

Sandy Smith

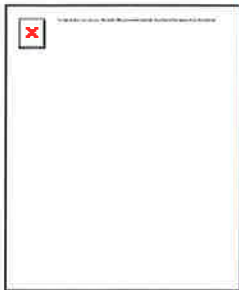
From: Curtis Edgington <Curtis.Edgington@cambium-inc.com>
Sent: September 19, 2024 8:48 AM
To: Sandy Smith
Cc: David Pearce; File
Subject: RE: Tamblyn (19462-001)
Attachments: 2024-09-19 RPT Phase Two ESA 19 Tamblyn Rd, Orono.pdf

Good morning,

Please find attached a copy of the draft Phase Two ESA Report indicating no further work is required to support the severance application.

Please review and let me know if you have any questions. I will issue the reliance letter, certificate of insurance to be provided to the Region with the Final signed copy.

Regards,



Curtis Edgington, P.Eng., QP_{ESA}

Project Manager

Cambium - Whitby

📞 289.688.2967

📠 866.217.7900

🌐 cambium-inc.com



Environmental | Building Sciences | Geotechnical | Construction Testing & Inspection

This email and attachments are intended solely for the use of the recipient and may contain personal information that is regulated by the Personal Information Protection and Electronic Documents Act, S.C. 2000 C5. If you are not the intended recipient or do not agree to comply with the Act, please notify the sender by return email or telephone and delete the original message and attachments without making a copy

From: Sandy Smith <sandy@ellrod.ca>
Sent: Wednesday, September 18, 2024 11:29 AM
To: Curtis Edgington <Curtis.Edgington@cambium-inc.com>
Cc: David Pearce <davepearce0807@gmail.com>
Subject: FW: Tamblyn

Hi did u send report? (Environmental Report)

Thank you,

SANDY SMITH
Partner, Secretary/ Treasurer

ER ELL-ROD
HOLDINGS INC.

t. 905-683-8444 ext. 229
e. sandy@ellrod.ca

19 Tamblyn Road
P.O. Box 339
Orono, ON, L0B 1M0

www.ellrod.ca



From: David Pearce <davepearce0807@gmail.com>
Sent: September 18, 2024 8:39 AM
To: Sandy Smith <sandy@ellrod.ca>
Subject: Re: Tamblyn

Environmental report and water locate
Sent from my iPhone

On Sep 18, 2024, at 8:23 AM, Sandy Smith <sandy@ellrod.ca> wrote:

GM.... U have everything u require, other than water locate.

Thank you,

SANDY SMITH

<image001.png>

Partner, Secretary/ Treasurer

t. 905-683-8444 ext. 229
e. sandy@ellrod.ca

19 Tamblyn Road
P.O. Box 339
Orono, ON, L0B 1M0

www.ellrod.ca

<image002.png>

<image003.png>



Phase Two Environmental Site Assessment - 19 Tamblyn Road, Orono, Ontario

September 19, 2024

Prepared for:
Creative Millwork Inc.

Cambium Reference: 19462-001

CAMBIUM INC.

866.217.7900

cambium-inc.com



Table of Contents

1.0	Executive Summary	1
2.0	Introduction.....	3
2.1	Site Description	3
2.2	Property Ownership.....	3
2.3	Current and Proposed Future Uses.....	4
2.4	Applicable Site Condition Standards	4
2.5	General Objectives.....	5
3.0	Background Information.....	7
3.1	Physical Setting	7
3.2	Past Investigations	8
4.0	Scope of the Investigation.....	9
4.1	Overview of the Site Investigation	9
4.2	Media Investigated	9
4.3	Phase One Conceptual Site Model	10
4.3.1	Site Description	10
4.3.2	Existing Buildings and Structures	10
4.3.3	Water Bodies and Areas of Natural Significance	11
4.3.4	Drinking Water Wells.....	11
4.3.5	Potentially Contaminating Activities.....	12
4.3.6	Areas of Potential Environmental Concern.....	13
4.3.7	Contaminants of Potential Concern.....	13
4.3.8	Contaminant Distribution and Transport.....	13
4.3.9	Geological and Hydrogeological Setting.....	14
4.3.10	Uncertainty or Absence of Information	15
4.4	Deviations From Sampling and Analysis Plan	15
4.5	Impediments	15



5.0	Investigation Method.....	16
5.1	General	16
5.2	Soil: Drilling	16
5.3	Soil: Sampling	16
5.4	Field Screening Measurements.....	17
5.5	Groundwater: Monitoring Well Installation.....	17
5.6	Groundwater: Sampling.....	17
5.7	Analytical Testing	18
5.8	Residue Management Procedures	19
5.9	Elevation Surveying.....	19
5.10	Quality Assurance and Quality Control Measures	19
6.0	Review and Evaluation	21
6.1	Geology	21
6.2	Groundwater: Elevations and Flow Direction.....	21
6.3	Groundwater: Hydraulic Gradients and Conductivity.....	21
6.4	Coarse Soil Texture.....	22
6.5	Soil: Field Screening	22
6.6	Soil Quality	22
6.6.1	BTEX and PHCs	22
6.6.2	VOCs.....	23
6.6.3	PAHs	23
6.6.4	Metals and ORPs, and pH.....	23
6.6.5	Polychlorinated Biphenyls	23
6.7	Groundwater Quality	23
6.7.1	BTEX and PHCs.....	24
6.7.2	VOCs.....	24
6.7.3	PAHs	24
6.7.4	Metals and ORPs	25
6.7.5	Polychlorinated Biphenyls	25



6.8	Quality Assurance and Quality Control.....	25
6.9	Phase Two Conceptual Site Model	26
6.9.1	Site Description and Ownership	26
6.9.2	Potentially Contaminating Activities.....	27
6.9.3	Areas of Potential Environmental Concern	28
6.9.4	Subsurface Structures and Utilities	29
6.9.5	Stratigraphy	29
6.9.6	Hydrogeological Characteristics and Groundwater Elevations	29
6.9.7	Applicable Site Condition Standards	29
6.9.8	Contaminant Identification and Distribution	31
6.9.9	Contaminant Migration and Transport	31
6.9.10	Exposure Pathways and Receptors	31
6.9.11	Location of Buildings and Structures	31
6.9.12	Areas of Contamination on the Property	32
7.0	Conclusions	33
7.1	Environmental Conditions.....	33
7.2	Signatures	34
8.0	References	35
9.0	Standard Limitation.....	37



List of Figures

Figure 1	Site Location Map
Figure 2	Conceptual Site Model Study Area
Figure 3	Conceptual Site Model Site Plan
Figure 4	Investigation Locations and Cross-section Locations
Figure 5	Groundwater Configuration
Figure 6	Stratigraphic Cross-sections
Figure 7	Soil Quality (PHCs)
Figure 8	Soil Quality (VOCs, PAHs, PCBs, Metals, and ORPs)
Figure 9	Groundwater Quality

List of Tables

Table 1	Potentially Contaminating Activities
Table 2	Areas of Potential Environmental Concern
Table 3	Groundwater Elevation Table
Table 4	Soil Quality
Table 5	Groundwater Quality

List of Appendices

Appendix A	Sampling and Analysis Plan
Appendix B	Borehole Logs
Appendix C	Laboratory Certificates of Analysis



1.0 Executive Summary

Creative Millwork Inc. ("Client") retained Cambium Inc. (Cambium) to complete a Phase Two Environmental Site Assessment (ESA) at 19 Tamblyn Road in Orono, Ontario ('Site' or 'Phase Two Property'). The Phase Two ESA support a land severance application to the Regional Municipality of Durham (Municipality) to divide the parcel into two lots, and as such, was completed to meet the requirements of Ontario Regulation (O.Reg.) 153/04.

The roughly 15.26 ha Site is on the south side of Tamblyn Road and east of highway 35/115. The first developed land use at the Site was for industrial purposes in 1960 as a custom millwork based on a review of historical documents. The Client intends to sever the existing property into two parcels, a 3.58 ha parcel with the existing building for continued industrial use, and a retained 11.68 ha parcel for proposed future industrial use.

The Phase One ESA identified six potentially contaminating activity (PCAs), three on-site and three off-site, within the Phase One Study Area. The on-site PCAs contributed to areas of potential environmental concern (APECs). No off-site PCAs contributed to APECs. The related contaminants of potential concern (COPCs) were benzene, toluene, ethylbenzene, xylenes (BTEX), petroleum hydrocarbons (PHCs), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), metals, hydride-forming metals, sodium, and other regulated parameters (ORPs) including hot water soluble boron, chromium VI, mercury, electrical conductivity (EC), adsorption ratio (SAR), and pH. Potentially contaminated media was soil and groundwater.

A Phase Two ESA work program was developed to investigate COPCs in soil and groundwater. The Phase Two ESA included three boreholes, each of which were outfitted with groundwater monitoring wells.

Concentrations of COPCs met the Table 2 Site Condition Standards (SCS) with the exception of PHCs F4 in soil sample BH103_3-3.8. As the sample is below 1.5 metres below ground surface (mbgs) the results met the Table 4 SCS.



Chloroform exceeded the Table 2 SCS in groundwater at BH103, however the source is attributed to a treated municipal water supply and therefore not considered to be an exceedance.

It is Cambium's opinion that a land severance application for the Site can be filed with the Municipality.



2.0 Introduction

The Client retained Cambium to complete a Phase Two ESA at 19 Tamblyn Road in Orono, Ontario. The Phase Two ESA will be used to support a land severance application to the Regional Municipality of Durham to divide the parcel into two lots, and as such, the Phase Two ESA was completed to meet the requirements of Ontario Regulation (O.Reg.) 153/04.

2.1 Site Description

The Site is on the south side of Tamblyn Road and east of Highway 35/115 in Orono, Ontario. The municipal address is 19 Tamblyn Road. Site information and property owner information are summarized below.

The Phase Two Property location is shown on Figure 1. The Phase Two Property boundary is shown on Figure 2.

Site Identification Information

Municipal Address	19 Tamblyn Road, Orono, Ontario
Historical Land Use	Agricultural or Other and Industrial
Current Land Use	Agricultural or Other and Industrial
Future Land Use	Industrial
PIN	26680-0005 (LT)
Universal Transverse Mercator Coordinates*	Zone 17T 691388 m E, 4873057 m N
Legal Description	Part Lot 27, Concession 5, Clarke as in D493072
Site Area	~15.26 ha (~37.7 acres)

* The Universal Transverse Mercator measurements were obtained from Google Earth Pro.

2.2 Property Ownership

Property Owner	Contact Information
Creative Millwork Inc. 19 Tamblyn Road, Orono, Ontario L0B 1M0	Spencer Finney Chief Financial Officer Phone: (905) 683-8444 x 235 Email: spencer@ellrod.ca

2.3 Current and Proposed Future Uses

The north portion of the Site is developed with three structures as follows:

- A production warehouse for wood construction and spray-painting furniture, with a second-floor mezzanine (Building A);
- A two-storey building (Building B), used for office space, and a showroom; and
- An open ventilation shed for material storage (Building C).

Building A has been used since the 1960s for industrial use as a custom millwork, furniture, and finished wood products manufacturing facility. Building A was constructed in about 1960 with an addition in 1973; Building C was constructed in 1970; and Building B was constructed in 2021. The central and south portions of the Site are occupied by agricultural fields, a woodlot and wetland areas.

The Client intends to sever the existing property into two parcels, a 3.58 ha parcel with the existing building for continued industrial use, and a retained 11.68 ha parcel for proposed future industrial use.

2.4 Applicable Site Condition Standards

The *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOECC, 2011) were used to determine the applicable SCS for the Site. The following site characteristics were considered when choosing which standards should be applied:

- The proposed future use of the Site is industrial use.
- The area being investigated is not within 30 m of a water body as defined in O.Reg. 153/04. As such, Section 43.1 of O.Reg. 153/04 does not apply to the Site.
- For a property to be considered non-potable groundwater, all properties within 250 m of the property must be supplied by a municipal drinking water system that does not obtain its water from a groundwater source. Domestic water supply wells are present in the Phase One Study Area. Therefore, not all properties within the Phase One Study Area are

served by the municipal drinking water system, and as such potable standards apply to the Site.

- The property is not located in an area designated in the municipal official plan as a well-head protection area or other designation identified by the municipality for the protection of groundwater.
- The stratigraphy consisted of native sand with trace gravel and silt, underlain by native silty sand. Bedrock was not encountered to a maximum drill depth of 6.1 m below ground surface (bgs). Based on field observations, SCS for coarse-grained soil were considered appropriate.
- Two unevaluated wetlands are present on the southwest portion of the Site, which are considered Natural Heritage Systems in the Clarington Official Plan. As they are unevaluated and not considered provincially significant, the unevaluated wetland areas are not considered Areas of Natural Significance. On-site soil pH was within the acceptable ranges for surface (≤ 1.5 mbgs) and sub-surface (> 1.5 mbgs) soil. As such, the Site is not environmentally sensitive as per Section 41 of O.Reg. 153/04.

Based on the above information, the applicable SCS for the Site were the Table 2 *Full Depth Generic Site Condition Standards in a Potable Ground Water Condition*. Industrial property use and coarse soil texture were selected to determine concentration exceedances for the analyzed parameters.

Additionally, soil results were compared to the Table 4 *Stratified Site Condition Standards in a Potable Ground Water Condition, industrial property use and coarse texture soil* (Table 4 SCS). Given soil which exceeds the Table 2 SCS was only identified in the sub-surface soil at depths of 1.5 mbgs or deeper, the Table 4 SCS were deemed appropriate.

2.5 General Objectives

The general objectives of the Phase Two ESA were to determine the location and concentration of contaminants in the soil or water on, in or under the Phase Two Property; and subsequently determine if the SCS for contaminants on, in or under the Phase Two Property were met. These objectives were achieved by developing an understanding of the geological



and hydrogeological conditions at the Phase Two Property and conducting field investigations for the identified COPCs. The Phase Two ESA included a soil and groundwater investigation.

3.0 Background Information

3.1 Physical Setting

Topographic maps (MNRF, 2024a) of the study area provided information regarding the regional topography, inferred groundwater flow direction, and general development in the area surrounding the Site.

- The ground surface at the site is generally flat, with a shallow rolling hill sloping down to the southwest.
- Surface water drainage at the Site is expected to infiltrate the ground surface and landscaped areas.
- The closest water bodies are two un-named tributaries to Orono Creek, about 95 m northwest, and about 160 m south of the Site.
- Two unevaluated wetlands are present on the south and southwest portions of the Site.
- Based on the local topography and direction to water bodies, the inferred shallow groundwater is southwesterly.

The Site is within the South Slope physiographic region (Chapman & Putnam, 1984), characterized by drumlinized till plains. In the general area, the overburden is clay to silt-textured till - derived from glaciolacustrine deposits or shale (OGS, 2010). Bedrock is mapped as limestone, dolostone, shale, arkose, sandstone forming Ottawa and Simcoe group, Shadow Lake formation (OGS, 2007). A review of Ministry water well records (MECP, 2024) for boreholes within 100 m of the Site indicated that the local stratigraphy consisted of clay, fine sand or silty sand with clay. Bedrock was not encountered at a maximum depth of 75 m below ground surface (bgs) in well records to the northeast of the Site.

The nearest waterbodies, two un-named tributaries of Orono Creek are located approximately 95 m northwest and 160 m south of the Site. Based on the groundwater elevations, the groundwater flow direction in the Phase Two study area is south (Figure 5). No Areas of Natural Significance, as defined in Section 1 of O.Reg. 153/04, were identified in whole or in part within the Phase One Study Area (MNRF, 2024).



The Phase One Study Area is municipally serviced for drinking however, drinking water well records were identified by the records review in the Phase One Study Area. No drinking water wells were observed on the Site; however, one inactive water well was noted during the Site visit.

The Phase One Study Area is not within a well-head protection area. The Town of Orono obtains drinking water from groundwater. According to the Regional Municipality of Durham (Durham, 2022), the raw water source for the Orono Drinking Water System is two municipal wells within the Village of Orono, both drilled to a depth of 13.7 bgs.

Cambium reviewed Ontario Well Records (MECP, 2024), which did not identify any well records for the Site; however, domestic water supply wells are present in the Phase One Study Area. A water well located west of Building A was observed at the time of site visit which the owner reported was not currently active.

Stratigraphy in the off-site wells within 100 m of the Site was generally clay or sand till. Bedrock was not encountered at a maximum depth of 75 mbgs in a well records northwest of the Site (MECP, 2024).

3.2 Past Investigations

No previous environmental reports were provided for Cambium to review.

4.0 Scope of the Investigation

4.1 Overview of the Site Investigation

The proposed scope of work for the Phase Two ESA was based on the requirements of O.Reg. 153/04 and the findings of the Phase One ESA. Soil and groundwater samples were submitted to Bureau Veritas (BV), an accredited analytical laboratory. The Phase Two ESA was subject to a Quality Assurance/Quality Control (QA/QC) program, including analysis of blind duplicate soil and groundwater samples and trip blanks.

Cambium coordinated all subcontractors required to complete the work, including utility locators, a licensed well drilling contractor, and the laboratory. Prior to conducting field work, Cambium prepared a Health and Safety Plan (HASP) tailored to the known and possible on-site contaminants, physical site hazards, and the type of work to be conducted. Included in the HASP was a detailed map showing the transportation route to the nearest hospital, emergency contact numbers, and other pertinent information required for work on potentially contaminated sites. All persons entering the Site, as contractors or otherwise, were required to review and sign the HASP prior to their admission.

Cambium arranged for underground services to be located and marked by public and private utility companies prior to starting intrusive investigations. The proposed borehole locations were clear of utilities.

A sampling and analysis plan (SAP) was prepared to address the identified APECs and is included in Appendix A.

4.2 Media Investigated

The Phase Two ESA investigated soil and groundwater. As no water bodies exist on the Site, surface water and sediment sampling were not applicable. Soil quality at the Site was investigated through drilling and soil sampling. Monitoring wells were installed in the drilled boreholes for groundwater sampling.

4.3 Phase One Conceptual Site Model

The Phase One Conceptual Site Model (CSM) is required to assist the Qualified Person (QP) in illustrating the results of the Phase One ESA and to provide a basis for further work, if required. The Phase One CSM Study Area is shown on Figure 2. The Phase One CSM Site Plan is shown on Figure 3. The following descriptions and discussion supplement the figures, and together comprise the CSM.

4.3.1 Site Description

The roughly 15.26 ha Site is on the south side of Tamblyn Road and east of highway 35/115. The legal description of the Site is *Part Lot 27, Concession 5, Clarke as in D493072*. The Universal Transverse Mercator (UTM) coordinates for the centroid for the Site are Zone 17 T, 691388 m east and 4873057 m north.

The property use surrounding the Site is as follows:

North – Community (Tamblyn Road), and residential beyond.

South – Agricultural.

East – Residential and agricultural.

West – Community (Highway 35/115), with residential and commercial (grocery store) beyond.

4.3.2 Existing Buildings and Structures

The north portion of the Site was occupied by a slab-on-grade warehouse and manufacturing building, with a second-floor mezzanine (Building A), a slab-on-grade, two-storey office and showroom building (Building B), and a slab-on-grade, with metal siding, cold storage shed (Building C). Building A was constructed in 1960, with a reported addition in 1973, and Buildings B and C were reportedly constructed in 2021 and 1970, respectively.

4.3.3 Water Bodies and Areas of Natural Significance

The nearest waterbodies are two un-named tributaries of Orono Creek which are located approximately 95 m northwest and 160 m south of the Site; therefore, the Site is not within 30 m of a water body, as defined in O.Reg. 153/04.

A Natural Heritage Areas map (MNRF, 2024b) and the Municipality of Clarington Official Plan (Clarington, 2018) were reviewed. Two unevaluated wetlands are present on the southwest and south portions of the Site, which are noted as Natural Heritage Systems in the Official Plan.

The Site did not include an area designated as an escarpment natural area or an escarpment protection area by the Niagara Escarpment Plan, or property within an area designated as a natural core area or natural linkage area within the area to which the Oak Ridges Moraine Conservation Plan applies.

The Natural Heritage Areas map (MNRF, 2024b) records identified the potential presence within 1 km on the Site of endangered or threatened species at risk habitat potential; therefore, a review of potential habitat should be conducted at time of redevelopment.

4.3.4 Drinking Water Wells

The Phase One Study Area is municipally serviced for drinking water; however, drinking water well records were identified by the records review in the Phase One Study Area. No drinking water wells were observed on the Site, except one inactive water well was noted during the Site visit, as noted in Section 4.3.4.

The Phase One study area is not within a well-head protection area. The Town of Orono obtains drinking water from groundwater. According to the Regional Municipality of Durham (Durham, 2022), the raw water source for the Orono Drinking Water System is two municipal wells within the Village of Orono, both drilled to a depth of 13.7 mbgs.

Cambium reviewed Ontario Well Records (MECP, 2024), which did not identify any well records for the Site; however, domestic water supply wells are present in the Phase One Study Area. A water well located west of Building A was observed at the time of site visit which the owner reported was not currently active.

Stratigraphy in the off-site wells within 100 m of the Site was generally clay or sand till. Bedrock was not encountered at a maximum depth of 75 mbgs in a well records northwest of the Site (MECP, 2024).

4.3.5 Potentially Contaminating Activities

Cambium reviewed information available for the Phase One Study Area to identify environmental issues normally assessed in a Phase One ESA. Six PCAs were identified within the Phase One Study Area, consisting of three on-site and three off-site PCAs. Refer to Table 4 for further description of the PCAs, and Figure 2 for PCA locations.

The following PCAs contribute to APECs:

PCA 1 – On-site (driveway and walkways): related to salt application and de-icing activities for pedestrian and vehicular safety; *PCA # Not Applicable - Salt Application*

PCA 2 – On-site (east and northeast portions of Building A): related to the use of the Site for custom millwork including spray painting since 1960; *PCA #39 Paints Manufacturing, Processing and Bulk Storage*

PCA 3 – On-site (east and northeast portions of Building A, and storage areas south of Building A): related to the various waste generation listings from 1997 to 2022; *PCA # Not Applicable – Waste Generation*

The following PCAs do not contribute to APECs:

PCA 4 – Off-site (150 m to the northeast): potential pesticide application related to a historical orchard; *PCA #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications*

PCA 5 – Off-site (50 m to the west): potential pesticide application related to a historical orchard; *PCA #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications*

PCA 6 – Off-site (117 Mill Street, 210 m to the west): related to an active commercial automotive garage; *PCA #27 Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles*



In reference to PCA 1 (i.e. salt application), the qualified person has determined that a substance has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice at the Site. As such, the exemption set out in paragraph 1 of section 49.1 of O.Reg. 153/04 will be relied upon. The exemptions set out in paragraphs 1.1, 2 and 3 of section 49.1 of O.Reg. 153/04 will not be relied upon.

4.3.6 Areas of Potential Environmental Concern

As required by O.Reg. 153/04, all on-site PCAs result in an APEC. Based on a review of the potential to result in contamination at the Site, none of the off-site PCAs contributed to APECs. The APECs are summarized below. Refer to Table 5 for further descriptions of the APECs, and Figure 3 for APEC locations.

APEC 1 – Driveways and walkways on the Site, associated with PCA 1, salt application. COPCs include EC and SAR in soil, and Na and Cl in groundwater.

APEC 2 – East and northeast portion of Building A, associated with PCA 2, paint use and storage at the Site. COPCs include PHCs, BTEX, VOCs, PAHs, PCBs, metals and hydride-forming metals in soil and groundwater.

APEC 3 – East and northeast portion of Building A, associated with PCA 3, waste generation at the Site. COPCs include PHCs, BTEX, VOCs, PAHs, PCBs, metals and hydride-forming metals in soil and groundwater.

4.3.7 Contaminants of Potential Concern

COPCs were identified for each PCA contributing to an APEC. The COPCs specific to each APEC are summarized in Table 5. PHCs, BTEX, VOCs, PAHs, PCBs, metals and hydride-forming metals, and ORPs including EC (soil only), SAR (soil only), Chromium VI, mercury, Na (groundwater only), and Cl (groundwater only) were identified as COPCs related to the current and historical on-site PCAs. The potentially contaminated media were soil and groundwater.

4.3.8 Contaminant Distribution and Transport

Electricity is supplied through overhead wires. Communications, natural gas and water supplies are underground. A septic system is present on-site with the septic tiles are reportedly

located northwest of the buildings. Contaminant distribution and transport may be influenced by the presence of utility trenches that are present on the Site.

No specific climatic or meteorological conditions were observed that may influence the distribution or migration of contaminants.

4.3.9 Geological and Hydrogeological Setting

Topographic maps (MNRF, 2024a) of the study area provided information regarding the regional topography, inferred groundwater flow direction, and general development in the area surrounding the Site.

- The ground surface at the site is generally flat, with a shallow rolling hill sloping down to the southwest.
- Surface water drainage at the Site is expected to infiltrate the ground surface and landscaped areas.
- The closest water bodies are two un-named tributaries to Orono Creek, about 95 m northwest, and about 160 m south of the Site.
- Two unevaluated wetlands are present on the south and southwest portions of the Site.
- Based on the local topography and direction to water bodies, the inferred shallow groundwater is southwesterly.

The Site is within the South Slope physiographic region (Chapman & Putnam, 1984), characterized by drumlinized till plains. In the general area, the overburden is clay to silt-textured till - derived from glaciolacustrine deposits or shale (OGS, 2010). Bedrock is mapped as limestone, dolostone, shale, arkose, sandstone forming Ottawa and Simcoe group, Shadow Lake formation (OGS, 2007). A review of Ministry water well records (MECP, 2024) for boreholes within 100 m of the Site indicated that the local stratigraphy consisted of clay, fine sand or silty sand with clay. Bedrock was not encountered to a maximum depth of 75 mbgs in well records surrounding the Site.



4.3.10 Uncertainty or Absence of Information

All aspects of the Phase One ESA were conducted consistent with O.Reg. 153/04, and as such, the Site was investigated thoroughly. As access to the entire Site was possible, and adequate historical information was available through the interviewees and records review, uncertainty or absence of information is not expected. While the placement of historical on- and off-site structures and PCAs based on fire insurance plans (FIPs) may be of low accuracy, investigations completed during the Phase Two ESA can account for this uncertainty.

4.4 Deviations From Sampling and Analysis Plan

No deviations were made from the Sampling and Analysis Plan for the Phase Two ESA.

4.5 Impediments

No physical impediments or denial of access were encountered during the Phase Two ESA.

5.0 Investigation Method

5.1 General

The following sections provide a detailed description of the subsurface investigations. Soil and groundwater samples were analyzed for one or more of BTEX, PHCs, VOCs, PAHs, PCBs, metals, hydride-forming metals, chloride, chromium VI, mercury, EC, SAR, sodium, and pH.

As indicated in Section 2.4, based on the site characteristics as well as the proposed future use of the Site, the applicable standards for the Site are Table 2 and Table 4 SCS. Industrial property use and coarse soil texture were selected to identify analyzed parameters present on the Site at concentrations exceeding the SCS.

5.2 Soil: Drilling

The drilling investigation was completed on June 18, 2024. Strata Drilling Group (Strata) advanced three boreholes into overburden to a maximum depth of 6.1 mbgs. Borehole locations are shown on Figure 4.

5.3 Soil: Sampling

During the drilling program, soil samples were collected continuously. Each sample was handled solely by the Cambium field technician using dedicated nitrile gloves to reduce the potential for cross-contamination.

Soil samples were logged for soil type, moisture content, presence of odour, and signs of impacts such as staining, consistent with standard geotechnical and environmental soil descriptions and nomenclature. The samples were divided on-site, a portion was placed in dedicated sample jars for submission to the laboratory, with the remainder placed in sealed plastic sample bags and used to screen for combustible soil vapours (CSV) and/or organic vapours (OV) present in the soil headspace. The field screening observations were used to determine which samples to submit for laboratory analysis. Samples to be submitted for analysis of volatile parameters were collected applying the appropriate techniques, as per O.Reg. 153/04 (i.e., pre-calibrated syringe sampler and methanol preserved vial).

5.4 Field Screening Measurements

Olfactory and visual observations of the soil samples were documented immediately upon extraction for soil characteristics and potential indicators of environmental contamination. Soil samples were screened using an RKI Eagle 2 portable gas detector for concentrations of combustible soil vapour (CSV) and organic vapour (OV), calibrated to hexane and isobutylene, respectively. After agitating the sample, the peak reading was recorded by inserting the meter probe into the sample bag. Refer to the borehole logs in Appendix B for the recorded vapour readings.

5.5 Groundwater: Monitoring Well Installation

Monitoring wells were installed in three of the boreholes (i.e., BH101, BH102 and BH103) and were constructed using 50 mm inner diameter, flush threaded PVC well pipe with a 3.0m section of screen at the base of the well. The annular space was filled with washed silica sand filter pack to 0.3 m above the top of the screen and the wells were completed with bentonite (seal) and native soil cuttings to at least 0.3 mbgs. The monitoring wells were completed with flush-mount and/or monument steel protective covers. Borehole logs illustrating the monitoring well installation details are included in Appendix B. Monitoring wells were installed such that the well screen intersected the surface of the shallowest water-bearing unit identified during drilling.

Following installation of each monitoring well, a minimum of three well volumes of groundwater, if present, was purged to remove sediment from the well, stabilize and grade the filter pack, improve connectivity between the well and the formation, and restore groundwater that may have been disturbed during the drilling process. Each groundwater monitoring well was purged using dedicated polyethylene tubing and an inertial lift foot valve. The volume of water to be purged from each well was calculated on-site during the monitoring events using the measured water levels and the well diameter.

5.6 Groundwater: Sampling

Groundwater sampling was conducted on June 25, 2024, consistent with O.Reg. 153/04 under the supervision of a QP.

Prior to sampling, the static water level was recorded at each of the monitoring wells using an interface probe, which can accurately measure the depth to groundwater and the thickness of dense and light non-aqueous phase liquids (DNAPL & LNAPL).

Groundwater samples were collected using a peristaltic pump, with dedicated tubing installed in each of the monitoring wells. The peristaltic pump reduces the amount of sediment entrained in the collected groundwater samples, as agitation of the water column is kept to a minimum by lowering the pumping rate and limiting the movement of the tubing in the water column. Water quality parameters were measured using a flow-through cell and allowed to stabilize prior to sample collection, to ensure samples were representative of the surrounding groundwater aquifer. Groundwater samples submitted for analysis of metals were field-filtered.

Technicians wore nitrile gloves while collecting the groundwater samples and replaced the glove set between each sample location.

5.7 Analytical Testing

All samples potentially requiring laboratory analysis were placed in a cooler and kept at less than 10°C for transport to the laboratory.

Samples were submitted for analysis of one or more of the COPCs. The analytical results are discussed in Section 6.0 and copies of the laboratory Certificates of Analysis as received from the analytical laboratory are included in Appendix C. The following samples were submitted for analysis.

- Based on field observations and screening, the following soil samples were submitted for analysis:
 - Three samples for BTEX and PHCs
 - Three samples for VOCs
 - Three samples for PAHs
 - Three samples for PCBs
 - Six samples for metals, hydride-forming metals, chromium VI, mercury

- Two samples for EC and SAR
- Two samples for pH
- The following groundwater samples were submitted for analysis:
 - Three samples for BTEX and PHCs
 - Three samples for VOCs
 - Three samples for PAHs
 - Three samples for PCBs
 - Three samples for metals, hydride-forming metals, chloride, chromium VI, mercury, sodium, pH

5.8 Residue Management Procedures

Soil cuttings from the drilling program, and purge water from well development, were placed in drums and left on-site for later disposal.

5.9 Elevation Surveying

Ground surface and top of pipe elevations were surveyed at the boreholes and monitoring wells. Elevations were determined relative to the top of a Bell pedestal on the Site, as illustrated and described in the notes on Figure 4.

5.10 Quality Assurance and Quality Control Measures

As part of the QA/QC program, blind duplicate soil and groundwater samples were submitted at a rate of one duplicate sample for every ten samples analyzed. Blind duplicate samples were collected at the same time as the parent sample and placed into a separate container; split sampling methodology was used to ensure that the sampling was completed using the same method for both parent and duplicate samples. Refer to Section 6.8 for the results of the QA/QC program.



Equipment and tools used to obtain soil samples were cleaned with Alconox® and rinsed with distilled water before the collection of each sample. Technicians wore dedicated nitrile gloves, which were replaced for each sample.



6.0 Review and Evaluation

6.1 Geology

The physiography and geology of the Site has been discussed previously in Section 3.1 and a detailed description of the subsurface soils can be found on the borehole logs in Appendix B. These logs present detailed descriptions of the soils and their associated characteristics to the maximum depth of investigation. Borehole and monitoring well locations are shown on Figure 4.

The stratigraphy consisted of native sand with trace gravel and silt, underlain by native silty sand. Bedrock was not reached on-site to a maximum depth of investigation of 6.1 m. Based on a review of nearby well records, bedrock is presumed to be more than 75 mbgs. Cross-section locations are shown on Figure 4 and the stratigraphy is presented on Figure 5.

6.2 Groundwater: Elevations and Flow Direction

To determine the relative groundwater elevation, the horizontal gradient, and the groundwater flow direction, water level measurements were recorded on June 25, 2024, as summarized in Table 1. Groundwater depth ranged from 2.94 mbgs to 3.71 mbgs. Groundwater flow was to the south as shown on Figure 4.

The measured groundwater flow direction differed slightly from the inferred groundwater flow in the Phase One ESA conceptual site model, which was based on direction to nearby water bodies (95 m northwest and 160 m south of the Site) and local ground surface elevation. The difference in the inferred (southwest) and measured (south) groundwater flow direction did not affect the PCAs contributing to APECs at the Site. Groundwater flow direction can be influenced by seasonal fluctuation, utility services, and other subsurface features and can only be confirmed with long term monitoring.

6.3 Groundwater: Hydraulic Gradients and Conductivity

The horizontal hydraulic gradient was 0.02 m/m between BH101 and BH102 based on groundwater levels measured on June 25, 2024.

Based on the predominant soil type in the saturated zone (silty sand) observed during the field investigation, subsurface hydraulic conductivity in the shallow water-bearing sand and silt layer likely ranges from 1×10^{-7} to 1×10^{-3} m/s (Cherry & Freeze, 1979).

6.4 Coarse Soil Texture

Soil samples were collected from two soil units identified at the Site. The upper unit was coarse-textured (sand) and the lower unit was coarse-textured (silty sand), based on field observations. Since at least 1/3 of the soil at the Site consists of coarse soil, the SCS for coarse-textured soil were utilized.

6.5 Soil: Field Screening

Refer to the detailed borehole logs included with this report as Appendix B for the results of field soil screening. Measurable CSV was detected in soil samples from BH102 and BH103 from surface to 6.1 mbgs, with a maximum concentration of 610 ppm. No measurable OV was detected in the soil samples.

6.6 Soil Quality

A general discussion of the submission and analysis of soil samples obtained during the subsurface investigation was presented Section 5.7.

Samples were submitted for analysis of one or more of the following: BTEX, PHCs, VOCs, PAHs, PCBs, metals, hydride-forming metals, chromium VI, mercury, EC, SAR, and pH. Soil analysis results are presented in Table 4. Laboratory Certificates of Analysis are included in Appendix C. The soil sampling locations are shown on Figure 4.

6.6.1 BTEX and PHCs

Three soil samples were submitted for analysis of BTEX and PHCs. Concentrations were less than the Table 2 SCS in the analyzed soil samples, with the exception of PHC F4 in BH103 (3-3.8 mbgs) as shown on Figure 7.

Concentrations of BTEX and PHCs were less than the Table 4 SCS for subsurface soils (applicable to soil at a depth greater than 1.5 mbgs). The sample from BH103 was collected

from 3 to 3.8 mbgs and, as such, meets the Table 4 SCS for subsurface soils. A soil sample was analyzed for PHCs F2-F4 from the same location (BH103) at 0.2-0.8 mbgs and met the Table 2 SCS, therefore application of the Table 4 SCS was deemed appropriate.

6.6.2 VOCs

Three soil samples were submitted for analysis of VOCs. Concentrations were less than the Table 2 SCS in the analyzed soil samples, as shown on Figure 8.

6.6.3 PAHs

Three soil samples were submitted for analysis of PAHs. Concentrations were less than the Table 2 SCS in the analyzed soil samples, as shown on Figure 8.

6.6.4 Metals and ORPs, and pH

Six soil samples were submitted for analysis of metals, hydride-forming metals, chromium VI, and mercury. Concentrations were less than the Table 2 SCS in the analyzed soil samples, as shown on Figure 8.

Three soil samples were submitted for analysis of EC and SAR. Concentrations were less than the Table 2 SCS in the analyzed soil samples, as shown on Figure 8.

Two samples were analyzed for pH. On-site soil pH was within the acceptable ranges for surface (≤ 1.5 mbgs) and sub-surface (> 1.5 mbgs) soil. As such, the Site is not environmentally sensitive as per Section 41 of O.Reg. 153/04.

6.6.5 Polychlorinated Biphenyls

Three soil samples were submitted for analysis of PCBs. The PCB concentrations was less than the Table 2 SCS, as shown on Figure 8.

6.7 Groundwater Quality

A general discussion of the submission and analysis of groundwater samples obtained during the investigation was presented in Section 5.7.



Groundwater samples were collected from three monitoring wells. Samples were submitted for analysis of one or more of the following: BTEX, PHCs, VOCs, PAHs, PCBs, metals, hydride-forming metals, chloride, chromium VI, mercury, and sodium. Groundwater analysis results are presented in Table 3. Laboratory Certificates of Analysis are included in Appendix C. The groundwater sampling locations are shown on Figure 4.

6.7.1 BTEX and PHCs

Three monitoring wells were sampled for analysis of BTEX and PHCs. Concentrations were less than the Table 2 SCS in the analyzed groundwater samples, as shown on Figure 9.

6.7.2 VOCs

Three monitoring wells were sampled for analysis of VOCs. Concentrations were less than the Table 2 SCS in the analyzed groundwater samples, with the exception of chloroform in BH103, as shown on Figure 9.

Chloroform can be present in groundwater as a result of chlorination of drinking water (Zogorski, 2006). The chloroform exceedance at BH103 is attributed to a release of water from a treated municipal water supply (testing of the fire suppression system). Fire connections are located at the southwest corner of the site building proximal to BH103. The Client indicated that the system was installed in 2022 and was recently tested. Chloroform or substances containing chloroform have not been utilized at the Site. Furthermore, the concentration of chloroform is less than the value (25 ug/L) provided in Table A of the MECP guidance for addressing chloroform at a record of site condition property. Therefore, the SCS are deemed to have been met.

6.7.3 PAHs

Three monitoring wells were sampled for analysis of PAHs. Concentrations were less than the Table 2 SCS in the analyzed groundwater samples, as shown on Figure 9.



6.7.4 Metals and ORPs

Three monitoring wells were sampled for analysis of metals, hydride-forming metals, chloride, chromium VI, mercury, and sodium. Concentrations were less than the Table 2 SCS in the analyzed groundwater samples, as shown on Figure 9.

6.7.5 Polychlorinated Biphenyls

Three monitoring wells were sampled for analysis of PCBs. The PCB concentration was less than the Table 2 SCS, as shown on Figure 9.

6.8 Quality Assurance and Quality Control

Duplicate soil and groundwater samples were collected for each parameter group. Where analytical parameters were detected in both the parent and the duplicate samples at more than five times the detection limits, relative percent difference (RPD) was calculated to assess the precision of the analytical data. The results were evaluated based on a data quality objectives (DQOs) of 50% for soil and 30% for water. RPD was calculated as follows:

$$RPD(\%) = \frac{|x_1 - x_2|}{x_m} \times 100\%$$

Where: x_1 = parent sample result

x_2 = duplicate sample result

x_m = arithmetic mean of initial and duplicate sample results

RPD is more sensitive to low concentrations; as such, RPDs were not calculated where the parameter concentration in the parent and/or duplicate sample was less than five times the laboratory reportable detection limit (RDL).

RPDs met the DQO for soil and groundwater. Overall, the duplicate samples match very closely with the parent samples. Accordingly, the soil and groundwater analysis results were considered acceptable and indicated that the analytical data were suitable for use in evaluating soil and groundwater quality at the Site.



Certificates of Analysis received for each submitted sample are included in Appendix C. All laboratory Certificates of Analysis pursuant to clause 47 (2) (b) of O.Reg. 153/04 comply with subsection 47(3) of the regulation.

Based on the results of the QA/QC program, the analytical results discussed herein can be interpreted with confidence.

6.9 Phase Two Conceptual Site Model

As per Table 1 of Schedule E of O.Reg. 153/04, a CSM is required for a Phase Two ESA to assist the QP in illustrating the results of the Phase Two ESA, demonstrating the current condition of the Phase Two Property, or where remedial actions have been undertaken, the condition of the Phase Two Property before the remedial actions were undertaken.

The following sections describe in detail the Phase Two CSM and provide the requisite narrative that assists in describing the attached figures.

6.9.1 Site Description and Ownership

The roughly 15.26 ha Site is on the south side of Tamblyn Road and east of highway 35/115 in Orono, Ontario. The municipal address is 19 Tamblyn Road. The nearest waterbodies are two un-named tributaries of Orono Creek which are located approximately 95 m northwest and 160 m south of the Site.

The property use surrounding the Site is as follows:

North – Community (Tamblyn Road), and residential beyond.

South – Agricultural.

East – Residential and agricultural.

West – Community (Highway 35/115), with residential and commercial (grocery store) beyond.

The Site is currently industrial use, and is owned by Creative Millwork Inc. The Site includes PIN 26680-0005 (LT). The proposed future land use is industrial.

6.9.2 Potentially Contaminating Activities

Six PCAs were identified within the Phase One Study Area, consisting of three on-site and three off-site PCAs. Refer to Table 1 for further description of the PCAs, and Figure 2 for PCA locations.

The following PCAs contribute to APECs:

PCA 1 – On-site (driveway and walkways): related to salt application and de-icing activities for pedestrian and vehicular safety; *PCA # Not Applicable - Salt Application*

PCA 2 – On-site (east and northeast portions of Building A): related to the use of the Site for custom millwork including spray painting since 1960; *PCA #39 Paints Manufacturing, Processing and Bulk Storage*

PCA 3 – On-site (east and northeast portions of Building A, and storage areas south of Building A): related to the various waste generation listings from 1997 to 2022; *PCA # Not Applicable – Waste Generation*

The following PCAs do not contribute to APECs:

PCA 4 – Off-site (150 m to the northeast): potential pesticide application related to a historical orchard; *PCA #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications*

PCA 5 – Off-site (50 m to the west): potential pesticide application related to a historical orchard; *PCA #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications*

PCA 6 – Off-site (117 Mill Street, 210 m to the west): related to an active commercial automotive garage; *PCA #27 Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles*

In reference to PCA 1 (i.e. salt application), the qualified person has determined that a substance has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice at the Site. As such, the exemption set out in paragraph 1 of section



49.1 of O.Reg. 153/04 will be relied upon. The exemptions set out in paragraphs 1.1, 2 and 3 of section 49.1 of O.Reg. 153/04 will not be relied upon.

6.9.3 Areas of Potential Environmental Concern

As required by O.Reg. 153/04, all on-site PCAs result in an APEC. Based on a review of the potential to result in contamination at the Site, none of the off-site PCAs contributed to APECs. The APECs are summarized below. Refer to Table 2 for further descriptions of the APECs, and Figure 3 for APEC locations.

APEC 1 – Driveways and walkways on the Site, associated with PCA 1, on-site salt application. COPCs include EC and SAR in soil, and Na and Cl in groundwater.

APEC 2 – East and northeast portion of Building A, associated with PCA 2, paint use and storage at the Site. COPCs include PHCs, BTEX, VOCs, PAHs, PCBs, metals and hydride-forming metals in soil and groundwater.

APEC 3 – East and northeast portion of Building A, associated with PCA 3, waste generation at the Site. COPCs include PHCs, BTEX, VOCs, PAHs, metals and hydride-forming metals in soil and groundwater.

The sampling and analysis plan was designed to assess the APECs. The following list documents how the investigation sufficiently characterized the APECs. Samples for analysis of volatile parameters such as PHCs and VOCs were selected based primarily on soil screening results and proximity to the water table. Samples for analysis of all other parameters were selected based primarily on visual observation and depth. Monitoring wells were installed such that the screened portion of the well intersected the shallow water-bearing unit. Groundwater was analyzed for all COPCs.

Boreholes with monitoring wells, BH101, BH102, and BH103, were completed to assess the APECs.

- All three sample locations investigated APECs 1, 2 and 3.

Refer to Figure 4 for borehole and monitoring well locations.

6.9.4 Subsurface Structures and Utilities

No subsurface structures exist on the Site. A fire hydrant is present centrally along the west property boundary and exits the Site to the west. The Site is serviced with a municipal water supply that feeds the fire suppression system. Communication utilities run parallel with the Site driveway off Tamblyn Road, with a Bell pedestal present north of Building A. Gas utilities are present on the north wall of Building A and exit the Site on Tamblyn Road. Gas utilities also run between Building A and Building B. Septic beds are present west of Building A and south of Building B. Two drainage pipes exit the south building wall of Building A and discharge south of the building. The utilities are not expected to affect contaminant distribution and transport.

6.9.5 Stratigraphy

The stratigraphy consisted of native sand with trace gravel and silt, underlain by native silty sand. Bedrock was not reached on-site to a maximum depth of investigation of 6.1 m. Based on a review of nearby well records, bedrock is presumed to be more than 75 m bgs. Cross-section locations are shown on Figure 4 and the stratigraphy is presented on Figure 6.

6.9.6 Hydrogeological Characteristics and Groundwater Elevations

The nearest waterbodies are two un-named tributaries of Orono Creek which are located approximately 95 m northwest and 160 m south of the Site.

To determine the relative groundwater elevation, the horizontal gradient, and the groundwater flow direction, water level measurements were recorded on June 25, 2024. The horizontal hydraulic gradient was 0.02 m/m and the depth to groundwater ranged from 2.94 to 3.71 mbgs on June 25, 2024. Groundwater flow was to the south. The relative groundwater elevation data and flow direction are presented on Figure 5.

6.9.7 Applicable Site Condition Standards

The *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* (MOECC, 2011) were used to determine the applicable SCS for



the Site. The following site characteristics were considered when choosing which standards should be applied:

- The proposed future use of the Site is industrial use.
- The area being investigated is not within 30 m of a water body as defined in O.Reg. 153/04. As such, Section 43.1 of O.Reg. 153/04 does not apply to the Site.
- For a property to be considered non-potable groundwater, all properties within 250 m of the property must be supplied by a municipal drinking water system that does not obtain its water from a groundwater source. Domestic water supply wells are present in the Phase One Study Area. Therefore, not all properties within the Phase One Study Area are serviced by the municipal drinking water system, and as such potable standards apply to the Site.
- The property is not located in an area designated in the municipal official plan as a well-head protection area or other designation identified by the municipality for the protection of groundwater.
- The stratigraphy consisted of native sand with trace gravel and silt, underlain by native silty sand. Bedrock was not encountered to a maximum drill depth of 6.1 m below ground surface (bgs). Based on field observations, SCS for coarse-grained soil were considered appropriate.
- Two unevaluated wetlands are present on the southwest portion of the Site, which are considered Natural Heritage Systems in the Clarington Official Plan. As they are unevaluated and not considered provincially significant, the unevaluated wetland areas are not considered Areas of Natural Significance. On-site soil pH was within the acceptable ranges for surface (≤ 1.5 mbgs) and sub-surface (> 1.5 mbgs) soil. As such, the Site is not environmentally sensitive as per Section 41 of O.Reg. 153/04.

Based on the above information, the applicable SCS for the Site were the Table 2 Full Depth Generic Site Condition Standards in a Potable Ground Water Condition. Industrial property use and coarse soil texture were selected to determine concentration exceedances for the analyzed parameters.

Additionally, soil results were compared to the Table 4 *Stratified Site Condition Standards in a Potable Ground Water Condition, industrial property use and coarse texture soil* (Table 4 SCS). Given soil which exceeds the Table 2 SCS was only identified in the sub-surface soil at depths of 1.5 mbgs or deeper, the Table 4 SCS were deemed appropriate.

6.9.8 Contaminant Identification and Distribution

Site features/sampling locations, cross-section locations, and the interpreted groundwater flow direction are shown on Figure 5. Stratigraphy is shown on Figure 6.

Concentrations of all COPCs were less than the Table 2 SCS in the analyzed soil and groundwater samples, with the exception of PHC F4 in soil at BH103 from 3 to 3.8 mbgs, and chloroform in groundwater at BH103. As discussed in Section 6.6.1 and Section 6.7.2, the concentration of PHC F4 in soil met the Table 4 SCS and chloroform is attributed to a treated municipal water supply and are therefore not considered exceedances.

6.9.9 Contaminant Migration and Transport

Concentrations of all COPCs were less than the Table 2 SCS in the analyzed soil and groundwater samples, with the exception of PHC F4 in soil at BH103 from 3 to 3.8 mbgs, and chloroform in groundwater at BH103. As discussed in Section 6.6.1 and Section 6.7.2, PHC F4 in soil and chloroform in groundwater are not considered exceedances; therefore, contaminant migration is not applicable.

6.9.10 Exposure Pathways and Receptors

Exposure pathways and receptors are not applicable as contamination is not present at the site.

6.9.11 Location of Buildings and Structures

The north portion of the Site is developed with three structures as follows:

- A production warehouse for wood construction and spray-painting furniture, with a second-floor mezzanine (Building A);
- A two-storey building (Building B), used for office space, and a showroom; and



- An open ventilation shed for material storage (Building C).

Building A has been used since the 1960s for industrial use as a custom millwork, furniture, and finished wood products manufacturing facility. Building A was constructed in about 1960 with an addition in 1973; Building C was constructed in 1970; and Building B was constructed in 2021. The central and south portions of the Site are occupied by agricultural fields, a woodlot and wetland areas.

The Client intends to sever the existing property into two parcels, a 3.58 ha parcel with the existing building for continued industrial use, and a retained 11.68 ha parcel for proposed future industrial use; however, plans for exact future building locations are unavailable.

6.9.12 Areas of Contamination on the Property

Concentrations of all COPCs were less than the Table 2 SCS in the analyzed soil and groundwater samples, with the exception of PHC F4 in soil at BH103 from 3 to 3.8 mbgs, and chloroform in groundwater at BH103. As discussed in Section 6.6.1 and Section 6.7.2, PHC F4 in soil and chloroform in groundwater are not considered exceedances; therefore, there were no areas of contamination identified on the Site.



7.0 Conclusions

Conclusions regarding the current environmental conditions at the Site are based solely on the results of the Phase One ESA and this Phase Two ESA.

7.1 Environmental Conditions

A Phase Two ESA work program was developed to investigate COPCs (BTEX, PHCs, VOCs, PAHs, PCBs, metals, hydride-forming metals, chloride, chromium VI, mercury, EC, SAR, sodium, and pH) in soil and groundwater. The Phase Two ESA included three boreholes, all of which were outfitted with groundwater monitoring wells.

Concentrations of all COPCs were less than the Table 2 SCS in all soil and groundwater samples, with the exception of PHC F4 in soil at BH103 from 3 to 3.8 mbgs, and chloroform in groundwater at BH103. As discussed in Section 6.6.1 and Section 6.7.2, PHC F4 in soil and chloroform in groundwater are not considered exceedances.

On-site soil pH was within the acceptable ranges for surface (≤ 1.5 mbgs) and sub-surface (> 1.5 mbgs) soil. Based on the results of the Phase Two ESA investigation, Cambium concluded that soil and groundwater at the Site meets the Table 2 and Table 4 sub-surface SCS. It is Cambium's opinion that a land severance application can be filed with the Municipality.

When no longer required, Cambium recommends all monitoring wells should be abandoned as per the requirements of R.R.O. 1990, Regulation 903 – Wells.



7.2 Signatures

This Phase Two ESA was completed under the supervision of Mr. Curtis Edgington, P.Eng. (QP_{ESA}), as per O.Reg. 153/04, as amended. Information presented in this report is true and accurate to the best of the assessors' knowledge.

Respectfully submitted,

Cambium Inc.

Meaghan Haligowski, M.Env.Sc.
Project Coordinator

Curtis Edgington, P.Eng., QP_{ESA}
Project Manager

P:\19400 to 19499\19462-001 Creative Millwork Inc - SSQ - 19 Tamblyn Rd\Deliverables\Phase Two ESA\Draft\2024-09-19 RPT Phase Two ESA 19 Tamblyn Rd, Orono.docx

8.0 References

- Chapman, L., & Putnam, D. (1984). *The Physiographic Regions of Southern Ontario, Third Edition*. Ontario Ministry of Natural Resources.
- Cherry, J., & Freeze, A. (1979). *Groundwater*.
- Clarington. (2018, June). *Municipality of Clarington*. Retrieved from Official Plan: <https://www.clarington.net/en/business-and-development/resources/Official-Plan/Clarington-Official-Plan-AODA.pdf>
- Durham. (2022). *Orono Drinking Water System 2022 Annual Report*. The Regional Municipality of Durham.
- MECP. (2024, 04 04). *Map: Well Records*. Retrieved from Ministry of the Environment, Conservation and Parks: <https://www.ontario.ca/environment-and-energy/map-well-records>
- MNRF. (2024, 07 24). *Make a Natural Heritage map*. Retrieved 03 09, 2020, from Ministry of Natural Resources and Forestry: <http://www.ontario.ca/page/make-natural-heritage-area-map>
- MNRF. (2024a, 03 29). *Make a Topographic Map*. Retrieved 12 2018, from Ministry of Natural Resources and Forestry: https://www.lioapplications.lrc.gov.on.ca/MakeATopographicMap/index.html?viewer=Make_A_Topographic_Map.MATM
- MNRF. (2024b, 04 16). *Make a Map: Natural Heritage Areas*. Retrieved from Ministry of Natural Resources and Forestry: https://www.gisapplication.lrc.gov.on.ca/mamnh/Index.html?site=MNR_NHLUPS_NaturalHeritage&viewer=NaturalHeritage&locale=en-US
- MOECC. (2011). *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*. Queen's Printer for Ontario.
- OGS. (2007). *Paleozoic geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 219*. Ontario Geological Survey.



- OGS. (2010). *Surficial geology of Southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 128-REV*. Ontario Geological Survey.
- Rowell, D. (2010). *Aggregate resources inventory for the Regional Municipality of Durham, southern Ontario; Ontario Geological Survey, Aggregate Resources Inventory Paper 185, Map 2--Bedrock Resources, scale 1:100 000*. Ontario Geological Survey.
- Zogorski, J. e. (2006). *Volatile Organic Compounds in the Nation's Ground Water and Drinking-Water Supply Wells*. U.S. Geological Survey Circular 1292.



9.0 Standard Limitation

Limited Warranty

In performing work on behalf of a client, Cambium relies on its client to provide instructions on the scope of its retainer and, on that basis, Cambium determines the precise nature of the work to be performed. Cambium undertakes all work in accordance with applicable accepted industry practices and standards. Unless required under local laws, other than as expressly stated herein, no other warranties or conditions, either expressed or implied, are made regarding the services, work or reports provided.

Reliance on Materials and Information

The findings and results presented in reports prepared by Cambium are based on the materials and information provided by the client to Cambium and on the facts, conditions and circumstances encountered by Cambium during the performance of the work requested by the client. In formulating its findings and results into a report, Cambium assumes that the information and materials provided by the client or obtained by Cambium from the client or otherwise are factual, accurate and represent a true depiction of the circumstances that exist. Cambium relies on its client to inform Cambium if there are changes to any such information and materials. Cambium does not review, analyze or attempt to verify the accuracy or completeness of the information or materials provided, or circumstances encountered, other than in accordance with applicable accepted industry practice. Cambium will not be responsible for matters arising from incomplete, incorrect or misleading information or from facts or circumstances that are not fully disclosed to or that are concealed from Cambium during the provision of services, work or reports.

Facts, conditions, information and circumstances may vary with time and locations and Cambium's work is based on a review of such matters as they existed at the particular time and location indicated in its reports. No assurance is made by Cambium that the facts, conditions, information, circumstances or any underlying assumptions made by Cambium in connection with the work performed will not change after the work is completed and a report is submitted. If any such changes occur or additional information is obtained, Cambium should be advised and requested to consider if the changes or additional information affect its findings or results.

When preparing reports, Cambium considers applicable legislation, regulations, governmental guidelines and policies to the extent they are within its knowledge, but Cambium is not qualified to advise with respect to legal matters. The presentation of information regarding applicable legislation, regulations, governmental guidelines and policies is for information only and is not intended to and should not be interpreted as constituting a legal opinion concerning the work completed or conditions outlined in a report. All legal matters should be reviewed and considered by an appropriately qualified legal practitioner.

Site Assessments

A site assessment is created using data and information collected during the investigation of a site and based on conditions encountered at the time and particular locations at which fieldwork is conducted. The information, sample results and data collected represent the conditions only at the specific times at which and at those specific locations from which the information, samples and data were obtained and the information, sample results and data may vary at other locations and times. To the extent that Cambium's work or report considers any locations or times other than those from which information, sample results and data was specifically received, the work or report is based on a reasonable extrapolation from such information, sample results and data but the actual conditions encountered may vary from those extrapolations.

Only conditions at the site and locations chosen for study by the client are evaluated; no adjacent or other properties are evaluated unless specifically requested by the client. Any physical or other aspects of the site chosen for study by the client, or any other matter not specifically addressed in a report prepared by Cambium, are beyond the scope of the work performed by Cambium and such matters have not been investigated or addressed.

Reliance

Cambium's services, work and reports may be relied on by the client and its corporate directors and officers, employees, and professional advisors. Cambium is not responsible for the use of its work or reports by any other party, or for the reliance on, or for any decision which is made by any party using the services or work performed by or a report prepared by Cambium without Cambium's express written consent. Any party that relies on services or work performed by Cambium or a report prepared by Cambium without Cambium's express written consent, does so at its own risk. No report of Cambium may be disclosed or referred to in any public document without Cambium's express prior written consent. Cambium specifically disclaims any liability or responsibility to any such party for any loss, damage, expense, fine, penalty or other such thing which may arise or result from the use of any information, recommendation or other matter arising from the services, work or reports provided by Cambium.

Limitation of Liability

Potential liability to the client arising out of the report is limited to the amount of Cambium's professional liability insurance coverage. Cambium shall only be liable for direct damages to the extent caused by Cambium's negligence and/or breach of contract. Cambium shall not be liable for consequential damages.

Personal Liability

The client expressly agrees that Cambium employees shall have no personal liability to the client with respect to a claim, whether in contract, tort and/or other cause of action in law. Furthermore, the client agrees that it will bring no proceedings nor take any action in any court of law against Cambium employees in their personal capacity.



DRAFT

Appended Figures

**PHASE TWO
ENVIRONMENTAL
SITE ASSESSMENT**
CREATIVE MILLWORK INC.
19 Tamblyn Road
Orono, Ontario

LEGEND

- Highway
- Major Road
- Minor Road
- Railway
- Watercourse
- Water Area
- Wooded Area
- Built Up Area

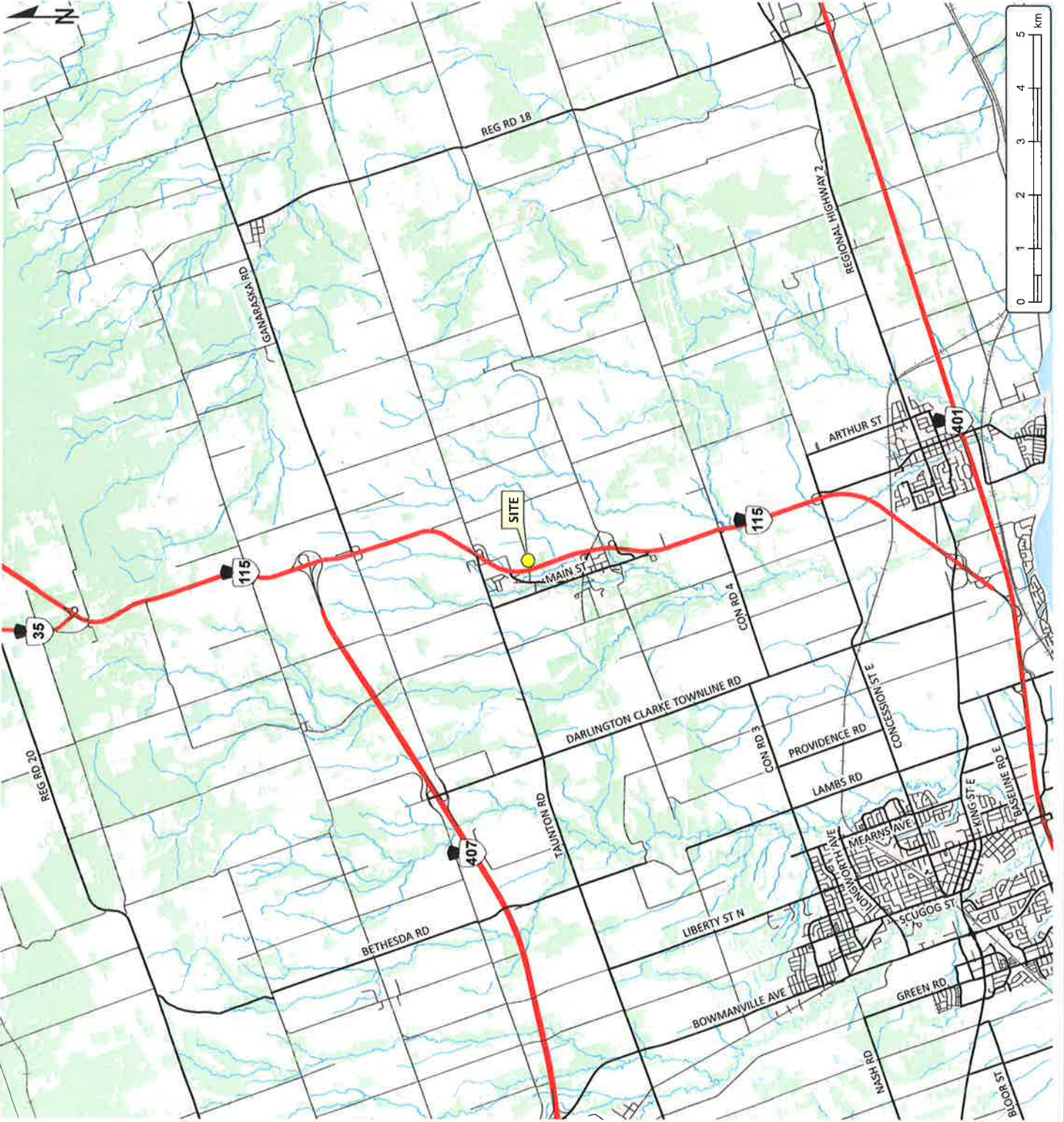
Notes:
- This document contains information licensed under the Open Government License - Ontario.
- The map and site plan are in metres and can be converted to feet by dividing by 0.3048.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map is provided for informational purposes only and is not intended for general reference use only.



194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742.7900 Fax: (705) 742.7907
www.cambium-inc.com

SITE LOCATION PLAN

Project No.:	19462-001	Date:	August 2024
Scale:	1:100,000	Projection:	NAD 1983 UTM Zone 17N
Created by:	TLC	Checked by:	CE
		Figure:	1



PHASE TWO
ENVIRONMENTAL
SITE ASSESSMENT
CREATIVE MILLWORK INC.
19 Tamblyn Road
Orono, Ontario

LEGEND

Study Area (250m)
Site (approximate)

Potentially Contaminating Activity:

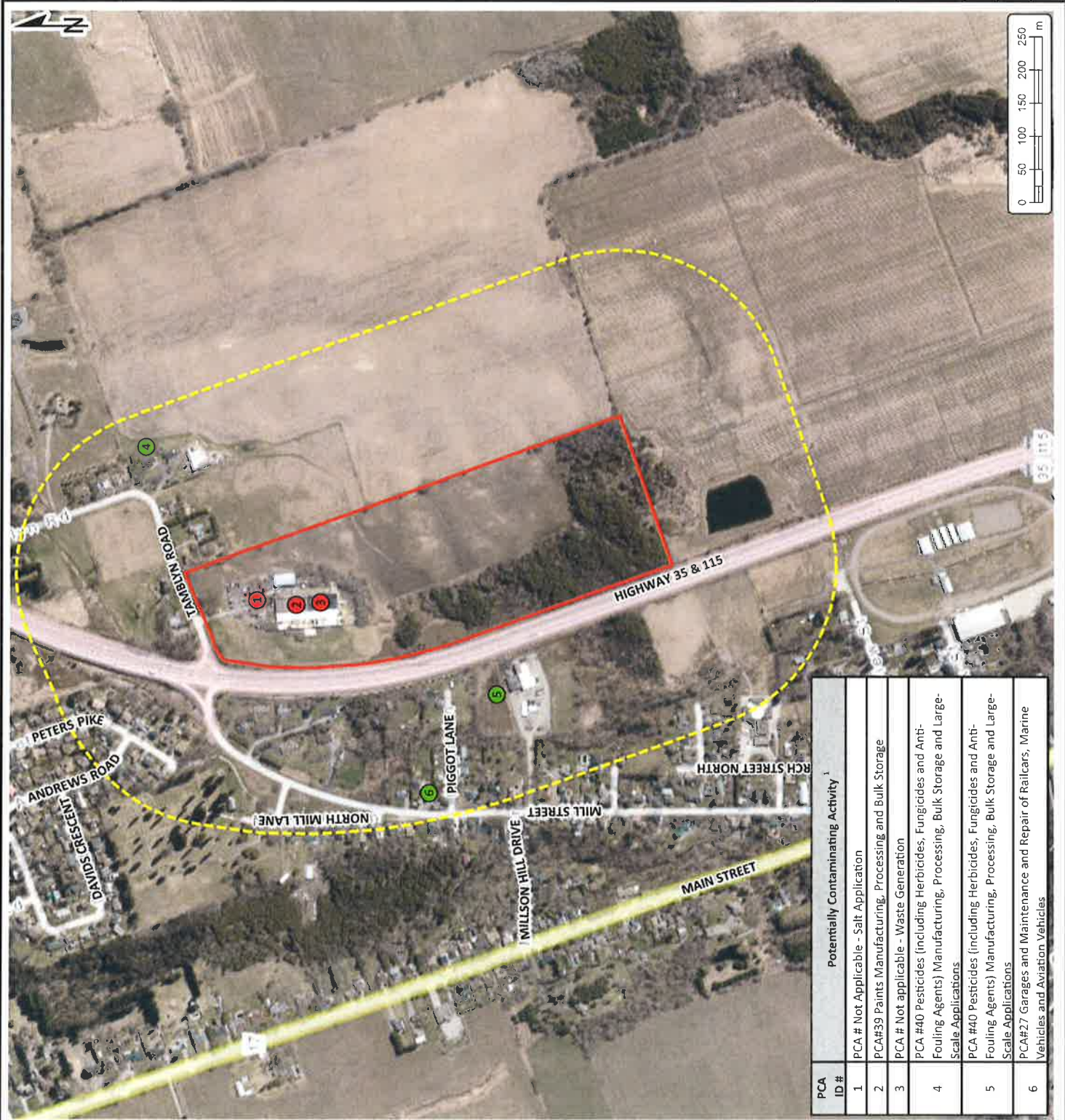
- Does not contribute to an APEC
- Contributes to an APEC

Notes:
- This map is obtained from Ontario's Open Government License - Ontario.
- This document contains information licensed under the Open Government License - Ontario.
- Sources of this plan are in meters and can be converted to feet by multiplying by 3.28.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to errors or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.

**194 Sophia Street,
Peterborough, Ontario, K9H 1E5
Tel: (705) 742-7900 Fax: (705) 742-7907
www.cambium-inc.com**

CAMBUM

CONCEPTUAL SITE MODEL STUDY AREA	
Project No.: 19462-001	Date: August 2024
Scale: 1:8,000	Rev: N/A
Projection: NAD 1983 UTM Zone 17N	Created by: TLC
Checked by: CE	Figure: 2



PCA ID #	Potentially Contaminating Activity ¹
1	PCA # Not Applicable - Salt Application
2	PCA#39 Paints Manufacturing, Processing and Bulk Storage
3	PCA # Not Applicable - Waste Generation
4	PCA #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications
5	PCA #40 Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications
6	PCA#27 Garages and Maintenance and Repair of Railcars, Marine Vehicles and Aviation Vehicles

PHASE TWO
ENVIRONMENTAL
SITE ASSESSMENT
CREATIVE MILLWORK INC.,
19 Tamblin Road
Orono, Ontario

LEGEND

Site (approximate)

Areas of Potential Environmental Concern:

- APEC 1
- APEC 2
- APEC 3

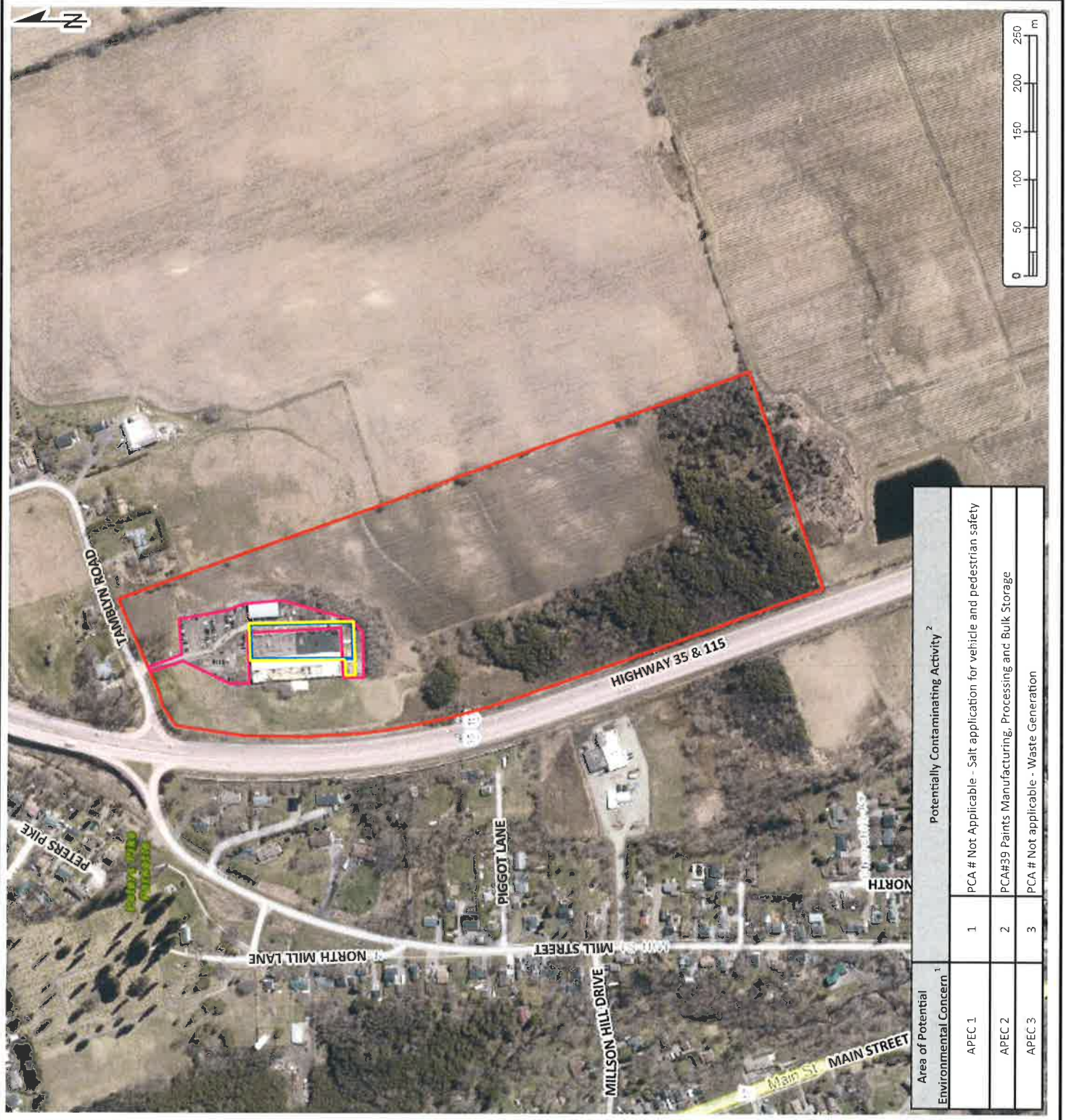
Notes:
- This map is obtained from Ontario's Open GIS Services.
- This document contains information licensed under the Open Government Licence - Ontario.
- The map is a plan view and does not show topography or elevation.
- The map is not a survey and should not be used for legal purposes. It is intended for general reference use only.



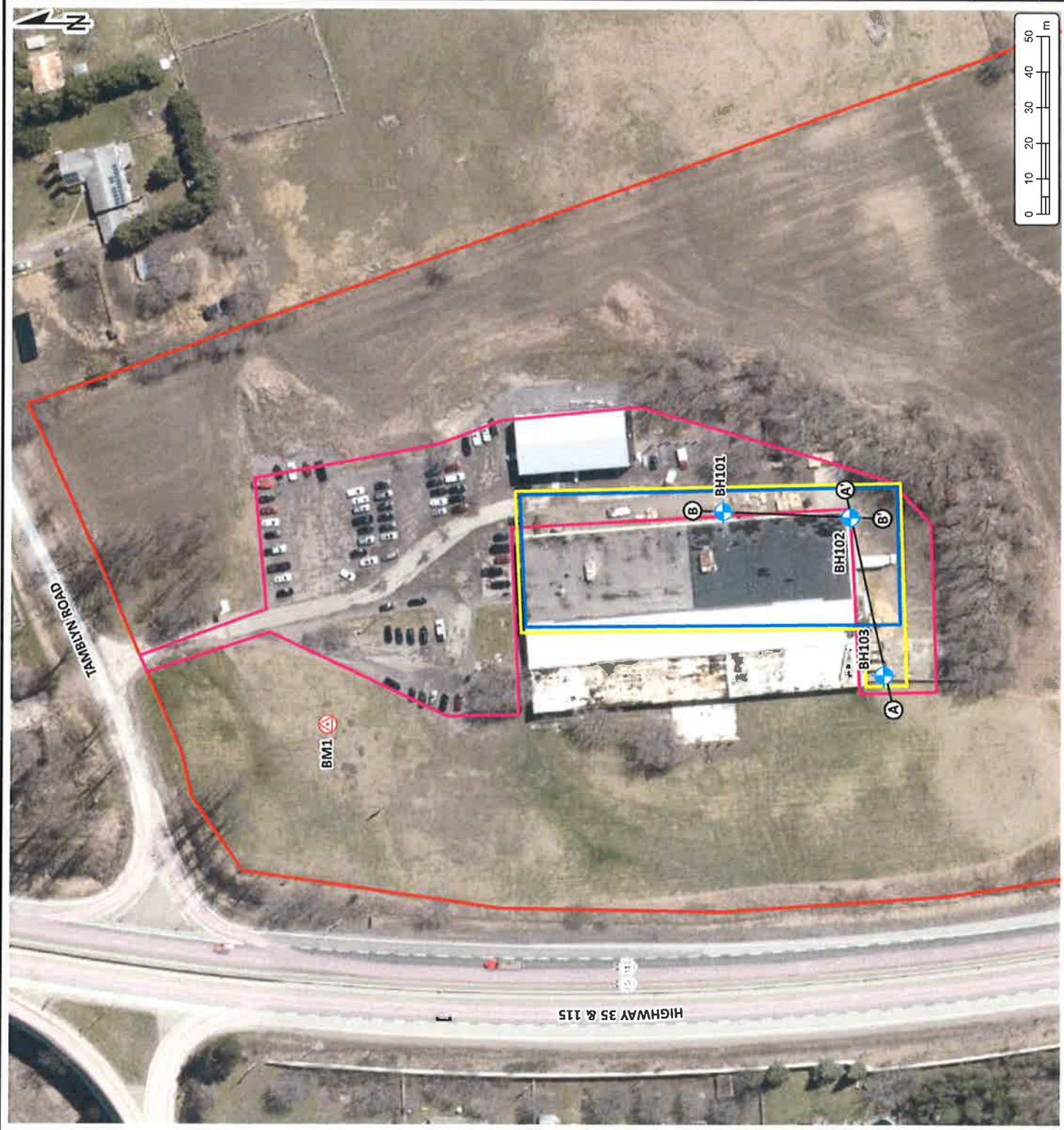
184 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742-7500 Fax: (705) 742-7507
www.cambium-inc.com

CONCEPTUAL SITE MODEL
SITE PLAN

Project No:	19462-001	Date:	August 2024
Scale:	1:5,500	Projection:	NAD 1983 UTM Zone 17N
Created by:	TLC	Checked by:	CE
Figure:	3		



Potentially Contaminating Activity ²		
Area of Potential Environmental Concern ¹		
APEC 1	1	PCA # Not Applicable - Salt application for vehicle and pedestrian safety
APEC 2	2	PCA#39 Paints Manufacturing, Processing and Bulk Storage
APEC 3	3	PCA # Not applicable - Waste Generation



**PHASE TWO
ENVIRONMENTAL
SITE ASSESSMENT**
CREATIVE MILLWORK INC.
19 Tamblin Road
Orono, Ontario

LEGEND

Benchmark
Monitoring Well
Site (approximate)
Areas of Potential Environmental Concern:

APEC 1
APEC 2
APEC 3
Cross Section Location

194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742.7900 Fax: (705) 742.7907
www.camblum-inc.com

INVESTIGATION LOCATIONS AND CROSS-SECTION LOCATIONS	
Project No.: 19462-001	Date: August 2024
Scale: 1:1,500	Projection: NAD 1983 UTM Zone 17N
Created by: TLC	Checked by: CE
Figure: 4	

Notes:
- Map is derived from Ontario Region GIS Service.
- The map contains information derived from the Open Government License - Ontario.
- Distances on this plan are in metres and can be converted to feet by multiplying by 3.28.
- Camblum Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to error or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.

PHASE TWO
ENVIRONMENTAL
SITE ASSESSMENT
CREATIVE MILLWORK INC.
19 Tamblyn Road
Orono, Ontario

LEGEND

(94.22)

Groundwater Elevation
June 25, 2024

Benchmark

Monitoring Well

Groundwater Contour
June 25, 2024

Site (approximate)

Groundwater Flow Direction
June 25, 2024

Notes:
- This map is obtained from Digital Aerial GIS Services.
- This document contains information licensed under the Open Government License - Ontario.
- Distances on this plan are in metres and can be converted to feet by multiplying by 1.0936.
- Cambium Inc. makes every effort to ensure this map is free from errors but cannot be held responsible for any damages due to errors or omissions. This map should not be used for navigation or legal purposes. It is intended for general reference use only.

CAMBIIUM

194 Sophia Street
Peterborough, Ontario, K9H 1E5
Tel: (705) 742-7900 Fax: (705) 742-7907
www.cambium-inc.com

GROUNDWATER
CONFIGURATION

Project No.: 19462-001

Date: August 2024

Scale: 1:1,500

Projection: NAD 1983 UTM Zone 17N

Created by: TLC

Checked by: CE

Figure: 5

O:\GIS\MapDocs\19400-1949\19462-001 Creative Millwork Inc - 550 - 19 Tamblyn Rd\2024-07-26 Phase Two ESA.aprx