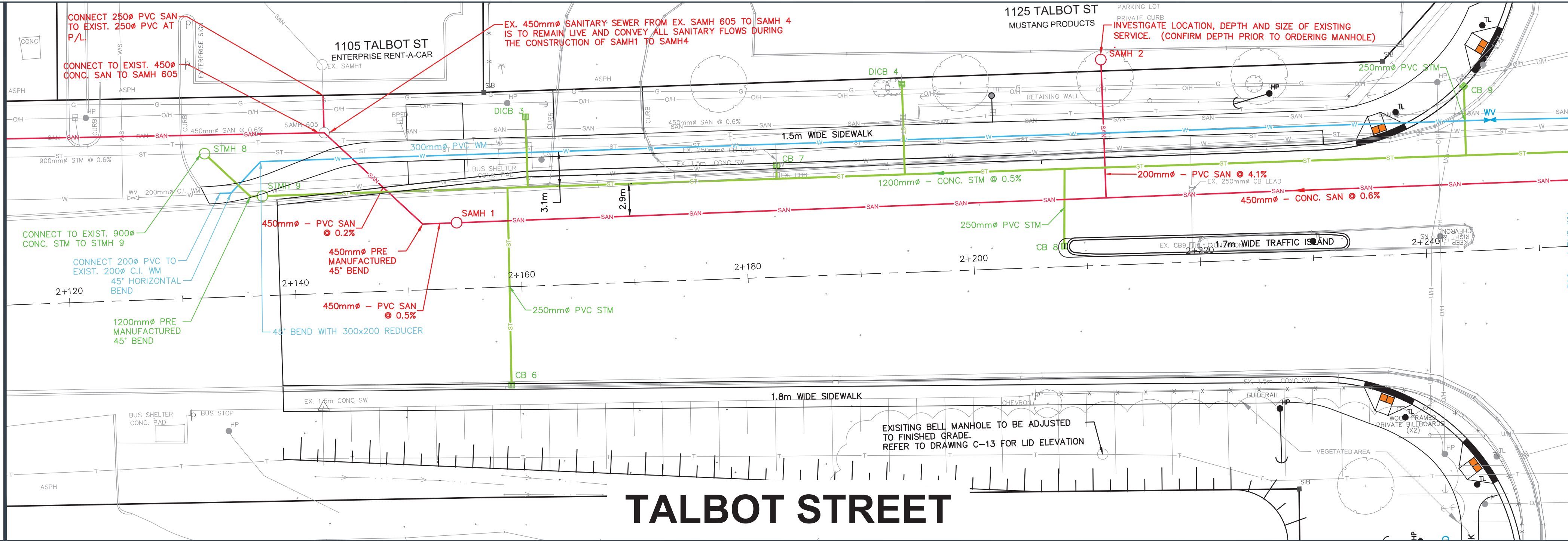
WITH THE ONSITE INSPECTOR PRESENT, THE CONTRACTOR SHALL EXPOSE AND CONFIRM ELEVATIONS AT ALL CONNECTIONS TO EXISTING SEWERS/WM PRIOR TO CONSTRUCTION (TYP.)

NOTE:
PD LOCATIONS CAN ONLY BE CONFIRMED AT THE SANITARY MAINLINE. FINDING THE PD LOCATION AT THE PROPERTY LINE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT (TYP.)

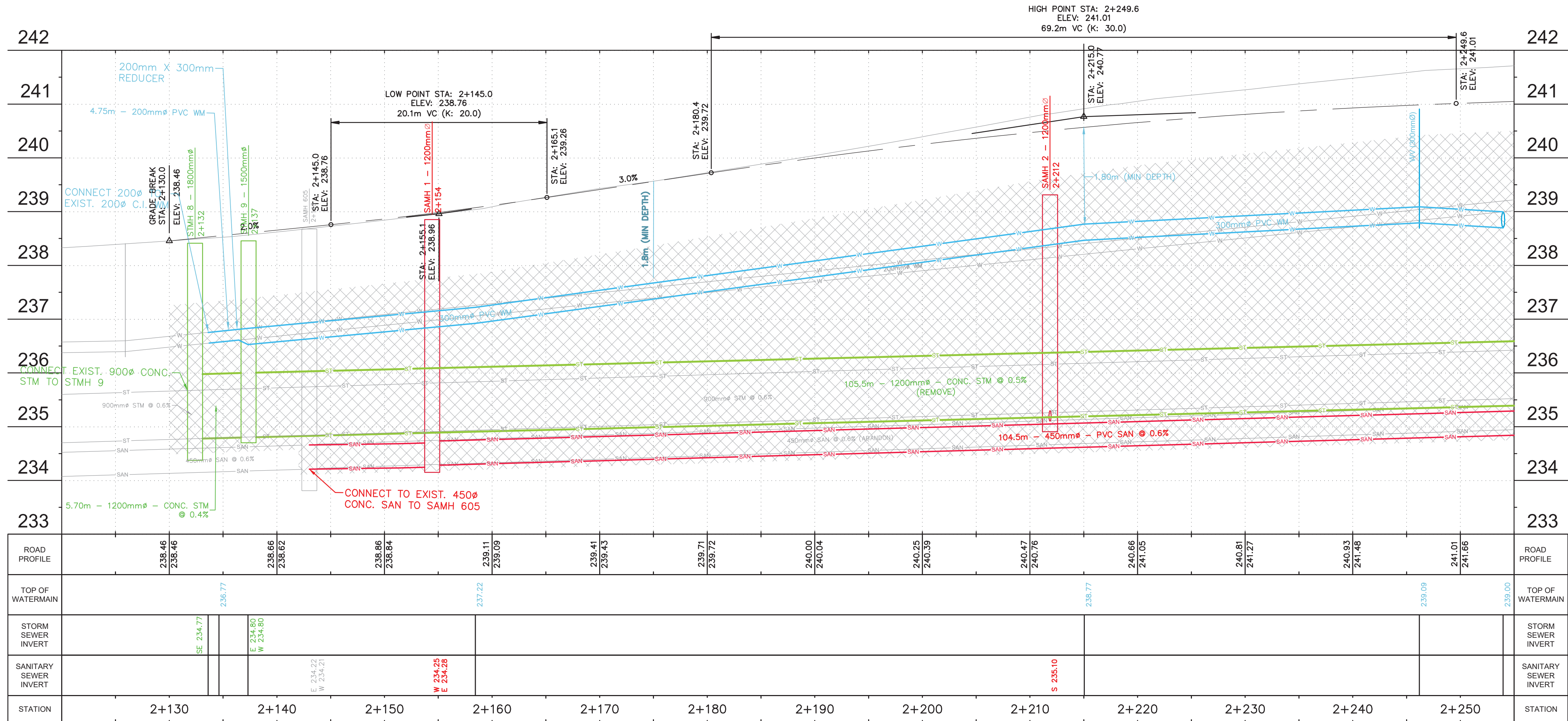
LEGEND

CONTAMINATED MATERIAL EXCEEDING TABLE 3

TALBOT STREET
CONSTRUCTION LIMITS - STA. 1+140



SEE DRAWING # C-9
TALBOT STREET



LEGEND

- | | | | | | | | |
|---------|------------------------------|-------|---------------------------|--------|-------------------------|-------------|----------------------------|
| — SAN — | SANITARY SEWER | — T — | UNDERGROUND BELL LINE | — MH — | MAINTENANCE HOLE | — GUY — | GUY WIRE, UTILITY POLE |
| — ST — | STORM SEWER | — C — | UNDERGROUND CABLE LINE | — CB — | CLEAN OUT | — LIGHT — | LIGHT STANDARD |
| — W — | WATERMAIN | — D — | DITCH/SWALE | — W — | CATCH BASIN | — SIGN — | SIGN |
| — WS — | WATER SERVICE | — F — | TOE OF SLOPE, TOP OF BANK | — W — | WATER VALVE | — GAS — | GAS VALVE |
| — G — | NATURAL GAS LINE | — E — | EDGE OF GRAVEL | — W — | WATER SERVICE CURB STOP | — UTILITY — | UTILITY PEDESTAL |
| — UH — | UNDERGROUND POWER LINE | — P — | CURB, DROPPED CURB | — E — | HYDRANT | — TRANS — | TRANSFORMER |
| — OH — | OVERHEAD POWER LINE | — P — | EDGE OF PAVEMENT | — E — | | — SURV — | SURVEY BARS |
| — FO — | UNDERGROUND FIBRE OPTIC LINE | — P — | | — E — | | — CONIF — | CONIFEROUS, DECIDUOUS TREE |
| | | — P — | | — E — | | — SHRU — | SHRUB |
| | | — P — | | — E — | | — EDGE — | EDGE OF BUSH/DRIP LINE |
| | | — P — | | — E — | | — GEOTE — | GEOTECHNICAL BORE HOLE |



STAMP: Professional Engineers Ontario
Licensed Engineering Technologist
Name: D. S. KOPIET
Number: 100555139
Limitations: Design, review and approval of engineering works for municipal roads, watermain, sanitary and storm sewers for municipal and private projects.
02 Jun 2025
Association of Professional Engineers of Ontario

REVISION			
#	DESCRIPTION	DATE	BY
3	ISSUED FOR CONSTRUCTION	02/06/2025	CP
2	ISSUED FOR CLIECA	03/04/2025	DK
1	ISSUED FOR TENDER	04/03/2025	DK
#	DESCRIPTION	DD/MM/YYYY	BY

**TALBOT STREET - PLAN & PROFILE
STATION 2+120 TO STATION 2+250**

CONTRACT #: 25003 SCALE: HOR. 1:250
PROJECT NAME: FAIRVIEW AVENUE REHABILITATION AND BRIDGE REMOVAL VER. 1:50
WAREHOUSE ST. TO TALBOT ST. DRAWING #: C-8

NOTE:
PD LOCATIONS CAN ONLY BE CONFIRMED AT THE SANITARY MAINLINE. FINDING THE PD LOCATION AT THE PROPERTY LINE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT (TYP.)



— SAN —	SANITARY SEWER
— ST —	STORM SEWER
— W —	WATERMAIN
— W/S —	WATER SERVICE
— G —	NATURAL GAS LINE
— U/H —	UNDERGROUND POWER LINE
— O/H —	OVERHEAD POWER LINE
— FO —	UNDERGROUND FIBRE OPTIC LINE

	— T —	UNDERGROUND BELL LINE
	— C —	UNDERGROUND CABLE LINE
	— D —	DITCH/SWALE
	— T —	TOE OF SLOPE, TOP OF BANK
	X X X X X	FENCE
	— D —	EDGE OF GRAVEL
	— S —	CURB, DROPPED CURB
	— S —	EDGE OF PAVEMENT

MH	MAINTENANCE HOLE
CO	CLEAN OUT
CB	CATCH BASIN
WV	WATER VALVE
CS	WATER SERVICE CURB STOP
HYD	HYDRANT

HP	GUY WIRE, UTILITY POLE
LS	LIGHT STANDARD
TL	TRAFFIC SIGNAL
⏏	SIGN
⊗	GAS VALVE
⏏	UTILITY PEDESTAL

 TRANSFORMER
 SURVEY BARS
 CONIFEROUS, DECIDUOUS TREE
 SHRUB
 EDGE OF BUSH/D RIP LINE
 GEOTECHNICAL BORE HOLE



STAMP:  Professional Engineers
Ontario

Licensed Engineering Technologist

Name: D. S. KOMPERT
Number: 100555139

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02 Jun 2025

Association of Professional Engineers of Ontario

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#	DESCRIPTION	DD/MM/YYYY	BY

TALBOT STREET - PLAN & PROFILE

STATION 2+220 TO STATION 2+360

CONTRACT #:	25003	SCALE:	HOR. 1:2500 VER. 1:500
PROJECT NAME:	FAIRVIEW AVENUE REHABILITATION AND BRIDGE REMOVAL WAREHOUSE ST. TO TALBOT ST.	DRAWING #:	C-9

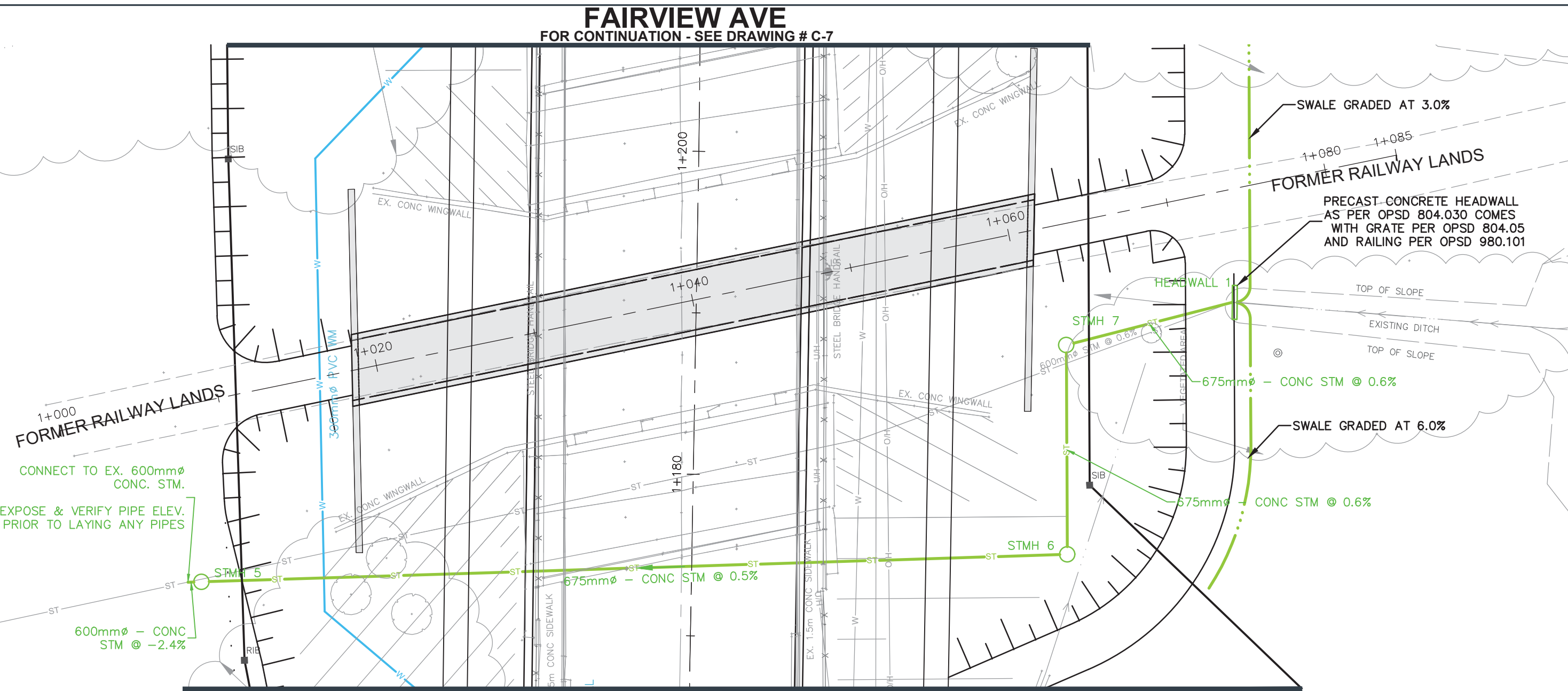
V:\Capital Projects\2025\25003 - Fairview Avenue Rehabilitation and Bridge Removal\Engineering Drawings\2-Contract Drawings\3. ISSUE FOR CONSTRUCTION\5 - 25003 - Fairview - Plan & Profile.dwg, 2025-06-02 3:12:26 AM, cpietzel, 1:25.4

NOTE:
PD LOCATIONS CAN ONLY BE CONFIRMED AT THE SANITARY MAINLINE. FINDING THE PD LOCATION AT THE PROPERTY LINE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO ADDITIONAL COST TO THE CONTRACT (TYP.)

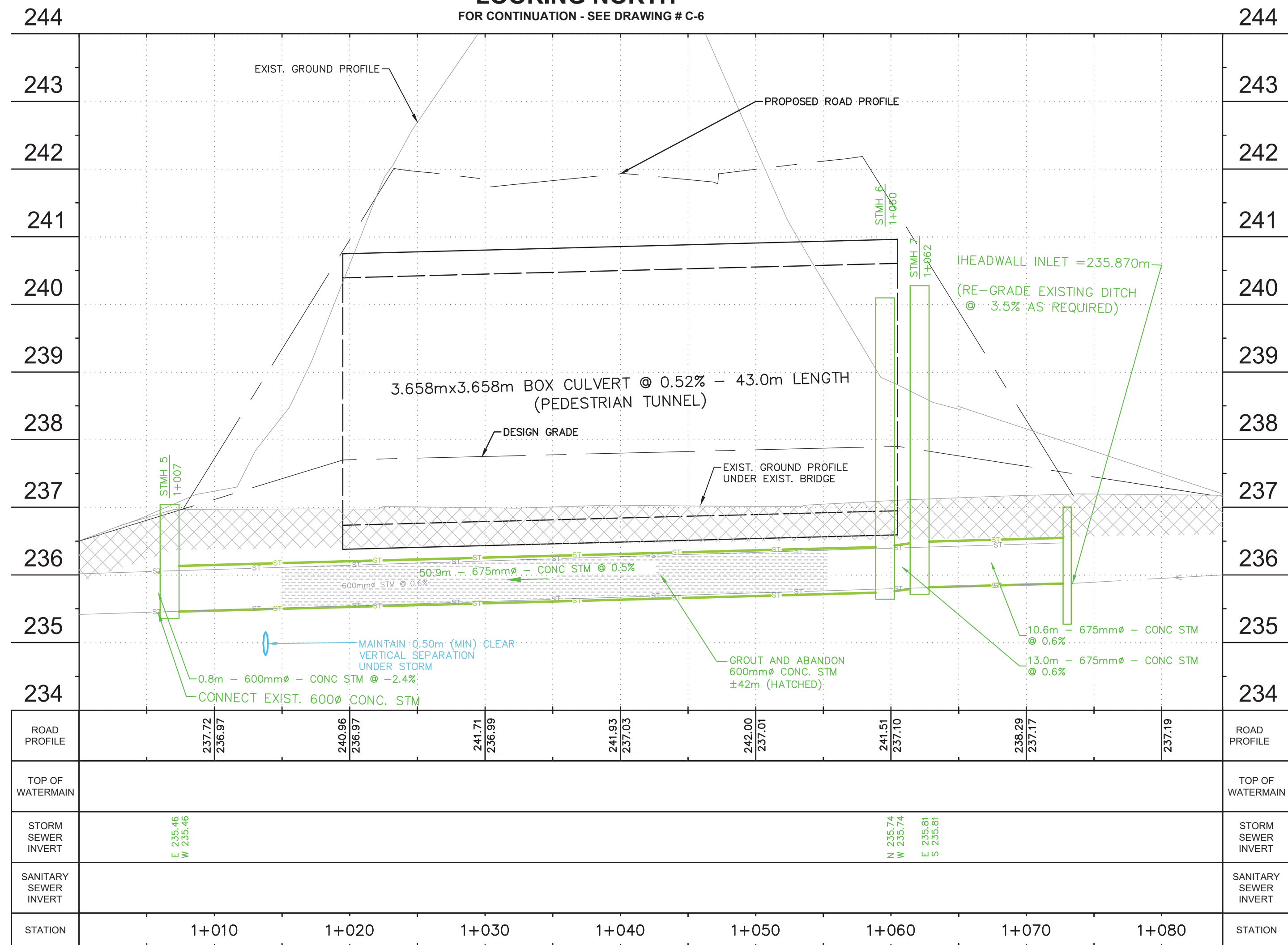
WITH THE ONSITE INSPECTOR PRESENT, THE CONTRACTOR SHALL EXPOSE AND CONFIRM ELEVATIONS AT ALL CONNECTIONS TO EXISTING SEWERS/MM PRIOR TO CONSTRUCTION (TYP.)

LEGEND
CONTAMINATED MATERIAL EXCEEDING TABLE 3

FAIRVIEW AVE



FAIRVIEW AVE
LOOKING NORTH
FOR CONTINUATION - SEE DRAWING # C-6



LEGEND

- | | | | | | | | | | |
|-----|------------------------------|-------|---------------------------|-----|-------------------------|----|------------------------|----|----------------------------|
| SSW | SANITARY SEWER | T | UNDERGROUND BELL LINE | MH | MAINTENANCE HOLE | GW | GUY WIRE, UTILITY POLE | TR | TRANSFORMER |
| ST | STORM SEWER | C | UNDERGROUND CABLE LINE | BO | CLEAN OUT | LS | LIGHT STANDARD | SB | SURVEY BARS |
| WM | WATERMAIN | D | DITCH/SWALE | CB | CATCH BASIN | FL | TRAFFIC SIGNAL | CT | CONIFEROUS, DECIDUOUS TREE |
| WS | WATER SERVICE | TOE | TOE OF SLOPE, TOP OF BANK | WV | WATER VALVE | SV | SIGN | SH | SHRUB |
| G | NATURAL GAS LINE | ***** | FENCE | WCS | WATER SERVICE CURB STOP | GV | GAS VALVE | EB | EDGE OF BUSH/D RIP LINE |
| UH | UNDERGROUND POWER LINE | --- | EDGE OF GRAVEL | | | UP | UTILITY PEDESTAL | BH | GEOTECHNICAL BORE HOLE |
| OH | OVERHEAD POWER LINE | --- | CURB, DROPPED CURB | | | | | | |
| FO | UNDERGROUND FIBRE OPTIC LINE | --- | EDGE OF PAVEMENT | | | | | | |



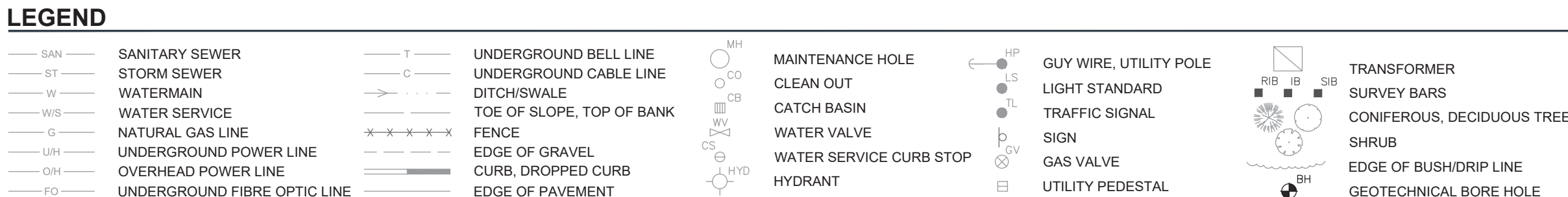
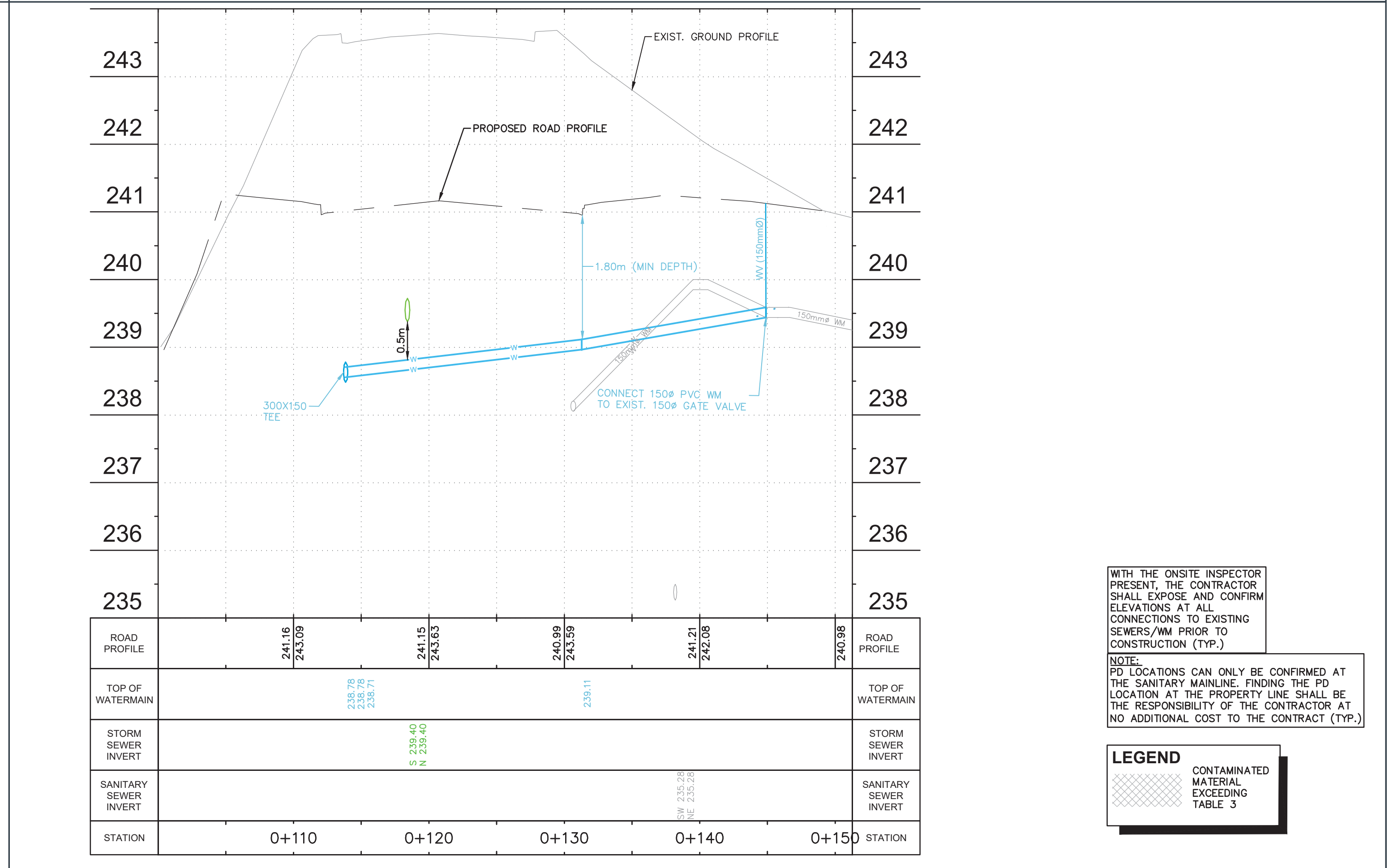
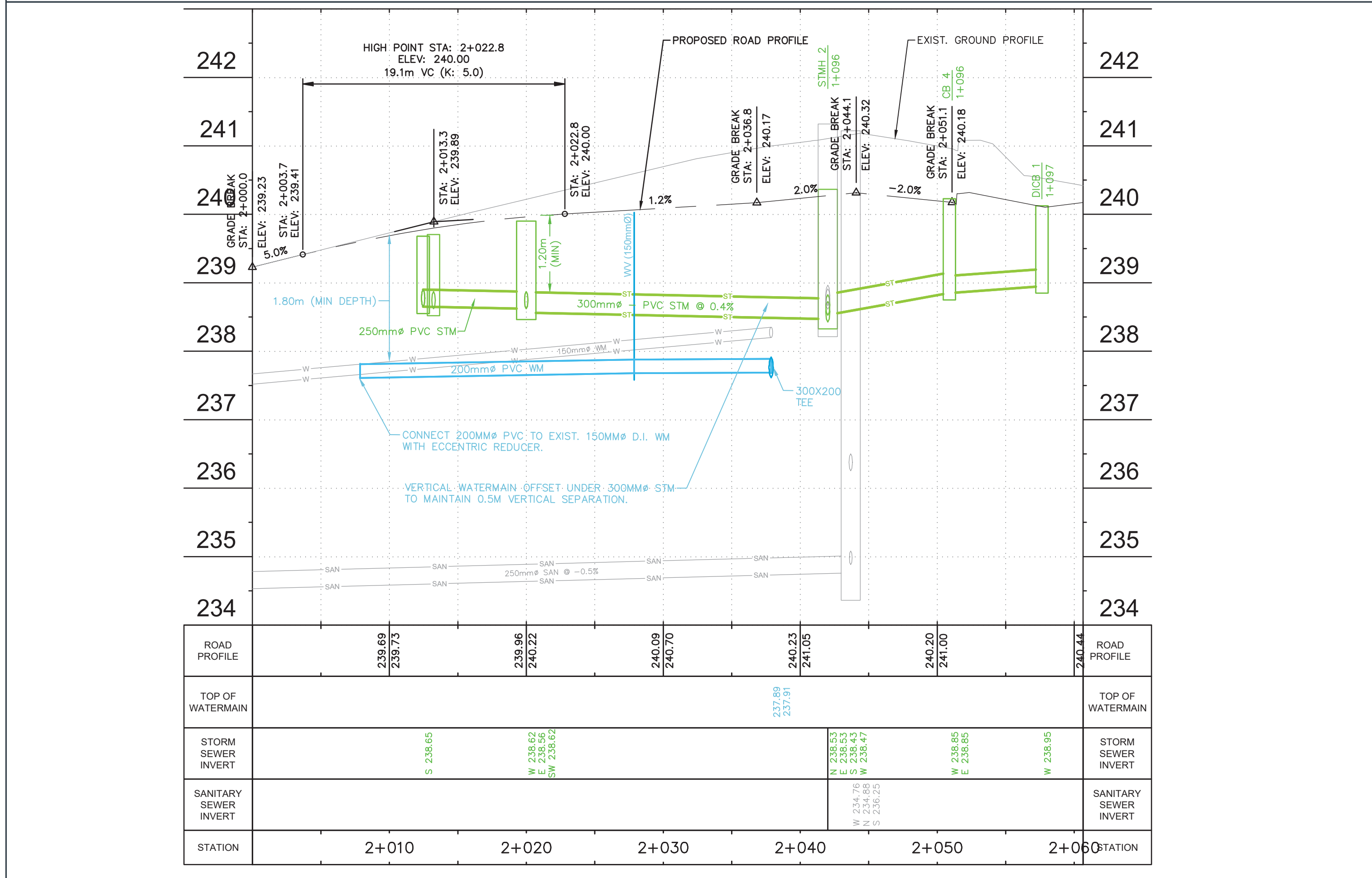
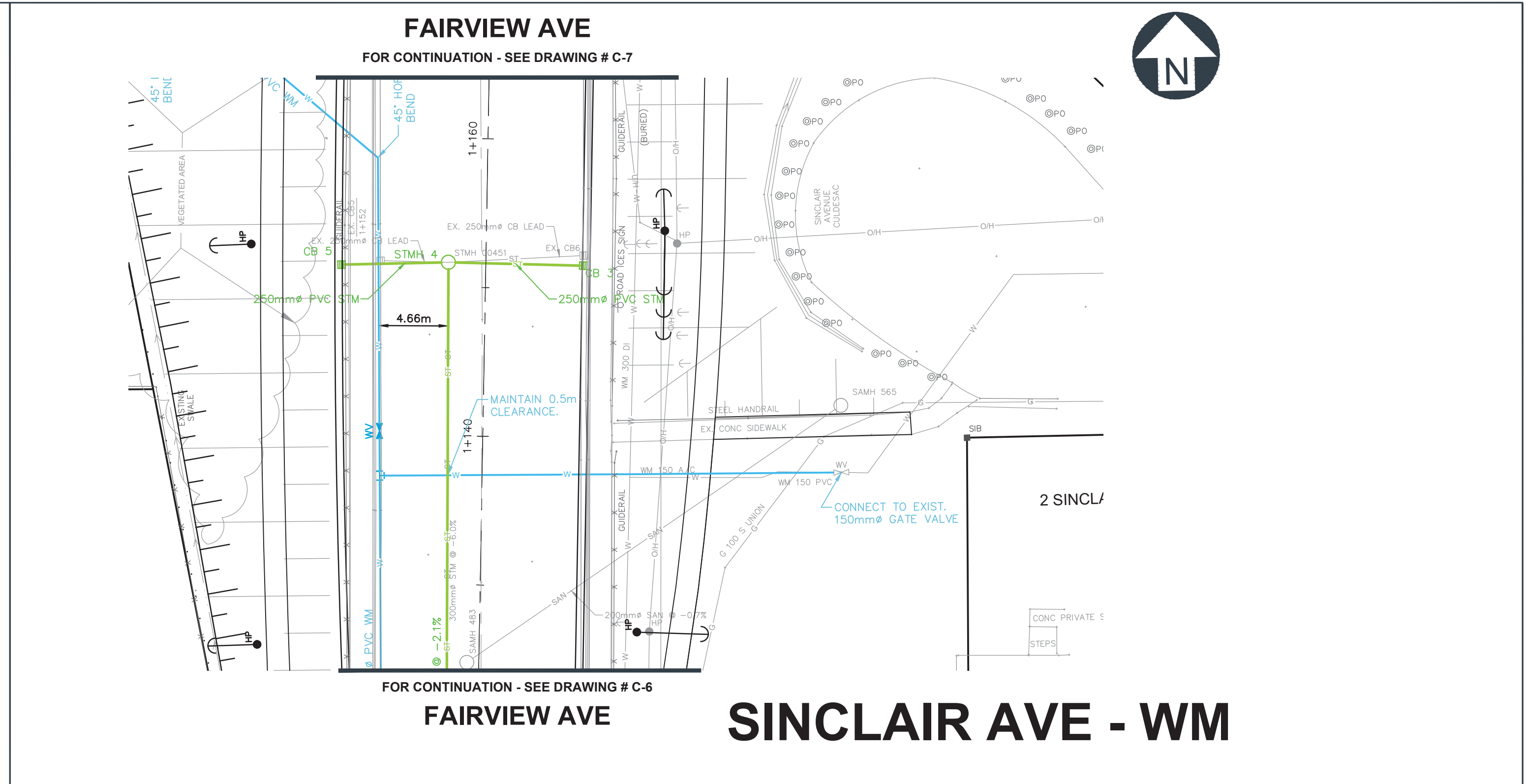
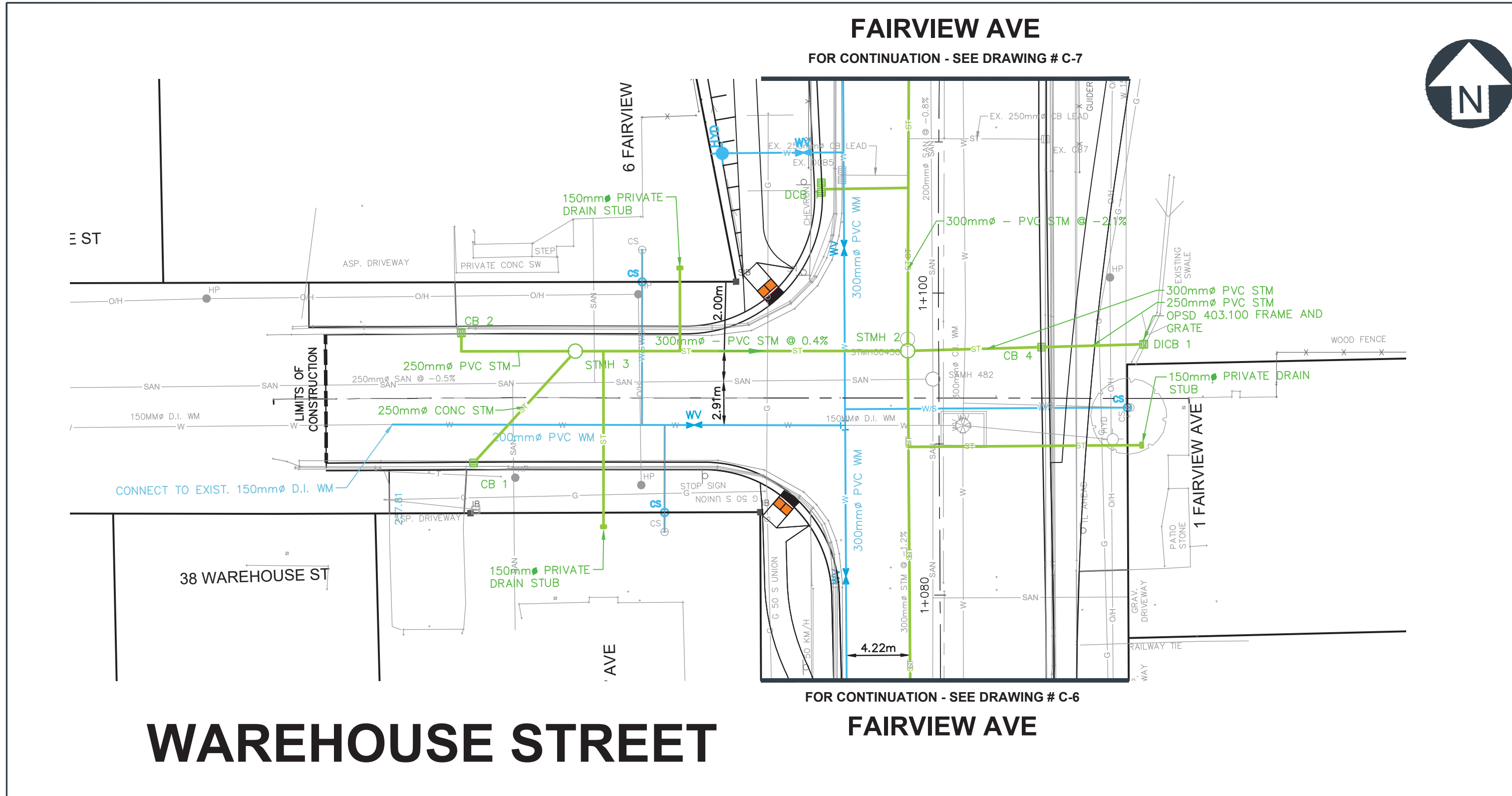
STAMP: Professional Engineers Ontario
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Number: 10055139
Limitations: Design, review and seal of drawings for municipal and private projects.
02 Jun 2025
Association of Professional Engineers of Ontario

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1	ISSUED FOR TENDER	04/03/2025	DK
#	DESCRIPTION	DD/MM/YYYY	BY

FAIRVIEW AVENUE BRIDGE AREA - PLAN & PROFILE;
STORM SEWERS AND PEDESTRIAN TUNNEL

CONTRACT #: 25003 SCALE: HOR. 1:250
PROJECT NAME: FAIRVIEW AVENUE REHABILITATION AND BRIDGE REMOVAL
WAREHOUSE ST. TO TALBOT ST. VER. 1:50
DRAWING #: C-10

V:\Capital Projects\2025\25003 - Fairview Avenue Rehabilitation and Bridge Removal\Engineering Drawings\2-Contract Drawings\3. ISSUE FOR CONSTRUCTION\5 - 25003 - Fairview - Plan & Profile.dwg, 2025-06-02 09:34:45 AM, cpietrzak, 1/25,4



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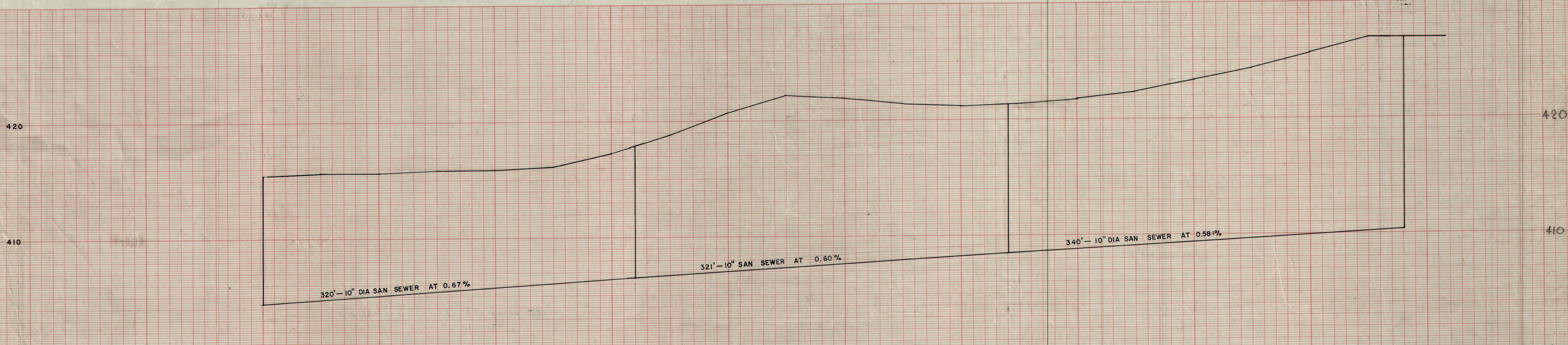
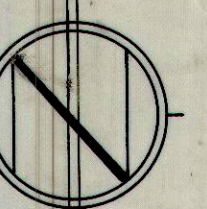
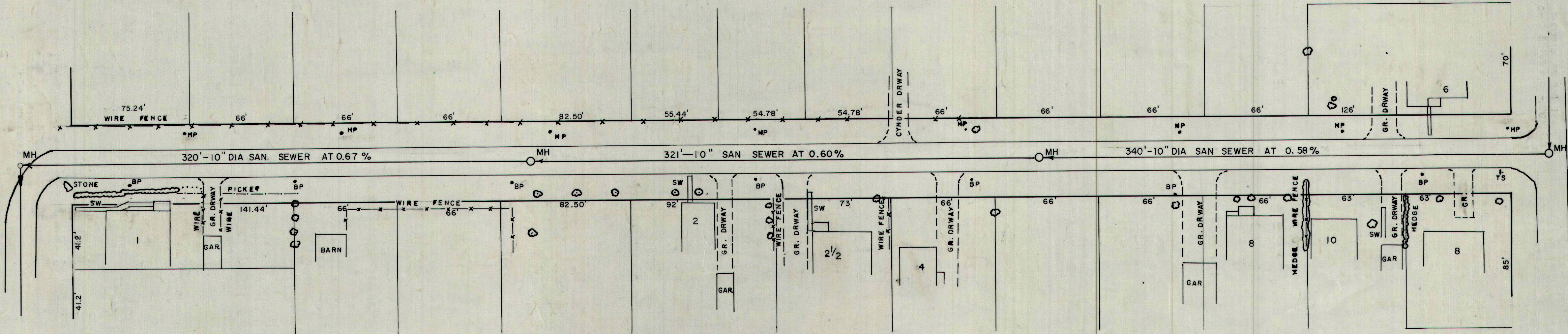
**WAREHOUSE STREET & SINCLAIR AVENUE
- PLAN & PROFILE**

CONTRACT #: 25003 **SCALE:** HOR. 1:250
PROJECT NAME: FAIRVIEW AVENUE REHABILITATION AND BRIDGE REMOVAL WAREHOUSE ST. TO TALBOT ST. **VER.** 1:50
DRAWING #: C-11

WAREHOUSE ST.

PARK AVE.

FAIRVIEW AVE.



CHAINAGE	INVERT ELEV.	GROUND ELEV.	CHAINAGE	INVERT ELEV.	GROUND ELEV.
0+00	404.38	415.45	6+00	408.45	421.33
1+00		415.68	7+00		421.75
2+00		415.67	8+00		422.35
3+00		415.85	9+00		423.28
3+20	406.53				424.36
4+00		416.10			425.60
5+00		417.30			426.91
		418.85			
		420.71			
		422.24			
		421.89			
		421.41			
		421.16			
		421.33			
		421.75			
		422.35			
		423.28			
		424.36			
		425.60			
		426.91			
9+63					
9+81	410.38				

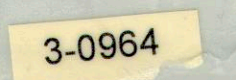
- NOTES:
- 1- SAN SEWER TO EXTRA STRENGTH VC OR AC CLASS 3300
 - 2- CLASS B BEDDING



TITLE: SANITARY SEWER WAREHOUSE ST. FROM PARK AVE. TO FAIRVIEW AVE.		CITY OF ST. THOMAS ENGINEERING DEPARTMENT	
SCALE: HOR. 1" = 40.0' VER. 1" = 4.0'	DATE: OCT 71 INITIAL: JR	DRAWN BY: B.G.S. CHECKED BY: <i>L.D. House</i> CITY ENGINEER	FIELDBOOK: 389 DRAWING NO.: P-6613-1 REVISION NO.: 1

W-015-01

W-015-01



Appendix C

Sanitary, Water, FUS, SWM Calculations

Project: Warehouse Street Development
City: St. Thomas
File No: 25-1537
Date: 27-Nov-25
Design By: MM
Checked By: MM
Page: 1 of 4



SANITARY DESIGN PRE-DEVELOPMENT FLOW

REQUIREMENT

Design Flow = Average Dry Weather Flow X Peak Flow Factor + Infiltration Allowance

Existing Development Maximum Daily Flow

Land Use	Population Density	Units	Area	Equivalent Population
Vacant land	0 ppha	0	1.13 ha	0
Total				0

Harmon Formula, $M = 1 + (14 / (4 + (P/1000)^{0.5}))$
 where: P = design population in thousands
 Harmon Factor = 4.50

Average dry weather flow 250 L/day/p
 Dry Weather Flow = 0 L/day
 = 0.00 m³/day
 = 0.00 L/s

Drainage area 1.13 ha
 Infiltration Allowance = 0.100 L/ha/s
 = 0.11 L/s

Total Design Flow = 0.11 L/s

1- Ontario Building Code Part 8 - Table 8.2.1.3.A

2- City of St. Thomas Design Guidelines Manual 2021 Edition

Project: Warehouse Street Development
City: St. Thomas
File No: 25-1537
Date: 27-Nov-25
Design By: MM
Checked By: MM
Page: 2 of 4



SANITARY DESIGN POST-DEVELOPMENT FLOW

REQUIREMENT

Design Flow = Average Dry Weather Flow X Peak Flow Factor + Infiltration Allowance

Proposed Development Maximum Daily Flow

Land Use	Sewage System Design Flow		Units	Area	Equivalent Population
				-	
Five Semi-Detached Buildings	1,500.00	L/day	10	-	60
Six Fourplex Buildings	1,500.00	L/day	28	-	168
			Total	38	Total 228

Harmon Formula, $M = 1 + (14 / (4 + (P/1000)^{0.5}))$

where: P = design population in thousands

Harmon Factor = 4.13

Average dry weather flow 250 L/capita/day

Dry Weather Flow = 57,000.00 L/day
 = 57.00 m³/day
 = 0.66 L/s

Drainage area 1.13 ha

Infiltration Allowance = 0.100 L/s/ha
 = 0.11 L/s

Total Design Flow = 2.84 L/s

1- Ontario Building Code Part 8 - Table 8.2.1.3.A

2- City of St. Thomas Design Guidelines Manual 2021 Edition

Project: Warehouse Street Development
City: St. Thomas
File No: 25-1537
Date: 27-Nov-25
Design By: MM
Checked By: MM
Page: 3 of 4



SANITARY SEWER CAPACITY ANALYSIS

n= 0.013

Street Name	Total Proposed Incremental Flow (L/s)	Sewer Calculation					Remarks
		Diameter	Grade	Capacity	Velocity	Full	
		(mm)	(%)	(L/s)	(m/s)	%	
Ex SAN MH (In the intersection of Warehouse St and Park Ave)	2.72	250	0.67%	48.68	0.99	6%	



DILLON
CONSULTING

DILLON
CONSULTING

1 - City of St. Thomas Design Guidelines Manual 2021 Edition
2 - Design Guidelines for Drinking Water Systems - Table 3.1 - MECP

2 - Design Guidelines for Drinking Water Systems - Table 3.1 - MECP

Project: Warehouse Street Development
City: St. Thomas
File No: 25-1537
Date: 27-Nov-25
Design By: MM
Checked By: MM
Page: 2 of 2



F.U.S. CALCULATIONS

$$F = 220 * C * \text{SQRT}(A)$$

where: F = the required fire flow in l/min, rounded to nearest 1,000
 C = coefficient related to construction
 A = total floor area in m²
 (incl. all stories but excl. basements
 >50% below grade)

$$\text{SURCHARGE} = (\text{OS} + \text{SR} + \text{ES})$$

where: OS = occupancy surcharge, -25% to +25% of F
 SR = sprinkler reduction, up to 50% of F
 ES = exposure surcharge, sum of each of
 the sides (0 to 25% of F), up to a max.
 of 75% of F

$$\text{TOTAL REQUIRED FIRE FLOW} = F + \text{SURCHARGE}$$

1. TOTAL FLOOR AREA - Using one semi-detached unit plus 25% of the floor below = 363 m²

2. TYPE OF CONSTRUCTION

C
1.5
0
0
0

Wood Frame	1.5	⇐
Ordinary	1.0	
Non-combustible	0.8	
Fire-resistive	0.6	

$$\Rightarrow F = 6,290.6 \text{ l/min} = 6,000 \text{ l/min ROUNDED}$$

3. OCCUPANCY

0
-0.15
0
0
0

Non-combustible	-25%	
Limited combustible	-15%	⇐
Combustible	0%	
Free Burning	15%	
Rapid Burning	25%	

$$\Rightarrow \text{OS} = -900 \text{ l/min}$$

4. SPRINKLERS 0%
(insert % reduction if applicable)

$$\Rightarrow \text{SR} = 0 \text{ l/min} \quad 1,140 \text{ l/min}$$

5. EXPOSURE

North	55.0	m	0%
South	16.0	m	15%
East	15.0	m	15%
West	20.0	m	10%
TOTAL	(max. 75%)		40%

$$\Rightarrow \text{ES} = 2040 \text{ l/min}$$

$$\Rightarrow \begin{aligned} \text{TOTAL REQUIRED FIRE FLOW} &= 7,140 \text{ l/min} \\ &= 1,886 \text{ US gallons/min} \\ &= 119 \text{ l/s} \end{aligned}$$

Subject: External and Site Allowable Flow Rates and Catchment Imperviousness
Project: Warehouse Street Development, St. Thomas
Project No.: 251537
Client: Walter Ostojic & Sons Ltd.
Date: 2025-11-24

Allowable Flow Rate from External Lands from East of Fairview

Allowable Release Rate to be discharged from east into the bypass pipe (CMS)	0.5 From St Thomas SSDS Rational Method
100-year flow rate from external lands to the east from model (CMS)	2.44
Flow to be conveyed overland through site (CMS)	1.94

Allowable flow rate from Pond

Allowable flow rate into from 4.17ha site to sewer (5-year flow) (L/S)	188.0 From St. Thomas SSDS Rational Method
Prorated allowable flow rate from Warehouse and Elgin (L/S)	79.4
Warehouse uncontrolled fronting flow rate (L/S)	30 (5 yr SCS PCSWMM peak flow)
Allowable flow rate from pond (L/S)	49.350
Allowable flow rate from pond (CMS)	0.049

External Area Catchment Parameters

Land Use	Ext Imperv (ha)	impervious %	
Single Family Residential	3.8	55	Base Impervious Values from City of London guidelines Impervious areas measured off google earth
Commercial and Roadway	2.14	75	
Open Space	6.29	5	
Total	12.23	32.8	

New Fronting Imperviousness

Total Fronting Area	0.14 ha			
	Area (m2)	Count	Area (m2)	Area (ha)
Driveway Total Area	25	6	150	0.015
	42	4	168	0.0168
Walkways Total Area	17	7	119	0.0119
	36	1	36	0.0036
Sum				0.0473
Imperviousness (%)	33.79			

New Site Parameters

Warehouse Area	1.16
Elgin Flooring Area	0.6
Fronting Area	0.14
Total Area contributing to pond	1.62

Imperviousness Percentage	Area (ha)	Count	Area (ha)
Multi-use	0.11	3	0.33
	0.0425	1	0.0425
Single Family	0.022	3	0.066
	0.026	2	0.052

Total Impervious Warehouse (ha)	0.4905
Total impervious Elgin (ha)	0.441 Measured from concept
Total Impervious area to pond (ha)	0.9315
Total Imperviousness percentage to pond	57.5 %

Subject: SWM Facility Preliminary Sizing
Project: Warehouse Street Development, St. Thomas
Project No.: 251537
Client: Walter Ostojic & Sons Ltd.
Date: 2025-11-24

Drainage Area Imperviousness

Total Drainage Area to control to (including fronting)	1.76 ha
Impervious Area (Including Pond)	0.98 ha
Impervious Percentage	55.68 %

Water Quality Sizing

Note:	
Dry Ponds can provide 60% TSS removal.	
Area to Pond	1.62 ha
Impervious Percentage	57.5 %
Storage Volume Requirement	156.25 m3/ha
Volume Required	253.1 m3

Extended Detention Storage (5-Year 12-hour SCS)

5-Year Runoff Volume (erosion control)	790 m3
Expected Average Release Rate	0.005 m3/s
Note assumptions built in, including forebay	
Side Slopes (Width)	3 ratio
Side Slopes (Length)	4 ratio
Base width	6 m
Base Length	40 m
Depth	1.2 m
Top width	13.2 m
Top Length	49.6 m

Flood Control

Return Period	100-Year 12-Hour SCS
Base Length	49.6 m
Base Width	13.2 m
Depth	0.5 m
Top Width	16.2 m
Top Length	53.6 m
Calculated Volume	379 m3
Total Active Storage Volume	895 m3
Top of Active Storage Surface Area	868.32 m2

Pond Elevations

Top of Bank	236.5 m
Top of Freeboard	236.3 m
Top of Active Storage (Bottom of Emergency Overflow)	236 m
Bottom of Pond	234.3 m
Total Active Storage depth	1.7 m
Active Storage Depth + Freeboard	2 m
Total Pond Depth	2.2 m

Pond Block Dimensions

Width	24 m
Length	65.4 m
L/W Ratio	2.73
Area	1570 m2
Width Available	24 m
Length Available	72 m
Available Area	1728 m2
Contingency	10%
Ratio of Pond to Site Area	9.8 %
Ratio to Drainage Area	9.82 %

Table 3.2 Water Quality Storage Requirements based on Receiving Water's TSS

Protection Level	SWMF Type	35%	65%	70%	85%
Fullflow (40% long-term TSS removed)	Detention	25	50	55	60
	Wetlands	40	100	120	140
	Hybrid Wet Pond/Wetland	110	150	175	195
	Wet Pond	140	190	225	250
Normal (40% long-term TSS removed)	Detention	20	20	25	30
	Wetlands	30	70	80	90
	Hybrid Wet Pond/Wetland	75	90	105	120
	Wet Pond	90	110	120	130
Good (40% long-term TSS removed)	Detention	10	10	10	10
	Wetlands	30	60	60	60
	Hybrid Wet Pond/Wetland	60	70	75	80
	Wet Pond	60	75	85	95
Very Good (Continuous Flow)		10	130	200	240

Extended Detention Calculated Volume	516 m3
Extended Detention Length	49.6 m
Bottom of Pond Surface Area	240 m2
Extended Detention Surface Area	654.7 m2
5-Year Erosion Control Peak Release Rate from Model	0.02 m3/s
Erosion Control Orifice Size	100 mm
Drawdown Time	27 hr
Extended Detention Volume Required	455 m3
5-Year Pond Depth	1.07 m
5-Year Pond Elevation	235.37 m
Prorated allowable release rate into storm sewer network from contributing area	0.079 m3/s
5-year proposed warehouse street fronting release rate	0.03 m3/s
Allowable Release Rate From Pond 100-year Flood Control Orifice Peak Release Rate (DICB @ 5-year WL, 130mm Outlet Orifice @ Bottom of Pond Level)	0.049 m3/s
Storage Volume Required	814 m3
100-Year Pond Depth	235.88 m

Access Route (along Length and both widths)

Width	4 m
Top Length	63.4 m
Top Width	22 m

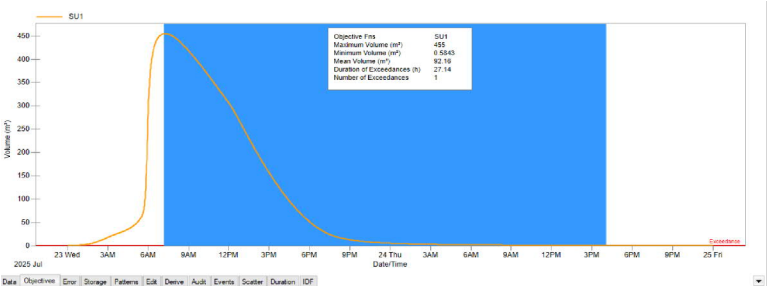
Property Setbacks

Assume Width	1
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PCSWMM Pond Curve

Depth (m)	Area (m2)
0	240
1.2	654.7
1.7	868.32
2	997.2

Erosion Control Drawdown Time Graph for 5-year Storm Event



Subject: Overland Flow from Pond and External Overland Flows
Project: Warehouse Street Development, St. Thomas
Project No.: 251537
Client: Walter Ostojic & Sons Ltd.
Date: 2025-11-24

Emergency Flows from Pond and Site

Emergency overflow drainage will surcharge from within the facility beyond 236.0m elevation.

Flow will exit facility into maintenance access road from the facility and will also surcharge through CBs.

Flow will exit the site to the west @ 235.97m

Flooding must be kept at a minimum of 0.3m below lot elevation @ 236.5 m, meaning that flooding must be kept lower than 236.2m.

Maintenance road bottom width (m)	4.5
100-Year Uncontrolled Flow Rate to SWM Facility (CMS)	0.59

Weir Equation for a trapezoidal weir $Q = CLH^{1.5}$	
Weir Coefficient C	1.84
Head H (m)	0.2
Width of crest (m)	4.5
Weir Capacity (CMS)	3.5

Maintenance Road will have sufficient flow capacity to hold and convey the 100-year uncontrolled flow.

Flows from External

Flows from east external lands beyond the capacity of the proposed sewer will be conveyed west through the site through an open-channel

Required flow capacity during 100-year event (CMS)	1.94
Slope Through Site (m/m)	0.20%
Depth (m)	0.5

Slope based on grades of 237 east of Fairview Avenue to 236 at Park

Required Trapezoidal Channel dimensions:

Bottom Width (m)	4.3
Side Slopes (x:1)	3
Top Width (m)	7.3
Manning's n for vegetated	0.035
Flow Capacity (CMS)	1.97

Required Rectangular Channel Dimensions:

Bottom Width (m)	3.3
Side Slopes (x:1)	0
Top Width (m)	3.3
Manning's n for Stone	0.02
Flow Capacity (CMS)	1.95

Subject: PCSWMM Catchment Parameters
Project: Warehouse Street Development, St. Thomas
Project No 251537
Client: Walter Ostojic & Sons Ltd.
Date: 2025-11-24

Existing Conditions

Name	Outlet	Area (ha)	Width (m)	Flow Length (m)	Slope (%)	Imperv. (%)	N Imperv	N Perv	Dstore Imperv (mm)	Dstore Perv (mm)	Zero Imperv (%)	Subarea Routing	Percent Routed (%)	Infiltration Method	Curve Number
S1	OF2	1.78	89	200	0.5	0.5	14	0.013	0.025	2	5	25 OUTLET		100 CURVE_NUMBER	79
S2	OF1	12.23	122.3	1000	0.7	0.7	33	0.013	0.025	2	5	25 OUTLET		100 CURVE_NUMBER	79

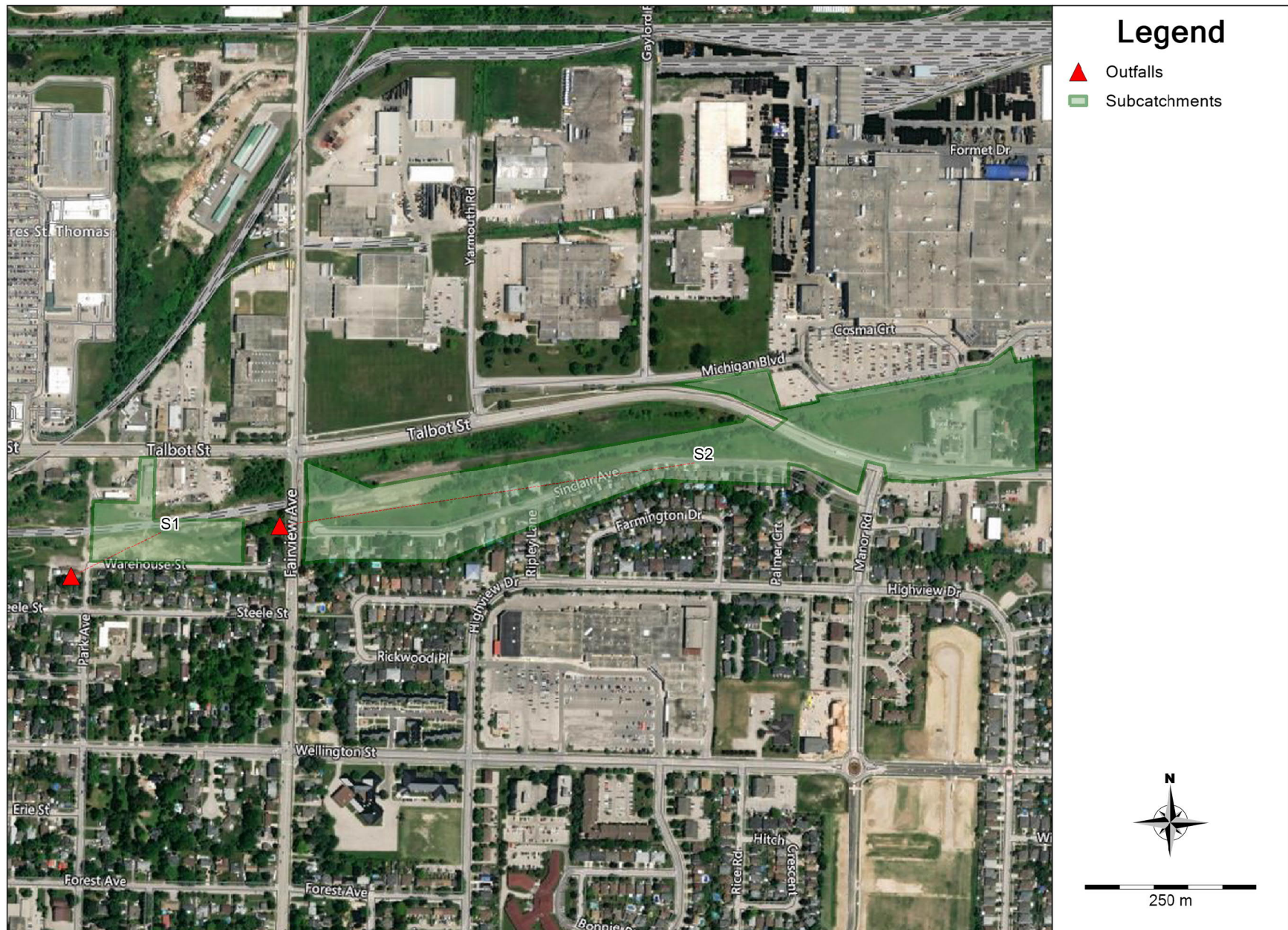


Proposed Conditions

Name	Outlet	Area (ha)	Width (m)	Flow Length (m)	Slope (%)	Imperv. (%)	N Imperv	N Perv	Dstore Imperv (mm)	Dstore Perv (mm)	Zero Imperv (%)	Subarea Routing	Percent Routed (%)	Infiltration Method	Curve Number
S1_1	SU1	1.62	81	200	0.5	0.5	57.5	0.013	0.025	2	5	25 OUTLET		100 CURVE_NUMBER	79
S1_2	OF3	0.14	70	20	0.5	0.5	34	0.013	0.025	2	5	25 OUTLET		100 CURVE_NUMBER	79



Existing Conditions PCSWMM Schematic



Existing Conditions Details

```
[TITLE]
;;Project Title/Notes

[OPTIONS]
;;Option      Value
FLOW_UNITS    CMS
INFILTRATION  HORTON
FLOW_ROUTING   DYNWAVE
LINK_OFFSETS   ELEVATION
MIN_SLOPE      0
ALLOW_PONDING  NO
SKIP_STEADY_STATE NO

START_DATE     07/23/2025
START_TIME     00:00:00
REPORT_START_DATE 07/23/2025
REPORT_START_TIME 00:00:00
END_DATE       07/25/2025
END_TIME       00:00:00
SWEEP_START    01/01
SWEEP_END      12/31
DRY_DAYS       0
REPORT_STEP    00:01:00
WET_STEP       00:05:00
DRY_STEP       00:05:00
ROUTING_STEP   5
RULE_STEP      00:00:00

INERTIAL_DAMPING PARTIAL
NORMAL_FLOW_LIMITED BOTH
FORCE_MAIN_EQUATION H-W
VARIABLE_STEP    0.75
LENGTHENING_STEP 0
MIN_SURFAREA     0
MAX_TRIALS       8
HEAD_TOLERANCE   0.0015
SYS_FLOW_TOL     5
LAT_FLOW_TOL     5
MINIMUM_STEP     0.5
THREADS          16

[EVAPORATION]
;;Data Source  Parameters
;;-----
CONSTANT       0.0
DRY_ONLY       NO

[RAINGAGES]
;;Name          Format      Interval SCF      Source
;;-----
Chicago_24h_100yr_StThomas INTENSITY 0:05      1.0      TIMESERIES
StThomas_Chicago_24h_100yr
Chicago_3h_100yr_StThomas INTENSITY 0:05      1.0      TIMESERIES
StThomas_Chicago_3h_100yr
Chicago_3h_5yr_StThomas INTENSITY 0:05      1.0      TIMESERIES
Chicago_3h_5yr_St_Thomas
Chicago_4h_25mm_London INTENSITY 0:05      1.0      TIMESERIES
Chicago_4h_25mm_London
```

SCS_Type_II_108.8mm_100yr_12hr_StThomas INTENSITY 0:06 1.0 TIMESERIES
 SCS_Type_II_108.8mm_12hr
 SCS_Type_II_65.7mm_5yr_12hr_StThomas INTENSITY 0:06 1.0 TIMESERIES
 SCS_Type_II_65.7mm_5yr_12hr_StThomas

[SUBCATCHMENTS]

;;Name	Rain Gage	Outlet	Area	%Imperv	Width	%
Slope	CurbLen	SnowPack				
S1	SCS_Type_II_65.7mm_5yr_12hr_StThomas	OF2	1.78	14	89	0.5
S2	SCS_Type_II_65.7mm_5yr_12hr_StThomas	OF1	12.23	33	122.3	0.7

[SUBAREAS]

;;Subcatchment	N-Imperv	N-Perv	S-Imperv	S-Perv	PctZero	RouteTo
S1	0.013	0.025	2	5	25	OUTLET
S2	0.013	0.025	2	5	25	OUTLET

[INFILTRATION]

;;Subcatchment	Param1	Param2	Param3	Param4	Param5
S1	79	0.5	7	0	0
S2	79	0.5	7	0	0

[OUTFALLS]

;;Name	Elevation	Type	Stage Data	Gated	Route To
OF1	0	FREE		NO	
OF2	0	FREE		NO	

[CURVES]

;;Name	Type	X-Value	Y-Value
1m depth Permanent Pool, 1000m3			
Pond	Storage	0	588
Pond		0.5	765
Pond		0.7	840.84
Pond		1	960

[TIMESERIES]

;;Name	Date	Time	Value
;Chicago design storm, a = 901.021, b = 0, c = 0.699, Duration = 720 minutes, r = 0.35, rain interval = 5 minutes, rain units = mm/hr.			
Chicago_12h		0:00	2.748
Chicago_12h		0:05	2.787
Chicago_12h		0:10	2.828
Chicago_12h		0:15	2.87
Chicago_12h		0:20	2.914
Chicago_12h		0:25	2.959
Chicago_12h		0:30	3.006
Chicago_12h		0:35	3.055

Chicago_12h	0:40	3.105
Chicago_12h	0:45	3.158
Chicago_12h	0:50	3.213
Chicago_12h	0:55	3.271
Chicago_12h	1:00	3.331
Chicago_12h	1:05	3.394
Chicago_12h	1:10	3.46
Chicago_12h	1:15	3.529
Chicago_12h	1:20	3.601
Chicago_12h	1:25	3.677
Chicago_12h	1:30	3.757
Chicago_12h	1:35	3.842
Chicago_12h	1:40	3.931
Chicago_12h	1:45	4.026
Chicago_12h	1:50	4.126
Chicago_12h	1:55	4.233
Chicago_12h	2:00	4.347
Chicago_12h	2:05	4.468
Chicago_12h	2:10	4.598
Chicago_12h	2:15	4.737
Chicago_12h	2:20	4.888
Chicago_12h	2:25	5.05
Chicago_12h	2:30	5.226
Chicago_12h	2:35	5.418
Chicago_12h	2:40	5.628
Chicago_12h	2:45	5.859
Chicago_12h	2:50	6.114
Chicago_12h	2:55	6.398
Chicago_12h	3:00	6.717
Chicago_12h	3:05	7.077
Chicago_12h	3:10	7.488
Chicago_12h	3:15	7.962
Chicago_12h	3:20	8.517
Chicago_12h	3:25	9.176
Chicago_12h	3:30	9.975
Chicago_12h	3:35	10.968
Chicago_12h	3:40	12.241
Chicago_12h	3:45	13.947
Chicago_12h	3:50	16.379
Chicago_12h	3:55	20.202
Chicago_12h	4:00	27.372
Chicago_12h	4:05	48.816
Chicago_12h	4:10	292.52
Chicago_12h	4:15	63.418
Chicago_12h	4:20	39.238
Chicago_12h	4:25	29.699
Chicago_12h	4:30	24.372
Chicago_12h	4:35	20.902
Chicago_12h	4:40	18.432
Chicago_12h	4:45	16.571
Chicago_12h	4:50	15.109
Chicago_12h	4:55	13.926
Chicago_12h	5:00	12.946
Chicago_12h	5:05	12.118
Chicago_12h	5:10	11.408
Chicago_12h	5:15	10.792
Chicago_12h	5:20	10.251

Chicago_12h	5:25	9.771
Chicago_12h	5:30	9.342
Chicago_12h	5:35	8.957
Chicago_12h	5:40	8.608
Chicago_12h	5:45	8.29
Chicago_12h	5:50	8
Chicago_12h	5:55	7.733
Chicago_12h	6:00	7.486
Chicago_12h	6:05	7.258
Chicago_12h	6:10	7.046
Chicago_12h	6:15	6.849
Chicago_12h	6:20	6.664
Chicago_12h	6:25	6.491
Chicago_12h	6:30	6.329
Chicago_12h	6:35	6.176
Chicago_12h	6:40	6.032
Chicago_12h	6:45	5.896
Chicago_12h	6:50	5.767
Chicago_12h	6:55	5.644
Chicago_12h	7:00	5.528
Chicago_12h	7:05	5.417
Chicago_12h	7:10	5.312
Chicago_12h	7:15	5.212
Chicago_12h	7:20	5.116
Chicago_12h	7:25	5.024
Chicago_12h	7:30	4.936
Chicago_12h	7:35	4.852
Chicago_12h	7:40	4.771
Chicago_12h	7:45	4.693
Chicago_12h	7:50	4.618
Chicago_12h	7:55	4.547
Chicago_12h	8:00	4.477
Chicago_12h	8:05	4.411
Chicago_12h	8:10	4.346
Chicago_12h	8:15	4.284
Chicago_12h	8:20	4.224
Chicago_12h	8:25	4.166
Chicago_12h	8:30	4.11
Chicago_12h	8:35	4.056
Chicago_12h	8:40	4.004
Chicago_12h	8:45	3.953
Chicago_12h	8:50	3.903
Chicago_12h	8:55	3.855
Chicago_12h	9:00	3.809
Chicago_12h	9:05	3.764
Chicago_12h	9:10	3.72
Chicago_12h	9:15	3.677
Chicago_12h	9:20	3.636
Chicago_12h	9:25	3.595
Chicago_12h	9:30	3.556
Chicago_12h	9:35	3.518
Chicago_12h	9:40	3.48
Chicago_12h	9:45	3.444
Chicago_12h	9:50	3.409
Chicago_12h	9:55	3.374
Chicago_12h	10:00	3.34
Chicago_12h	10:05	3.307

Chicago_12h	10:10	3.275
Chicago_12h	10:15	3.244
Chicago_12h	10:20	3.213
Chicago_12h	10:25	3.183
Chicago_12h	10:30	3.154
Chicago_12h	10:35	3.125
Chicago_12h	10:40	3.097
Chicago_12h	10:45	3.07
Chicago_12h	10:50	3.043
Chicago_12h	10:55	3.017
Chicago_12h	11:00	2.991
Chicago_12h	11:05	2.966
Chicago_12h	11:10	2.941
Chicago_12h	11:15	2.917
Chicago_12h	11:20	2.893
Chicago_12h	11:25	2.87
Chicago_12h	11:30	2.847
Chicago_12h	11:35	2.825
Chicago_12h	11:40	2.803
Chicago_12h	11:45	2.781
Chicago_12h	11:50	2.76
Chicago_12h	11:55	2.739
Chicago_12h	12:00	0

;Chicago design storm, a = 544.11118, b = 0, c = 0.699, Duration = 180 minutes, r = 0.35, rain interval = 5 minutes, rain units = mm/hr.

Chicago_3h_5yr_St_Thomas	0:00	4.469
Chicago_3h_5yr_St_Thomas	0:05	4.748
Chicago_3h_5yr_St_Thomas	0:10	5.072
Chicago_3h_5yr_St_Thomas	0:15	5.456
Chicago_3h_5yr_St_Thomas	0:20	5.919
Chicago_3h_5yr_St_Thomas	0:25	6.492
Chicago_3h_5yr_St_Thomas	0:30	7.221
Chicago_3h_5yr_St_Thomas	0:35	8.189
Chicago_3h_5yr_St_Thomas	0:40	9.548
Chicago_3h_5yr_St_Thomas	0:45	11.635
Chicago_3h_5yr_St_Thomas	0:50	15.372
Chicago_3h_5yr_St_Thomas	0:55	24.973
Chicago_3h_5yr_St_Thomas	1:00	176.648
Chicago_3h_5yr_St_Thomas	1:05	40.719
Chicago_3h_5yr_St_Thomas	1:10	25.479
Chicago_3h_5yr_St_Thomas	1:15	18.805
Chicago_3h_5yr_St_Thomas	1:20	15.246
Chicago_3h_5yr_St_Thomas	1:25	12.982
Chicago_3h_5yr_St_Thomas	1:30	11.394
Chicago_3h_5yr_St_Thomas	1:35	10.209
Chicago_3h_5yr_St_Thomas	1:40	9.285
Chicago_3h_5yr_St_Thomas	1:45	8.542
Chicago_3h_5yr_St_Thomas	1:50	7.928
Chicago_3h_5yr_St_Thomas	1:55	7.412
Chicago_3h_5yr_St_Thomas	2:00	6.97
Chicago_3h_5yr_St_Thomas	2:05	6.588
Chicago_3h_5yr_St_Thomas	2:10	6.252
Chicago_3h_5yr_St_Thomas	2:15	5.956
Chicago_3h_5yr_St_Thomas	2:20	5.691
Chicago_3h_5yr_St_Thomas	2:25	5.454
Chicago_3h_5yr_St_Thomas	2:30	5.239

Chicago_3h_5yr_St_Thomas	2:35	5.043
Chicago_3h_5yr_St_Thomas	2:40	4.865
Chicago_3h_5yr_St_Thomas	2:45	4.701
Chicago_3h_5yr_St_Thomas	2:50	4.55
Chicago_3h_5yr_St_Thomas	2:55	4.41
Chicago_3h_5yr_St_Thomas	3:00	0

;Chicago design storm, a = 538.85, b = 6.331, c = 0.809, Duration = 240 minutes, r = 0.35, rain interval = 5 minutes, rain units = mm/hr.

Chicago_4h_25mm_London	0:00	1.363
Chicago_4h_25mm_London	0:05	1.441
Chicago_4h_25mm_London	0:10	1.531
Chicago_4h_25mm_London	0:15	1.634
Chicago_4h_25mm_London	0:20	1.754
Chicago_4h_25mm_London	0:25	1.894
Chicago_4h_25mm_London	0:30	2.062
Chicago_4h_25mm_London	0:35	2.266
Chicago_4h_25mm_London	0:40	2.52
Chicago_4h_25mm_London	0:45	2.844
Chicago_4h_25mm_London	0:50	3.275
Chicago_4h_25mm_London	0:55	3.874
Chicago_4h_25mm_London	1:00	4.765
Chicago_4h_25mm_London	1:05	6.229
Chicago_4h_25mm_London	1:10	9.062
Chicago_4h_25mm_London	1:15	16.642
Chicago_4h_25mm_London	1:20	75.608
Chicago_4h_25mm_London	1:25	36.632
Chicago_4h_25mm_London	1:30	22.791
Chicago_4h_25mm_London	1:35	14.348
Chicago_4h_25mm_London	1:40	10.382
Chicago_4h_25mm_London	1:45	8.118
Chicago_4h_25mm_London	1:50	6.666
Chicago_4h_25mm_London	1:55	5.661
Chicago_4h_25mm_London	2:00	4.925
Chicago_4h_25mm_London	2:05	4.363
Chicago_4h_25mm_London	2:10	3.921
Chicago_4h_25mm_London	2:15	3.564
Chicago_4h_25mm_London	2:20	3.27
Chicago_4h_25mm_London	2:25	3.023
Chicago_4h_25mm_London	2:30	2.813
Chicago_4h_25mm_London	2:35	2.632
Chicago_4h_25mm_London	2:40	2.475
Chicago_4h_25mm_London	2:45	2.336
Chicago_4h_25mm_London	2:50	2.214
Chicago_4h_25mm_London	2:55	2.104
Chicago_4h_25mm_London	3:00	2.006
Chicago_4h_25mm_London	3:05	1.917
Chicago_4h_25mm_London	3:10	1.836
Chicago_4h_25mm_London	3:15	1.763
Chicago_4h_25mm_London	3:20	1.696
Chicago_4h_25mm_London	3:25	1.634
Chicago_4h_25mm_London	3:30	1.576
Chicago_4h_25mm_London	3:35	1.523
Chicago_4h_25mm_London	3:40	1.474
Chicago_4h_25mm_London	3:45	1.428
Chicago_4h_25mm_London	3:50	1.386
Chicago_4h_25mm_London	3:55	1.345

Chicago_4h_25mm_London

4:00

0

;SCS_Type II_108.8mm design storm, total rainfall = 108.8 mm, rain interval = 6 minutes, rain units = mm/hr.

SCS_Type_II_108.8mm_12hr	0:00	2.34159
SCS_Type_II_108.8mm_12hr	0:06	2.36747
SCS_Type_II_108.8mm_12hr	0:12	2.39334
SCS_Type_II_108.8mm_12hr	0:18	2.41922
SCS_Type_II_108.8mm_12hr	0:24	2.44509
SCS_Type_II_108.8mm_12hr	0:30	2.47096
SCS_Type_II_108.8mm_12hr	0:36	2.49684
SCS_Type_II_108.8mm_12hr	0:42	2.52271
SCS_Type_II_108.8mm_12hr	0:48	2.54859
SCS_Type_II_108.8mm_12hr	0:54	2.57446
SCS_Type_II_108.8mm_12hr	1:00	2.60033
SCS_Type_II_108.8mm_12hr	1:06	2.62621
SCS_Type_II_108.8mm_12hr	1:12	2.65208
SCS_Type_II_108.8mm_12hr	1:18	2.67795
SCS_Type_II_108.8mm_12hr	1:24	2.70383
SCS_Type_II_108.8mm_12hr	1:30	2.7297
SCS_Type_II_108.8mm_12hr	1:36	2.75558
SCS_Type_II_108.8mm_12hr	1:42	2.78145
SCS_Type_II_108.8mm_12hr	1:48	2.80732
SCS_Type_II_108.8mm_12hr	1:54	2.8332
SCS_Type_II_108.8mm_12hr	2:00	2.91082
SCS_Type_II_108.8mm_12hr	2:06	3.04019
SCS_Type_II_108.8mm_12hr	2:12	3.16956
SCS_Type_II_108.8mm_12hr	2:18	3.29893
SCS_Type_II_108.8mm_12hr	2:24	3.4283
SCS_Type_II_108.8mm_12hr	2:30	3.55767
SCS_Type_II_108.8mm_12hr	2:36	3.68704
SCS_Type_II_108.8mm_12hr	2:42	3.81641
SCS_Type_II_108.8mm_12hr	2:48	3.94578
SCS_Type_II_108.8mm_12hr	2:54	4.07515
SCS_Type_II_108.8mm_12hr	3:00	4.13983
SCS_Type_II_108.8mm_12hr	3:06	4.13983
SCS_Type_II_108.8mm_12hr	3:12	4.13983
SCS_Type_II_108.8mm_12hr	3:18	4.13983
SCS_Type_II_108.8mm_12hr	3:24	4.13983
SCS_Type_II_108.8mm_12hr	3:30	4.24333
SCS_Type_II_108.8mm_12hr	3:36	4.45032
SCS_Type_II_108.8mm_12hr	3:42	4.65731
SCS_Type_II_108.8mm_12hr	3:48	4.8643
SCS_Type_II_108.8mm_12hr	3:54	5.0713
SCS_Type_II_108.8mm_12hr	4:00	5.33004
SCS_Type_II_108.8mm_12hr	4:06	5.64052
SCS_Type_II_108.8mm_12hr	4:12	5.95101
SCS_Type_II_108.8mm_12hr	4:18	6.2615
SCS_Type_II_108.8mm_12hr	4:24	6.57199
SCS_Type_II_108.8mm_12hr	4:30	6.98597
SCS_Type_II_108.8mm_12hr	4:36	7.50345
SCS_Type_II_108.8mm_12hr	4:42	8.02093
SCS_Type_II_108.8mm_12hr	4:48	8.53841
SCS_Type_II_108.8mm_12hr	4:54	9.05589
SCS_Type_II_108.8mm_12hr	5:00	9.9356
SCS_Type_II_108.8mm_12hr	5:06	11.17755
SCS_Type_II_108.8mm_12hr	5:12	12.4195

SCS_Type_II_108.8mm_12hr	5:18	13.66145
SCS_Type_II_108.8mm_12hr	5:24	14.9034
SCS_Type_II_108.8mm_12hr	5:30	30.84176
SCS_Type_II_108.8mm_12hr	5:36	61.47653
SCS_Type_II_108.8mm_12hr	5:42	98.87734
SCS_Type_II_108.8mm_12hr	5:48	177.32718
SCS_Type_II_108.8mm_12hr	5:54	123.08243
SCS_Type_II_108.8mm_12hr	6:00	24.52851
SCS_Type_II_108.8mm_12hr	6:06	21.57888
SCS_Type_II_108.8mm_12hr	6:12	18.62925
SCS_Type_II_108.8mm_12hr	6:18	15.67962
SCS_Type_II_108.8mm_12hr	6:24	12.72999
SCS_Type_II_108.8mm_12hr	6:30	10.91881
SCS_Type_II_108.8mm_12hr	6:36	10.24609
SCS_Type_II_108.8mm_12hr	6:42	9.57337
SCS_Type_II_108.8mm_12hr	6:48	8.90064
SCS_Type_II_108.8mm_12hr	6:54	8.22792
SCS_Type_II_108.8mm_12hr	7:00	7.71044
SCS_Type_II_108.8mm_12hr	7:06	7.3482
SCS_Type_II_108.8mm_12hr	7:12	6.98597
SCS_Type_II_108.8mm_12hr	7:18	6.62373
SCS_Type_II_108.8mm_12hr	7:24	6.2615
SCS_Type_II_108.8mm_12hr	7:30	5.95101
SCS_Type_II_108.8mm_12hr	7:36	5.69227
SCS_Type_II_108.8mm_12hr	7:42	5.43353
SCS_Type_II_108.8mm_12hr	7:48	5.17479
SCS_Type_II_108.8mm_12hr	7:54	4.91605
SCS_Type_II_108.8mm_12hr	8:00	4.74787
SCS_Type_II_108.8mm_12hr	8:06	4.64438
SCS_Type_II_108.8mm_12hr	8:12	4.56675
SCS_Type_II_108.8mm_12hr	8:18	4.46326
SCS_Type_II_108.8mm_12hr	8:24	4.38564
SCS_Type_II_108.8mm_12hr	8:30	4.28214
SCS_Type_II_108.8mm_12hr	8:36	4.20452
SCS_Type_II_108.8mm_12hr	8:42	4.10102
SCS_Type_II_108.8mm_12hr	8:48	4.0234
SCS_Type_II_108.8mm_12hr	8:54	3.9199
SCS_Type_II_108.8mm_12hr	9:00	3.84228
SCS_Type_II_108.8mm_12hr	9:06	3.73879
SCS_Type_II_108.8mm_12hr	9:12	3.66117
SCS_Type_II_108.8mm_12hr	9:18	3.55767
SCS_Type_II_108.8mm_12hr	9:24	3.48005
SCS_Type_II_108.8mm_12hr	9:30	3.37655
SCS_Type_II_108.8mm_12hr	9:36	3.29893
SCS_Type_II_108.8mm_12hr	9:42	3.19543
SCS_Type_II_108.8mm_12hr	9:48	3.11781
SCS_Type_II_108.8mm_12hr	9:54	3.01432
SCS_Type_II_108.8mm_12hr	10:00	2.96257
SCS_Type_II_108.8mm_12hr	10:06	2.92376
SCS_Type_II_108.8mm_12hr	10:12	2.89788
SCS_Type_II_108.8mm_12hr	10:18	2.85907
SCS_Type_II_108.8mm_12hr	10:24	2.8332
SCS_Type_II_108.8mm_12hr	10:30	2.79439
SCS_Type_II_108.8mm_12hr	10:36	2.76851
SCS_Type_II_108.8mm_12hr	10:42	2.7297
SCS_Type_II_108.8mm_12hr	10:48	2.70383
SCS_Type_II_108.8mm_12hr	10:54	2.66502

SCS_Type_II_108.8mm_12hr	11:00	2.63914
SCS_Type_II_108.8mm_12hr	11:06	2.60033
SCS_Type_II_108.8mm_12hr	11:12	2.57446
SCS_Type_II_108.8mm_12hr	11:18	2.53565
SCS_Type_II_108.8mm_12hr	11:24	2.50977
SCS_Type_II_108.8mm_12hr	11:30	2.47096
SCS_Type_II_108.8mm_12hr	11:36	2.44509
SCS_Type_II_108.8mm_12hr	11:42	2.40628
SCS_Type_II_108.8mm_12hr	11:48	2.3804
SCS_Type_II_108.8mm_12hr	11:54	2.34159

;SCS_Type II_135.7mm design storm, total rainfall = 135.7 mm, rain interval = 6 minutes, rain units = mm/hr.

SCS_Type_II_135.7mm	0:00	2.92054
SCS_Type_II_135.7mm	0:06	2.95281
SCS_Type_II_135.7mm	0:12	2.98508
SCS_Type_II_135.7mm	0:18	3.01735
SCS_Type_II_135.7mm	0:24	3.04962
SCS_Type_II_135.7mm	0:30	3.08189
SCS_Type_II_135.7mm	0:36	3.11416
SCS_Type_II_135.7mm	0:42	3.14643
SCS_Type_II_135.7mm	0:48	3.1787
SCS_Type_II_135.7mm	0:54	3.21098
SCS_Type_II_135.7mm	1:00	3.24325
SCS_Type_II_135.7mm	1:06	3.27552
SCS_Type_II_135.7mm	1:12	3.30779
SCS_Type_II_135.7mm	1:18	3.34006
SCS_Type_II_135.7mm	1:24	3.37233
SCS_Type_II_135.7mm	1:30	3.4046
SCS_Type_II_135.7mm	1:36	3.43687
SCS_Type_II_135.7mm	1:42	3.46914
SCS_Type_II_135.7mm	1:48	3.50141
SCS_Type_II_135.7mm	1:54	3.53369
SCS_Type_II_135.7mm	2:00	3.6305
SCS_Type_II_135.7mm	2:06	3.79185
SCS_Type_II_135.7mm	2:12	3.95321
SCS_Type_II_135.7mm	2:18	4.11457
SCS_Type_II_135.7mm	2:24	4.27592
SCS_Type_II_135.7mm	2:30	4.43728
SCS_Type_II_135.7mm	2:36	4.59863
SCS_Type_II_135.7mm	2:42	4.75999
SCS_Type_II_135.7mm	2:48	4.92134
SCS_Type_II_135.7mm	2:54	5.0827
SCS_Type_II_135.7mm	3:00	5.16338
SCS_Type_II_135.7mm	3:06	5.16338
SCS_Type_II_135.7mm	3:12	5.16338
SCS_Type_II_135.7mm	3:18	5.16338
SCS_Type_II_135.7mm	3:24	5.16338
SCS_Type_II_135.7mm	3:30	5.29246
SCS_Type_II_135.7mm	3:36	5.55063
SCS_Type_II_135.7mm	3:42	5.8088
SCS_Type_II_135.7mm	3:48	6.06697
SCS_Type_II_135.7mm	3:54	6.32514
SCS_Type_II_135.7mm	4:00	6.64785
SCS_Type_II_135.7mm	4:06	7.0351
SCS_Type_II_135.7mm	4:12	7.42235
SCS_Type_II_135.7mm	4:18	7.80961

SCS_Type_II_135.7mm	4:24	8.19686
SCS_Type_II_135.7mm	4:30	8.7132
SCS_Type_II_135.7mm	4:36	9.35862
SCS_Type_II_135.7mm	4:42	10.00404
SCS_Type_II_135.7mm	4:48	10.64946
SCS_Type_II_135.7mm	4:54	11.29489
SCS_Type_II_135.7mm	5:00	12.3921
SCS_Type_II_135.7mm	5:06	13.94112
SCS_Type_II_135.7mm	5:12	15.49013
SCS_Type_II_135.7mm	5:18	17.03914
SCS_Type_II_135.7mm	5:24	18.58816
SCS_Type_II_135.7mm	5:30	38.46716
SCS_Type_II_135.7mm	5:36	76.67615
SCS_Type_II_135.7mm	5:42	123.32403
SCS_Type_II_135.7mm	5:48	221.17002
SCS_Type_II_135.7mm	5:54	153.51365
SCS_Type_II_135.7mm	6:00	30.59301
SCS_Type_II_135.7mm	6:06	26.9141
SCS_Type_II_135.7mm	6:12	23.2352
SCS_Type_II_135.7mm	6:18	19.55629
SCS_Type_II_135.7mm	6:24	15.87738
SCS_Type_II_135.7mm	6:30	13.61841
SCS_Type_II_135.7mm	6:36	12.77936
SCS_Type_II_135.7mm	6:42	11.94031
SCS_Type_II_135.7mm	6:48	11.10126
SCS_Type_II_135.7mm	6:54	10.26221
SCS_Type_II_135.7mm	7:00	9.61679
SCS_Type_II_135.7mm	7:06	9.16499
SCS_Type_II_135.7mm	7:12	8.7132
SCS_Type_II_135.7mm	7:18	8.2614
SCS_Type_II_135.7mm	7:24	7.80961
SCS_Type_II_135.7mm	7:30	7.42235
SCS_Type_II_135.7mm	7:36	7.09964
SCS_Type_II_135.7mm	7:42	6.77693
SCS_Type_II_135.7mm	7:48	6.45422
SCS_Type_II_135.7mm	7:54	6.13151
SCS_Type_II_135.7mm	8:00	5.92175
SCS_Type_II_135.7mm	8:06	5.79266
SCS_Type_II_135.7mm	8:12	5.69585
SCS_Type_II_135.7mm	8:18	5.56677
SCS_Type_II_135.7mm	8:24	5.46995
SCS_Type_II_135.7mm	8:30	5.34087
SCS_Type_II_135.7mm	8:36	5.24405
SCS_Type_II_135.7mm	8:42	5.11497
SCS_Type_II_135.7mm	8:48	5.01816
SCS_Type_II_135.7mm	8:54	4.88907
SCS_Type_II_135.7mm	9:00	4.79226
SCS_Type_II_135.7mm	9:06	4.66317
SCS_Type_II_135.7mm	9:12	4.56636
SCS_Type_II_135.7mm	9:18	4.43728
SCS_Type_II_135.7mm	9:24	4.34046
SCS_Type_II_135.7mm	9:30	4.21138
SCS_Type_II_135.7mm	9:36	4.11457
SCS_Type_II_135.7mm	9:42	3.98548
SCS_Type_II_135.7mm	9:48	3.88867
SCS_Type_II_135.7mm	9:54	3.75958
SCS_Type_II_135.7mm	10:00	3.69504

SCS_Type_II_135.7mm	10:06	3.64663
SCS_Type_II_135.7mm	10:12	3.61436
SCS_Type_II_135.7mm	10:18	3.56596
SCS_Type_II_135.7mm	10:24	3.53369
SCS_Type_II_135.7mm	10:30	3.48528
SCS_Type_II_135.7mm	10:36	3.45301
SCS_Type_II_135.7mm	10:42	3.4046
SCS_Type_II_135.7mm	10:48	3.37233
SCS_Type_II_135.7mm	10:54	3.32392
SCS_Type_II_135.7mm	11:00	3.29165
SCS_Type_II_135.7mm	11:06	3.24325
SCS_Type_II_135.7mm	11:12	3.21098
SCS_Type_II_135.7mm	11:18	3.16257
SCS_Type_II_135.7mm	11:24	3.1303
SCS_Type_II_135.7mm	11:30	3.08189
SCS_Type_II_135.7mm	11:36	3.04962
SCS_Type_II_135.7mm	11:42	3.00121
SCS_Type_II_135.7mm	11:48	2.96894
SCS_Type_II_135.7mm	11:54	2.92054

;SCS_Type II_65.7mm design storm, total rainfall = 65.7 mm, rain interval = 6 minutes, rain units = mm/hr.

SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:00	1.414
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:06	1.42962
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:12	1.44524
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:18	1.46087
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:24	1.47649
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:30	1.49212
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:36	1.50774
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:42	1.52337
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:48	1.53899
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:54	1.55461
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:00	1.57024
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:06	1.58586
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:12	1.60149
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:18	1.61711
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:24	1.63273
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:30	1.64836
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:36	1.66398
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:42	1.67961
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:48	1.69523
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:54	1.71086
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:00	1.75773
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:06	1.83585
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:12	1.91397
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:18	1.99209
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:24	2.07021
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:30	2.14834
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:36	2.22646
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:42	2.30458
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:48	2.3827
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:54	2.46082
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:00	2.49988
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:06	2.49988
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:12	2.49988
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:18	2.49988
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:24	2.49988

SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:30	2.56238
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:36	2.68737
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:42	2.81237
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:48	2.93736
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:54	3.06235
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:00	3.2186
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:06	3.40609
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:12	3.59358
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:18	3.78107
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:24	3.96856
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:30	4.21855
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:36	4.53103
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:42	4.84352
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:48	5.156
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:54	5.46849
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:00	5.99971
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:06	6.74968
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:12	7.49964
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:18	8.24961
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:24	8.99957
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:30	18.62411
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:36	37.12323
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:42	59.7081
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:48	107.08084
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:54	74.32459
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:00	14.8118
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:06	13.03063
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:12	11.24946
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:18	9.4683
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:24	7.68713
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:30	6.59344
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:36	6.18721
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:42	5.78098
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:48	5.37474
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:54	4.96851
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:00	4.65603
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:06	4.43729
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:12	4.21855
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:18	3.99981
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:24	3.78107
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:30	3.59358
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:36	3.43734
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:42	3.28109
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:48	3.12485
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:54	2.96861
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:00	2.86705
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:06	2.80455
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:12	2.75768
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:18	2.69518
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:24	2.64831
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:30	2.58581
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:36	2.53894
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:42	2.47644
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:48	2.42957
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:54	2.36707
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:00	2.3202
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:06	2.25771

SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:12	2.21083
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:18	2.14834
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:24	2.10146
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:30	2.03897
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:36	1.99209
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:42	1.9296
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:48	1.88272
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:54	1.82023
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:00	1.78898
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:06	1.76554
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:12	1.74992
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:18	1.72648
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:24	1.71086
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:30	1.68742
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:36	1.6718
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:42	1.64836
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:48	1.63273
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:54	1.6093
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:00	1.59367
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:06	1.57024
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:12	1.55461
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:18	1.53118
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:24	1.51555
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:30	1.49212
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:36	1.47649
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:42	1.45306
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:48	1.43743
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:54	1.414

;Chicago design storm, a = 901.021, b = 0, c = 0.699, Duration = 1440 minutes, r = 0.35, rain interval = 5 minutes, rain units = mm/hr.

StThomas_Chicago_24h_100yr	0:00	1.687
StThomas_Chicago_24h_100yr	0:05	1.699
StThomas_Chicago_24h_100yr	0:10	1.711
StThomas_Chicago_24h_100yr	0:15	1.723
StThomas_Chicago_24h_100yr	0:20	1.736
StThomas_Chicago_24h_100yr	0:25	1.748
StThomas_Chicago_24h_100yr	0:30	1.761
StThomas_Chicago_24h_100yr	0:35	1.775
StThomas_Chicago_24h_100yr	0:40	1.788
StThomas_Chicago_24h_100yr	0:45	1.802
StThomas_Chicago_24h_100yr	0:50	1.816
StThomas_Chicago_24h_100yr	0:55	1.83
StThomas_Chicago_24h_100yr	1:00	1.844
StThomas_Chicago_24h_100yr	1:05	1.859
StThomas_Chicago_24h_100yr	1:10	1.874
StThomas_Chicago_24h_100yr	1:15	1.889
StThomas_Chicago_24h_100yr	1:20	1.905
StThomas_Chicago_24h_100yr	1:25	1.921
StThomas_Chicago_24h_100yr	1:30	1.937
StThomas_Chicago_24h_100yr	1:35	1.954
StThomas_Chicago_24h_100yr	1:40	1.971
StThomas_Chicago_24h_100yr	1:45	1.988
StThomas_Chicago_24h_100yr	1:50	2.006
StThomas_Chicago_24h_100yr	1:55	2.024
StThomas_Chicago_24h_100yr	2:00	2.042
StThomas_Chicago_24h_100yr	2:05	2.061

StThomas_Chicago_24h_100yr	2:10	2.081
StThomas_Chicago_24h_100yr	2:15	2.1
StThomas_Chicago_24h_100yr	2:20	2.121
StThomas_Chicago_24h_100yr	2:25	2.142
StThomas_Chicago_24h_100yr	2:30	2.163
StThomas_Chicago_24h_100yr	2:35	2.185
StThomas_Chicago_24h_100yr	2:40	2.207
StThomas_Chicago_24h_100yr	2:45	2.23
StThomas_Chicago_24h_100yr	2:50	2.253
StThomas_Chicago_24h_100yr	2:55	2.277
StThomas_Chicago_24h_100yr	3:00	2.302
StThomas_Chicago_24h_100yr	3:05	2.327
StThomas_Chicago_24h_100yr	3:10	2.353
StThomas_Chicago_24h_100yr	3:15	2.38
StThomas_Chicago_24h_100yr	3:20	2.408
StThomas_Chicago_24h_100yr	3:25	2.436
StThomas_Chicago_24h_100yr	3:30	2.465
StThomas_Chicago_24h_100yr	3:35	2.495
StThomas_Chicago_24h_100yr	3:40	2.526
StThomas_Chicago_24h_100yr	3:45	2.558
StThomas_Chicago_24h_100yr	3:50	2.591
StThomas_Chicago_24h_100yr	3:55	2.625
StThomas_Chicago_24h_100yr	4:00	2.66
StThomas_Chicago_24h_100yr	4:05	2.696
StThomas_Chicago_24h_100yr	4:10	2.733
StThomas_Chicago_24h_100yr	4:15	2.772
StThomas_Chicago_24h_100yr	4:20	2.812
StThomas_Chicago_24h_100yr	4:25	2.853
StThomas_Chicago_24h_100yr	4:30	2.896
StThomas_Chicago_24h_100yr	4:35	2.941
StThomas_Chicago_24h_100yr	4:40	2.987
StThomas_Chicago_24h_100yr	4:45	3.035
StThomas_Chicago_24h_100yr	4:50	3.085
StThomas_Chicago_24h_100yr	4:55	3.137
StThomas_Chicago_24h_100yr	5:00	3.191
StThomas_Chicago_24h_100yr	5:05	3.248
StThomas_Chicago_24h_100yr	5:10	3.307
StThomas_Chicago_24h_100yr	5:15	3.368
StThomas_Chicago_24h_100yr	5:20	3.433
StThomas_Chicago_24h_100yr	5:25	3.501
StThomas_Chicago_24h_100yr	5:30	3.572
StThomas_Chicago_24h_100yr	5:35	3.646
StThomas_Chicago_24h_100yr	5:40	3.725
StThomas_Chicago_24h_100yr	5:45	3.808
StThomas_Chicago_24h_100yr	5:50	3.895
StThomas_Chicago_24h_100yr	5:55	3.988
StThomas_Chicago_24h_100yr	6:00	4.086
StThomas_Chicago_24h_100yr	6:05	4.19
StThomas_Chicago_24h_100yr	6:10	4.3
StThomas_Chicago_24h_100yr	6:15	4.419
StThomas_Chicago_24h_100yr	6:20	4.545
StThomas_Chicago_24h_100yr	6:25	4.68
StThomas_Chicago_24h_100yr	6:30	4.826
StThomas_Chicago_24h_100yr	6:35	4.984
StThomas_Chicago_24h_100yr	6:40	5.154
StThomas_Chicago_24h_100yr	6:45	5.339
StThomas_Chicago_24h_100yr	6:50	5.542

StThomas_Chicago_24h_100yr	6:55	5.764
StThomas_Chicago_24h_100yr	7:00	6.009
StThomas_Chicago_24h_100yr	7:05	6.281
StThomas_Chicago_24h_100yr	7:10	6.585
StThomas_Chicago_24h_100yr	7:15	6.927
StThomas_Chicago_24h_100yr	7:20	7.317
StThomas_Chicago_24h_100yr	7:25	7.764
StThomas_Chicago_24h_100yr	7:30	8.284
StThomas_Chicago_24h_100yr	7:35	8.898
StThomas_Chicago_24h_100yr	7:40	9.636
StThomas_Chicago_24h_100yr	7:45	10.543
StThomas_Chicago_24h_100yr	7:50	11.69
StThomas_Chicago_24h_100yr	7:55	13.198
StThomas_Chicago_24h_100yr	8:00	15.29
StThomas_Chicago_24h_100yr	8:05	18.432
StThomas_Chicago_24h_100yr	8:10	23.841
StThomas_Chicago_24h_100yr	8:15	36.301
StThomas_Chicago_24h_100yr	8:20	292.52
StThomas_Chicago_24h_100yr	8:25	67.461
StThomas_Chicago_24h_100yr	8:30	45.769
StThomas_Chicago_24h_100yr	8:35	32.765
StThomas_Chicago_24h_100yr	8:40	26.203
StThomas_Chicago_24h_100yr	8:45	22.138
StThomas_Chicago_24h_100yr	8:50	19.331
StThomas_Chicago_24h_100yr	8:55	17.258
StThomas_Chicago_24h_100yr	9:00	15.655
StThomas_Chicago_24h_100yr	9:05	14.372
StThomas_Chicago_24h_100yr	9:10	13.318
StThomas_Chicago_24h_100yr	9:15	12.434
StThomas_Chicago_24h_100yr	9:20	11.68
StThomas_Chicago_24h_100yr	9:25	11.029
StThomas_Chicago_24h_100yr	9:30	10.459
StThomas_Chicago_24h_100yr	9:35	9.956
StThomas_Chicago_24h_100yr	9:40	9.508
StThomas_Chicago_24h_100yr	9:45	9.106
StThomas_Chicago_24h_100yr	9:50	8.743
StThomas_Chicago_24h_100yr	9:55	8.414
StThomas_Chicago_24h_100yr	10:00	8.113
StThomas_Chicago_24h_100yr	10:05	7.837
StThomas_Chicago_24h_100yr	10:10	7.582
StThomas_Chicago_24h_100yr	10:15	7.347
StThomas_Chicago_24h_100yr	10:20	7.129
StThomas_Chicago_24h_100yr	10:25	6.926
StThomas_Chicago_24h_100yr	10:30	6.737
StThomas_Chicago_24h_100yr	10:35	6.559
StThomas_Chicago_24h_100yr	10:40	6.393
StThomas_Chicago_24h_100yr	10:45	6.236
StThomas_Chicago_24h_100yr	10:50	6.089
StThomas_Chicago_24h_100yr	10:55	5.949
StThomas_Chicago_24h_100yr	11:00	5.817
StThomas_Chicago_24h_100yr	11:05	5.692
StThomas_Chicago_24h_100yr	11:10	5.574
StThomas_Chicago_24h_100yr	11:15	5.461
StThomas_Chicago_24h_100yr	11:20	5.354
StThomas_Chicago_24h_100yr	11:25	5.251
StThomas_Chicago_24h_100yr	11:30	5.153
StThomas_Chicago_24h_100yr	11:35	5.06

StThomas_Chicago_24h_100yr	11:40	4.971
StThomas_Chicago_24h_100yr	11:45	4.885
StThomas_Chicago_24h_100yr	11:50	4.803
StThomas_Chicago_24h_100yr	11:55	4.724
StThomas_Chicago_24h_100yr	12:00	4.648
StThomas_Chicago_24h_100yr	12:05	4.575
StThomas_Chicago_24h_100yr	12:10	4.505
StThomas_Chicago_24h_100yr	12:15	4.437
StThomas_Chicago_24h_100yr	12:20	4.372
StThomas_Chicago_24h_100yr	12:25	4.309
StThomas_Chicago_24h_100yr	12:30	4.248
StThomas_Chicago_24h_100yr	12:35	4.189
StThomas_Chicago_24h_100yr	12:40	4.133
StThomas_Chicago_24h_100yr	12:45	4.078
StThomas_Chicago_24h_100yr	12:50	4.024
StThomas_Chicago_24h_100yr	12:55	3.973
StThomas_Chicago_24h_100yr	13:00	3.923
StThomas_Chicago_24h_100yr	13:05	3.874
StThomas_Chicago_24h_100yr	13:10	3.827
StThomas_Chicago_24h_100yr	13:15	3.782
StThomas_Chicago_24h_100yr	13:20	3.737
StThomas_Chicago_24h_100yr	13:25	3.694
StThomas_Chicago_24h_100yr	13:30	3.652
StThomas_Chicago_24h_100yr	13:35	3.611
StThomas_Chicago_24h_100yr	13:40	3.572
StThomas_Chicago_24h_100yr	13:45	3.533
StThomas_Chicago_24h_100yr	13:50	3.495
StThomas_Chicago_24h_100yr	13:55	3.459
StThomas_Chicago_24h_100yr	14:00	3.423
StThomas_Chicago_24h_100yr	14:05	3.388
StThomas_Chicago_24h_100yr	14:10	3.354
StThomas_Chicago_24h_100yr	14:15	3.321
StThomas_Chicago_24h_100yr	14:20	3.288
StThomas_Chicago_24h_100yr	14:25	3.256
StThomas_Chicago_24h_100yr	14:30	3.225
StThomas_Chicago_24h_100yr	14:35	3.195
StThomas_Chicago_24h_100yr	14:40	3.166
StThomas_Chicago_24h_100yr	14:45	3.137
StThomas_Chicago_24h_100yr	14:50	3.108
StThomas_Chicago_24h_100yr	14:55	3.081
StThomas_Chicago_24h_100yr	15:00	3.054
StThomas_Chicago_24h_100yr	15:05	3.027
StThomas_Chicago_24h_100yr	15:10	3.001
StThomas_Chicago_24h_100yr	15:15	2.976
StThomas_Chicago_24h_100yr	15:20	2.951
StThomas_Chicago_24h_100yr	15:25	2.927
StThomas_Chicago_24h_100yr	15:30	2.903
StThomas_Chicago_24h_100yr	15:35	2.879
StThomas_Chicago_24h_100yr	15:40	2.856
StThomas_Chicago_24h_100yr	15:45	2.834
StThomas_Chicago_24h_100yr	15:50	2.812
StThomas_Chicago_24h_100yr	15:55	2.79
StThomas_Chicago_24h_100yr	16:00	2.769
StThomas_Chicago_24h_100yr	16:05	2.748
StThomas_Chicago_24h_100yr	16:10	2.727
StThomas_Chicago_24h_100yr	16:15	2.707
StThomas_Chicago_24h_100yr	16:20	2.687

StThomas_Chicago_24h_100yr	16:25	2.668
StThomas_Chicago_24h_100yr	16:30	2.649
StThomas_Chicago_24h_100yr	16:35	2.63
StThomas_Chicago_24h_100yr	16:40	2.611
StThomas_Chicago_24h_100yr	16:45	2.593
StThomas_Chicago_24h_100yr	16:50	2.575
StThomas_Chicago_24h_100yr	16:55	2.558
StThomas_Chicago_24h_100yr	17:00	2.541
StThomas_Chicago_24h_100yr	17:05	2.524
StThomas_Chicago_24h_100yr	17:10	2.507
StThomas_Chicago_24h_100yr	17:15	2.49
StThomas_Chicago_24h_100yr	17:20	2.474
StThomas_Chicago_24h_100yr	17:25	2.458
StThomas_Chicago_24h_100yr	17:30	2.443
StThomas_Chicago_24h_100yr	17:35	2.427
StThomas_Chicago_24h_100yr	17:40	2.412
StThomas_Chicago_24h_100yr	17:45	2.397
StThomas_Chicago_24h_100yr	17:50	2.382
StThomas_Chicago_24h_100yr	17:55	2.368
StThomas_Chicago_24h_100yr	18:00	2.353
StThomas_Chicago_24h_100yr	18:05	2.339
StThomas_Chicago_24h_100yr	18:10	2.325
StThomas_Chicago_24h_100yr	18:15	2.312
StThomas_Chicago_24h_100yr	18:20	2.298
StThomas_Chicago_24h_100yr	18:25	2.285
StThomas_Chicago_24h_100yr	18:30	2.272
StThomas_Chicago_24h_100yr	18:35	2.259
StThomas_Chicago_24h_100yr	18:40	2.246
StThomas_Chicago_24h_100yr	18:45	2.233
StThomas_Chicago_24h_100yr	18:50	2.221
StThomas_Chicago_24h_100yr	18:55	2.209
StThomas_Chicago_24h_100yr	19:00	2.196
StThomas_Chicago_24h_100yr	19:05	2.185
StThomas_Chicago_24h_100yr	19:10	2.173
StThomas_Chicago_24h_100yr	19:15	2.161
StThomas_Chicago_24h_100yr	19:20	2.15
StThomas_Chicago_24h_100yr	19:25	2.138
StThomas_Chicago_24h_100yr	19:30	2.127
StThomas_Chicago_24h_100yr	19:35	2.116
StThomas_Chicago_24h_100yr	19:40	2.105
StThomas_Chicago_24h_100yr	19:45	2.094
StThomas_Chicago_24h_100yr	19:50	2.084
StThomas_Chicago_24h_100yr	19:55	2.073
StThomas_Chicago_24h_100yr	20:00	2.063
StThomas_Chicago_24h_100yr	20:05	2.053
StThomas_Chicago_24h_100yr	20:10	2.042
StThomas_Chicago_24h_100yr	20:15	2.032
StThomas_Chicago_24h_100yr	20:20	2.022
StThomas_Chicago_24h_100yr	20:25	2.013
StThomas_Chicago_24h_100yr	20:30	2.003
StThomas_Chicago_24h_100yr	20:35	1.993
StThomas_Chicago_24h_100yr	20:40	1.984
StThomas_Chicago_24h_100yr	20:45	1.975
StThomas_Chicago_24h_100yr	20:50	1.965
StThomas_Chicago_24h_100yr	20:55	1.956
StThomas_Chicago_24h_100yr	21:00	1.947
StThomas_Chicago_24h_100yr	21:05	1.938

StThomas_Chicago_24h_100yr	21:10	1.93
StThomas_Chicago_24h_100yr	21:15	1.921
StThomas_Chicago_24h_100yr	21:20	1.912
StThomas_Chicago_24h_100yr	21:25	1.904
StThomas_Chicago_24h_100yr	21:30	1.895
StThomas_Chicago_24h_100yr	21:35	1.887
StThomas_Chicago_24h_100yr	21:40	1.879
StThomas_Chicago_24h_100yr	21:45	1.87
StThomas_Chicago_24h_100yr	21:50	1.862
StThomas_Chicago_24h_100yr	21:55	1.854
StThomas_Chicago_24h_100yr	22:00	1.846
StThomas_Chicago_24h_100yr	22:05	1.839
StThomas_Chicago_24h_100yr	22:10	1.831
StThomas_Chicago_24h_100yr	22:15	1.823
StThomas_Chicago_24h_100yr	22:20	1.816
StThomas_Chicago_24h_100yr	22:25	1.808
StThomas_Chicago_24h_100yr	22:30	1.801
StThomas_Chicago_24h_100yr	22:35	1.793
StThomas_Chicago_24h_100yr	22:40	1.786
StThomas_Chicago_24h_100yr	22:45	1.779
StThomas_Chicago_24h_100yr	22:50	1.771
StThomas_Chicago_24h_100yr	22:55	1.764
StThomas_Chicago_24h_100yr	23:00	1.757
StThomas_Chicago_24h_100yr	23:05	1.75
StThomas_Chicago_24h_100yr	23:10	1.743
StThomas_Chicago_24h_100yr	23:15	1.737
StThomas_Chicago_24h_100yr	23:20	1.73
StThomas_Chicago_24h_100yr	23:25	1.723
StThomas_Chicago_24h_100yr	23:30	1.717
StThomas_Chicago_24h_100yr	23:35	1.71
StThomas_Chicago_24h_100yr	23:40	1.703
StThomas_Chicago_24h_100yr	23:45	1.697
StThomas_Chicago_24h_100yr	23:50	1.691
StThomas_Chicago_24h_100yr	23:55	1.684
StThomas_Chicago_24h_100yr	24:00	0

;Chicago design storm, a = 901.021, b = 0, c = 0.699, Duration = 180 minutes, r = 0.35, rain interval = 5 minutes, rain units = mm/hr.

StThomas_Chicago_3h_100yr	0:00	7.401
StThomas_Chicago_3h_100yr	0:05	7.862
StThomas_Chicago_3h_100yr	0:10	8.399
StThomas_Chicago_3h_100yr	0:15	9.035
StThomas_Chicago_3h_100yr	0:20	9.802
StThomas_Chicago_3h_100yr	0:25	10.75
StThomas_Chicago_3h_100yr	0:30	11.958
StThomas_Chicago_3h_100yr	0:35	13.56
StThomas_Chicago_3h_100yr	0:40	15.812
StThomas_Chicago_3h_100yr	0:45	19.267
StThomas_Chicago_3h_100yr	0:50	25.455
StThomas_Chicago_3h_100yr	0:55	41.355
StThomas_Chicago_3h_100yr	1:00	292.52
StThomas_Chicago_3h_100yr	1:05	67.429
StThomas_Chicago_3h_100yr	1:10	42.191
StThomas_Chicago_3h_100yr	1:15	31.14
StThomas_Chicago_3h_100yr	1:20	25.247
StThomas_Chicago_3h_100yr	1:25	21.498
StThomas_Chicago_3h_100yr	1:30	18.869

StThomas_Chicago_3h_100yr	1:35	16.906
StThomas_Chicago_3h_100yr	1:40	15.376
StThomas_Chicago_3h_100yr	1:45	14.145
StThomas_Chicago_3h_100yr	1:50	13.129
StThomas_Chicago_3h_100yr	1:55	12.273
StThomas_Chicago_3h_100yr	2:00	11.542
StThomas_Chicago_3h_100yr	2:05	10.909
StThomas_Chicago_3h_100yr	2:10	10.354
StThomas_Chicago_3h_100yr	2:15	9.863
StThomas_Chicago_3h_100yr	2:20	9.424
StThomas_Chicago_3h_100yr	2:25	9.031
StThomas_Chicago_3h_100yr	2:30	8.675
StThomas_Chicago_3h_100yr	2:35	8.351
StThomas_Chicago_3h_100yr	2:40	8.056
StThomas_Chicago_3h_100yr	2:45	7.784
StThomas_Chicago_3h_100yr	2:50	7.534
StThomas_Chicago_3h_100yr	2:55	7.302
StThomas_Chicago_3h_100yr	3:00	0

[REPORT]

```
;;Reporting Options
INPUT      YES
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL
```

[TAGS]

[MAP]

DIMENSIONS	486035.96865	4736049.26505	487581.82835	4736410.74595
UNITS	Meters			

[COORDINATES]

;;Node	X-Coord	Y-Coord
OF1	486409.952	4736138.981
OF2	486106.235	4736065.696

[VERTICES]

;;Link	X-Coord	Y-Coord

[POLYGONS]

;;Subcatchment	X-Coord	Y-Coord
S1	486135.76	4736103.565
S1	486138.265	4736174.563
S1	486204.253	4736172.538
S1	486207.841	4736238.8
S1	486229.172	4736238.46
S1	486226.67	4736147.181
S1	486357.716	4736147.306
S1	486356.491	4736098.283
S1	486357.143	4736082.803
S1	486135.115	4736087.021
S1	486135.76	4736103.565

S2	487090.178	4736296.898
S2	487128.13	4736276.68
S2	487147.152	4736291.297
S2	487117.15	4736302.953
S2	487062.664	4736328.086
S2	486983.381	4736343.181
S2	487121.009	4736363.557
S2	487138.523	4736305.832
S2	487193.301	4736316.257
S2	487191.215	4736324.129
S2	487393.81	4736357.393
S2	487395.438	4736363.3
S2	487442.361	4736371.004
S2	487474.755	4736394.315
S2	487481.728	4736374.156
S2	487507.887	4736378.675
S2	487511.562	4736217.586
S2	487346.529	4736199.844
S2	487292.667	4736202.329
S2	487289.29	4736224.398
S2	487263.957	4736230.92
S2	487251.036	4736183.621
S2	487225.872	4736195.053
S2	487171.984	4736223.32
S2	487150.547	4736227.893
S2	487150.488	4736196.164
S2	486961.692	4736203.244
S2	486738.59	4736121.373
S2	486652.339	4736086.918
S2	486483.346	4736087.875
S2	486445.372	4736083.452
S2	486450.803	4736174.687
S2	486448.949	4736233.23
S2	486543.402	4736194.128
S2	487082.988	4736288.349
S2	487090.178	4736296.898

[SYMBOLS]

;;Gage

X-Coord

Y-Coord

;;

Existing Conditions 5-Year 12-Hour Event Status

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

Element Count

Number of rain gages 6
Number of subcatchments ... 2
Number of nodes 2
Number of links 0
Number of pollutants 0
Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval
Chicago_24h_100yr_StThomas	StThomas_Chicago_24h_100yr	INTENSITY	5 min.
Chicago_3h_100yr_StThomas	StThomas_Chicago_3h_100yr	INTENSITY	5 min.
Chicago_3h_5yr_StThomas	Chicago_3h_5yr_St_Thomas	INTENSITY	5 min.
Chicago_4h_25mm_London	Chicago_4h_25mm_London	INTENSITY	5 min.
SCS_Type_II_108.8mm_100yr_12hr_StThomas	SCS_Type_II_108.8mm_12hr	INTENSITY	6 min.
SCS_Type_II_65.7mm_5yr_12hr_StThomas	SCS_Type_II_65.7mm_5yr_12hr_StThomas	INTENSITY	6 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage
S1	1.78	89.00	14.00	0.5000	
SCS_Type_II_65.7mm_5yr_12hr_StThomas	OF2				
S2	12.23	122.30	33.00	0.7000	
SCS_Type_II_65.7mm_5yr_12hr_StThomas	OF1				

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
OF1	OUTFALL	0.00	0.00	0.0	
OF2	OUTFALL	0.00	0.00	0.0	

Analysis Options

Flow Units CMS
 Process Models:
 Rainfall/Runoff YES
 RDII NO
 Snowmelt NO
 Groundwater NO
 Flow Routing NO
 Water Quality NO
 Infiltration Method HORTON
 Surcharge Method EXTRAN
 Starting Date 07/23/2025 00:00:00
 Ending Date 07/25/2025 00:00:00
 Antecedent Dry Days 0.0
 Report Time Step 00:01:00
 Wet Time Step 00:05:00
 Dry Time Step 00:05:00

	Volume hectare-m	Depth mm
***** Runoff Quantity Continuity *****	-----	-----
Total Precipitation	0.920	65.700
Evaporation Loss	0.000	0.000
Infiltration Loss	0.376	26.836
Surface Runoff	0.526	37.574
Final Storage	0.019	1.329
Continuity Error (%)	-0.058	

	Volume hectare-m	Volume 10^6 ltr
***** Flow Routing Continuity *****	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.527	5.269
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.527	5.269
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

 Subcatchment Runoff Summary

Perv	Total Runoff mm	Total Runoff mm	Total Precip mm	Total Peak Runoff mm	Total Runoff Coeff mm	Total Evap mm	Total Infil mm	Imperv Runoff mm
Subcatchment	mm	mm	10^6 ltr	CMS				


```

-----
S1              65.70      0.00      0.00      32.57      9.02
22.88      31.90      0.57      0.17      0.486
S2              65.70      0.00      0.00      26.00      21.21
17.19      38.40      4.70      1.07      0.584

```

```

Analysis begun on:  Thu Nov 27 15:47:47 2025
Analysis ended on:  Thu Nov 27 15:47:47 2025
Total elapsed time: < 1 sec

```

Existing Conditions 100-Year 12-Hour Event Status

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

Element Count

Number of rain gages 6
Number of subcatchments ... 2
Number of nodes 2
Number of links 0
Number of pollutants 0
Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval
Chicago_24h_100yr_StThomas	StThomas_Chicago_24h_100yr	INTENSITY	5 min.
Chicago_3h_100yr_StThomas	StThomas_Chicago_3h_100yr	INTENSITY	5 min.
Chicago_3h_5yr_StThomas	Chicago_3h_5yr_St_Thomas	INTENSITY	5 min.
Chicago_4h_25mm_London	Chicago_4h_25mm_London	INTENSITY	5 min.
SCS_Type_II_108.8mm_100yr_12hr_StThomas	SCS_Type_II_108.8mm_12hr	INTENSITY	6 min.
SCS_Type_II_65.7mm_5yr_12hr_StThomas	SCS_Type_II_65.7mm_5yr_12hr_StThomas	INTENSITY	6 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage
Outlet					
S1	1.78	89.00	14.00	0.5000	
SCS_Type_II_108.8mm_100yr_12hr_StThomas	OF2				
S2	12.23	122.30	33.00	0.7000	
SCS_Type_II_108.8mm_100yr_12hr_StThomas	OF1				

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
OF1	OUTFALL	0.00	0.00	0.0	
OF2	OUTFALL	0.00	0.00	0.0	

Analysis Options

Flow Units CMS
 Process Models:
 Rainfall/Runoff YES
 RDII NO
 Snowmelt NO
 Groundwater NO
 Flow Routing NO
 Water Quality NO
 Infiltration Method HORTON
 Surcharge Method EXTRAN
 Starting Date 07/23/2025 00:00:00
 Ending Date 07/25/2025 00:00:00
 Antecedent Dry Days 0.0
 Report Time Step 00:01:00
 Wet Time Step 00:05:00
 Dry Time Step 00:05:00

	Volume hectare-m	Depth mm
*****	-----	-----
Runoff Quantity Continuity		

Total Precipitation	1.524	108.800
Evaporation Loss	0.000	0.000
Infiltration Loss	0.459	32.761
Surface Runoff	1.048	74.795
Final Storage	0.019	1.329
Continuity Error (%)	-0.078	

	Volume hectare-m	Volume 10^6 ltr
*****	-----	-----
Flow Routing Continuity		

Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	1.049	10.489
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	1.049	10.489
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.000	

 Subcatchment Runoff Summary

Perv	Total Runoff mm	Total Runoff mm	Total Precip Runoff mm	Total Peak Runoff mm	Total Runoff Runon Coeff mm	Total Evap mm	Total Infil mm	Imperv Runoff mm
-----	-----	-----	-----	-----	-----	-----	-----	-----
Subcatchment	Subcatchment	Subcatchment	Subcatchment	Subcatchment	Subcatchment	Subcatchment	Subcatchment	Subcatchment
mm	mm	10^6 ltr	mm	CMS	mm	mm	mm	mm

```

-----
S1          108.80    0.00    0.00    39.84    15.07
52.71      67.78    1.21    0.43    0.623
S2          108.80    0.00    0.00    31.73    35.47
40.35      75.82    9.27    2.44    0.697

```

Analysis begun on: Thu Nov 27 15:49:52 2025

Analysis ended on: Thu Nov 27 15:49:52 2025

Total elapsed time: < 1 sec

Proposed Conditions PCSWMM Schematic



Proposed Conditions Details

[TITLE]

;;Project Title/Notes

[OPTIONS]

;;Option Value
FLOW_UNITS CMS
INFILTRATION HORTON
FLOW_ROUTING DYNWAVE
LINK_OFFSETS ELEVATION
MIN_SLOPE 0
ALLOW_PONDING NO
SKIP_STEADY_STATE NO

START_DATE 07/23/2025
START_TIME 00:00:00
REPORT_START_DATE 07/23/2025
REPORT_START_TIME 00:00:00
END_DATE 07/25/2025
END_TIME 00:00:00
SWEEP_START 01/01
SWEEP_END 12/31
DRY_DAYS 0
REPORT_STEP 00:01:00
WET_STEP 00:05:00
DRY_STEP 00:05:00
ROUTING_STEP 5
RULE_STEP 00:00:00

INERTIAL_DAMPING PARTIAL
NORMAL_FLOW_LIMITED BOTH
FORCE_MAIN_EQUATION H-W
VARIABLE_STEP 0.75
LENGTHENING_STEP 0
MIN_SURFAREA 0
MAX_TRIALS 8
HEAD_TOLERANCE 0.0015
SYS_FLOW_TOL 5
LAT_FLOW_TOL 5
MINIMUM_STEP 0.5
THREADS 16

[EVAPORATION]

;;Data Source Parameters
;;-----
CONSTANT 0.0
DRY_ONLY NO

[RAINGAGES]

;;Name Format Interval SCF Source
;;-----
Chicago_24h_100yr_StThomas INTENSITY 0:05 1.0 TIMESERIES
StThomas_Chicago_24h_100yr
Chicago_3h_100yr_StThomas INTENSITY 0:05 1.0 TIMESERIES
StThomas_Chicago_3h_100yr
Chicago_3h_5yr_StThomas INTENSITY 0:05 1.0 TIMESERIES
Chicago_3h_5yr_St_Thomas
Chicago_4h_25mm_London INTENSITY 0:05 1.0 TIMESERIES
Chicago_4h_25mm_London

SCS_Type_II_108.8mm_100yr_12hr_StThomas INTENSITY 0:06 1.0 TIMESERIES
 SCS_Type_II_108.8mm_12hr
 SCS_Type_II_65.7mm_5yr_12hr_StThomas INTENSITY 0:06 1.0 TIMESERIES
 SCS_Type_II_65.7mm_5yr_12hr_StThomas

[SUBCATCHMENTS]

;;Name	Rain Gage	Outlet	Area	%Imperv	Width	%
Slope	CurbLen	SnowPack				
S1_1	SCS_Type_II_65.7mm_5yr_12hr_StThomas	SU1	1.62	57.5	81	0.5
0						
S1_2	SCS_Type_II_65.7mm_5yr_12hr_StThomas	OF3	0.14	34	70	0.5
0						

[SUBAREAS]

;;Subcatchment	N-Imperv	N-Perv	S-Imperv	S-Perv	PctZero	RouteTo
PctRouted						
S1_1	0.013	0.025	2	5	25	OUTLET
S1_2	0.013	0.025	2	5	25	OUTLET

[INFILTRATION]

;;Subcatchment	Param1	Param2	Param3	Param4	Param5
S1_1	79	0.5	7	0	0
CURVE_NUMBER					
S1_2	79	0.5	7	0	0
CURVE_NUMBER					

[JUNCTIONS]

;;Name	Elevation	MaxDepth	InitDepth	SurDepth	Aponded
J1	231	5	0	3	0
OF1	231	5	0	3	0

[OUTFALLS]

;;Name	Elevation	Type	Stage Data	Gated	Route To
OF2	0	FREE		NO	
OF3	0	FREE		NO	

[STORAGE]

;;Name	Elev.	MaxDepth	InitDepth	Shape	Curve Name/Params
SurDepth	Fevap	Psi	Ksat	IMD	
SU1	234.3	2.2	0	TABULAR	Pond
0	0				

[CONDUITS]

;;Name	From Node	To Node	Length	Roughness	InOffset
OutOffset	InitFlow	MaxFlow			
C1	OF1	OF2	150	0.013	232.6
231.7	0	0			

```

[ORIFICES]
;;Name      From Node      To Node      Type      Offset      Qcoeff
Gated      CloseTime
;;-----
OR1          SU1          J1          SIDE      234.3      0.65
NO          0
OR2          SU1          J1          BOTTOM     235.37     0.65
NO          0
OR3          J1          OF1         SIDE      234.3      0.65
NO          0

```

```

[XSECTIONS]
;;Link      Shape      Geom1      Geom2      Geom3      Geom4
Barrels      Culvert
;;-----
C1          CIRCULAR    0.9        0          0          0          1
OR1          CIRCULAR    0.1        0          0          0
OR2          RECT_CLOSED 1.375      1.375      0          0
OR3          CIRCULAR    0.13       0          0          0

```

```

[LOSSES]
;;Link      Kentry      Kexit      Kavg      Flap Gate      Seepage
;;-----

```

```

[CURVES]
;;Name      Type      X-Value      Y-Value
;;-----
;1m depth Permanent Pool, 1000m3
Pond          Storage      0          240
Pond          1.2          654.7
Pond          1.7          868.32
Pond          2          997.2

```

```

[TIMESERIES]
;;Name      Date      Time      Value
;;-----
;Chicago design storm, a = 901.021, b = 0, c = 0.699, Duration = 720 minutes, r =
0.35, rain interval = 5 minutes, rain units = mm/hr.
Chicago_12h      0:00      2.748
Chicago_12h      0:05      2.787
Chicago_12h      0:10      2.828
Chicago_12h      0:15      2.87
Chicago_12h      0:20      2.914
Chicago_12h      0:25      2.959
Chicago_12h      0:30      3.006
Chicago_12h      0:35      3.055
Chicago_12h      0:40      3.105
Chicago_12h      0:45      3.158
Chicago_12h      0:50      3.213
Chicago_12h      0:55      3.271
Chicago_12h      1:00      3.331
Chicago_12h      1:05      3.394
Chicago_12h      1:10      3.46
Chicago_12h      1:15      3.529
Chicago_12h      1:20      3.601
Chicago_12h      1:25      3.677

```


Chicago_12h	1:30	3.757
Chicago_12h	1:35	3.842
Chicago_12h	1:40	3.931
Chicago_12h	1:45	4.026
Chicago_12h	1:50	4.126
Chicago_12h	1:55	4.233
Chicago_12h	2:00	4.347
Chicago_12h	2:05	4.468
Chicago_12h	2:10	4.598
Chicago_12h	2:15	4.737
Chicago_12h	2:20	4.888
Chicago_12h	2:25	5.05
Chicago_12h	2:30	5.226
Chicago_12h	2:35	5.418
Chicago_12h	2:40	5.628
Chicago_12h	2:45	5.859
Chicago_12h	2:50	6.114
Chicago_12h	2:55	6.398
Chicago_12h	3:00	6.717
Chicago_12h	3:05	7.077
Chicago_12h	3:10	7.488
Chicago_12h	3:15	7.962
Chicago_12h	3:20	8.517
Chicago_12h	3:25	9.176
Chicago_12h	3:30	9.975
Chicago_12h	3:35	10.968
Chicago_12h	3:40	12.241
Chicago_12h	3:45	13.947
Chicago_12h	3:50	16.379
Chicago_12h	3:55	20.202
Chicago_12h	4:00	27.372
Chicago_12h	4:05	48.816
Chicago_12h	4:10	292.52
Chicago_12h	4:15	63.418
Chicago_12h	4:20	39.238
Chicago_12h	4:25	29.699
Chicago_12h	4:30	24.372
Chicago_12h	4:35	20.902
Chicago_12h	4:40	18.432
Chicago_12h	4:45	16.571
Chicago_12h	4:50	15.109
Chicago_12h	4:55	13.926
Chicago_12h	5:00	12.946
Chicago_12h	5:05	12.118
Chicago_12h	5:10	11.408
Chicago_12h	5:15	10.792
Chicago_12h	5:20	10.251
Chicago_12h	5:25	9.771
Chicago_12h	5:30	9.342
Chicago_12h	5:35	8.957
Chicago_12h	5:40	8.608
Chicago_12h	5:45	8.29
Chicago_12h	5:50	8
Chicago_12h	5:55	7.733
Chicago_12h	6:00	7.486
Chicago_12h	6:05	7.258
Chicago_12h	6:10	7.046

Chicago_12h	6:15	6.849
Chicago_12h	6:20	6.664
Chicago_12h	6:25	6.491
Chicago_12h	6:30	6.329
Chicago_12h	6:35	6.176
Chicago_12h	6:40	6.032
Chicago_12h	6:45	5.896
Chicago_12h	6:50	5.767
Chicago_12h	6:55	5.644
Chicago_12h	7:00	5.528
Chicago_12h	7:05	5.417
Chicago_12h	7:10	5.312
Chicago_12h	7:15	5.212
Chicago_12h	7:20	5.116
Chicago_12h	7:25	5.024
Chicago_12h	7:30	4.936
Chicago_12h	7:35	4.852
Chicago_12h	7:40	4.771
Chicago_12h	7:45	4.693
Chicago_12h	7:50	4.618
Chicago_12h	7:55	4.547
Chicago_12h	8:00	4.477
Chicago_12h	8:05	4.411
Chicago_12h	8:10	4.346
Chicago_12h	8:15	4.284
Chicago_12h	8:20	4.224
Chicago_12h	8:25	4.166
Chicago_12h	8:30	4.11
Chicago_12h	8:35	4.056
Chicago_12h	8:40	4.004
Chicago_12h	8:45	3.953
Chicago_12h	8:50	3.903
Chicago_12h	8:55	3.855
Chicago_12h	9:00	3.809
Chicago_12h	9:05	3.764
Chicago_12h	9:10	3.72
Chicago_12h	9:15	3.677
Chicago_12h	9:20	3.636
Chicago_12h	9:25	3.595
Chicago_12h	9:30	3.556
Chicago_12h	9:35	3.518
Chicago_12h	9:40	3.48
Chicago_12h	9:45	3.444
Chicago_12h	9:50	3.409
Chicago_12h	9:55	3.374
Chicago_12h	10:00	3.34
Chicago_12h	10:05	3.307
Chicago_12h	10:10	3.275
Chicago_12h	10:15	3.244
Chicago_12h	10:20	3.213
Chicago_12h	10:25	3.183
Chicago_12h	10:30	3.154
Chicago_12h	10:35	3.125
Chicago_12h	10:40	3.097
Chicago_12h	10:45	3.07
Chicago_12h	10:50	3.043
Chicago_12h	10:55	3.017

Chicago_12h	11:00	2.991
Chicago_12h	11:05	2.966
Chicago_12h	11:10	2.941
Chicago_12h	11:15	2.917
Chicago_12h	11:20	2.893
Chicago_12h	11:25	2.87
Chicago_12h	11:30	2.847
Chicago_12h	11:35	2.825
Chicago_12h	11:40	2.803
Chicago_12h	11:45	2.781
Chicago_12h	11:50	2.76
Chicago_12h	11:55	2.739
Chicago_12h	12:00	0

;Chicago design storm, a = 544.11118, b = 0, c = 0.699, Duration = 180 minutes, r = 0.35, rain interval = 5 minutes, rain units = mm/hr.

Chicago_3h_5yr_St_Thomas	0:00	4.469
Chicago_3h_5yr_St_Thomas	0:05	4.748
Chicago_3h_5yr_St_Thomas	0:10	5.072
Chicago_3h_5yr_St_Thomas	0:15	5.456
Chicago_3h_5yr_St_Thomas	0:20	5.919
Chicago_3h_5yr_St_Thomas	0:25	6.492
Chicago_3h_5yr_St_Thomas	0:30	7.221
Chicago_3h_5yr_St_Thomas	0:35	8.189
Chicago_3h_5yr_St_Thomas	0:40	9.548
Chicago_3h_5yr_St_Thomas	0:45	11.635
Chicago_3h_5yr_St_Thomas	0:50	15.372
Chicago_3h_5yr_St_Thomas	0:55	24.973
Chicago_3h_5yr_St_Thomas	1:00	176.648
Chicago_3h_5yr_St_Thomas	1:05	40.719
Chicago_3h_5yr_St_Thomas	1:10	25.479
Chicago_3h_5yr_St_Thomas	1:15	18.805
Chicago_3h_5yr_St_Thomas	1:20	15.246
Chicago_3h_5yr_St_Thomas	1:25	12.982
Chicago_3h_5yr_St_Thomas	1:30	11.394
Chicago_3h_5yr_St_Thomas	1:35	10.209
Chicago_3h_5yr_St_Thomas	1:40	9.285
Chicago_3h_5yr_St_Thomas	1:45	8.542
Chicago_3h_5yr_St_Thomas	1:50	7.928
Chicago_3h_5yr_St_Thomas	1:55	7.412
Chicago_3h_5yr_St_Thomas	2:00	6.97
Chicago_3h_5yr_St_Thomas	2:05	6.588
Chicago_3h_5yr_St_Thomas	2:10	6.252
Chicago_3h_5yr_St_Thomas	2:15	5.956
Chicago_3h_5yr_St_Thomas	2:20	5.691
Chicago_3h_5yr_St_Thomas	2:25	5.454
Chicago_3h_5yr_St_Thomas	2:30	5.239
Chicago_3h_5yr_St_Thomas	2:35	5.043
Chicago_3h_5yr_St_Thomas	2:40	4.865
Chicago_3h_5yr_St_Thomas	2:45	4.701
Chicago_3h_5yr_St_Thomas	2:50	4.55
Chicago_3h_5yr_St_Thomas	2:55	4.41
Chicago_3h_5yr_St_Thomas	3:00	0

;Chicago design storm, a = 538.85, b = 6.331, c = 0.809, Duration = 240 minutes, r = 0.35, rain interval = 5 minutes, rain units = mm/hr.

Chicago_4h_25mm_London	0:00	1.363
------------------------	------	-------

Chicago_4h_25mm_London	0:05	1.441
Chicago_4h_25mm_London	0:10	1.531
Chicago_4h_25mm_London	0:15	1.634
Chicago_4h_25mm_London	0:20	1.754
Chicago_4h_25mm_London	0:25	1.894
Chicago_4h_25mm_London	0:30	2.062
Chicago_4h_25mm_London	0:35	2.266
Chicago_4h_25mm_London	0:40	2.52
Chicago_4h_25mm_London	0:45	2.844
Chicago_4h_25mm_London	0:50	3.275
Chicago_4h_25mm_London	0:55	3.874
Chicago_4h_25mm_London	1:00	4.765
Chicago_4h_25mm_London	1:05	6.229
Chicago_4h_25mm_London	1:10	9.062
Chicago_4h_25mm_London	1:15	16.642
Chicago_4h_25mm_London	1:20	75.608
Chicago_4h_25mm_London	1:25	36.632
Chicago_4h_25mm_London	1:30	22.791
Chicago_4h_25mm_London	1:35	14.348
Chicago_4h_25mm_London	1:40	10.382
Chicago_4h_25mm_London	1:45	8.118
Chicago_4h_25mm_London	1:50	6.666
Chicago_4h_25mm_London	1:55	5.661
Chicago_4h_25mm_London	2:00	4.925
Chicago_4h_25mm_London	2:05	4.363
Chicago_4h_25mm_London	2:10	3.921
Chicago_4h_25mm_London	2:15	3.564
Chicago_4h_25mm_London	2:20	3.27
Chicago_4h_25mm_London	2:25	3.023
Chicago_4h_25mm_London	2:30	2.813
Chicago_4h_25mm_London	2:35	2.632
Chicago_4h_25mm_London	2:40	2.475
Chicago_4h_25mm_London	2:45	2.336
Chicago_4h_25mm_London	2:50	2.214
Chicago_4h_25mm_London	2:55	2.104
Chicago_4h_25mm_London	3:00	2.006
Chicago_4h_25mm_London	3:05	1.917
Chicago_4h_25mm_London	3:10	1.836
Chicago_4h_25mm_London	3:15	1.763
Chicago_4h_25mm_London	3:20	1.696
Chicago_4h_25mm_London	3:25	1.634
Chicago_4h_25mm_London	3:30	1.576
Chicago_4h_25mm_London	3:35	1.523
Chicago_4h_25mm_London	3:40	1.474
Chicago_4h_25mm_London	3:45	1.428
Chicago_4h_25mm_London	3:50	1.386
Chicago_4h_25mm_London	3:55	1.345
Chicago_4h_25mm_London	4:00	0

;SCS_Type II_108.8mm design storm, total rainfall = 108.8 mm, rain interval = 6 minutes, rain units = mm/hr.

SCS_Type_II_108.8mm_12hr	0:00	2.34159
SCS_Type_II_108.8mm_12hr	0:06	2.36747
SCS_Type_II_108.8mm_12hr	0:12	2.39334
SCS_Type_II_108.8mm_12hr	0:18	2.41922
SCS_Type_II_108.8mm_12hr	0:24	2.44509
SCS_Type_II_108.8mm_12hr	0:30	2.47096

SCS_Type_II_108.8mm_12hr	0:36	2.49684
SCS_Type_II_108.8mm_12hr	0:42	2.52271
SCS_Type_II_108.8mm_12hr	0:48	2.54859
SCS_Type_II_108.8mm_12hr	0:54	2.57446
SCS_Type_II_108.8mm_12hr	1:00	2.60033
SCS_Type_II_108.8mm_12hr	1:06	2.62621
SCS_Type_II_108.8mm_12hr	1:12	2.65208
SCS_Type_II_108.8mm_12hr	1:18	2.67795
SCS_Type_II_108.8mm_12hr	1:24	2.70383
SCS_Type_II_108.8mm_12hr	1:30	2.7297
SCS_Type_II_108.8mm_12hr	1:36	2.75558
SCS_Type_II_108.8mm_12hr	1:42	2.78145
SCS_Type_II_108.8mm_12hr	1:48	2.80732
SCS_Type_II_108.8mm_12hr	1:54	2.8332
SCS_Type_II_108.8mm_12hr	2:00	2.91082
SCS_Type_II_108.8mm_12hr	2:06	3.04019
SCS_Type_II_108.8mm_12hr	2:12	3.16956
SCS_Type_II_108.8mm_12hr	2:18	3.29893
SCS_Type_II_108.8mm_12hr	2:24	3.4283
SCS_Type_II_108.8mm_12hr	2:30	3.55767
SCS_Type_II_108.8mm_12hr	2:36	3.68704
SCS_Type_II_108.8mm_12hr	2:42	3.81641
SCS_Type_II_108.8mm_12hr	2:48	3.94578
SCS_Type_II_108.8mm_12hr	2:54	4.07515
SCS_Type_II_108.8mm_12hr	3:00	4.13983
SCS_Type_II_108.8mm_12hr	3:06	4.13983
SCS_Type_II_108.8mm_12hr	3:12	4.13983
SCS_Type_II_108.8mm_12hr	3:18	4.13983
SCS_Type_II_108.8mm_12hr	3:24	4.13983
SCS_Type_II_108.8mm_12hr	3:30	4.24333
SCS_Type_II_108.8mm_12hr	3:36	4.45032
SCS_Type_II_108.8mm_12hr	3:42	4.65731
SCS_Type_II_108.8mm_12hr	3:48	4.8643
SCS_Type_II_108.8mm_12hr	3:54	5.0713
SCS_Type_II_108.8mm_12hr	4:00	5.33004
SCS_Type_II_108.8mm_12hr	4:06	5.64052
SCS_Type_II_108.8mm_12hr	4:12	5.95101
SCS_Type_II_108.8mm_12hr	4:18	6.2615
SCS_Type_II_108.8mm_12hr	4:24	6.57199
SCS_Type_II_108.8mm_12hr	4:30	6.98597
SCS_Type_II_108.8mm_12hr	4:36	7.50345
SCS_Type_II_108.8mm_12hr	4:42	8.02093
SCS_Type_II_108.8mm_12hr	4:48	8.53841
SCS_Type_II_108.8mm_12hr	4:54	9.05589
SCS_Type_II_108.8mm_12hr	5:00	9.9356
SCS_Type_II_108.8mm_12hr	5:06	11.17755
SCS_Type_II_108.8mm_12hr	5:12	12.4195
SCS_Type_II_108.8mm_12hr	5:18	13.66145
SCS_Type_II_108.8mm_12hr	5:24	14.9034
SCS_Type_II_108.8mm_12hr	5:30	30.84176
SCS_Type_II_108.8mm_12hr	5:36	61.47653
SCS_Type_II_108.8mm_12hr	5:42	98.87734
SCS_Type_II_108.8mm_12hr	5:48	177.32718
SCS_Type_II_108.8mm_12hr	5:54	123.08243
SCS_Type_II_108.8mm_12hr	6:00	24.52851
SCS_Type_II_108.8mm_12hr	6:06	21.57888
SCS_Type_II_108.8mm_12hr	6:12	18.62925

SCS_Type_II_108.8mm_12hr	6:18	15.67962
SCS_Type_II_108.8mm_12hr	6:24	12.72999
SCS_Type_II_108.8mm_12hr	6:30	10.91881
SCS_Type_II_108.8mm_12hr	6:36	10.24609
SCS_Type_II_108.8mm_12hr	6:42	9.57337
SCS_Type_II_108.8mm_12hr	6:48	8.90064
SCS_Type_II_108.8mm_12hr	6:54	8.22792
SCS_Type_II_108.8mm_12hr	7:00	7.71044
SCS_Type_II_108.8mm_12hr	7:06	7.3482
SCS_Type_II_108.8mm_12hr	7:12	6.98597
SCS_Type_II_108.8mm_12hr	7:18	6.62373
SCS_Type_II_108.8mm_12hr	7:24	6.2615
SCS_Type_II_108.8mm_12hr	7:30	5.95101
SCS_Type_II_108.8mm_12hr	7:36	5.69227
SCS_Type_II_108.8mm_12hr	7:42	5.43353
SCS_Type_II_108.8mm_12hr	7:48	5.17479
SCS_Type_II_108.8mm_12hr	7:54	4.91605
SCS_Type_II_108.8mm_12hr	8:00	4.74787
SCS_Type_II_108.8mm_12hr	8:06	4.64438
SCS_Type_II_108.8mm_12hr	8:12	4.56675
SCS_Type_II_108.8mm_12hr	8:18	4.46326
SCS_Type_II_108.8mm_12hr	8:24	4.38564
SCS_Type_II_108.8mm_12hr	8:30	4.28214
SCS_Type_II_108.8mm_12hr	8:36	4.20452
SCS_Type_II_108.8mm_12hr	8:42	4.10102
SCS_Type_II_108.8mm_12hr	8:48	4.0234
SCS_Type_II_108.8mm_12hr	8:54	3.9199
SCS_Type_II_108.8mm_12hr	9:00	3.84228
SCS_Type_II_108.8mm_12hr	9:06	3.73879
SCS_Type_II_108.8mm_12hr	9:12	3.66117
SCS_Type_II_108.8mm_12hr	9:18	3.55767
SCS_Type_II_108.8mm_12hr	9:24	3.48005
SCS_Type_II_108.8mm_12hr	9:30	3.37655
SCS_Type_II_108.8mm_12hr	9:36	3.29893
SCS_Type_II_108.8mm_12hr	9:42	3.19543
SCS_Type_II_108.8mm_12hr	9:48	3.11781
SCS_Type_II_108.8mm_12hr	9:54	3.01432
SCS_Type_II_108.8mm_12hr	10:00	2.96257
SCS_Type_II_108.8mm_12hr	10:06	2.92376
SCS_Type_II_108.8mm_12hr	10:12	2.89788
SCS_Type_II_108.8mm_12hr	10:18	2.85907
SCS_Type_II_108.8mm_12hr	10:24	2.8332
SCS_Type_II_108.8mm_12hr	10:30	2.79439
SCS_Type_II_108.8mm_12hr	10:36	2.76851
SCS_Type_II_108.8mm_12hr	10:42	2.7297
SCS_Type_II_108.8mm_12hr	10:48	2.70383
SCS_Type_II_108.8mm_12hr	10:54	2.66502
SCS_Type_II_108.8mm_12hr	11:00	2.63914
SCS_Type_II_108.8mm_12hr	11:06	2.60033
SCS_Type_II_108.8mm_12hr	11:12	2.57446
SCS_Type_II_108.8mm_12hr	11:18	2.53565
SCS_Type_II_108.8mm_12hr	11:24	2.50977
SCS_Type_II_108.8mm_12hr	11:30	2.47096
SCS_Type_II_108.8mm_12hr	11:36	2.44509
SCS_Type_II_108.8mm_12hr	11:42	2.40628
SCS_Type_II_108.8mm_12hr	11:48	2.3804
SCS_Type_II_108.8mm_12hr	11:54	2.34159

;SCS_Type II_135.7mm design storm, total rainfall = 135.7 mm, rain interval = 6 minutes, rain units = mm/hr.

SCS_Type_II_135.7mm	0:00	2.92054
SCS_Type_II_135.7mm	0:06	2.95281
SCS_Type_II_135.7mm	0:12	2.98508
SCS_Type_II_135.7mm	0:18	3.01735
SCS_Type_II_135.7mm	0:24	3.04962
SCS_Type_II_135.7mm	0:30	3.08189
SCS_Type_II_135.7mm	0:36	3.11416
SCS_Type_II_135.7mm	0:42	3.14643
SCS_Type_II_135.7mm	0:48	3.1787
SCS_Type_II_135.7mm	0:54	3.21098
SCS_Type_II_135.7mm	1:00	3.24325
SCS_Type_II_135.7mm	1:06	3.27552
SCS_Type_II_135.7mm	1:12	3.30779
SCS_Type_II_135.7mm	1:18	3.34006
SCS_Type_II_135.7mm	1:24	3.37233
SCS_Type_II_135.7mm	1:30	3.4046
SCS_Type_II_135.7mm	1:36	3.43687
SCS_Type_II_135.7mm	1:42	3.46914
SCS_Type_II_135.7mm	1:48	3.50141
SCS_Type_II_135.7mm	1:54	3.53369
SCS_Type_II_135.7mm	2:00	3.6305
SCS_Type_II_135.7mm	2:06	3.79185
SCS_Type_II_135.7mm	2:12	3.95321
SCS_Type_II_135.7mm	2:18	4.11457
SCS_Type_II_135.7mm	2:24	4.27592
SCS_Type_II_135.7mm	2:30	4.43728
SCS_Type_II_135.7mm	2:36	4.59863
SCS_Type_II_135.7mm	2:42	4.75999
SCS_Type_II_135.7mm	2:48	4.92134
SCS_Type_II_135.7mm	2:54	5.0827
SCS_Type_II_135.7mm	3:00	5.16338
SCS_Type_II_135.7mm	3:06	5.16338
SCS_Type_II_135.7mm	3:12	5.16338
SCS_Type_II_135.7mm	3:18	5.16338
SCS_Type_II_135.7mm	3:24	5.16338
SCS_Type_II_135.7mm	3:30	5.29246
SCS_Type_II_135.7mm	3:36	5.55063
SCS_Type_II_135.7mm	3:42	5.8088
SCS_Type_II_135.7mm	3:48	6.06697
SCS_Type_II_135.7mm	3:54	6.32514
SCS_Type_II_135.7mm	4:00	6.64785
SCS_Type_II_135.7mm	4:06	7.0351
SCS_Type_II_135.7mm	4:12	7.42235
SCS_Type_II_135.7mm	4:18	7.80961
SCS_Type_II_135.7mm	4:24	8.19686
SCS_Type_II_135.7mm	4:30	8.7132
SCS_Type_II_135.7mm	4:36	9.35862
SCS_Type_II_135.7mm	4:42	10.00404
SCS_Type_II_135.7mm	4:48	10.64946
SCS_Type_II_135.7mm	4:54	11.29489
SCS_Type_II_135.7mm	5:00	12.3921
SCS_Type_II_135.7mm	5:06	13.94112
SCS_Type_II_135.7mm	5:12	15.49013
SCS_Type_II_135.7mm	5:18	17.03914

SCS_Type_II_135.7mm	5:24	18.58816
SCS_Type_II_135.7mm	5:30	38.46716
SCS_Type_II_135.7mm	5:36	76.67615
SCS_Type_II_135.7mm	5:42	123.32403
SCS_Type_II_135.7mm	5:48	221.17002
SCS_Type_II_135.7mm	5:54	153.51365
SCS_Type_II_135.7mm	6:00	30.59301
SCS_Type_II_135.7mm	6:06	26.9141
SCS_Type_II_135.7mm	6:12	23.2352
SCS_Type_II_135.7mm	6:18	19.55629
SCS_Type_II_135.7mm	6:24	15.87738
SCS_Type_II_135.7mm	6:30	13.61841
SCS_Type_II_135.7mm	6:36	12.77936
SCS_Type_II_135.7mm	6:42	11.94031
SCS_Type_II_135.7mm	6:48	11.10126
SCS_Type_II_135.7mm	6:54	10.26221
SCS_Type_II_135.7mm	7:00	9.61679
SCS_Type_II_135.7mm	7:06	9.16499
SCS_Type_II_135.7mm	7:12	8.7132
SCS_Type_II_135.7mm	7:18	8.2614
SCS_Type_II_135.7mm	7:24	7.80961
SCS_Type_II_135.7mm	7:30	7.42235
SCS_Type_II_135.7mm	7:36	7.09964
SCS_Type_II_135.7mm	7:42	6.77693
SCS_Type_II_135.7mm	7:48	6.45422
SCS_Type_II_135.7mm	7:54	6.13151
SCS_Type_II_135.7mm	8:00	5.92175
SCS_Type_II_135.7mm	8:06	5.79266
SCS_Type_II_135.7mm	8:12	5.69585
SCS_Type_II_135.7mm	8:18	5.56677
SCS_Type_II_135.7mm	8:24	5.46995
SCS_Type_II_135.7mm	8:30	5.34087
SCS_Type_II_135.7mm	8:36	5.24405
SCS_Type_II_135.7mm	8:42	5.11497
SCS_Type_II_135.7mm	8:48	5.01816
SCS_Type_II_135.7mm	8:54	4.88907
SCS_Type_II_135.7mm	9:00	4.79226
SCS_Type_II_135.7mm	9:06	4.66317
SCS_Type_II_135.7mm	9:12	4.56636
SCS_Type_II_135.7mm	9:18	4.43728
SCS_Type_II_135.7mm	9:24	4.34046
SCS_Type_II_135.7mm	9:30	4.21138
SCS_Type_II_135.7mm	9:36	4.11457
SCS_Type_II_135.7mm	9:42	3.98548
SCS_Type_II_135.7mm	9:48	3.88867
SCS_Type_II_135.7mm	9:54	3.75958
SCS_Type_II_135.7mm	10:00	3.69504
SCS_Type_II_135.7mm	10:06	3.64663
SCS_Type_II_135.7mm	10:12	3.61436
SCS_Type_II_135.7mm	10:18	3.56596
SCS_Type_II_135.7mm	10:24	3.53369
SCS_Type_II_135.7mm	10:30	3.48528
SCS_Type_II_135.7mm	10:36	3.45301
SCS_Type_II_135.7mm	10:42	3.4046
SCS_Type_II_135.7mm	10:48	3.37233
SCS_Type_II_135.7mm	10:54	3.32392
SCS_Type_II_135.7mm	11:00	3.29165

SCS_Type_II_135.7mm	11:06	3.24325
SCS_Type_II_135.7mm	11:12	3.21098
SCS_Type_II_135.7mm	11:18	3.16257
SCS_Type_II_135.7mm	11:24	3.1303
SCS_Type_II_135.7mm	11:30	3.08189
SCS_Type_II_135.7mm	11:36	3.04962
SCS_Type_II_135.7mm	11:42	3.00121
SCS_Type_II_135.7mm	11:48	2.96894
SCS_Type_II_135.7mm	11:54	2.92054

;SCS_Type II_65.7mm design storm, total rainfall = 65.7 mm, rain interval = 6 minutes, rain units = mm/hr.

SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:00	1.414
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:06	1.42962
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:12	1.44524
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:18	1.46087
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:24	1.47649
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:30	1.49212
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:36	1.50774
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:42	1.52337
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:48	1.53899
SCS_Type_II_65.7mm_5yr_12hr_StThomas	0:54	1.55461
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:00	1.57024
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:06	1.58586
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:12	1.60149
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:18	1.61711
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:24	1.63273
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:30	1.64836
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:36	1.66398
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:42	1.67961
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:48	1.69523
SCS_Type_II_65.7mm_5yr_12hr_StThomas	1:54	1.71086
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:00	1.75773
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:06	1.83585
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:12	1.91397
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:18	1.99209
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:24	2.07021
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:30	2.14834
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:36	2.22646
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:42	2.30458
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:48	2.3827
SCS_Type_II_65.7mm_5yr_12hr_StThomas	2:54	2.46082
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:00	2.49988
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:06	2.49988
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:12	2.49988
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:18	2.49988
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:24	2.49988
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:30	2.56238
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:36	2.68737
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:42	2.81237
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:48	2.93736
SCS_Type_II_65.7mm_5yr_12hr_StThomas	3:54	3.06235
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:00	3.2186
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:06	3.40609
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:12	3.59358
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:18	3.78107
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:24	3.96856

SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:30	4.21855
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:36	4.53103
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:42	4.84352
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:48	5.156
SCS_Type_II_65.7mm_5yr_12hr_StThomas	4:54	5.46849
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:00	5.99971
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:06	6.74968
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:12	7.49964
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:18	8.24961
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:24	8.99957
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:30	18.62411
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:36	37.12323
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:42	59.7081
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:48	107.08084
SCS_Type_II_65.7mm_5yr_12hr_StThomas	5:54	74.32459
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:00	14.8118
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:06	13.03063
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:12	11.24946
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:18	9.4683
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:24	7.68713
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:30	6.59344
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:36	6.18721
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:42	5.78098
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:48	5.37474
SCS_Type_II_65.7mm_5yr_12hr_StThomas	6:54	4.96851
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:00	4.65603
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:06	4.43729
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:12	4.21855
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:18	3.99981
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:24	3.78107
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:30	3.59358
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:36	3.43734
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:42	3.28109
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:48	3.12485
SCS_Type_II_65.7mm_5yr_12hr_StThomas	7:54	2.96861
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:00	2.86705
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:06	2.80455
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:12	2.75768
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:18	2.69518
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:24	2.64831
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:30	2.58581
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:36	2.53894
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:42	2.47644
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:48	2.42957
SCS_Type_II_65.7mm_5yr_12hr_StThomas	8:54	2.36707
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:00	2.3202
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:06	2.25771
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:12	2.21083
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:18	2.14834
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:24	2.10146
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:30	2.03897
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:36	1.99209
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:42	1.9296
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:48	1.88272
SCS_Type_II_65.7mm_5yr_12hr_StThomas	9:54	1.82023
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:00	1.78898
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:06	1.76554

SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:12	1.74992
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:18	1.72648
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:24	1.71086
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:30	1.68742
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:36	1.6718
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:42	1.64836
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:48	1.63273
SCS_Type_II_65.7mm_5yr_12hr_StThomas	10:54	1.6093
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:00	1.59367
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:06	1.57024
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:12	1.55461
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:18	1.53118
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:24	1.51555
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:30	1.49212
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:36	1.47649
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:42	1.45306
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:48	1.43743
SCS_Type_II_65.7mm_5yr_12hr_StThomas	11:54	1.414

;Chicago design storm, a = 901.021, b = 0, c = 0.699, Duration = 1440 minutes, r = 0.35, rain interval = 5 minutes, rain units = mm/hr.

StThomas_Chicago_24h_100yr	0:00	1.687
StThomas_Chicago_24h_100yr	0:05	1.699
StThomas_Chicago_24h_100yr	0:10	1.711
StThomas_Chicago_24h_100yr	0:15	1.723
StThomas_Chicago_24h_100yr	0:20	1.736
StThomas_Chicago_24h_100yr	0:25	1.748
StThomas_Chicago_24h_100yr	0:30	1.761
StThomas_Chicago_24h_100yr	0:35	1.775
StThomas_Chicago_24h_100yr	0:40	1.788
StThomas_Chicago_24h_100yr	0:45	1.802
StThomas_Chicago_24h_100yr	0:50	1.816
StThomas_Chicago_24h_100yr	0:55	1.83
StThomas_Chicago_24h_100yr	1:00	1.844
StThomas_Chicago_24h_100yr	1:05	1.859
StThomas_Chicago_24h_100yr	1:10	1.874
StThomas_Chicago_24h_100yr	1:15	1.889
StThomas_Chicago_24h_100yr	1:20	1.905
StThomas_Chicago_24h_100yr	1:25	1.921
StThomas_Chicago_24h_100yr	1:30	1.937
StThomas_Chicago_24h_100yr	1:35	1.954
StThomas_Chicago_24h_100yr	1:40	1.971
StThomas_Chicago_24h_100yr	1:45	1.988
StThomas_Chicago_24h_100yr	1:50	2.006
StThomas_Chicago_24h_100yr	1:55	2.024
StThomas_Chicago_24h_100yr	2:00	2.042
StThomas_Chicago_24h_100yr	2:05	2.061
StThomas_Chicago_24h_100yr	2:10	2.081
StThomas_Chicago_24h_100yr	2:15	2.1
StThomas_Chicago_24h_100yr	2:20	2.121
StThomas_Chicago_24h_100yr	2:25	2.142
StThomas_Chicago_24h_100yr	2:30	2.163
StThomas_Chicago_24h_100yr	2:35	2.185
StThomas_Chicago_24h_100yr	2:40	2.207
StThomas_Chicago_24h_100yr	2:45	2.23
StThomas_Chicago_24h_100yr	2:50	2.253
StThomas_Chicago_24h_100yr	2:55	2.277

StThomas_Chicago_24h_100yr	3:00	2.302
StThomas_Chicago_24h_100yr	3:05	2.327
StThomas_Chicago_24h_100yr	3:10	2.353
StThomas_Chicago_24h_100yr	3:15	2.38
StThomas_Chicago_24h_100yr	3:20	2.408
StThomas_Chicago_24h_100yr	3:25	2.436
StThomas_Chicago_24h_100yr	3:30	2.465
StThomas_Chicago_24h_100yr	3:35	2.495
StThomas_Chicago_24h_100yr	3:40	2.526
StThomas_Chicago_24h_100yr	3:45	2.558
StThomas_Chicago_24h_100yr	3:50	2.591
StThomas_Chicago_24h_100yr	3:55	2.625
StThomas_Chicago_24h_100yr	4:00	2.66
StThomas_Chicago_24h_100yr	4:05	2.696
StThomas_Chicago_24h_100yr	4:10	2.733
StThomas_Chicago_24h_100yr	4:15	2.772
StThomas_Chicago_24h_100yr	4:20	2.812
StThomas_Chicago_24h_100yr	4:25	2.853
StThomas_Chicago_24h_100yr	4:30	2.896
StThomas_Chicago_24h_100yr	4:35	2.941
StThomas_Chicago_24h_100yr	4:40	2.987
StThomas_Chicago_24h_100yr	4:45	3.035
StThomas_Chicago_24h_100yr	4:50	3.085
StThomas_Chicago_24h_100yr	4:55	3.137
StThomas_Chicago_24h_100yr	5:00	3.191
StThomas_Chicago_24h_100yr	5:05	3.248
StThomas_Chicago_24h_100yr	5:10	3.307
StThomas_Chicago_24h_100yr	5:15	3.368
StThomas_Chicago_24h_100yr	5:20	3.433
StThomas_Chicago_24h_100yr	5:25	3.501
StThomas_Chicago_24h_100yr	5:30	3.572
StThomas_Chicago_24h_100yr	5:35	3.646
StThomas_Chicago_24h_100yr	5:40	3.725
StThomas_Chicago_24h_100yr	5:45	3.808
StThomas_Chicago_24h_100yr	5:50	3.895
StThomas_Chicago_24h_100yr	5:55	3.988
StThomas_Chicago_24h_100yr	6:00	4.086
StThomas_Chicago_24h_100yr	6:05	4.19
StThomas_Chicago_24h_100yr	6:10	4.3
StThomas_Chicago_24h_100yr	6:15	4.419
StThomas_Chicago_24h_100yr	6:20	4.545
StThomas_Chicago_24h_100yr	6:25	4.68
StThomas_Chicago_24h_100yr	6:30	4.826
StThomas_Chicago_24h_100yr	6:35	4.984
StThomas_Chicago_24h_100yr	6:40	5.154
StThomas_Chicago_24h_100yr	6:45	5.339
StThomas_Chicago_24h_100yr	6:50	5.542
StThomas_Chicago_24h_100yr	6:55	5.764
StThomas_Chicago_24h_100yr	7:00	6.009
StThomas_Chicago_24h_100yr	7:05	6.281
StThomas_Chicago_24h_100yr	7:10	6.585
StThomas_Chicago_24h_100yr	7:15	6.927
StThomas_Chicago_24h_100yr	7:20	7.317
StThomas_Chicago_24h_100yr	7:25	7.764
StThomas_Chicago_24h_100yr	7:30	8.284
StThomas_Chicago_24h_100yr	7:35	8.898
StThomas_Chicago_24h_100yr	7:40	9.636

StThomas_Chicago_24h_100yr	7:45	10.543
StThomas_Chicago_24h_100yr	7:50	11.69
StThomas_Chicago_24h_100yr	7:55	13.198
StThomas_Chicago_24h_100yr	8:00	15.29
StThomas_Chicago_24h_100yr	8:05	18.432
StThomas_Chicago_24h_100yr	8:10	23.841
StThomas_Chicago_24h_100yr	8:15	36.301
StThomas_Chicago_24h_100yr	8:20	292.52
StThomas_Chicago_24h_100yr	8:25	67.461
StThomas_Chicago_24h_100yr	8:30	45.769
StThomas_Chicago_24h_100yr	8:35	32.765
StThomas_Chicago_24h_100yr	8:40	26.203
StThomas_Chicago_24h_100yr	8:45	22.138
StThomas_Chicago_24h_100yr	8:50	19.331
StThomas_Chicago_24h_100yr	8:55	17.258
StThomas_Chicago_24h_100yr	9:00	15.655
StThomas_Chicago_24h_100yr	9:05	14.372
StThomas_Chicago_24h_100yr	9:10	13.318
StThomas_Chicago_24h_100yr	9:15	12.434
StThomas_Chicago_24h_100yr	9:20	11.68
StThomas_Chicago_24h_100yr	9:25	11.029
StThomas_Chicago_24h_100yr	9:30	10.459
StThomas_Chicago_24h_100yr	9:35	9.956
StThomas_Chicago_24h_100yr	9:40	9.508
StThomas_Chicago_24h_100yr	9:45	9.106
StThomas_Chicago_24h_100yr	9:50	8.743
StThomas_Chicago_24h_100yr	9:55	8.414
StThomas_Chicago_24h_100yr	10:00	8.113
StThomas_Chicago_24h_100yr	10:05	7.837
StThomas_Chicago_24h_100yr	10:10	7.582
StThomas_Chicago_24h_100yr	10:15	7.347
StThomas_Chicago_24h_100yr	10:20	7.129
StThomas_Chicago_24h_100yr	10:25	6.926
StThomas_Chicago_24h_100yr	10:30	6.737
StThomas_Chicago_24h_100yr	10:35	6.559
StThomas_Chicago_24h_100yr	10:40	6.393
StThomas_Chicago_24h_100yr	10:45	6.236
StThomas_Chicago_24h_100yr	10:50	6.089
StThomas_Chicago_24h_100yr	10:55	5.949
StThomas_Chicago_24h_100yr	11:00	5.817
StThomas_Chicago_24h_100yr	11:05	5.692
StThomas_Chicago_24h_100yr	11:10	5.574
StThomas_Chicago_24h_100yr	11:15	5.461
StThomas_Chicago_24h_100yr	11:20	5.354
StThomas_Chicago_24h_100yr	11:25	5.251
StThomas_Chicago_24h_100yr	11:30	5.153
StThomas_Chicago_24h_100yr	11:35	5.06
StThomas_Chicago_24h_100yr	11:40	4.971
StThomas_Chicago_24h_100yr	11:45	4.885
StThomas_Chicago_24h_100yr	11:50	4.803
StThomas_Chicago_24h_100yr	11:55	4.724
StThomas_Chicago_24h_100yr	12:00	4.648
StThomas_Chicago_24h_100yr	12:05	4.575
StThomas_Chicago_24h_100yr	12:10	4.505
StThomas_Chicago_24h_100yr	12:15	4.437
StThomas_Chicago_24h_100yr	12:20	4.372
StThomas_Chicago_24h_100yr	12:25	4.309

StThomas_Chicago_24h_100yr	12:30	4.248
StThomas_Chicago_24h_100yr	12:35	4.189
StThomas_Chicago_24h_100yr	12:40	4.133
StThomas_Chicago_24h_100yr	12:45	4.078
StThomas_Chicago_24h_100yr	12:50	4.024
StThomas_Chicago_24h_100yr	12:55	3.973
StThomas_Chicago_24h_100yr	13:00	3.923
StThomas_Chicago_24h_100yr	13:05	3.874
StThomas_Chicago_24h_100yr	13:10	3.827
StThomas_Chicago_24h_100yr	13:15	3.782
StThomas_Chicago_24h_100yr	13:20	3.737
StThomas_Chicago_24h_100yr	13:25	3.694
StThomas_Chicago_24h_100yr	13:30	3.652
StThomas_Chicago_24h_100yr	13:35	3.611
StThomas_Chicago_24h_100yr	13:40	3.572
StThomas_Chicago_24h_100yr	13:45	3.533
StThomas_Chicago_24h_100yr	13:50	3.495
StThomas_Chicago_24h_100yr	13:55	3.459
StThomas_Chicago_24h_100yr	14:00	3.423
StThomas_Chicago_24h_100yr	14:05	3.388
StThomas_Chicago_24h_100yr	14:10	3.354
StThomas_Chicago_24h_100yr	14:15	3.321
StThomas_Chicago_24h_100yr	14:20	3.288
StThomas_Chicago_24h_100yr	14:25	3.256
StThomas_Chicago_24h_100yr	14:30	3.225
StThomas_Chicago_24h_100yr	14:35	3.195
StThomas_Chicago_24h_100yr	14:40	3.166
StThomas_Chicago_24h_100yr	14:45	3.137
StThomas_Chicago_24h_100yr	14:50	3.108
StThomas_Chicago_24h_100yr	14:55	3.081
StThomas_Chicago_24h_100yr	15:00	3.054
StThomas_Chicago_24h_100yr	15:05	3.027
StThomas_Chicago_24h_100yr	15:10	3.001
StThomas_Chicago_24h_100yr	15:15	2.976
StThomas_Chicago_24h_100yr	15:20	2.951
StThomas_Chicago_24h_100yr	15:25	2.927
StThomas_Chicago_24h_100yr	15:30	2.903
StThomas_Chicago_24h_100yr	15:35	2.879
StThomas_Chicago_24h_100yr	15:40	2.856
StThomas_Chicago_24h_100yr	15:45	2.834
StThomas_Chicago_24h_100yr	15:50	2.812
StThomas_Chicago_24h_100yr	15:55	2.79
StThomas_Chicago_24h_100yr	16:00	2.769
StThomas_Chicago_24h_100yr	16:05	2.748
StThomas_Chicago_24h_100yr	16:10	2.727
StThomas_Chicago_24h_100yr	16:15	2.707
StThomas_Chicago_24h_100yr	16:20	2.687
StThomas_Chicago_24h_100yr	16:25	2.668
StThomas_Chicago_24h_100yr	16:30	2.649
StThomas_Chicago_24h_100yr	16:35	2.63
StThomas_Chicago_24h_100yr	16:40	2.611
StThomas_Chicago_24h_100yr	16:45	2.593
StThomas_Chicago_24h_100yr	16:50	2.575
StThomas_Chicago_24h_100yr	16:55	2.558
StThomas_Chicago_24h_100yr	17:00	2.541
StThomas_Chicago_24h_100yr	17:05	2.524
StThomas_Chicago_24h_100yr	17:10	2.507

StThomas_Chicago_24h_100yr	17:15	2.49
StThomas_Chicago_24h_100yr	17:20	2.474
StThomas_Chicago_24h_100yr	17:25	2.458
StThomas_Chicago_24h_100yr	17:30	2.443
StThomas_Chicago_24h_100yr	17:35	2.427
StThomas_Chicago_24h_100yr	17:40	2.412
StThomas_Chicago_24h_100yr	17:45	2.397
StThomas_Chicago_24h_100yr	17:50	2.382
StThomas_Chicago_24h_100yr	17:55	2.368
StThomas_Chicago_24h_100yr	18:00	2.353
StThomas_Chicago_24h_100yr	18:05	2.339
StThomas_Chicago_24h_100yr	18:10	2.325
StThomas_Chicago_24h_100yr	18:15	2.312
StThomas_Chicago_24h_100yr	18:20	2.298
StThomas_Chicago_24h_100yr	18:25	2.285
StThomas_Chicago_24h_100yr	18:30	2.272
StThomas_Chicago_24h_100yr	18:35	2.259
StThomas_Chicago_24h_100yr	18:40	2.246
StThomas_Chicago_24h_100yr	18:45	2.233
StThomas_Chicago_24h_100yr	18:50	2.221
StThomas_Chicago_24h_100yr	18:55	2.209
StThomas_Chicago_24h_100yr	19:00	2.196
StThomas_Chicago_24h_100yr	19:05	2.185
StThomas_Chicago_24h_100yr	19:10	2.173
StThomas_Chicago_24h_100yr	19:15	2.161
StThomas_Chicago_24h_100yr	19:20	2.15
StThomas_Chicago_24h_100yr	19:25	2.138
StThomas_Chicago_24h_100yr	19:30	2.127
StThomas_Chicago_24h_100yr	19:35	2.116
StThomas_Chicago_24h_100yr	19:40	2.105
StThomas_Chicago_24h_100yr	19:45	2.094
StThomas_Chicago_24h_100yr	19:50	2.084
StThomas_Chicago_24h_100yr	19:55	2.073
StThomas_Chicago_24h_100yr	20:00	2.063
StThomas_Chicago_24h_100yr	20:05	2.053
StThomas_Chicago_24h_100yr	20:10	2.042
StThomas_Chicago_24h_100yr	20:15	2.032
StThomas_Chicago_24h_100yr	20:20	2.022
StThomas_Chicago_24h_100yr	20:25	2.013
StThomas_Chicago_24h_100yr	20:30	2.003
StThomas_Chicago_24h_100yr	20:35	1.993
StThomas_Chicago_24h_100yr	20:40	1.984
StThomas_Chicago_24h_100yr	20:45	1.975
StThomas_Chicago_24h_100yr	20:50	1.965
StThomas_Chicago_24h_100yr	20:55	1.956
StThomas_Chicago_24h_100yr	21:00	1.947
StThomas_Chicago_24h_100yr	21:05	1.938
StThomas_Chicago_24h_100yr	21:10	1.93
StThomas_Chicago_24h_100yr	21:15	1.921
StThomas_Chicago_24h_100yr	21:20	1.912
StThomas_Chicago_24h_100yr	21:25	1.904
StThomas_Chicago_24h_100yr	21:30	1.895
StThomas_Chicago_24h_100yr	21:35	1.887
StThomas_Chicago_24h_100yr	21:40	1.879
StThomas_Chicago_24h_100yr	21:45	1.87
StThomas_Chicago_24h_100yr	21:50	1.862
StThomas_Chicago_24h_100yr	21:55	1.854

StThomas_Chicago_24h_100yr	22:00	1.846
StThomas_Chicago_24h_100yr	22:05	1.839
StThomas_Chicago_24h_100yr	22:10	1.831
StThomas_Chicago_24h_100yr	22:15	1.823
StThomas_Chicago_24h_100yr	22:20	1.816
StThomas_Chicago_24h_100yr	22:25	1.808
StThomas_Chicago_24h_100yr	22:30	1.801
StThomas_Chicago_24h_100yr	22:35	1.793
StThomas_Chicago_24h_100yr	22:40	1.786
StThomas_Chicago_24h_100yr	22:45	1.779
StThomas_Chicago_24h_100yr	22:50	1.771
StThomas_Chicago_24h_100yr	22:55	1.764
StThomas_Chicago_24h_100yr	23:00	1.757
StThomas_Chicago_24h_100yr	23:05	1.75
StThomas_Chicago_24h_100yr	23:10	1.743
StThomas_Chicago_24h_100yr	23:15	1.737
StThomas_Chicago_24h_100yr	23:20	1.73
StThomas_Chicago_24h_100yr	23:25	1.723
StThomas_Chicago_24h_100yr	23:30	1.717
StThomas_Chicago_24h_100yr	23:35	1.71
StThomas_Chicago_24h_100yr	23:40	1.703
StThomas_Chicago_24h_100yr	23:45	1.697
StThomas_Chicago_24h_100yr	23:50	1.691
StThomas_Chicago_24h_100yr	23:55	1.684
StThomas_Chicago_24h_100yr	24:00	0

;Chicago design storm, a = 901.021, b = 0, c = 0.699, Duration = 180 minutes, r = 0.35, rain interval = 5 minutes, rain units = mm/hr.

StThomas_Chicago_3h_100yr	0:00	7.401
StThomas_Chicago_3h_100yr	0:05	7.862
StThomas_Chicago_3h_100yr	0:10	8.399
StThomas_Chicago_3h_100yr	0:15	9.035
StThomas_Chicago_3h_100yr	0:20	9.802
StThomas_Chicago_3h_100yr	0:25	10.75
StThomas_Chicago_3h_100yr	0:30	11.958
StThomas_Chicago_3h_100yr	0:35	13.56
StThomas_Chicago_3h_100yr	0:40	15.812
StThomas_Chicago_3h_100yr	0:45	19.267
StThomas_Chicago_3h_100yr	0:50	25.455
StThomas_Chicago_3h_100yr	0:55	41.355
StThomas_Chicago_3h_100yr	1:00	292.52
StThomas_Chicago_3h_100yr	1:05	67.429
StThomas_Chicago_3h_100yr	1:10	42.191
StThomas_Chicago_3h_100yr	1:15	31.14
StThomas_Chicago_3h_100yr	1:20	25.247
StThomas_Chicago_3h_100yr	1:25	21.498
StThomas_Chicago_3h_100yr	1:30	18.869
StThomas_Chicago_3h_100yr	1:35	16.906
StThomas_Chicago_3h_100yr	1:40	15.376
StThomas_Chicago_3h_100yr	1:45	14.145
StThomas_Chicago_3h_100yr	1:50	13.129
StThomas_Chicago_3h_100yr	1:55	12.273
StThomas_Chicago_3h_100yr	2:00	11.542
StThomas_Chicago_3h_100yr	2:05	10.909
StThomas_Chicago_3h_100yr	2:10	10.354
StThomas_Chicago_3h_100yr	2:15	9.863
StThomas_Chicago_3h_100yr	2:20	9.424

StThomas_Chicago_3h_100yr	2:25	9.031
StThomas_Chicago_3h_100yr	2:30	8.675
StThomas_Chicago_3h_100yr	2:35	8.351
StThomas_Chicago_3h_100yr	2:40	8.056
StThomas_Chicago_3h_100yr	2:45	7.784
StThomas_Chicago_3h_100yr	2:50	7.534
StThomas_Chicago_3h_100yr	2:55	7.302
StThomas_Chicago_3h_100yr	3:00	0

[REPORT]

```
;;Reporting Options
INPUT      YES
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL
```

[TAGS]

[MAP]

DIMENSIONS	486119.4521	4736062.3853	486369.0619	4736247.2007
UNITS	Meters			

[COORDINATES]

;;Node	X-Coord	Y-Coord
;;-----	-----	-----
J1	486200.587	4736105.684
OF1	486185.606	4736105.899
OF2	486130.798	4736083.835
OF3	486271.141	4736070.786
SU1	486244.12	4736107.161

[VERTICES]

;;Link	X-Coord	Y-Coord
;;-----	-----	-----
C1	486132.768	4736105.907
OR2	486211.722	4736101.278

[POLYGONS]

;;Subcatchment	X-Coord	Y-Coord
;;-----	-----	-----
S1_1	486356.491	4736098.277
S1_1	486135.76	4736103.565
S1_1	486138.265	4736174.563
S1_1	486204.253	4736172.538
S1_1	486207.841	4736238.8
S1_1	486229.172	4736238.46
S1_1	486226.67	4736147.181
S1_1	486357.716	4736147.306
S1_1	486356.491	4736098.277
S1_2	486135.76	4736103.565
S1_2	486356.491	4736098.286
S1_2	486357.143	4736082.803
S1_2	486135.115	4736087.021
S1_2	486135.76	4736103.565

;;Storage Node	X-Coord	Y-Coord
;;-----	-----	-----

[SYMBOLS]

;; Gage

X-Coord

Y-Coord

;;-----

Proposed Conditions 5-Year 12-Hour Event Status

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

Element Count

Number of rain gages 6
Number of subcatchments ... 2
Number of nodes 5
Number of links 4
Number of pollutants 0
Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval
Chicago_24h_100yr_StThomas	StThomas_Chicago_24h_100yr	INTENSITY	5 min.
Chicago_3h_100yr_StThomas	StThomas_Chicago_3h_100yr	INTENSITY	5 min.
Chicago_3h_5yr_StThomas	Chicago_3h_5yr_St_Thomas	INTENSITY	5 min.
Chicago_4h_25mm_London	Chicago_4h_25mm_London	INTENSITY	5 min.
SCS_Type_II_108.8mm_100yr_12hr_StThomas	SCS_Type_II_108.8mm_12hr	INTENSITY	6 min.
SCS_Type_II_65.7mm_5yr_12hr_StThomas	SCS_Type_II_65.7mm_5yr_12hr_StThomas	INTENSITY	6 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage
Outlet					
S1_1	1.62	81.00	57.50	0.5000	
SCS_Type_II_65.7mm_5yr_12hr_StThomas	SU1				
S1_2	0.14	70.00	34.00	0.5000	
SCS_Type_II_65.7mm_5yr_12hr_StThomas	OF3				

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	231.00	5.00	0.0	
OF1	JUNCTION	231.00	5.00	0.0	
OF2	OUTFALL	0.00	232.60	0.0	
OF3	OUTFALL	0.00	0.00	0.0	
SU1	STORAGE	234.30	2.20	0.0	

Name	From Node	To Node	Type	Length	%
Slope Roughness					
C1	OF1	OF2	CONDUIT	150.0	
OR1	SU1	J1	ORIFICE		
OR2	SU1	J1	ORIFICE		
OR3	J1	OF1	ORIFICE		

Full Conduit Flow	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels
----- C1 1.40	CIRCULAR	0.90	0.64	0.23	0.90	1

```

Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Infiltration Method ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date ..... 07/23/2025 00:00:00
Ending Date ..... 07/25/2025 00:00:00
Antecedent Dry Days ..... 0.0
Report Time Step ..... 00:01:00
Wet Time Step ..... 00:05:00
Dry Time Step ..... 00:05:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials ..... 8
Number of Threads ..... 1
Head Tolerance ..... 0.001500 m

```

*****	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
*****		-----

Total Precipitation	0.116	65.700
Evaporation Loss	0.000	0.000
Infiltration Loss	0.029	16.649
Surface Runoff	0.084	47.780
Final Storage	0.002	1.399
Continuity Error (%)	-0.195	

	Volume hectare-m	Volume 10 ⁶ ltr
	-----	-----

Flow Routing Continuity		

Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.084	0.842
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.084	0.836
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.681	

Time-Step Critical Elements

None

Highest Flow Instability Indexes

All links are stable.

Most Frequent Nonconverging Nodes

Convergence obtained at all time steps.

Routing Time Step Summary

Minimum Time Step	:	4.50 sec
Average Time Step	:	5.00 sec
Maximum Time Step	:	5.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	2.00
% of Steps Not Converging	:	0.00
Time Step Frequencies	:	
5.000 - 3.155 sec	:	100.00 %
3.155 - 1.991 sec	:	0.00 %
1.991 - 1.256 sec	:	0.00 %
1.256 - 0.792 sec	:	0.00 %

0.792 - 0.500 sec : 0.00 %

Subcatchment Runoff Summary

Perv	Total	Total	Total	Total	Total	Total	Imperv
Runoff	Runoff	Runoff	Peak	Runoff	Evap	Infil	Runoff
Subcatchment	Runoff	Precip	Runoff	Runoff	mm	mm	mm
mm	mm	10^6 ltr	mm	Coeff	mm	mm	mm
			CMS				
S1_1			65.70	0.00	0.00	15.97	37.01
11.45	48.46	0.79	0.29	0.738			
S1_2			65.70	0.00	0.00	24.55	21.86
18.09	39.95	0.06	0.03	0.608			

Node Depth Summary

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	3.22	3.63	234.63	0 07:16	3.63
OF1	JUNCTION	1.53	1.67	232.67	0 07:18	1.67
OF2	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
OF3	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
SU1	STORAGE	0.21	1.07	235.37	0 07:15	1.07

Node Inflow Summary

Total	Flow		Maximum	Maximum		Lateral
Inflow	Balance		Lateral	Total	Time of Max	Inflow
Volume	Error		Inflow	Inflow	Occurrence	Volume
Node	Type		CMS	CMS	days hr:min	10^6 ltr
ltr	Percent					10^6
J1		JUNCTION	0.000	0.020	0 07:15	0
0.786	0.495					
OF1		JUNCTION	0.000	0.020	0 07:16	0
0.782	0.240					

OF2		OUTFALL	0.000	0.020	0	07:18	0
0.78	0.000						
OF3		OUTFALL	0.029	0.029	0	05:54	0.0561
0.0561	0.000						
SU1		STORAGE	0.289	0.289	0	05:54	0.786
0.786	0.000						

Node Surcharge Summary

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
J1	JUNCTION	10.84	0.199	1.371

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Max Occurrence	Maximum Outflow Storage Unit hr:min CMS	Average Volume 1000 m³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m³	Max Pcnt Full	Time of days
SU1 07:15	0.020	0.077	5.5	0.0	0.0	0.455	32.4	0

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF2	66.86	0.007	0.020	0.780
OF3	25.44	0.001	0.029	0.056

System 46.15 0.008 0.041 0.836

Link Flow Summary

Link	Type	Maximum Flow CMS	Time of Max Occurrence days hr:min	Maximum Veloc m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.020	0 07:18	0.78	0.01	0.08
OR1	ORIFICE	0.020	0 07:08			1.00
OR2	ORIFICE	0.000	0 07:15			
OR3	ORIFICE	0.020	0 07:16			1.00

Flow Classification Summary

	Adjusted	Fraction of Time in Flow Class							
	/Actual	Up	Down	Sub	Sup	Up	Down	Norm	
Inlet									
Conduit	Length	Dry	Dry	Dry	Crit	Crit	Crit	Crit	Ltd
Ctrl									
C1	1.00	0.06	0.00	0.00	0.00	0.00	0.00	0.94	0.00
0.00									

Conduit Surcharge Summary

No conduits were surcharged.

Analysis begun on: Thu Nov 27 15:52:37 2025
Analysis ended on: Thu Nov 27 15:52:37 2025
Total elapsed time: < 1 sec

Proposed Conditions 100-Year 12-Hour Event Status

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

Element Count

Number of rain gages 6
Number of subcatchments ... 2
Number of nodes 5
Number of links 4
Number of pollutants 0
Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval
Chicago_24h_100yr_StThomas	StThomas_Chicago_24h_100yr	INTENSITY	5 min.
Chicago_3h_100yr_StThomas	StThomas_Chicago_3h_100yr	INTENSITY	5 min.
Chicago_3h_5yr_StThomas	Chicago_3h_5yr_St_Thomas	INTENSITY	5 min.
Chicago_4h_25mm_London	Chicago_4h_25mm_London	INTENSITY	5 min.
SCS_Type_II_108.8mm_100yr_12hr_StThomas	SCS_Type_II_108.8mm_12hr	INTENSITY	6 min.
SCS_Type_II_65.7mm_5yr_12hr_StThomas	SCS_Type_II_65.7mm_5yr_12hr_StThomas	INTENSITY	6 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage
Outlet					
S1_1	1.62	81.00	57.50	0.5000	
SCS_Type_II_108.8mm_100yr_12hr_StThomas	SU1				
S1_2	0.14	70.00	34.00	0.5000	
SCS_Type_II_108.8mm_100yr_12hr_StThomas	OF3				

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
J1	JUNCTION	231.00	5.00	0.0	
OF1	JUNCTION	231.00	5.00	0.0	
OF2	OUTFALL	0.00	232.60	0.0	
OF3	OUTFALL	0.00	0.00	0.0	
SU1	STORAGE	234.30	2.20	0.0	

Name	From Node	To Node	Type	Length	%
Slope Roughness					
C1	OF1	OF2	CONDUIT	150.0	
OR1	SU1	J1	ORIFICE		
OR2	SU1	J1	ORIFICE		
OR3	J1	OF1	ORIFICE		

Full Conduit Flow	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels
----- C1 1.40	CIRCULAR	0.90	0.64	0.23	0.90	1

```

Flow Units ..... CMS
Process Models:
  Rainfall/Runoff ..... YES
  RDII ..... NO
  Snowmelt ..... NO
  Groundwater ..... NO
  Flow Routing ..... YES
  Ponding Allowed ..... NO
  Water Quality ..... NO
Infiltration Method ..... HORTON
Flow Routing Method ..... DYNWAVE
Surcharge Method ..... EXTRAN
Starting Date ..... 07/23/2025 00:00:00
Ending Date ..... 07/25/2025 00:00:00
Antecedent Dry Days ..... 0.0
Report Time Step ..... 00:01:00
Wet Time Step ..... 00:05:00
Dry Time Step ..... 00:05:00
Routing Time Step ..... 5.00 sec
Variable Time Step ..... YES
Maximum Trials ..... 8
Number of Threads ..... 1
Head Tolerance ..... 0.001500 m

```

*****	Volume	Depth
Runoff Quantity Continuity	hectare-m	mm
*****		-----

Total Precipitation	0.191	108.800
Evaporation Loss	0.000	0.000
Infiltration Loss	0.036	20.395
Surface Runoff	0.154	87.245
Final Storage	0.002	1.393
Continuity Error (%)	-0.214	

	Volume hectare-m	Volume 10^6 ltr
	-----	-----

Flow Routing Continuity		

Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.154	1.538
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	0.153	1.533
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.270	

Time-Step Critical Elements

None

Highest Flow Instability Indexes

All links are stable.

Most Frequent Nonconverging Nodes

Convergence obtained at all time steps.

Routing Time Step Summary

Minimum Time Step	:	4.50 sec
Average Time Step	:	5.00 sec
Maximum Time Step	:	5.00 sec
% of Time in Steady State	:	0.00
Average Iterations per Step	:	2.01
% of Steps Not Converging	:	0.03
Time Step Frequencies	:	
5.000 - 3.155 sec	:	100.00 %
3.155 - 1.991 sec	:	0.00 %
1.991 - 1.256 sec	:	0.00 %
1.256 - 0.792 sec	:	0.00 %

0.792 - 0.500 sec : 0.00 %

Subcatchment Runoff Summary

Perv	Total	Total	Total	Total	Total	Total	Imperv
Runoff	Runoff	Runoff	Peak	Runoff	Evap	Infil	Runoff
Subcatchment	Runoff	Precip	Runoff	Runoff	mm	mm	mm
mm	mm	10^6 ltr	mm	Coeff	mm	mm	mm
			CMS				
S1_1			108.80	0.00	0.00	19.56	61.88
26.21	88.09	1.43	0.59	0.810			
S1_2			108.80	0.00	0.00	30.10	36.51
40.99	77.51	0.11	0.06	0.712			

Node Depth Summary

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
J1	JUNCTION	3.40	4.83	235.83	0 06:48	4.83
OF1	JUNCTION	1.56	1.71	232.71	0 06:50	1.71
OF2	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
OF3	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
SU1	STORAGE	0.30	1.58	235.88	0 06:48	1.58

Node Inflow Summary

Total	Flow		Maximum	Maximum		Lateral
Inflow	Balance		Lateral	Total	Time of Max	Inflow
Volume	Error		Inflow	Inflow	Occurrence	Volume
Node	Type		CMS	CMS	days hr:min	10^6 ltr
ltr	Percent					10^6
J1		JUNCTION	0.000	0.081	0 05:56	0
1.43	0.143					
OF1		JUNCTION	0.000	0.046	0 06:48	0
1.43	0.131					

OF2		OUTFALL	0.000	0.046	0	06:50	0
1.42	0.000						
OF3		OUTFALL	0.055	0.055	0	05:54	0.109
0.109	0.000						
SU1		STORAGE	0.587	0.587	0	05:54	1.43
1.43	0.017						

Node Surcharge Summary

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
J1	JUNCTION	13.39	1.403	0.167

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Max Occurrence	Maximum Outflow Storage Unit hr:min CMS	Average Volume 1000 m³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m³	Max Pcnt Full	Time of days
SU1 06:48	0.081	0.127	9.0	0.0	0.0	0.814	57.9	0

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
OF2	72.59	0.011	0.046	1.424
OF3	25.74	0.002	0.055	0.109

System 49.16 0.014 0.078 1.533

Link Flow Summary

Link	Type	Maximum Flow CMS	Time of Max Occurrence days hr:min	Maximum Veloc m/sec	Max/ Full Flow	Max/ Full Depth
C1	CONDUIT	0.046	0 06:50	1.02	0.03	0.12
OR1	ORIFICE	0.020	0 05:55			1.00
OR2	ORIFICE	0.075	0 05:56			
OR3	ORIFICE	0.046	0 06:48			1.00

Flow Classification Summary

	Adjusted	Fraction of Time in Flow Class							
	/Actual	Up	Down	Sub	Sup	Up	Down	Norm	
Inlet	Length	Dry	Dry	Dry	Crit	Crit	Crit	Crit	
Ctrl								Ltd	
C1	1.00	0.05	0.00	0.00	0.00	0.00	0.00	0.95	
0.00								0.00	

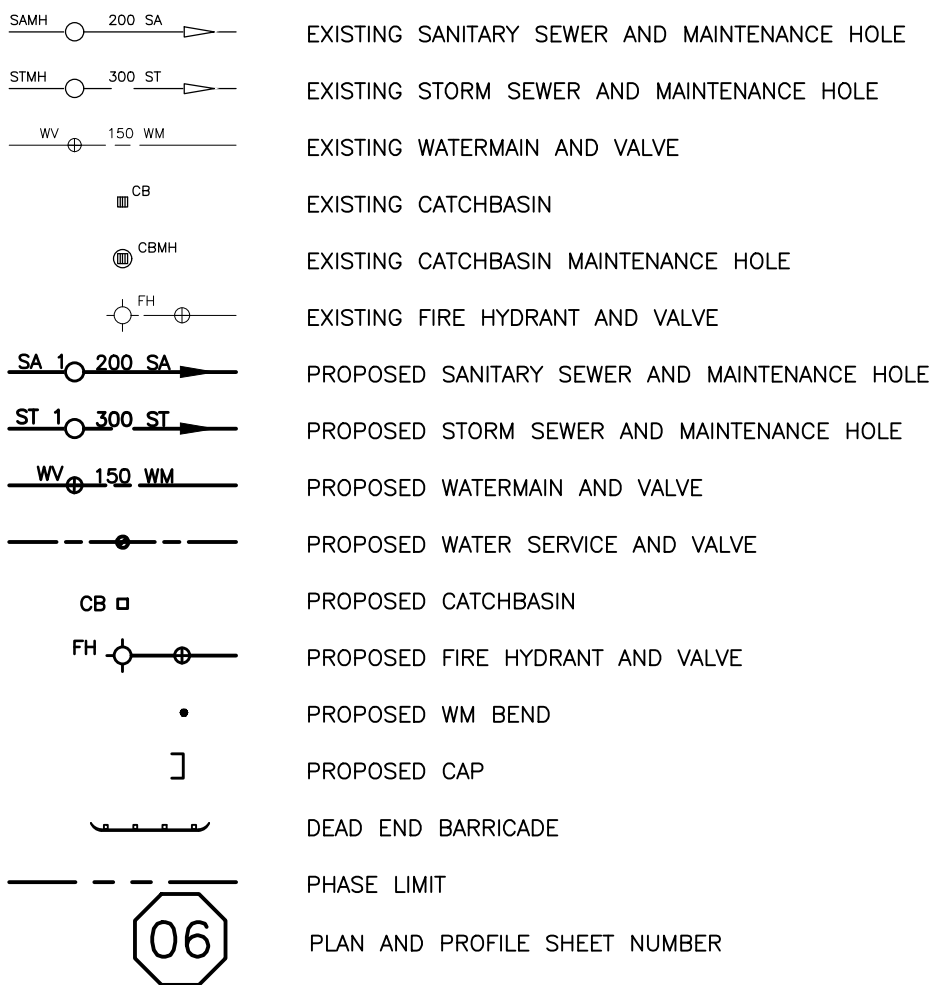
Conduit Surcharge Summary

No conduits were surcharged.

Analysis begun on: Thu Nov 27 15:54:17 2025
Analysis ended on: Thu Nov 27 15:54:17 2025
Total elapsed time: < 1 sec

Appendix D

Servicing and Grading Plans



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

NOTES:

1. GENERAL
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF ST. THOMAS STANDARD CONTRACT DOCUMENTS AND CURRENT ONTARIO PROVINCIAL STANDARDS (OPS).
 - THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF ALL EXISTING SERVICES AND UTILITIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
 - ALL SERVICE CONNECTIONS SHALL BE INSTALLED AT RIGHT ANGLES TO THE MAIN AND IN A STRAIGHT LINE FROM THE MAIN TO THE PROPERTY LINE.
 - THE LOCATION OF THE END OF ALL LATERAL CONNECTIONS AT THE PROPERTY LINE SHALL BE MARKED BY A 50 x 100mm WOODEN STAKE, 2 METERS LONG, PROJECTING ONE METER ABOVE THE GROUND:
- SANITARY: PAINTED WHITE
- STORM: PAINTED GREEN
- WATER: BLUE (STANDARD PRACTICE, THOUGH TEXT SPECIFICS BOX LOCATIONS)
- DIRECT ALL ROOF DRAINAGE TO THE BACK.
- DIAMETER OF 150 mm AND A MINIMUM SLOPE OF 2.0%.
- SANITARY PDCs SHALL GENERALLY BE LOCATED AT THE CENTERLINE OF THE LOT WITH A MINIMUM DEPTH OF COVER OF 2.4 m AT THE STREET LINE.
 - CONNECTIONS TO THE MAIN SEWER SHALL BE MADE USING PREFABRICATED TEES.
 - SANITARY PDCs SHALL NOT BE CONNECTED DIRECTLY INTO SANITARY MANHOLES UNLESS APPROVED BY THE CITY ENGINEER.
3. STORM SERVICES
- STORM PRIVATE DRAIN CONNECTIONS (PDCs) SHALL BE A MINIMUM OF 100 mm (RESIDENTIAL) OR 150 mm DIAMETER INSTALLED AT A MINIMUM SLOPE OF 2.0%.
 - MINIMUM DEPTH OF COVER FOR STORM PDCs AT THE PROPERTY LINE SHALL BE 1.5 m.
 - CONNECTIONS TO THE MAIN SHALL BE MADE USING FACTORY-SUPPLIED TEES WHERE POSSIBLE. FLOW FROM THE PDC MUST NOT ENTER AGAINST THE FLOW OF THE MAIN.

BEDDING FOR SERVICE LATERALS SHALL BE EQUIVALENT TO THE BEDDING SPECIFIED FOR THE MAINLINE SEWER PIPE.

2. SANITARY SERVICES
- EACH PROPERTY SHALL BE PROVIDED WITH A SANITARY PRIVATE DRAIN CONNECTION (PDC) WITH A MINIMUM

- DIAMETER OF 150 mm AND A MINIMUM SLOPE OF 2.0%.
 - SANITARY PDCs SHALL GENERALLY BE LOCATED AT THE CENTERLINE OF THE LOT WITH A MINIMUM DEPTH OF COVER OF 2.4 m AT THE STREET LINE.
 - CONNECTIONS TO THE MAIN SEWER SHALL BE MADE USING PREFABRICATED TEES.
 - SANITARY PDCs SHALL NOT BE CONNECTED DIRECTLY INTO SANITARY MANHOLES UNLESS APPROVED BY THE CITY ENGINEER.
3. STORM SERVICES
- STORM PRIVATE DRAIN CONNECTIONS (PDCs) SHALL BE A MINIMUM OF 100 MM (RESIDENTIAL) OR 150 mm DIAMETER INSTALLED AT A MINIMUM SLOPE OF 2.0%.
 MINIMUM DEPTH OF COVER FOR STORM PDCs AT THE PROPERTY LINE SHALL BE 1.5 m.
 - CONNECTIONS TO THE MAIN SHALL BE MADE USING FACTORY-SUPPLIED TEES WHERE POSSIBLE. FLOW FROM THE PDC MUST NOT ENTER AGAINST THE FLOW OF THE MAIN.
 - SUMP PUMPS SHALL DISCHARGE TO THE STORM PDC WHERE AVAILABLE. THE CONNECTION SHALL INCLUDE A CHECK VALVE AND GATE VALVE LOCATED INSIDE THE BUILDING.
 - STORM PDCs SHALL EXTEND A MINIMUM OF 2.0 m ONTO LOTS WHICH WILL HAVE UTILITY PEDESTALS.
 - CB LINES SHALL BE INSULATED UNLESS OTHERWISE SHOWN.

- 4. WATER SERVICES
 - MINIMUM DOMESTIC WATER SERVICE SIZE IS 25 mm.
 - WATER SERVICES SHALL BE INSTALLED WITH A MINIMUM COVER OF 1.7 m AND A MAXIMUM OF 2.0 m.
 - CURB STOPS SHALL BE LOCATED AT THE PROPERTY LINE AND SHALL NOT BE LOCATED WITHIN DRIVEWAYS.
 - MAIN STOPS (CORPORATION STOPS) SHALL BE INSTALLED AT THE MAIN FOR SERVICES 50 mm DIAMETER AND SMALLER.
 - ALL DOMESTIC SERVICES MUST BE METERED. THE METER SHALL BE INSTALLED IMMEDIATELY INSIDE THE FIRST EXTERNAL WALL AT THE POINT OF ENTRY.

5. RESTORATION & INSPECTION
- THE APPLICANT MUST OBTAIN A RIGHT-OF-WAY OCCUPANCY PERMIT FROM THE CITY'S ENVIRONMENTAL SERVICES DEPARTMENT PRIOR TO WORKING WITHIN THE ROAD ALLOWANCE.
 - ALL DISTURBED AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION OR BETTER.
 - ALL LOCATIONS AND ELEVATIONS OF NEW SERVICE CONNECTIONS SHALL BE RECORDED ON A "BUILDING SERVICES REPORT" AND SUBMITTED TO THE CITY WITH AS-BUILT DRAWINGS.

Conditions of Use

Verify elevations and/or dimensions on drawing prior to use.
Report any discrepancies to Dillon Consulting Limited.

Do not scale dimensions from drawing.

Do not modify drawing, re-use it, or use it for purposes other than those intended at the time of its preparation without prior written permission from Dillon Consulting Limited.

NOT FOR CONSTRUCTION



						DESIGN	REVIEWED BY
						AK	MM
						DRAWN	CHECKED BY
						DILLON	MM
						DATE	
						DECEMBER 2025	
						SCALE	1:400
No.	ISSUED FOR				DATE	BY	

**WAREHOUSE ST. DEVELOPMENT
ST. THOMAS**

PROJECT NO.
25-1537

SHEET NO.

FUNCTIONAL PLAN OF SERVICES

01

PLANNING: C:\PW\WORKING DIRECTORY\PROJECTS\2025\WILLOW_100P\DWG\1912\251537-02-GRD.DWG PLOTTED BY: PAOLO SANTOS FARRA, RAFAEL
PLOT DATE: 2025-12-04 9:44:14 PM PLOT SCALE: 1:250 PLOT STYLE: COT 2011.CTB

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

Conditions of Use

Verify elevations and/or dimensions on drawing prior to use.
Report any discrepancies to Dillon Consulting Limited.

Do not scale dimensions from drawing.

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than those intended at the time of its preparation without prior
written permission from Dillon Consulting Limited.

NOT FOR CONSTRUCTION



				DESIGN	AK	REVIEWED BY	MM
				DRAWN	DILLON	CHECKED BY	MM
				DATE	DECEMBER 2025		
				SCALE	1:400		
No.				ISSUED FOR		DATE	BY

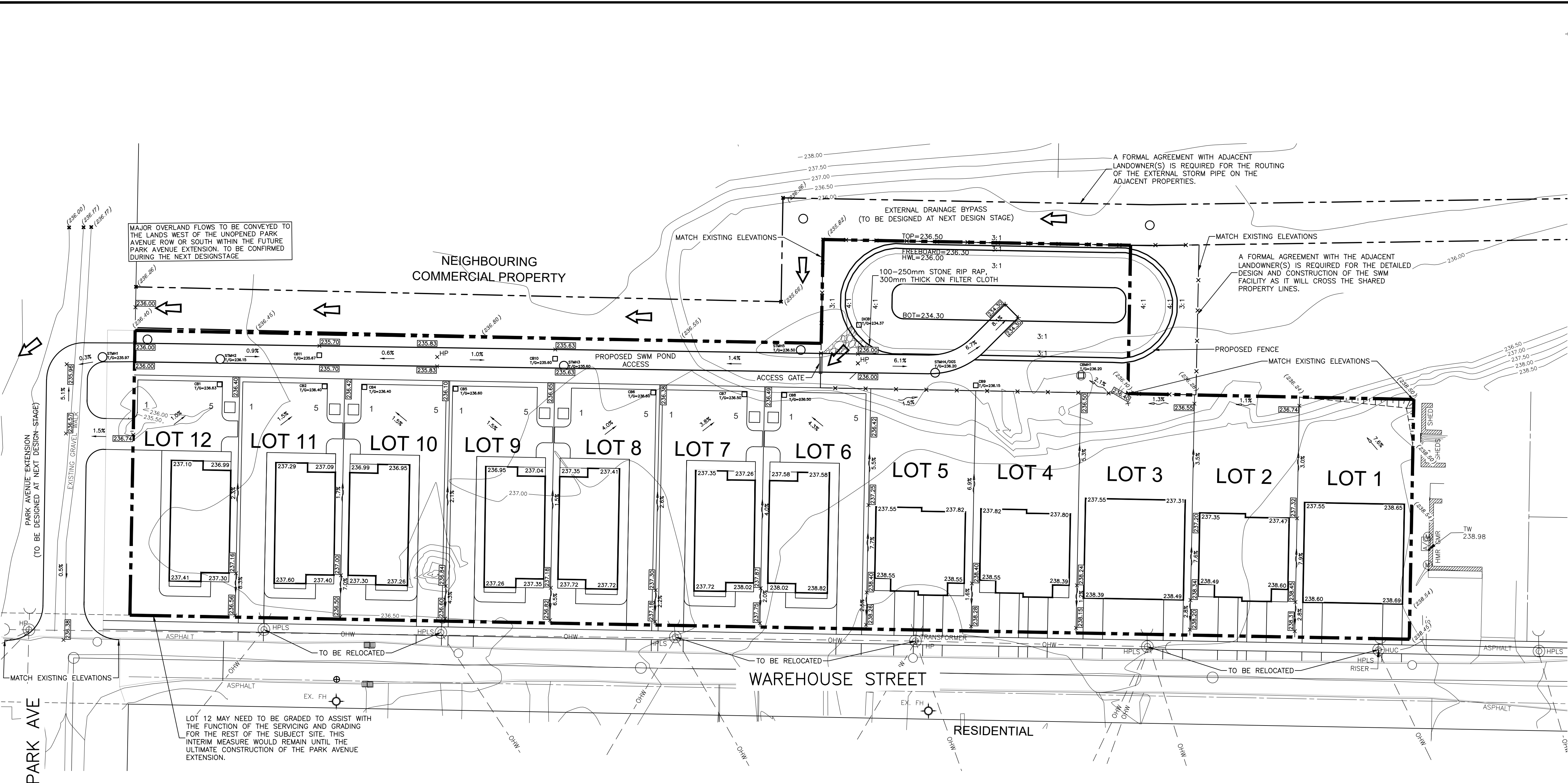
WAREHOUSE ST. DEVELOPMENT
ST. THOMAS

PROJECT NO.
25-1537

FUNCTIONAL GRADING PLAN

SHEET NO.

01



GRADING LEGEND

- EXISTING ELEVATION
- PROPOSED ELEVATION
- DRAINAGE DIRECTION
- PROPOSED CATCHBASIN
- PROPOSED CURB INLET CATCHBASIN
- PROPOSED DITCH INLET CATCHBASIN
- SWALE
- OVERLAND FLOW ROUTE
- SIDEWALK RAMP
- 3.0m CURB TRANSITION
- PROPOSED FIRE HYDRANT AND VALVE
- PHASE LIMIT

GRADING NOTES:

- GENERAL GRADING REQUIREMENTS
 - ALL DRAINAGE FLOWS SHALL BE DIRECTED AWAY FROM HOUSES.
 - YARD SURFACES SHALL HAVE A MINIMUM SLOPE OF 1.5%, PREFERABLY 2%.
 - THE MAXIMUM SLOPE BETWEEN HOUSES IN NEW DEVELOPMENTS SHALL BE 3:1 (3 HORIZONTALLY TO 1 VERTICALLY).
 - RETAINING WALLS SHALL NOT BE USED IN NEW SUBDIVISION DEVELOPMENTS.
 - THE MINIMUM HEIGHT OF BASEMENT OPENINGS (E.G., WINDOW SILLS) SHALL BE 300 mm MINIMUM ABOVE THE FINISHED ROAD CENTRELINE ELEVATION UNLESS OTHERWISE APPROVED (E.G., REAR YARD "WALK-OUT" BASEMENTS).
 - NO FRONT YARD CATCHBASINS SHALL BE ALLOWED.
 - THE MAJOR STORM DRAINAGE SYSTEM SHALL PERMIT CONTINUOUS OVERLAND FLOW ALONG ROADS AND EASEMENTS WITHOUT FLOODING LOTS DURING A 100-YEAR STORM EVENT.
- SWALE DESIGN NOTES
 - DRAINAGE FLOWS CARRIED AROUND HOUSES MUST BE CONFINED IN DEFINED SWALES LOCATED AS FAR FROM THE HOUSE AS POSSIBLE.
 - DEPTH:
 - MINIMUM: 150 mm.
 - DESIRABLE: 225 mm.
 - THE MAXIMUM DISTANCE FROM THE REAR LOT LINE TO THE CENTRE OF THE SWALE IS 1.5 m.
 - SIDE YARD SWALES MAXIMUM FLOW ALLOWABLE IS THAT FROM 4 BACKYARDS.
 - REAR YARD SWALES MAXIMUM FLOW ALLOWABLE IS THAT FROM 10 TO 15 BACKYARDS (DEPENDENT ON LOT SIZE/GRADE).
 - THE MAXIMUM AREA CONTRIBUTING TO A REAR YARD SWALE SHALL BE 0.5 HECTARES.
 - THE MAXIMUM LENGTH OF A REAR YARD SWALE SHALL BE 100 m.
- DRIVEWAY AND BOULEVARD NOTES
 - THE MINIMUM DRIVEWAY GRADE IS 2%.
 - THE OPTIMUM DRIVEWAY GRADE IS 2% TO 4%.
 - THE MAXIMUM DRIVEWAY GRADE IS 8% ONLY IN EXCEPTIONAL CASES.
 - SPECIFIED GRADES FOR DRIVEWAYS SHALL BE DIRECTED AWAY FROM THE HOUSES. REVERSE FALL DRIVEWAYS ARE NOT PERMITTED.
 - DRIVEWAYS MUST HAVE A MINIMUM 1 m CLEARANCE TO UTILITIES (HYDRANTS, LIGHT POLES, TRANSFORMERS, ETC.).
 - TREES MUST BE A MINIMUM OF 2.0 m FROM PROPOSED DRIVEWAYS.
 - SLOPES ON BOULEVARDS SHALL BE NOT LESS THAN 2% (PREFERABLY 3%) AND NOT GREATER THAN 8%.
 - OPTIMUM CROSS SLOPE IS 2%.
- EROSION AND SEDIMENT CONTROL
 - TEMPORARY SILT FENCING SHALL BE INSTALLED ALONG THE LIMIT OF THE SUBDIVISION AND MAINTAINED FOR THE DURATION OF THE CONTRACT UNTIL SEEDING OR SODDING TAKES PLACE.
 - ALL SEDIMENT AND EROSION CONTROL MEASURES AND NOTES SHALL FOLLOW THE MINISTRY OF NATURAL RESOURCES GUIDELINES ON EROSION AND SEDIMENT CONTROL FOR URBAN CONSTRUCTION SITES.
 - ALL DEBRIS, RUBBISH, AND JUNK SHALL BE REMOVED FROM THE STREET RIGHT-OF-WAY BEFORE FINAL ACCEPTANCE.

